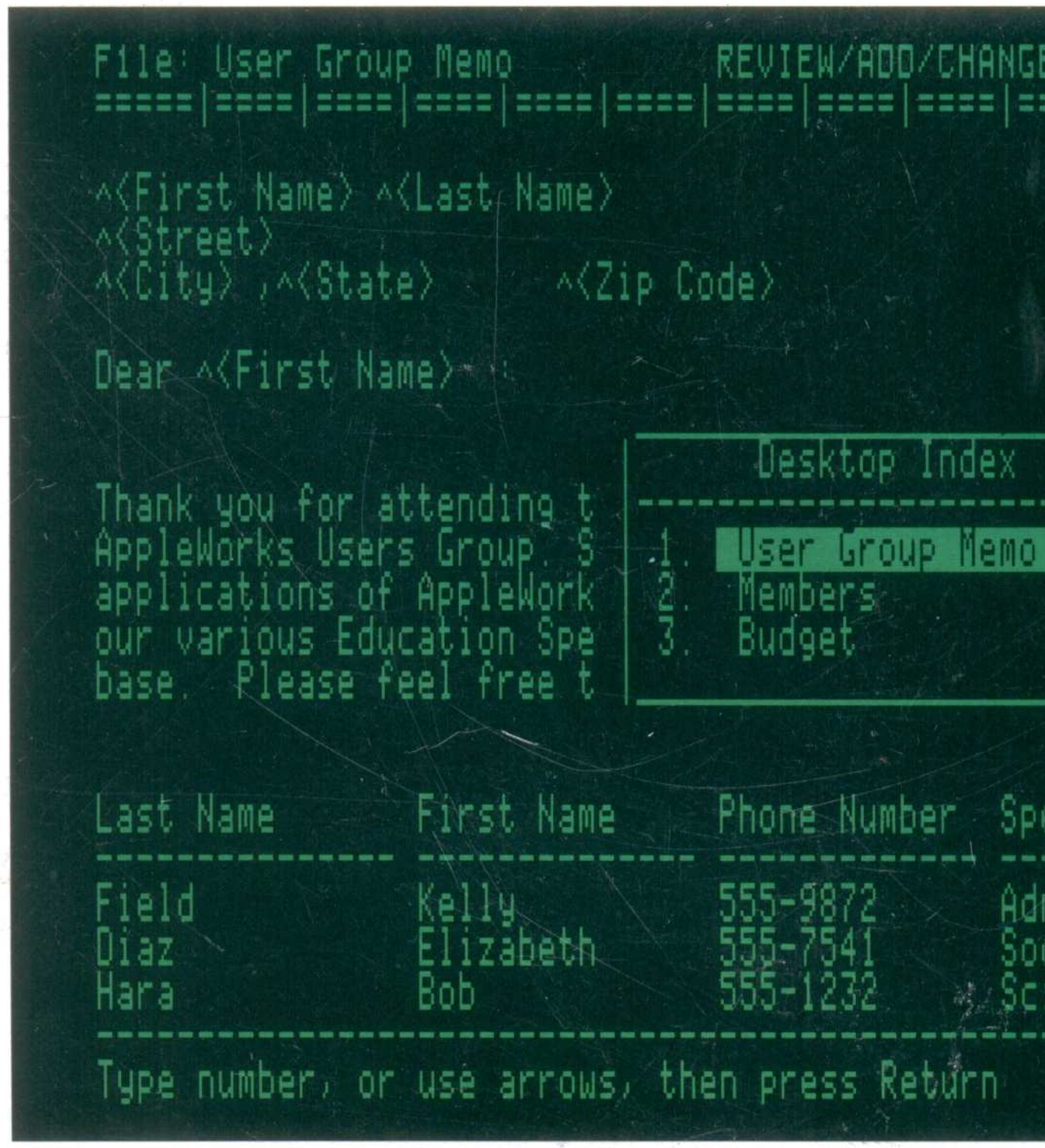
Apple® II Using AppleWorks™



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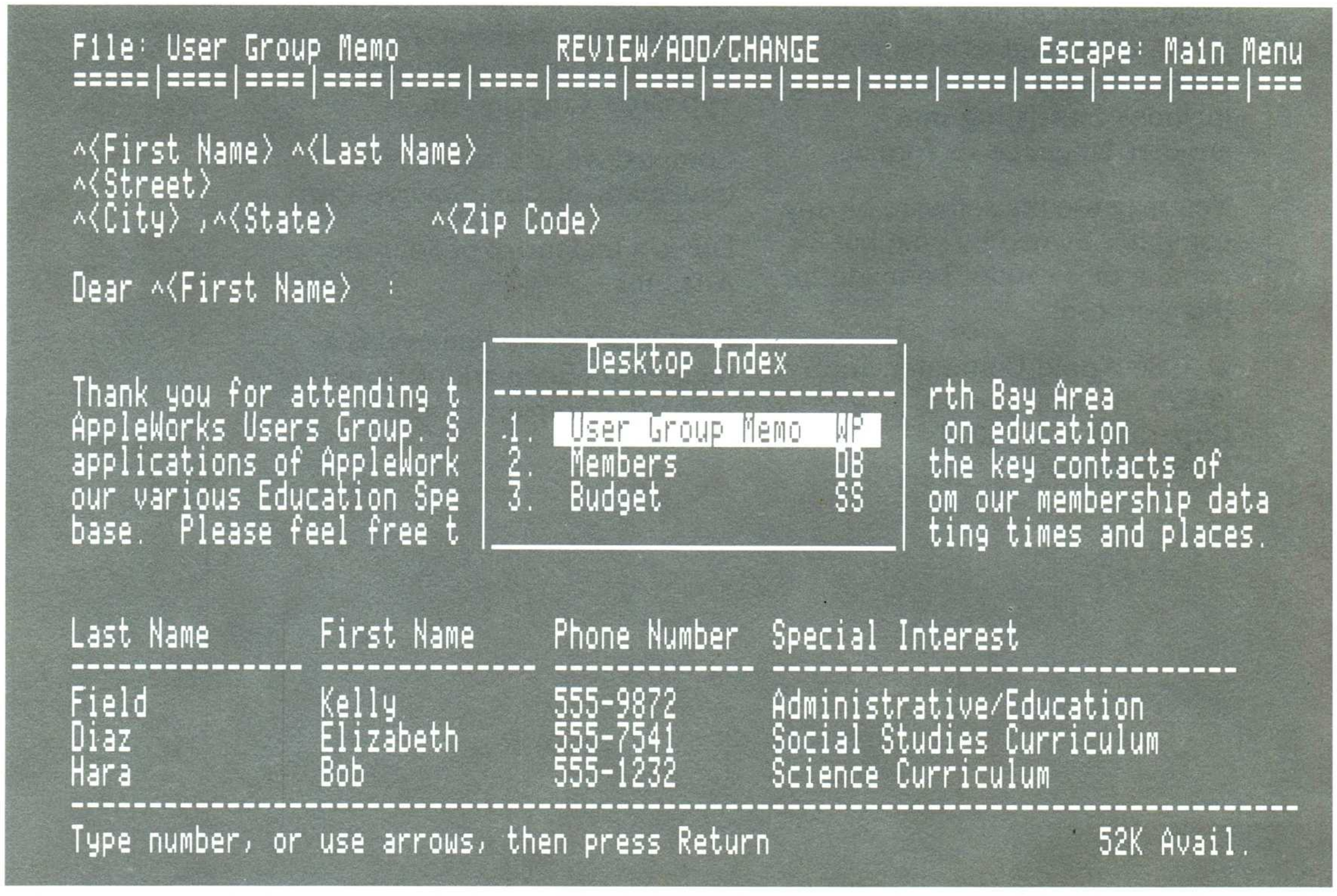
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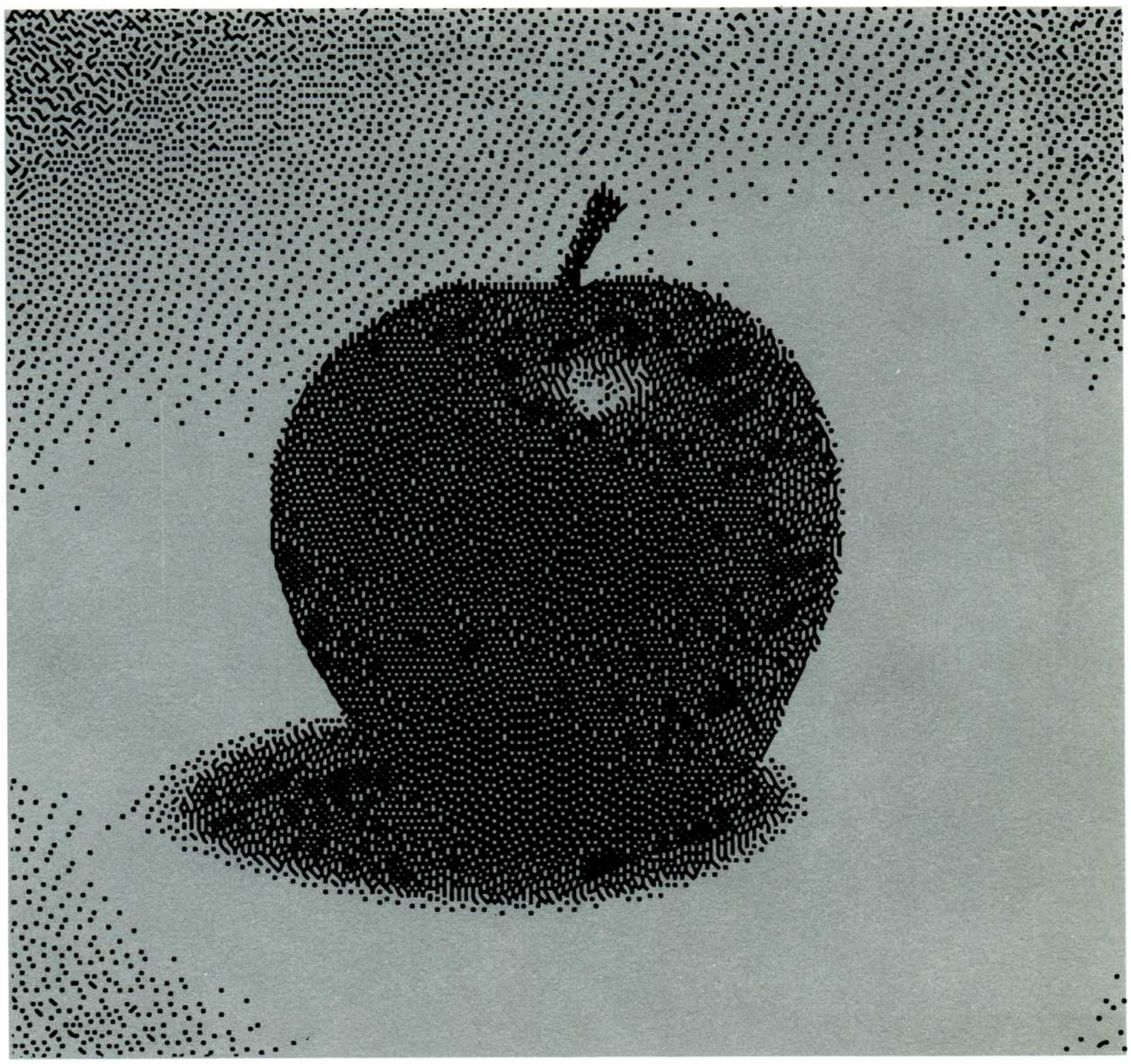
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Part I

How to Use AppleWorks



Chapter 1

Starting to Use AppleWorks

Getting into *Using AppleWorks*

This manual is divided into two main sections.

For step-by-step instructions, look in Part I of this book, "How to Use AppleWorks."

For extra information, shortcuts, and tables, see Part II, "Tips on AppleWorks."

For definitions of terms, please look in the glossary.

For most key topics in Part I, there will be a cross-reference for the corresponding tips—like this:

Tips: See page 206.

Look here first for **key topics**

A step in the procedure

Explanations

About Part I: "How to Use AppleWorks"

- Look in Part I for procedures on starting to use AppleWorks, using the Word Processor, the Data Base, Mail Merge, and the Spreadsheet.

Subtopics

Creating a data base from scratch

You can create a data base for any group of similar items—personnel records, invoices, videotapes, books, phone numbers, and addresses.

The information these items have in common forms the basis for your categories. A personnel file might have categories for name, address, phone number, hire date, salary, tax deductions, number of vacation days, and number of sick leave days.

An inventory file might have categories for the name of the article, the date it was bought, the store, the original price, depreciated value, and warranty.

In creating a data base from scratch, you start a file, create some categories, and then type in the entries for every category in a record.

Tips: See page 253.

1. Add a file

- Choose `Add files to the Desktop` on the Main Menu.
- Choose `Make a new file for the Data Base` from the Add Files menu.
- Choose `From scratch`. Press Return.
- Type a name for your new file. Press Return.

You are now in the Change Name/Category display.

A filename begins with a letter, and may contain 15 characters—uppercase or lowercase letters, numbers, periods, or spaces.

2. Enter some category names

- Make sure you have the replace cursor (the solid rectangle), and type the name of your first category.
- If there is anything left at the end of the line, press ⌘-Y to get rid of it. Press Return.
- Type your next category, and press Return. Repeat this until you have typed in your last category.

By the way: When you want all the entries in a category converted to a standard date or time format, use the word ***date*** or ***time*** in the category name, for example, ***Birthdate, Begintime,*** or ***Quittime***.

When AppleWorks encounters ***time*** or ***date*** in the category name, it converts any numbers you enter into a standard format, making comparison and sorting easier. The standard format: Feb 27 86.

Maximum number of characters in a category name: 20

Maximum number of categories: 30

94 Chapter 3: Using the Data Base

About Part II: "Tips on AppleWorks"

- Look in Part II for more information on the same topics covered in "How to Use AppleWorks."

Key topic: the same topic as in "Using the Data Base."

Tip: shortcut, extra information, special advice

3. Correct your category names

Use the Up Arrow or Down Arrow to move to other names.

Use either the insert or the replace cursor to correct a name.

4. Insert or delete a name

- Press ⌘-I to insert a category name ahead of the one the cursor is on.
- Press ⌘-D to delete the category name your cursor is in.

  If you have created any special layouts or reports, you will be given a warning before you insert or delete categories; if you go ahead, your layouts and reports are deleted.

5. Enter data

- Press Escape when you are satisfied with the category names.
- Press the Space bar to begin inserting new records. This will take you to a screen that displays your categories, with room for you to enter information.
- Type your information for each category; press Return each time.
- When you have entered the information for the last category, press Return again, and AppleWorks presents you with the next record, ready for you to enter more information into.

To leave an entry blank, just press Return. When you finish one record, your last Return brings you the next empty record. You can go on and on like this.

When you want to take a look at several of your records at once, press ⌘-Z to zoom out for a larger view, in multiple-record layout. Want to return to single-record layout? Press ⌘-Z again.

This record is now ready for data to be entered.

```
File: List                    INSERT NEW RECORDS     Escape: Review/Add/Change


Record 1 of 1
================================================================================
Subject Area: 
Speaker's Last Name: -
Work Phone: -
Home Phone: -
Street: -
City: -
State or Province: -
Zip Code: -
Country: -
Notes: -




--------------------------------------------------------------------------------
Type entry or use ⌘ commands                                        56K Avail.
```


Creating a data base

From a DOS file

Be sure to convert any DOS file to a ProDOS file before trying to bring it into AppleWorks. See "Converting Files to ProDOS," in Chapter 1 of this book.

From an ASCII file

Sometimes you want to base your data base on material developed using another program. For these purposes, you can make a copy of the values (but not the formulas) in your original document in a format known as ASCII, which stands for *American Standard Code for Information Interchange*. AppleWorks will take those values and put them into a new data base. You can then manipulate the data in AppleWorks.

ASCII files contain only characters and Returns. They do *not* tell you where an entry was in the previous data base, word processor document, or spreadsheet. You just have a long list of entries, each followed by a Return. Every entry—even an empty entry—in a data base gets its own line, followed by a Return, when printed to an ASCII file. So when reading any entry in this file, the question is: Where does it go?

You must know how many categories there were in the original data base, so that each entry in the long list can be fitted under its proper category. Your new data base must have the same number of categories per record. Then AppleWorks can mechanically sort these entries. Here's how:

1. Choose `Add files to the Desktop` on the Main Menu.
2. Choose `Make a new file for the Data Base` on the Add Files menu.
3. Choose `From a text (ASCII) file`.
4. Enter the number of categories per record. (The maximum is 30.) Press Return.
5. Type the pathname of the ASCII file. Press Return.

What is AppleWorks?

AppleWorks helps you work more efficiently with words, lists, and numbers. It combines the three most popular elements of productivity software—word processing, data base management, and spreadsheet analysis—into one powerful and easy-to-use tool.

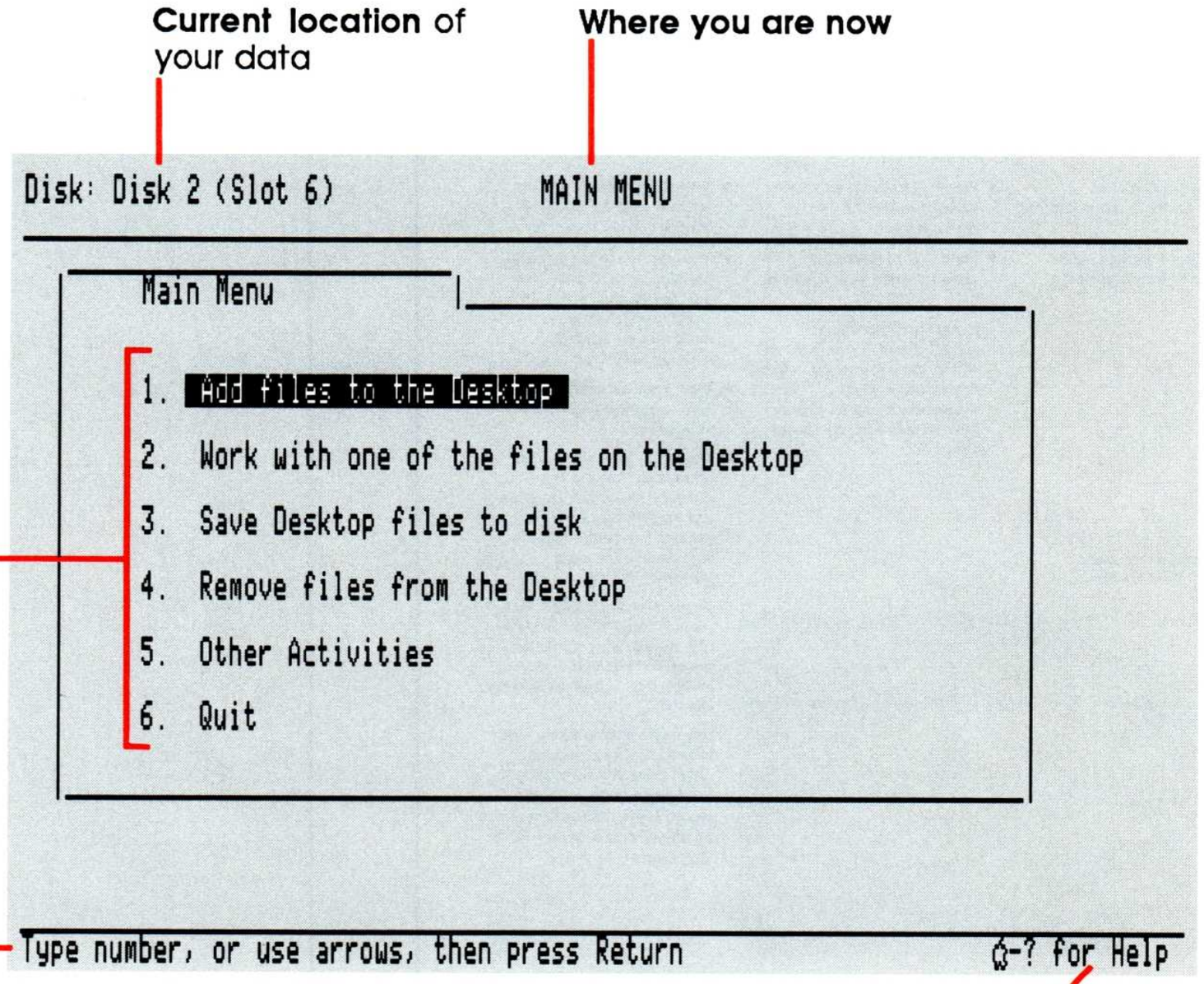
With the Word Processor, you can write letters, reports, books, poems, and memos.

With the Data Base you can work with information you might normally keep in lists or on file cards: names and addresses, customer records, inventories of personal valuables.

With the Spreadsheet, you can calculate your home budget, forecast sales, or figure out students' grades.

Integration means that you can transfer information between documents of the same application (such as two data bases), or from any application into a Word Processor document. This lets you combine part of your data base, part of your spreadsheet, and some regular text produced with the Word Processor to create a coherent and well-supported report.

And with AppleWorks' built-in mail merge capability, you can create customized form letters—valuable when you need to notify a large group of people about a particular event, such as a change of address, a sales meeting, or a parent-teacher evening.

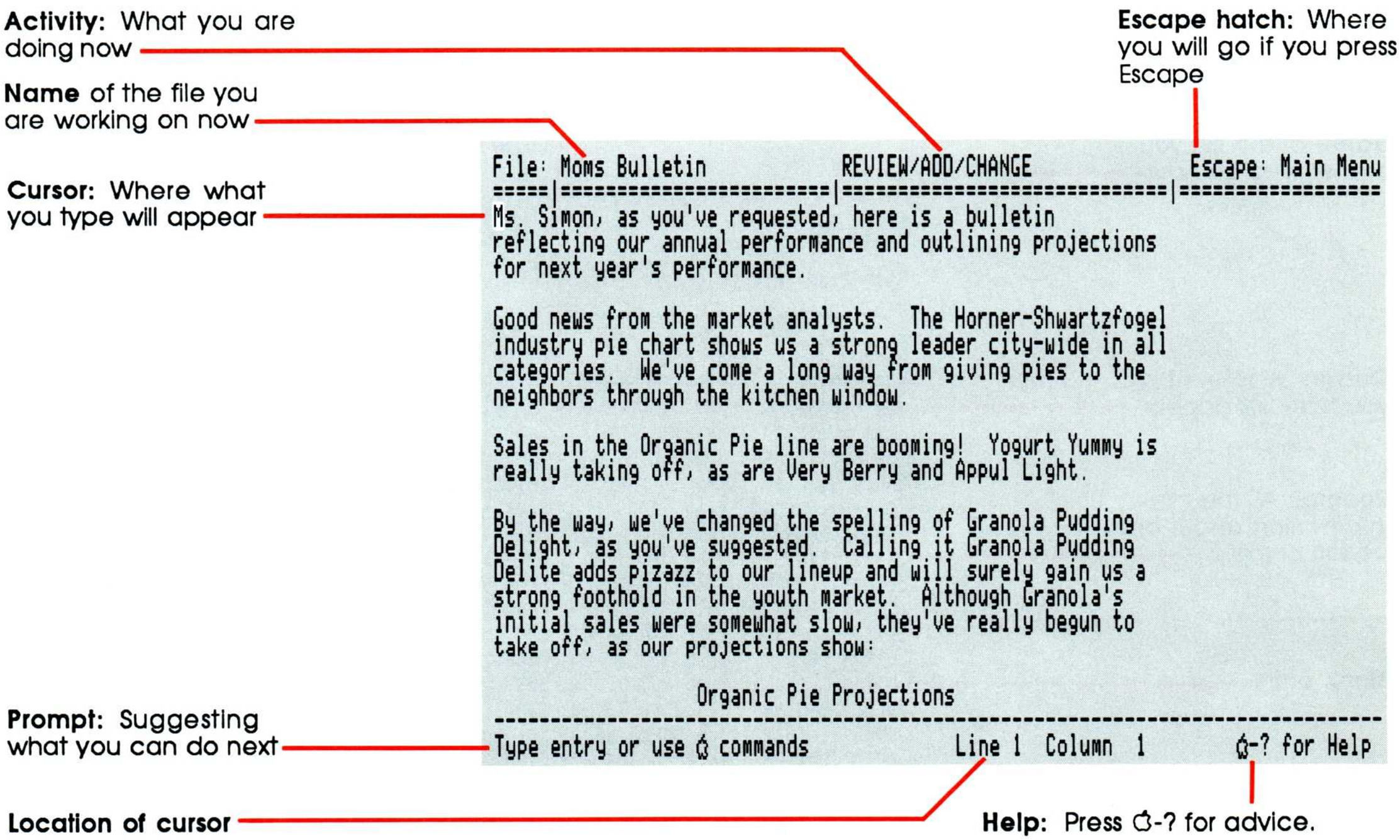


A Word Processor...

Word processing lets you create a document quickly; correct mistakes; delete, copy, and move blocks of text; replace old phrases with new.

Word-processing offers you these advantages over typing:

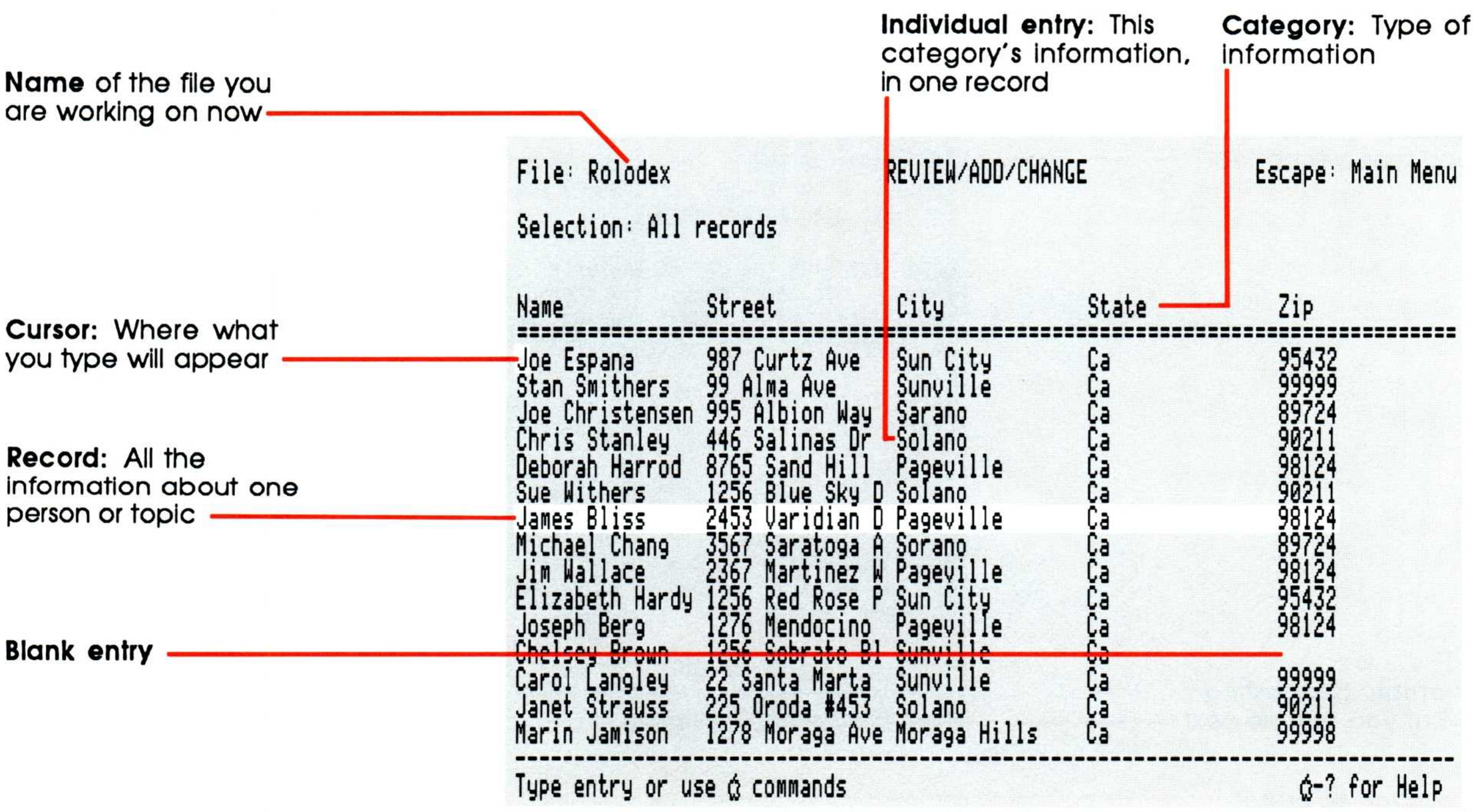
- Higher quality: Because you don't have to spend all your time retyping, you can devote more time to thinking and clarifying. Result: better writing!
- Faster revision: Because you type only the new material, then let the computer and printer reproduce the rest, you get the whole revised document printed out neatly, faster than most people can type a few pages.
- Better-looking final copies: When the printer does the retyping, you don't hesitate to change the margins, add a title here and there, or fix up your layout. Result: fresh, well-formatted, professional-looking work.



A Data Base...

The Data Base helps you organize, update, and report on whatever information you might ordinarily keep in lists or on file cards. Compared to a shoebox full of index cards or slips of paper, your data base offers these advantages:

- Faster access: You can find the information you need very quickly, without having to look through every record.
- Easier update: You can add current information, delete the old, correct mistakes—all without shuffling records.
- Quicker sorting: You can arrange your data base any way you want it. You can alphabetize by last name for one purpose, and then tell the program to list records in numerical order for some other task; AppleWorks can sort things out in a moment.
- More flexible layout: AppleWorks helps you display the information you need the way you want it. Whenever you want to see Zip codes before phone numbers, AppleWorks makes the change in a few seconds—no scissors, no glue.



A Spreadsheet...

The Spreadsheet is an electronic worksheet that lets you work with numbers and formulas and leave the calculations to AppleWorks. Anyone who works with numbers—financial statements, gradebooks, or home budgets—can be more productive using AppleWorks' Spreadsheet.

Here are a few of the advantages of using the electronic version of a spreadsheet:

- Easy correction and update: If you need to change or add some numbers or formulas, you just type them in and let the program do all the new calculations and printing.

  No need to use up half a mile of calculator tape and still worry that you're getting the wrong answer.

- What if? Because you can easily change numbers or formulas and let AppleWorks do all the recalculations, a lot of people have begun to look at "what if" situations with the figures, experimenting to see a range of possibilities.

Name of the file you are working on now

Cursor: Where what you type will appear

Row: All the figures for projected sales, month by month

Column: A type of information; here, the figures for one month

Totals: Let AppleWorks add up the figures in a column for you

Location of cursor

```
File: Organic Growth          REVIEW/ADD/CHANGE          Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1 Mom's Apple Pie Company:  Growth in Organic Pie Sales (Projected)
  2
  3 Pie                                  Oct      Nov      Dec      Qtr
  4 ===                                  ===      ===      ===      ===
  5
  6 Yogurt Yummy          High           360      540      810     1710
  7                       Low            240      360      540     1140
  8                       Expected       300      450      675     1425
  9
 10 Ragamuffin            High           120      132      165      417
 11                       Low             80       88      110      278
 12                       Expected       100      110      138      348
 13
 14 Vegetable             High           300      303      318      921
 15                       Low            200      202      212      614
 16                       Expected       250      252      265      768
 17
 18
----------------------------------------------------------------------------
A1: (Label) Mom's App

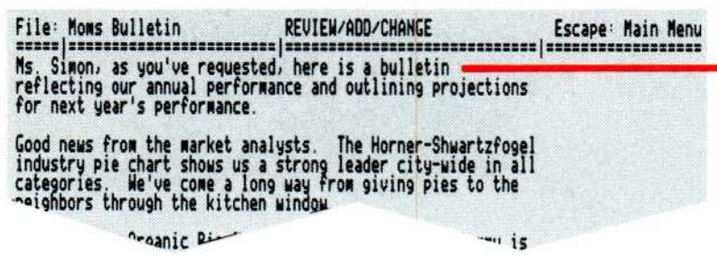
Type entry or use ⌘ commands                                  ⌘-? for Help
```

Integrated...

You can transfer information between any documents created in the same application, or from any application into a Word Processor document. For example, you can take information you've developed in the Spreadsheet and Data Base and paste it into a letter you've created in the Word Processor.

Compared to using three or four separate programs, integration of the three applications into AppleWorks offers these advantages:

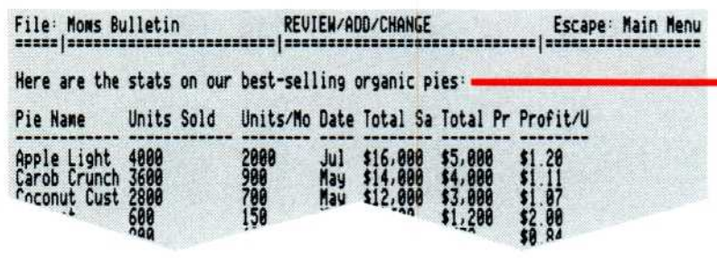
- Ease of movement between applications and documents: You don't have to leave one program and start another to take a quick look at a file created in another application.
- Quick learning: The commands you learn for one application are often the same as those used in the other two. So once you learn one, it's much easier learning the others.
- Sharing information: You can combine information from different documents without retyping.


File: Moms Bulletin REVIEW/ADD/CHANGE Escape: Main Menu

Ms. Simon, as you've requested, here is a bulletin reflecting our annual performance and outlining projections for next year's performance.

Good news from the market analysts. The Horner-Shwartzfogel industry pie chart shows us a strong leader city-wide in all categories. We've come a long way from giving pies to the neighbors through the kitchen window

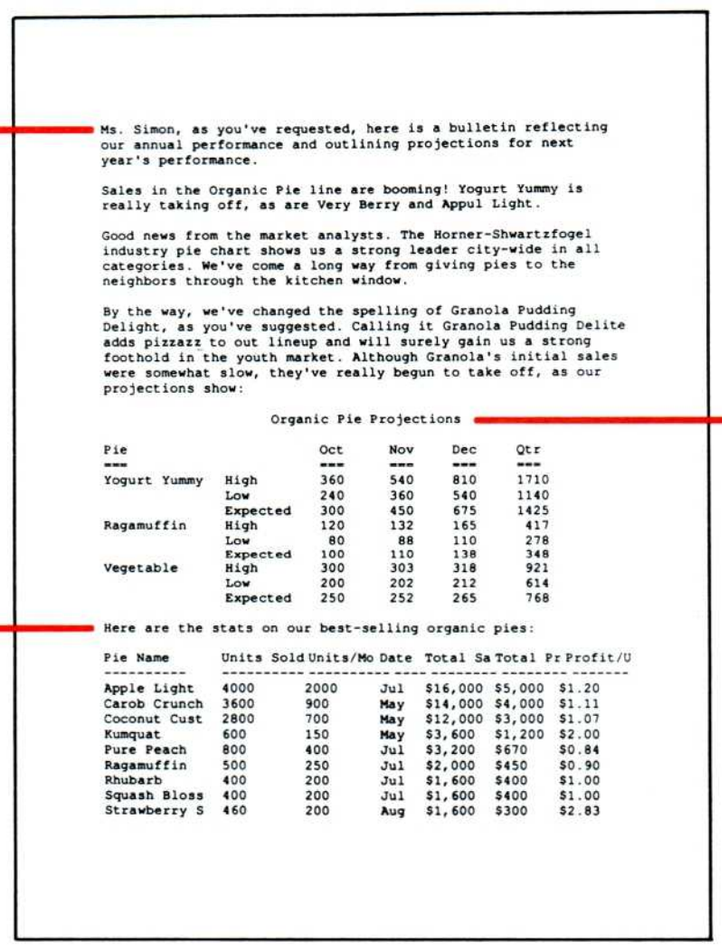
Letter written in Word Processor


File: Moms Bulletin REVIEW/ADD/CHANGE Escape: Main Menu

Here are the stats on our best-selling organic pies:

Pie Name	Units Sold	Units/Mo	Date	Total Sa	Total Pr	Profit/U
Apple Light	4000	2000	Jul	$16,000	$5,000	$1.20
Carob Crunch	3600	900	May	$14,000	$4,000	$1.11
Coconut Cust	2800	700	May	$12,000	$3,000	$1.07
	600	150			$1,200	$2.00

List of pies in Data Base


Ms. Simon, as you've requested, here is a bulletin reflecting our annual performance and outlining projections for next year's performance.

Sales in the Organic Pie line are booming! Yogurt Yummy is really taking off, as are Very Berry and Appul Light.

Good news from the market analysts. The Horner-Shwartzfogel industry pie chart shows us a strong leader city-wide in all categories. We've come a long way from giving pies to the neighbors through the kitchen window.

By the way, we've changed the spelling of Granola Pudding Delight, as you've suggested. Calling it Granola Pudding Delite adds pizzazz to out lineup and will surely gain us a strong foothold in the youth market. Although Granola's initial sales were somewhat slow, they've really begun to take off, as our projections show:

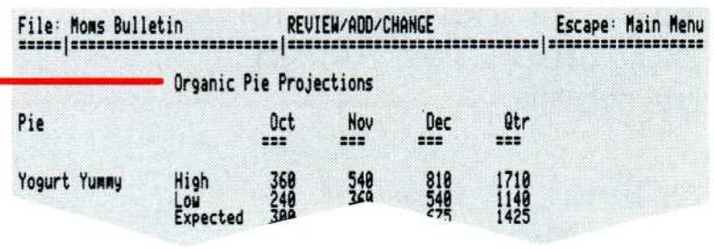
Organic Pie Projections

Pie		Oct	Nov	Dec	Qtr
Yogurt Yummy	High	360	540	810	1710
	Low	240	360	540	1140
	Expected	300	450	675	1425
Ragamuffin	High	120	132	165	417
	Low	80	88	110	278
	Expected	100	110	138	348
Vegetable	High	300	303	318	921
	Low	200	202	212	614
	Expected	250	252	265	768

Here are the stats on our best-selling organic pies:

Pie Name	Units Sold	Units/Mo	Date	Total Sa	Total Pr	Profit/U
Apple Light	4000	2000	Jul	$16,000	$5,000	$1.20
Carob Crunch	3600	900	May	$14,000	$4,000	$1.11
Coconut Cust	2800	700	May	$12,000	$3,000	$1.07
Kumquat	600	150	May	$3,600	$1,200	$2.00
Pure Peach	800	400	Jul	$3,200	$670	$0.84
Ragamuffin	500	250	Jul	$2,000	$450	$0.90
Rhubarb	400	200	Jul	$1,600	$400	$1.00
Squash Bloss	400	200	Jul	$1,600	$400	$1.00
Strawberry S	460	200	Aug	$1,600	$300	$2.83

Combined in one letter


File: Moms Bulletin REVIEW/ADD/CHANGE Escape: Main Menu

Organic Pie Projections

Pie		Oct	Nov	Dec	Qtr
Yogurt Yummy	High	360	540	810	1710
	Low	240	360	540	1140
	Expected	300	450	675	1425

Figures calculated in Spreadsheet

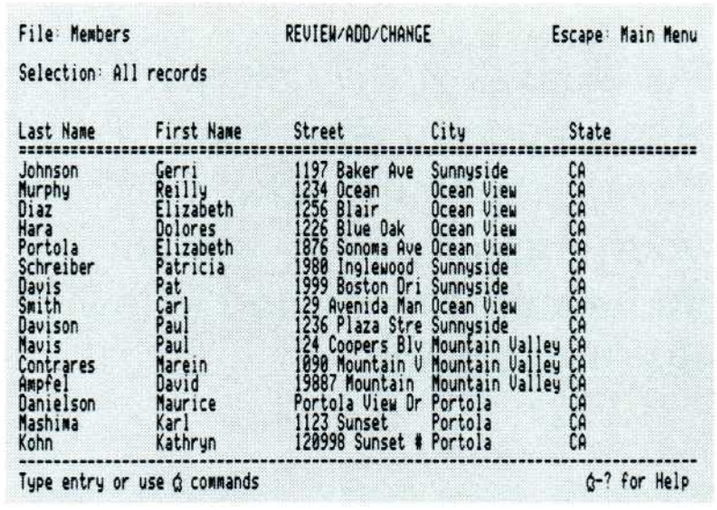
With form letters, too

When you want to take information such as a name and address from a list and fit it into a standard letter, you can use the AppleWorks Mail Merge function. It lets you generate a series of letters automatically.

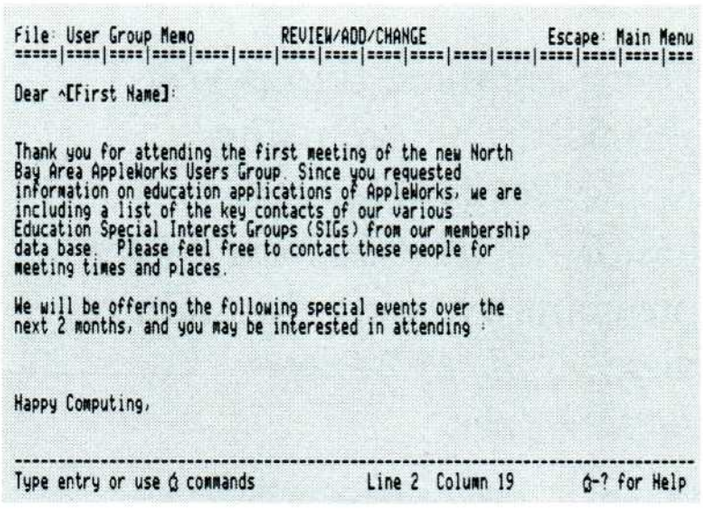
It's a merge because you combine a name (and address) from the Data Base with a letter you've created in the Word Processor. You merge the two together to make a new letter.

AppleWorks' Mail Merge function has two main advantages over doing a merge by hand:

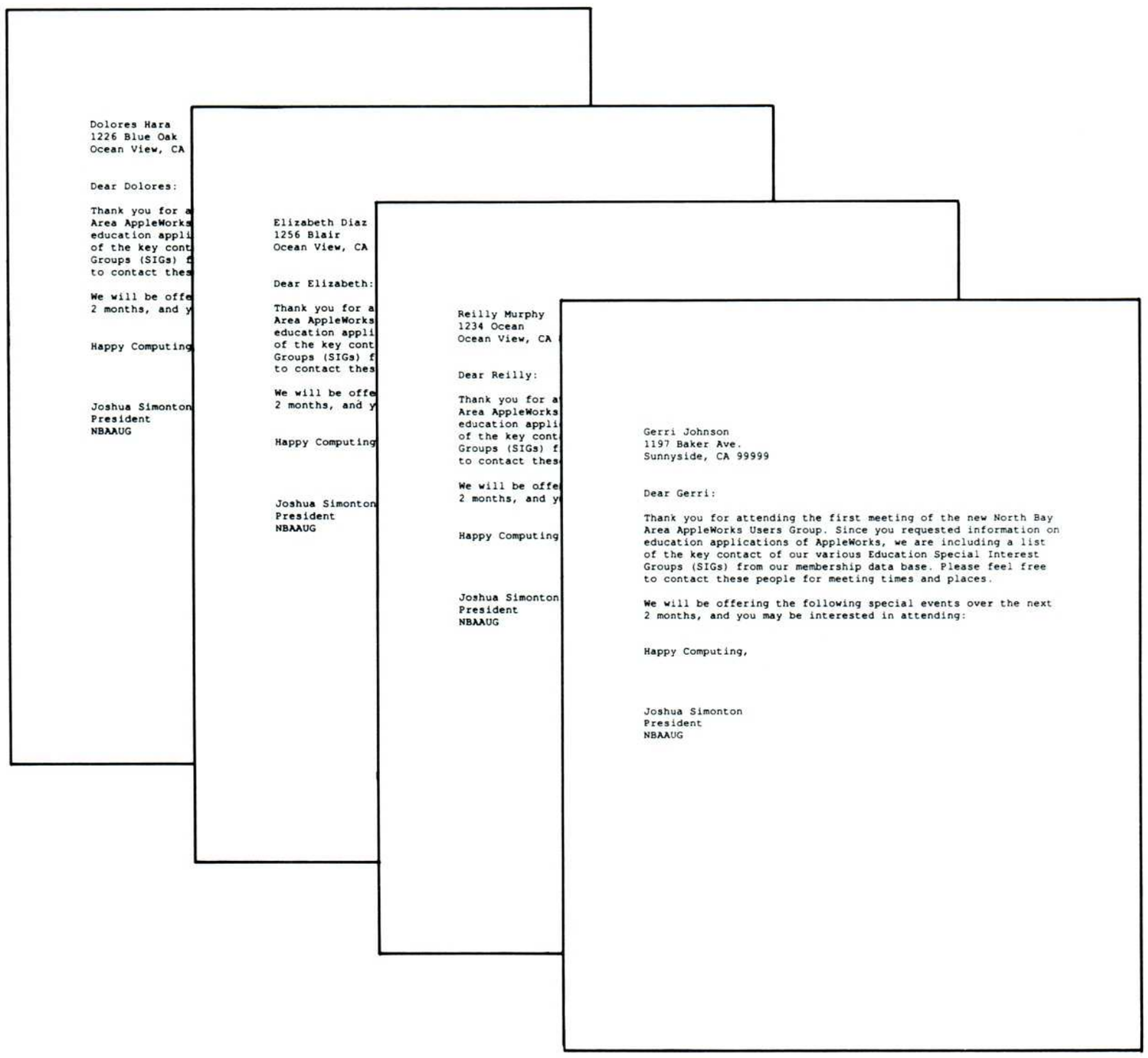
- Fast selection: You tell the program which addresses you want (for instance, all those in a certain Zip code) and the program finds them all in a few seconds. You don't have to read through your list, one line at a time, looking for the right records. You save time!
- Accuracy: Because you don't have to retype all that information in the Data Base and the Word Processor, there are fewer chances for error.



Take names and addresses from the list in the Data Base.



Add that to the form letter.



Result: a series of personalized form letters.

What to do first

There are three things you should do before using AppleWorks. First, enjoy a hands-on introduction to the program by using the training disk, *Apple Presents AppleWorks*.

Go through the training disk. On the 5.25-inch disk, the lessons are on both sides. Start with side 1.

Second, copy your program disks, so you'll always have backup copies.

Third, if you feel like it, try the first part of the *AppleWorks Tutorial*.

Tips: See page 207.

1. Use the training disk

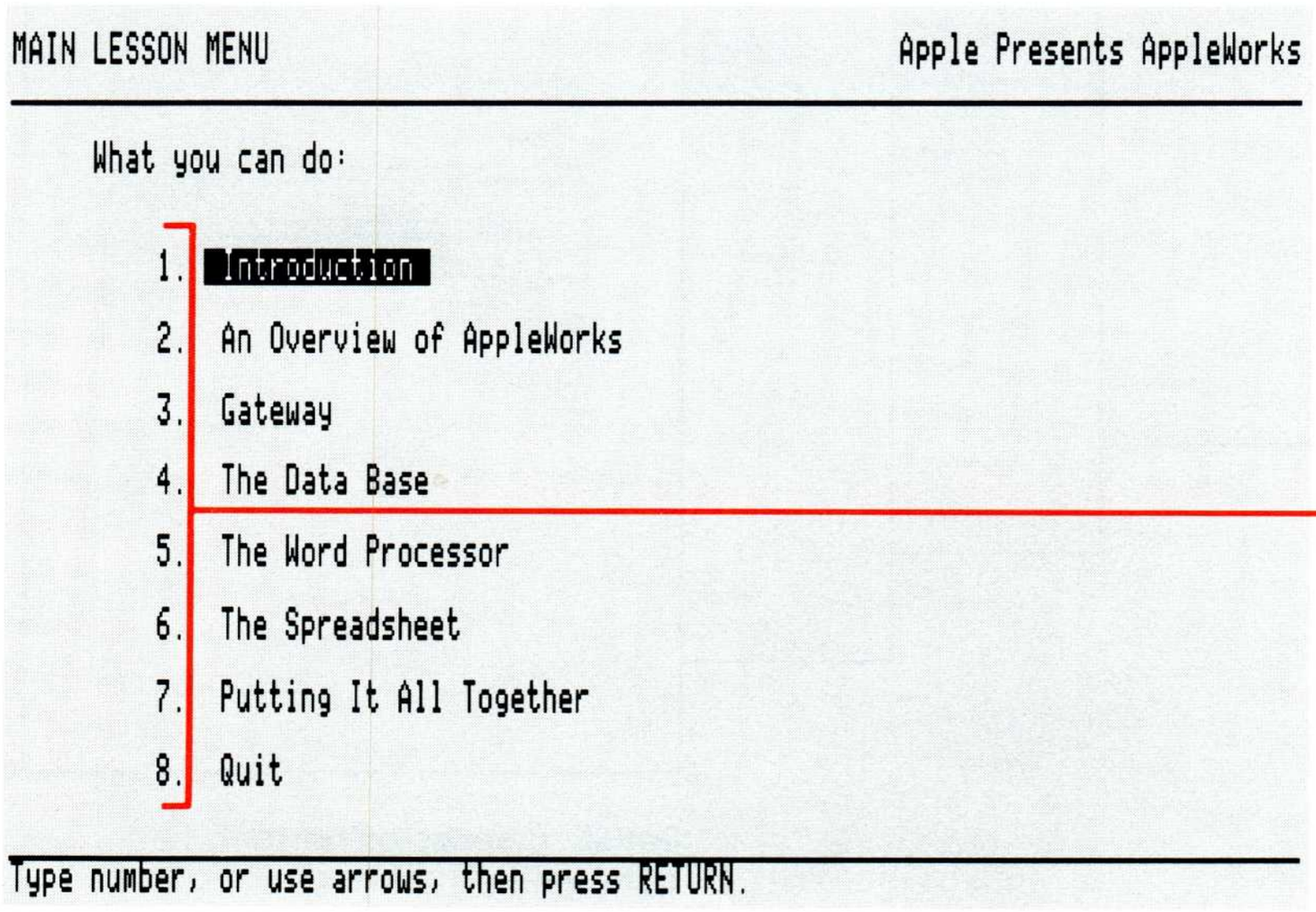
- Put the disk *Apple Presents AppleWorks* in your main drive; turn on the power for your computer and monitor; and read the menu and follow the instructions.

2. Copy your disks

- Make a copy of your AppleWorks disk. (If you use 5.25-inch disks, there is a *Startup* side and a *Program* side; you need to copy each onto its own disk.)
- Give each new disk exactly the same name as the original. (The program expects this.)
- After copying, put your originals in a safe place, just in case you damage one of the copies.

  When you start AppleWorks, the program updates the information on the disk. To safeguard them, the originals are write protected, so there's no way to update them. That's why you must start out by making copies and use the copies to run the program.

  Use ProDOS to make the copies. Do *not* write protect the copies.



3. Do the *AppleWorks Tutorial*

- Open the book called *AppleWorks Tutorial*. Do the first seven chapters. These give you experience using the actual software and teach you more functions.
- Leave the last chapter of the tutorial, called "Additional Practice," for later—when you've become familiar with the program and want to learn some more advanced features.

4. Jump in

- Use the program. You'll find you learn quickly.
- When in doubt, press the ⌘ key at the same time as the ? key. (You don't need to press the Shift key.)
- Note that the ⌘ commands have just about the same meaning from one application to another.
- Rely on prompts at the bottom of the screen for advice on what to do next.

5. Look it up

- For step-by-step procedures, turn to the first part of this book, "Using AppleWorks." It has sections on each application.
- Look at the top left corner of the left-hand pages for major topics, and then scan across the two-page spread for the particular issue you're wondering about.
- For more details, see the second part of this book, "Tips on AppleWorks."

How to start AppleWorks

To start AppleWorks, you put in the disk and start the computer. But the procedure varies slightly, depending on what disks you use, and what computer.

Be sure you are using copies of the startup and program disk, not the originals. AppleWorks updates the program disk each time you start. It can't do this with the original because that is write-protected. Store the original in a safe place and use your copies.

In general, you should have your startup disk drive connected to a higher-numbered slot than you have any other drive connected to.

With 5.25-inch disks

- Put your copy (not the original) of the AppleWorks *Startup* disk into the startup drive—that's drive 1 or the built-in drive if your computer has one. (The startup drive is the one connected directly to the computer.)
- If the monitor is off, turn it on.
- If the computer is off, turn it on. If it is already on, press Control-Ó-Reset. After the computer reads the *Startup* disk, AppleWorks asks for the *Program* disk.
- Put in the *Program* disk when prompted. Press Return.
- Type today's date and press Return, or, if the correct date is already displayed, just press Return.

If you have some other disk controller card in a slot with a higher number than the slot your 5.25-inch disk is connected to, press Control-Ó-Reset right after starting your computer, then type PR#n, and press Return. *n* is the number of the slot that contains the controller card for your 5.25-inch disk drive.

You now see the Main Menu.

You now see the Main Menu.

With 3.5-inch disks

- If you are using an Apple computer with a built-in 5.25-inch disk drive, open the door of this drive. Do not put any disk in there.
- Put the *Program* disk in the 3.5-inch disk drive.
- If the computer is off, turn it on. If it is already on, press Control-Ö-Reset.
- Press Space when prompted.
- Type today's date and press Return, or, if the correct date is already displayed, just press Return.

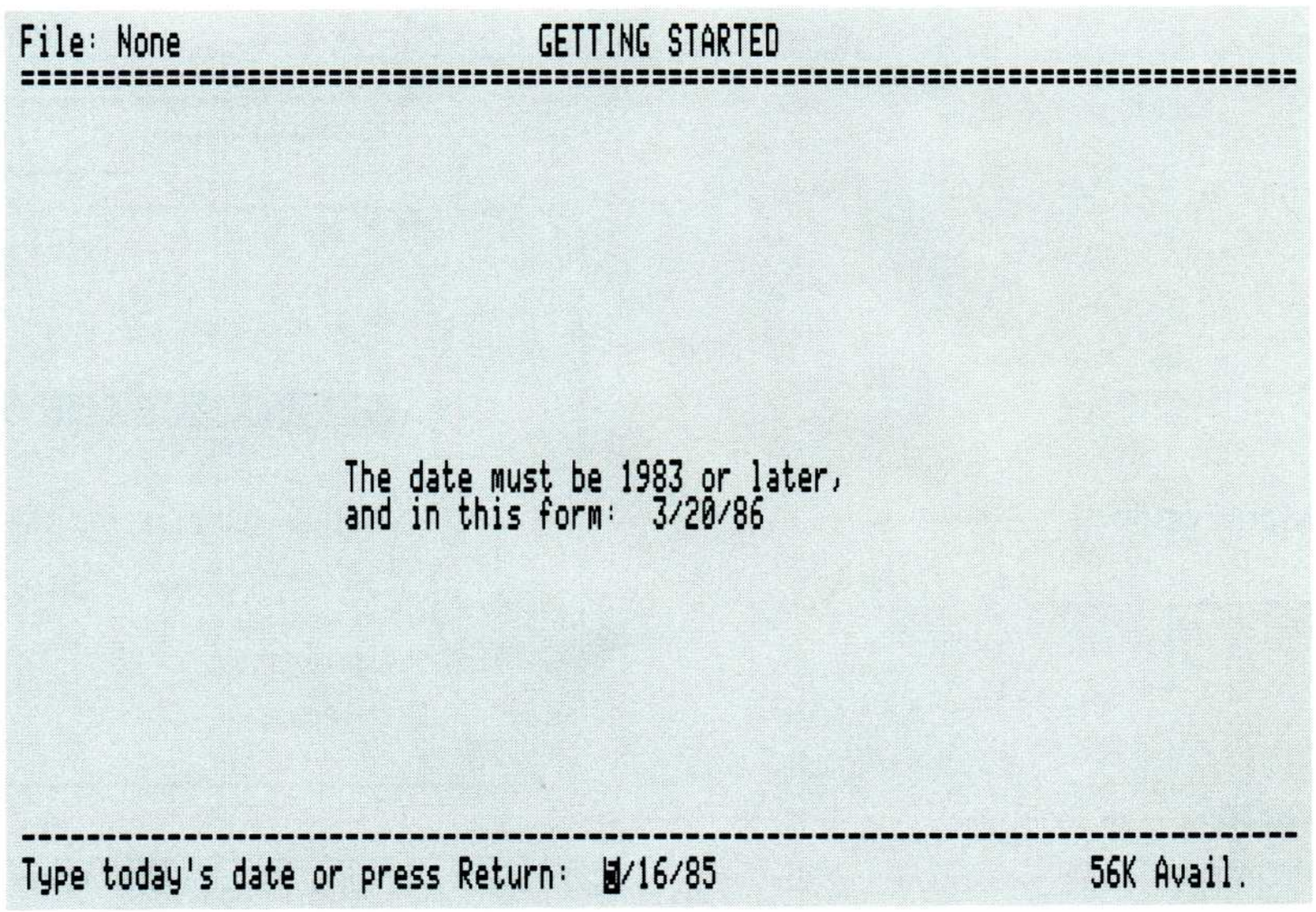
  If you have some other disk controller card in a slot with a higher number than the slot your 3.5-inch disk is connected to, press Control-Ö-Reset right after starting your computer, then type PR#n, and press Return. *n* is the number of the slot that contains the controller card for your 3.5-inch disk drive.

From a memory expansion card

- Start your program as indicated in the previous three columns.

  The program will automatically be loaded into your memory expansion card and will run from there.

  If possible, make sure your memory card is not in a slot with a higher number than the slot your disk drive is connected to.



Throughout AppleWorks

Here's how to perform some of the activities you'll do every day in every part of AppleWorks—telling it what you want to do next, writing and correcting, getting help, using shortcuts.

Tips: See page 210.

Using prompts

- Look at the bottom line of the display for advice on what to do next—perhaps you need to type in some information, select an option from a menu, or answer a question.

  Generally, you will either be typing in information or choosing an option from a menu or from the bottom line of the display.

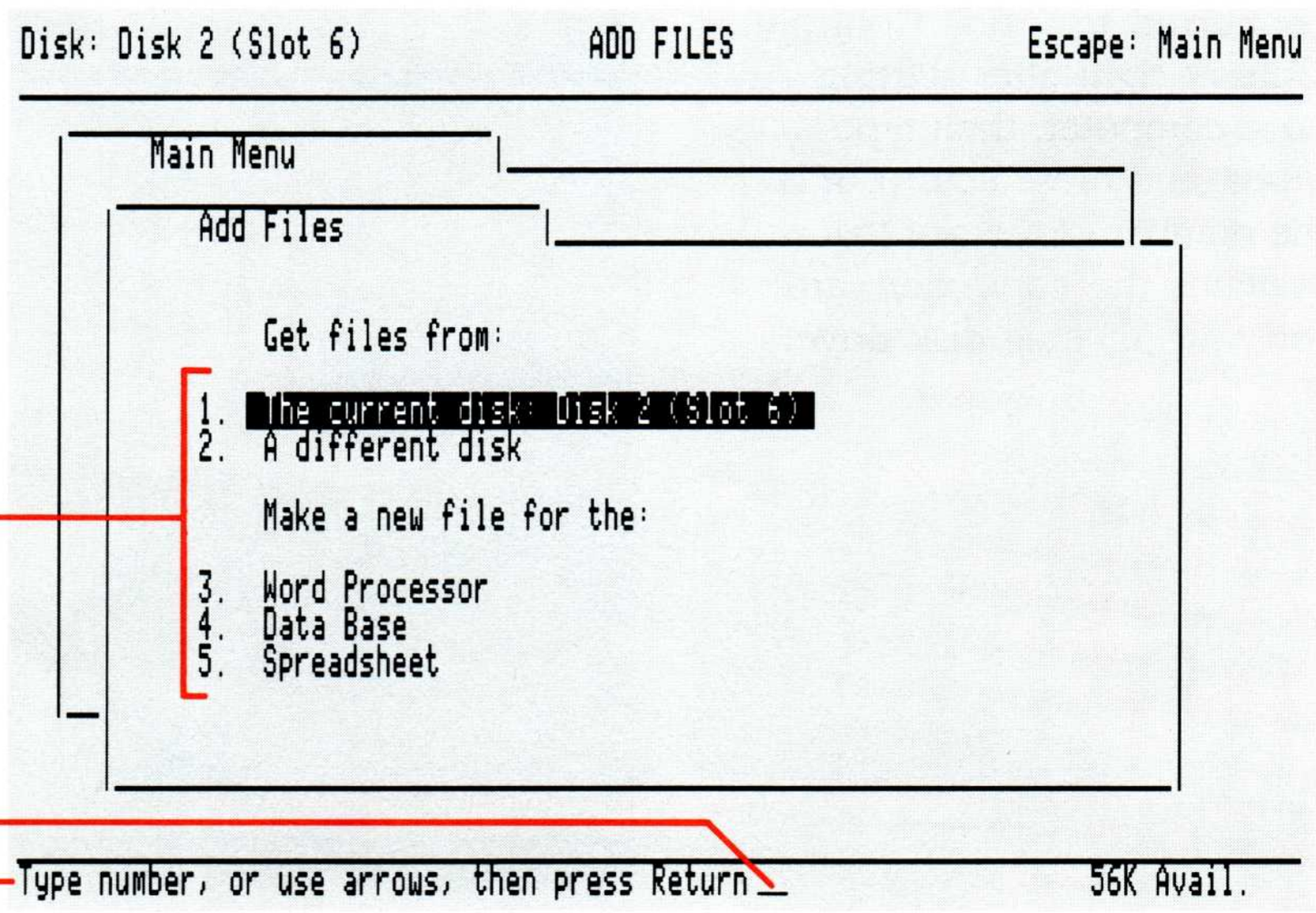
  If it's time to type in something, you'll see a blinking cursor somewhere on the display.

  If you're to make a choice, an option will be highlighted.

Selecting a menu option

- Type the number of the option you want, and press Return. Or...
- Use the Up Arrow and Down Arrow to highlight the option you want, and then press Return. Or...
- If the option you want is already highlighted, just press Return.

  By the way: You can't select more than one item from a menu.



Choosing a file from a list

- Use the Down Arrow to move the highlight to the file you want. If that is the only file you want, press Return.
- If you want to select more than one file from the list, press the Right Arrow to mark this one.
- Use the Down Arrow to move to another file. Mark each one by pressing the Right Arrow.
- To remove an arrow, use Up Arrow or Down Arrow to move back to that item, and then use the Left Arrow to remove the selection.
- When you have selected all the files, press Return.

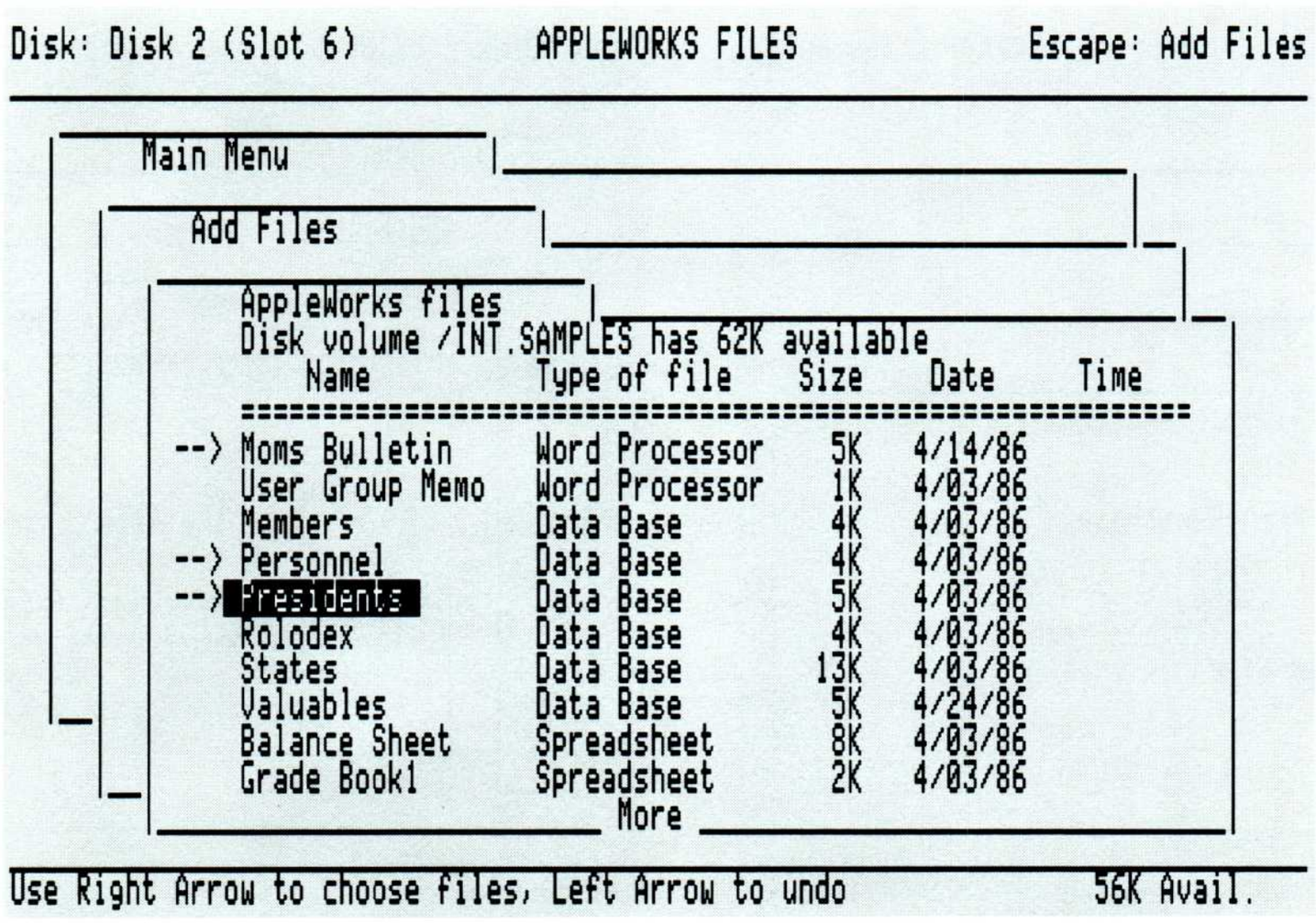
Selecting an option from the bottom line

Sometimes, when you're in the middle of an operation, AppleWorks needs to know exactly what you want to do next. A question appears at the bottom of the screen, followed by possible responses. Here's how to choose the option you want.

- If the option you like is highlighted, press Return. Or...
- Use the Left Arrow or Right Arrow to highlight the option you want, and then press Return. Or...
- Type the first letter of your answer. (The answer will be automatically selected.)

Typing an answer

- Sometimes AppleWorks needs you to create a name for a file or type in a date. When asked, just type your response. If it's correct, press Return. Here's what to do if you need to make corrections:
- To move back and forth without changing anything, use Left Arrow or Right Arrow.
- To erase the character to the left of the cursor, press the Delete key.
- To get rid of the character under the cursor and everything to the right of the cursor, press Control-Y.
- To insert characters, use the underline cursor; to replace characters, use the solid rectangle. To switch, press ⌘-E.
- And when you're through with your corrections, press Return.



Throughout AppleWorks—continued

Here are a few more ways to work with AppleWorks.

Deleting something you've typed

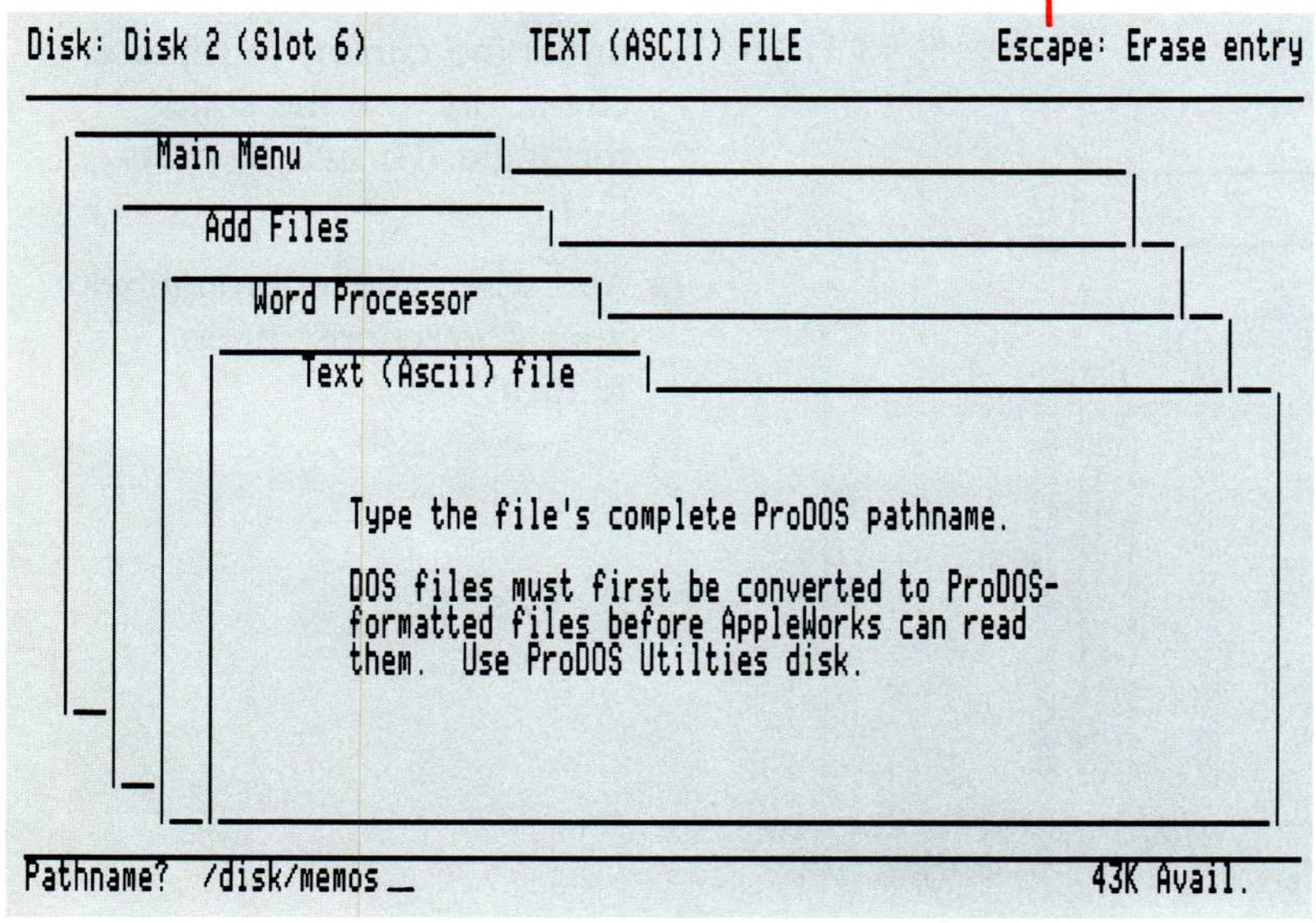
- To erase one character at a time, put the cursor to the right of the character you want to delete. Press Delete.
- To eliminate the rest of a line or entry, including the character the cursor is on, press Control-Y.
- To delete what you've just entered and to restore a previous entry, press Escape.

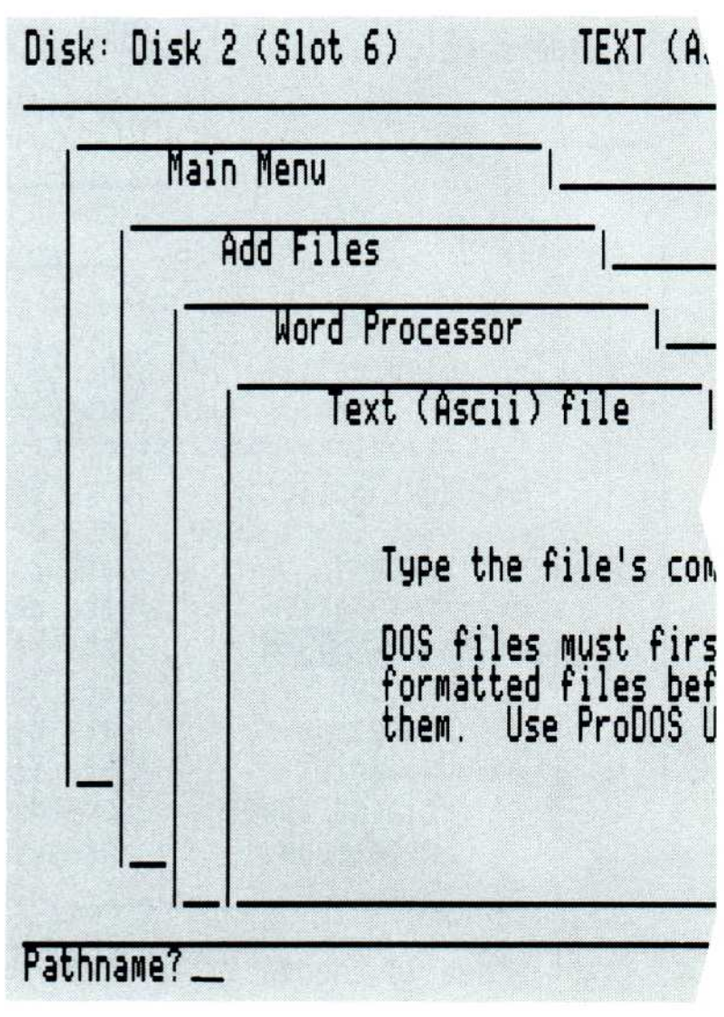
Escaping to the previous display

- To return to the previous display, menu, or entry, press Escape.

  Escape takes you back a step. At the top right of the display, AppleWorks tells you where Escape will take you.

Pressing Escape here clears out your entry.





Using the ⍥ commands

- Press the ⍥ key at the same time as another key; then release both at once.

  The ⍥ commands usually mean the same thing in the Data Base, Word Processor, and Spreadsheet.

  The key that goes with the ⍥ key is usually the first letter of the word that defines the command (S for Save, Z for Zoom), so you can remember the key more easily.

Getting help

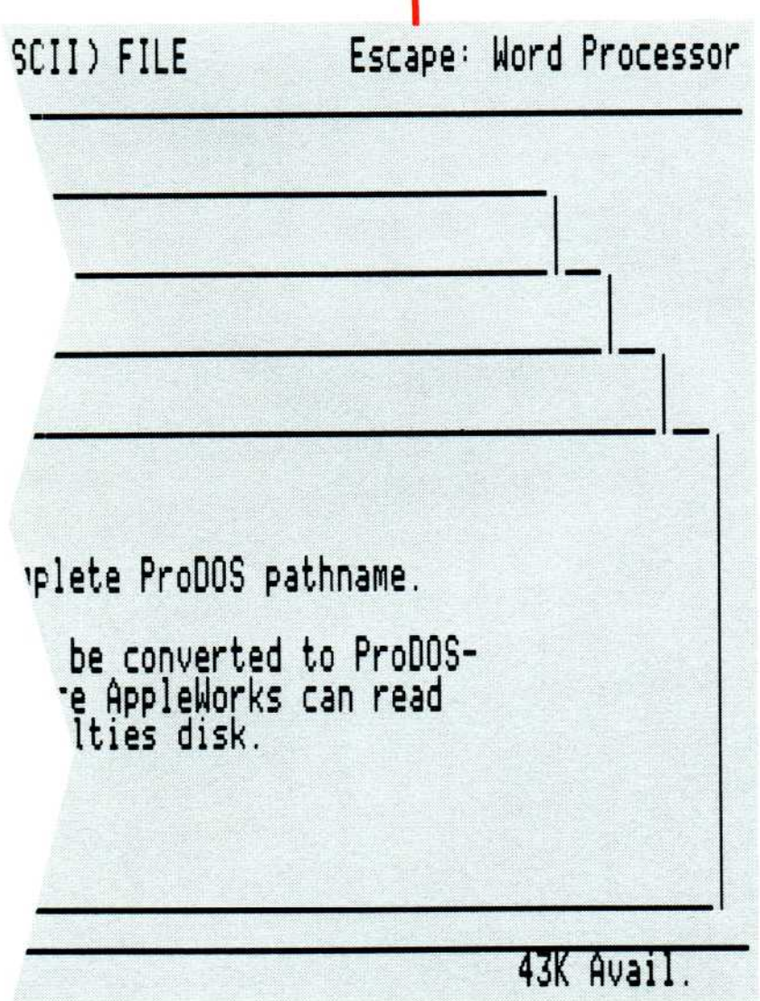
- Press ⍥-? (You don't have to use the Shift key.)

  You'll find out which commands are now available to you.

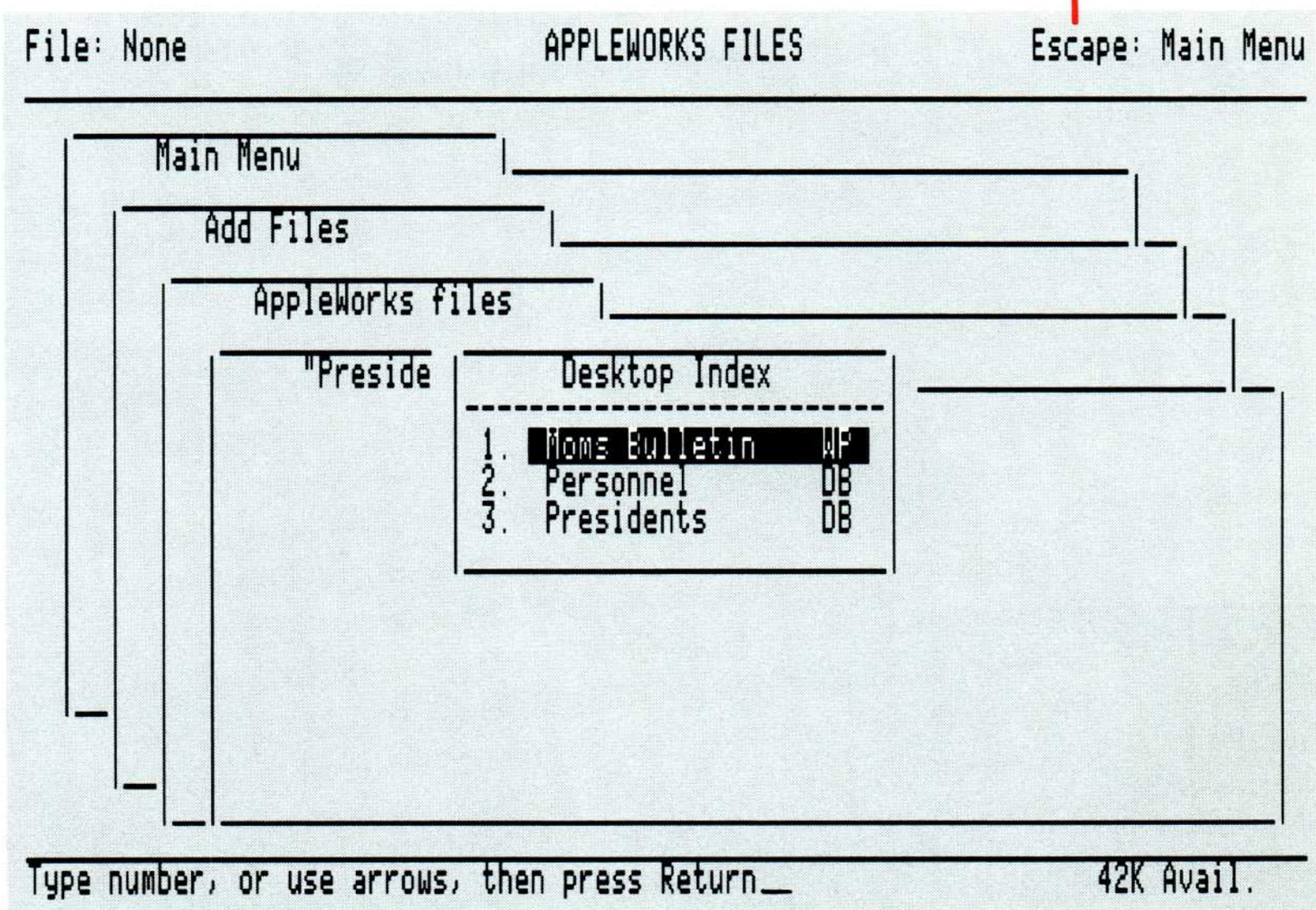
Using the AppleWorks ruler

- Imagine that your document has been divided lengthwise into eight equal parts, and the dividing lines (including the very beginning and the very end of the document) have been given numbers from 1 to 9. You can use ⍥ with a number to jump to any position in the document.
- To go to the beginning of a document, press ⍥-1.
- To go to the end, press ⍥-9.
- To go anywhere in between, press ⍥ with any number from 2 to 8.

Pressing Escape here takes you back to the Word Processor.



Escape here takes you back to the Main Menu.



Using files—in general

A file is the electronic form of your document. During an average week, you may create a number of files, work on them, save them, open a few and revise them, and then save the new versions under new names or in new locations.

Here are the most common things you'll do with files. This is a general description; step-by-step procedures appear in later sections.

Tips: See page 215.

1. Create a file

- Tell AppleWorks you are starting a new document, and give it a name.
- Enter information into your document—type numbers, formulas, lists of facts, or paragraphs of text.

For the moment, your document exists only in the memory of the computer. If it is a brief memo you know you'll use only once, you could print it out now and turn the computer's power off. That way, you'd end up with a paper copy, but nothing would be saved for future use. But if you know you are going to want to revise this document later, or print it out at another time, you need to save it on a disk.

2. Save the file

- Put a copy of your document on a disk to preserve it for later use.

  Any document you have in the computer's memory—or on a memory expansion card—goes away when you turn off the power. That's why you use disks; they provide a safe haven for the electronic version of your document.

3. Add the file to your Desktop again

- When you are ready to work on the document again, bring it back to your Desktop.
- Make the necessary revisions.
- Print a copy to look over or distribute.

4. Save the new version with a new name...

- Save the file on a disk, but give it a new name.

  This preserves your original version and the new one.

  If you decide you don't want to bother saving the old version, you can have the new version replace it, without changing the file's name.

5. Or save it to a new location

- Save the file on a different disk or in another subdirectory.

  You might want to give a colleague a copy of your latest version on a disk.

  Or you might want to store it on a hard disk, in an area you've created just for this kind of document—a subdirectory. More about subdirectories in the next section, "Building a Pathname."

Building a pathname

The pathname acts as a path, leading AppleWorks to the file you want to open or showing where you want AppleWorks to save the file. Basically, a pathname tells the program what disk the file should be on and what the file's name is.

You can also put a file in a subdirectory on a disk—a subdirectory acts like a file folder, holding several related files so you can find them quickly. If your file is in a subdirectory, you need to name that as well.

And if you have a hard disk, it may be subdivided into several large areas called *volumes;* AppleWorks needs to know which volume your file is in.

To build a pathname, then, you start with the disk's name and work downward toward the file.

If you are using one location for most of your files, you may want to take a shortcut by setting a prefix—a phrase that gets tacked on in front of the filename you enter. That phrase contains the first part of the pathname, so you don't have to retype it.

1. Name that disk

- When AppleWorks asks for a pathname, type a slash and then the name of your disk.

  The slash indicates that you are typing a pathname, not just some text. Examples:

  ```
  /MyDisk
  /Floppy
  ```

  If you don't know your disk's name, you can find it by returning to the Main Menu, choosing option 5, `Other Activities`, and then option 2, `List all files on the current disk drive`. At the top of your list, you'll see the disk's name.

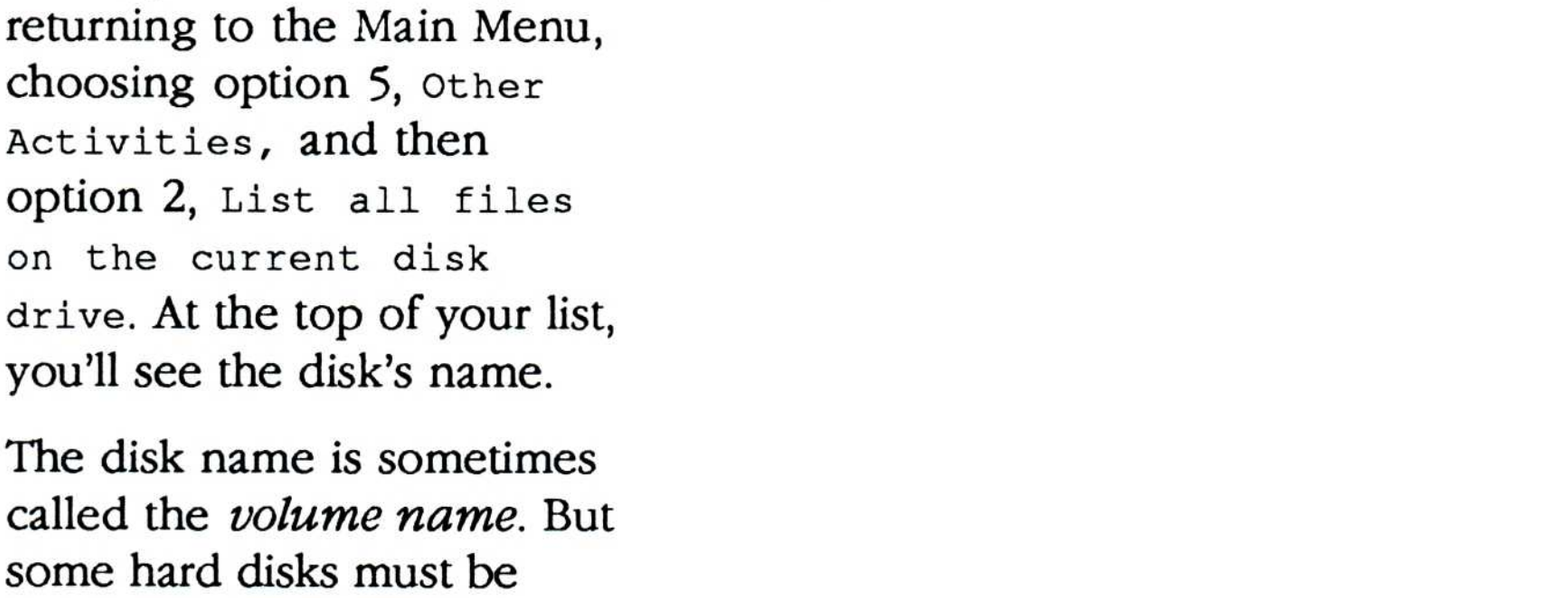
  The disk name is sometimes called the *volume name*. But some hard disks must be carved up into several areas, and these areas are also sometimes called *volumes*. To find out how to enter an area, see the next column.

2. Enter area name for a hard disk

- If you are using a disk that is so large it has been divided into areas, type a slash, then enter the name of the area your file is in.

  ```
  /HARDISK/AREA/
  ```

  On a hard disk, such an area may be called a *volume,* as if the disk were a library of many volumes.



Files are your documents.

Subdirectories are like folders.

Volumes on the hard disk correspond to drawers.

A **hard disk** is like a file cabinet.

3. Enter any subdirectory

- Type a slash and then the name of the subdirectory your file is in, if any.

  The subdirectory acts as a folder for related files; it might be named Memos.

  `/HARDISK/AREA/MEMOS`

4. Name that file

- Type a slash and then enter the name of your file.

  `/HARDISK/AREA/MEMOS/PLAN`

  When you reach the filename, you have completed your pathname.

5. Set a prefix

- To avoid typing the whole pathname over and over, you can tell AppleWorks to supply the first part of the pathname; then you just add the file's name. On the Main Menu, choose option 5, `Other Activities`.
- Accept option 1 to change the current disk.
- Choose to use a ProDOS directory and then type in all of your pathname except the filename, such as

  `/HARDISK/AREA/MEMOS`

- Press Return.

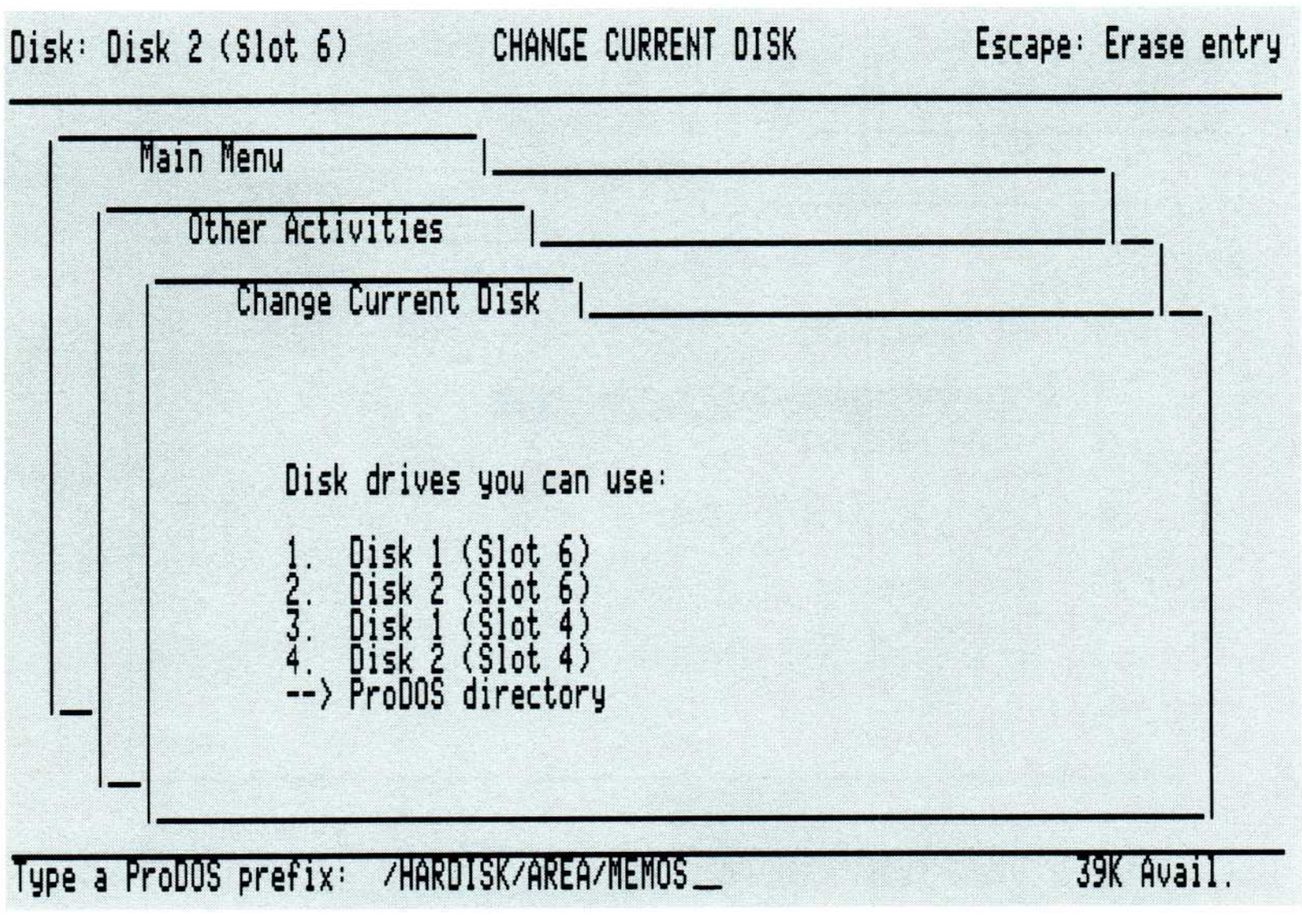
  Now when you are asking for a particular file, you can type

  `PLAN`

  And AppleWorks understands the prefix:

  `/HARDISK/AREA/MEMOS`

  AppleWorks goes to the `HARDISK` disk and looks in the directory there. It finds the volume you call `AREA`, the subdirectory `MEMOS`, and then locates your file, `PLAN`.



Starting a new document

When you start a new document, AppleWorks needs to know some basic information about it—which application you'll be using, what other file you'll be basing this one on, if any, and what name you want the file to bear.

First you create the file, and then you go to work filling it with ideas and information.

1. Choose to add a file to the Desktop

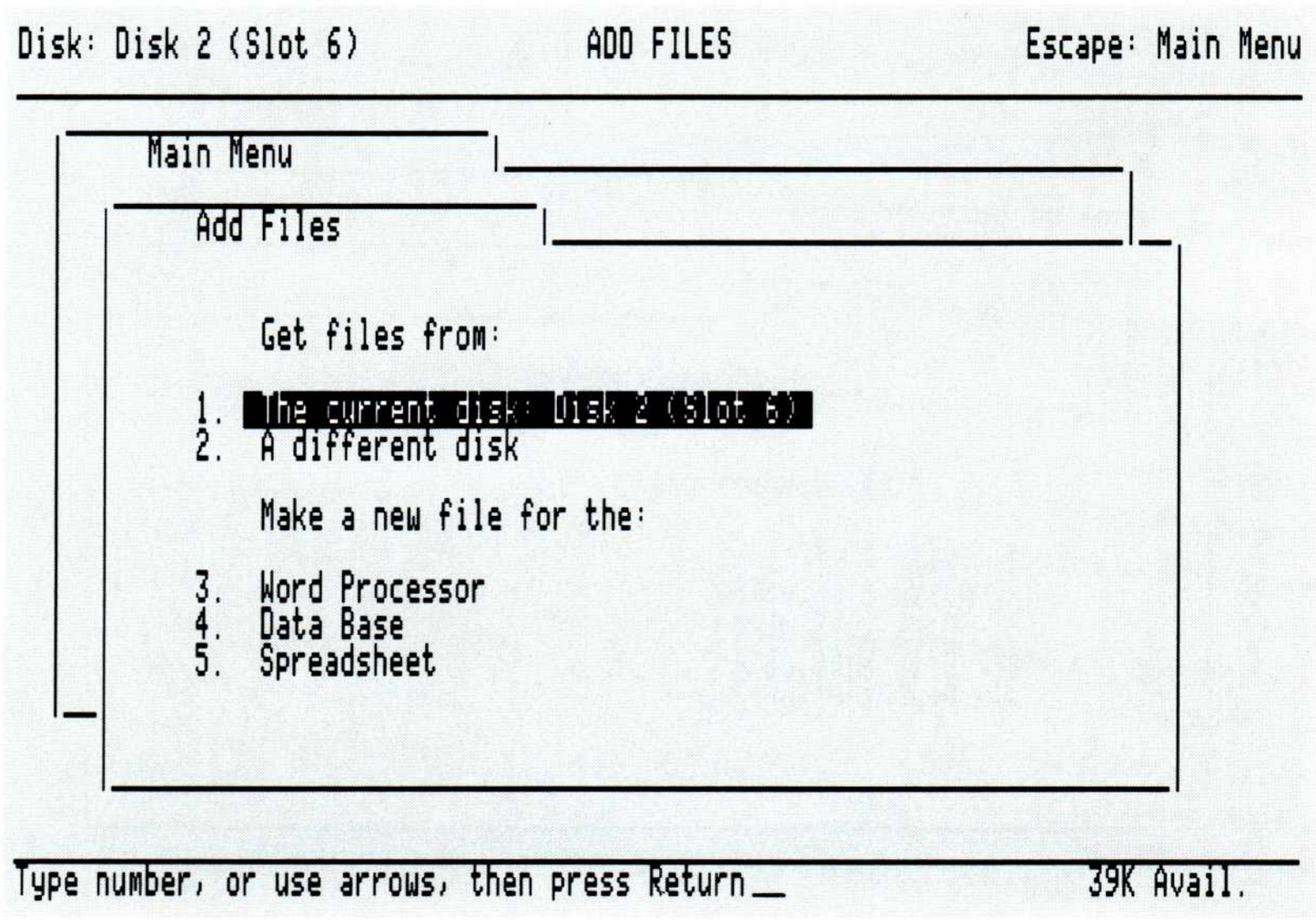
- Make sure you are at the Main Menu.
- Choose option 1, `Add files to the desktop`.

2. Pick an application

- On the next display, choose which application you are going to use.

  The options at the top refer to adding an existing AppleWorks file to the Desktop—not creating a new one.

  You can choose to make a new file for the Word Processor, Data Base, or Spreadsheet. Or you can bring another type of file, such as ASCII, DIF, QuickFile, or VisiCalc, into AppleWorks as the basis for your new AppleWorks document. (Details can be found under each application.)



3. Start from scratch, or...

- If you're creating a brand-new document, choose option 1, `From scratch`.
- Type in a name for your file. Press Return.

  Your filename is not a whole pathname—which includes the name of the disk and other data about the file's location. This is just the name for the file. It must begin with a letter; it may contain uppercase or lowercase letters, numbers, spaces, and periods. No other punctuation!

  Maximum length: 15 characters

4. Start from another type of file

- If you are basing your new document on another type of file (such as an ASCII file), choose that type.
- Type the file's pathname, and press Return.
- Name your new file. Press Return.
- Answer any other questions.

  The pathname tells AppleWorks where to find the original file. To find out more about pathnames, turn to the section just before this one, "Building a Pathname."

  If you cannot remember the pathname, press Escape twice to go to the Main Menu, and then choose option 5, `Other Activities`. Choose option 2, `List all files on the current disk drive`. At the top you will see the name of the disk, area, and subdirectory, if any; the list contains the filename. Make a note, and then start over.

  Your new filename must begin with a letter; it may contain uppercase or lowercase letters, numbers, spaces, and periods. No other punctuation!

  Maximum length: 15 characters

Setting a standard location for files

To speed up the process of finding your files and saving new files to disk, you need to tell AppleWorks where you ordinarily will be keeping your documents. You are telling AppleWorks the *standard location* of your data.

AppleWorks consults that location first when you start the program and whenever you are doing something involving files—saving, adding, deleting. Most people set the standard location once and leave it at that, figuring that's where all their data will be, most of the time. AppleWorks will recall that information the next time you use the program.

If, in the course of your day, you want to use data in some other location, you can change the *current location* easily. But this is only the current location. When you quit AppleWorks, the location is reset to the standard location.

Tips: See page 216.

To set the standard location

- On the Main Menu, choose option 5, `Other Activities`.
- Choose option 6, `Select standard location of data disk`.
- Pick the disk you will use, or, if you want to specify a particular area or subdirectory, choose to use the ProDOS directory.
- If you chose the ProDOS directory, type in the first part of the pathname, known as the ProDOS prefix. For instance:

  `/MYDISK/MEMOS`

- Press Return.

  From now on, when you are adding files to the Desktop, or saving files from the Desktop, AppleWorks will turn to this location first.

For now, the current location is the standard location.

For more information on the idea of a ProDOS prefix, see "Building a Pathname," earlier in this chapter.

To change the current location

- On the Main Menu, choose option 5, `Other Activities`.
- Accept option 1, `Change current disk drive or ProDOS prefix`.
- Select the disk drive you want to use, or, if you want to refer to a disk or subdirectory by name, choose to use the ProDOS directory.
- If you choose the ProDOS directory, type in the ProDOS prefix.

  For more information on the ProDOS prefix, see "Building a Pathname," earlier in this chapter.

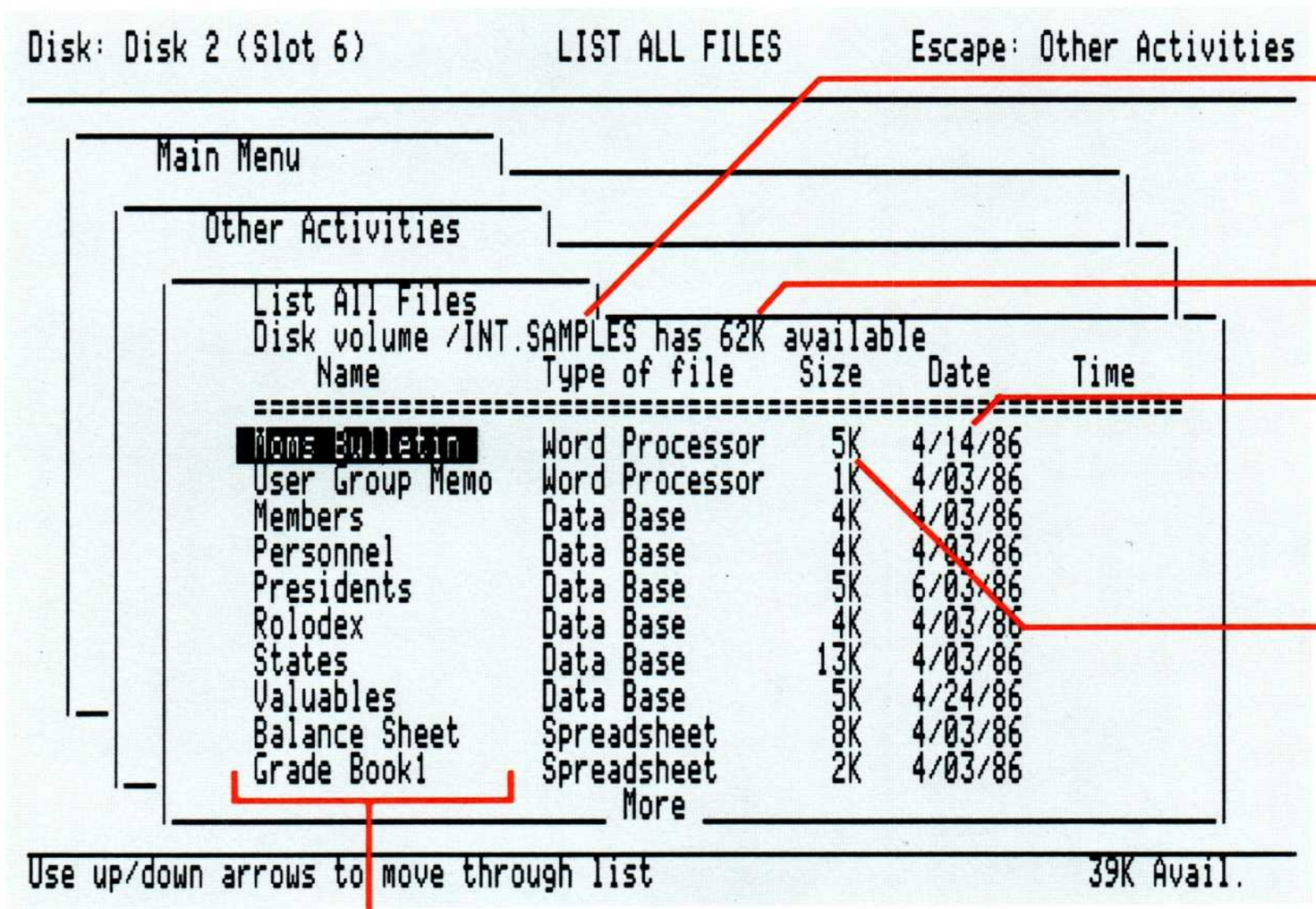
  By the way: You can change the current location any time you want.

  Whenever—and however—you change the current location, AppleWorks assumes that is where you want to keep your data from now on. But when you quit AppleWorks, the location is forgotten; and when you start AppleWorks again, it returns to the standard location.

To see what files are in the current location

- On the Main Menu, choose option 5, `Other Activities`.
- Choose option 2, `List all files on the current disk drive.`
- Use Up Arrow or Down Arrow to move through the list.

This list is just for looking. To do something with one of these files, return to the Main Menu.



Adding existing files to the Desktop

You can add as many as twelve existing documents to your Desktop. Before you begin, make sure the disk with your files is in the current location or change the current location.

Tips: See page 219.

1. Choose to add a file

- On the Main Menu, choose option 1, `Add files to the Desktop`.

2. Specify the location

- On the Add Files menu, choose whether you want AppleWorks to look for the file on the current disk or on a different disk.
- If you want AppleWorks to look in a different place, specify the disk or ProDOS prefix; that becomes the current location, so when you return to the Add Files display, you can accept the new current disk with a Return.

For more information on the ProDOS prefix, "Building a Pathname," earlier in this chapter.

3. Choose one or more files

- Use the Right Arrow to select a file. Use the Up Arrow and Down Arrow to move through the list of files. (Use the Left Arrow to cancel a selection.)
- If the display says *More* at the bottom, use the Down Arrow to see more files.
- When you have selected the files you want to work with, press Return.

  AppleWorks tells you which file it is bringing onto the Desktop, as it adds each one on your list.

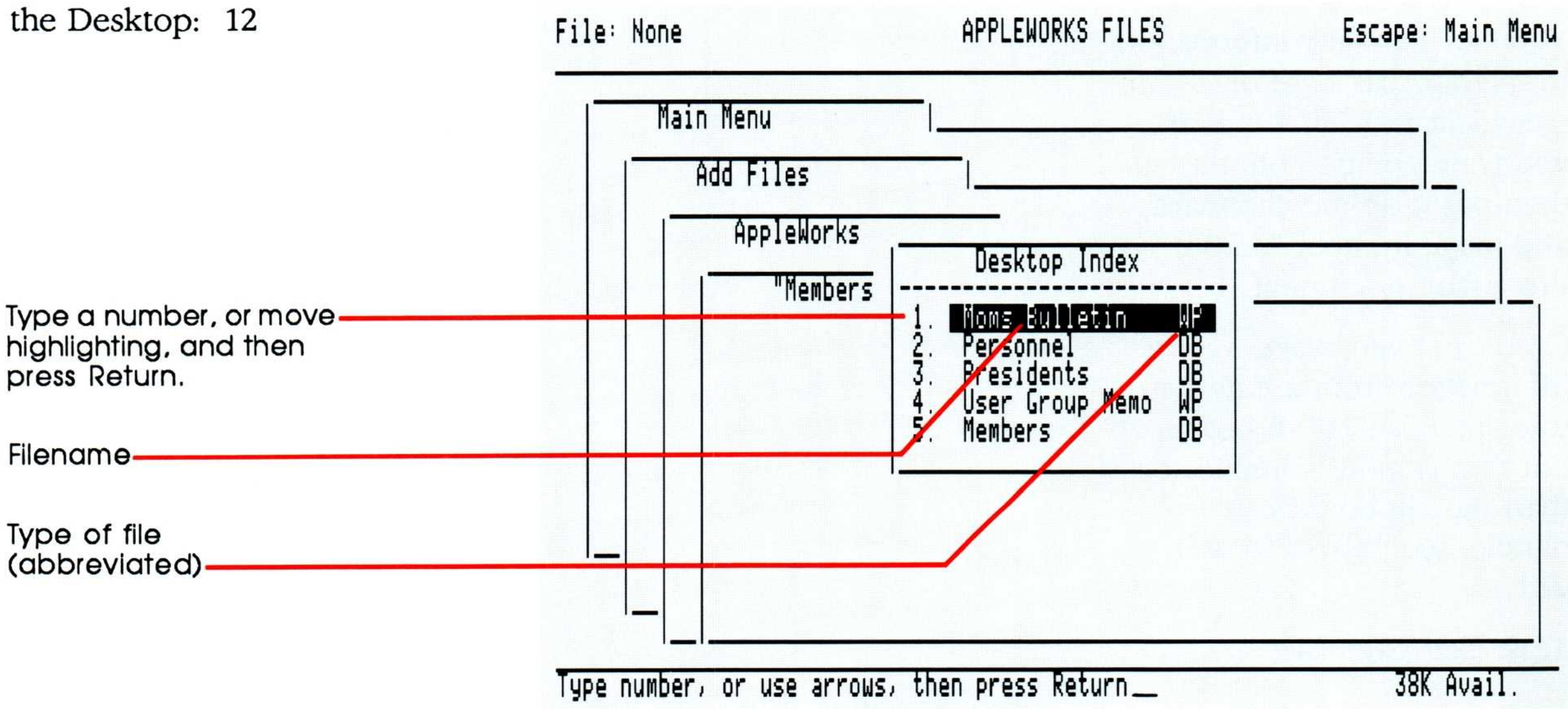
  If you asked for just one file, you see it displayed.

  Maximum number of files on the Desktop: 12

4. Pick a file to work with

- If you added more than one file to the Desktop, you'll see a list of the files now on the Desktop. Choose the one you want.

  From the Add Files menu, you can also press Escape to go back to the Main Menu, and choose option 2, `Work with one of the files on the Desktop.`



Moving or copying data from file to file

You can move information from one document to another, thanks to AppleWorks' clipboard. The clipboard is an area that AppleWorks reserves in the memory of the computer to store a passage you move or copy from one document, while you move to the place in the other document where you want to put it.

Moving cuts a passage out of the original; copying leaves it there; both allow you to put the passage on the clipboard. You can then paste the passage into the same document or another document created with the same application.

You can also take information from your data base or spreadsheet, format it as if you were going to print it, then put it on the clipboard, and move it into a Word Processor document.

(You can even move information from a data base to a spreadsheet, and back, but that is more complicated than the clipboard can handle; see pages 254 and 281.)

Tips: See page 219.

Moving a passage to the clipboard

- When you want to move a passage between two files of the same type (two Word Processor files, for instance), put the cursor at the beginning or end of the passage.
- Press ⌘-M for Move.
- Choose `To clipboard`. Press Return.
- Use arrow keys to highlight the passage. Press Return.

  AppleWorks removes that passage from your document and stores it on the clipboard.

Copying a passage to the clipboard

- When you want to copy a passage from one file to another in the same application, put the cursor at the beginning or end of the passage.
- Press ⌘-C for Copy.
- Choose `To clipboard`. Press Return.
- Use arrow keys to highlight the passage. Press Return.

  Your passage remains in the original document, but a copy appears in the clipboard.

Printing to the clipboard

- To move material from a data base into a Word Processor document, start in the data base, press ⌘-P to prepare to print a report, then format that report, and press ⌘-P to print. Choose `The clipboard (for the Word Processor).` Enter the date or accept the one presented.
- To move material from a spreadsheet into a Word Processor document, start in the spreadsheet, press ⌘-P to print, then select the part of the spreadsheet you want, press Return, and choose `To the clipboard (for the Word Processor).` Enter the date or accept the one presented.

  Your selection is now on the clipboard, ready to be pasted into your Word Processor document.

  (For more information on such moves see page 113 in "Using the Data Base," and page 191 in "Using the Spreadsheet.")

Moving from the clipboard (pasting)

- Press ⌘-Q to get a list of the files on the Desktop; highlight the one you want to paste this information into, and press Return.
- Place the cursor where you want the passage to start.
- Press ⌘-M for Move.
- Choose `From clipboard.` Press Return.

  The passage is removed from the clipboard and put into this document.

Copying from the clipboard (pasting)

- Press ⌘-Q to get a list of the files on the Desktop; highlight the one you want to paste this information into, and press Return.
- Place the cursor where you want the passage to start.
- Press ⌘-C for Copy.
- Choose `From clipboard.` Press Return.

  The passage remains on the clipboard, and a copy is placed in this document.

Preparing a disk to store your files

Before you can preserve your files on a disk, you need to format that disk so that it can receive the information. You can manage that without quitting AppleWorks.

This method should be used only for disks you intend to contain AppleWorks data. To prepare disks for other applications, use the *ProDOS User's Disk*, the *System Utilities* disk, or the Finder.

AppleWorks cannot use disks formatted under the earlier operating system, DOS. If you have DOS-formated disks that are blank or have files you don't want anymore, just follow these instructions to convert them to ProDOS disks. If the disks contain files you want to use with AppleWorks, however, see "Converting files to ProDOS" at the end of this chapter.

1. Get a blank disk

- Find a blank disk or one that you are sure has nothing valuable on it.

  The process of preparing the disk, known as *formatting* or *initializing*, wipes out whatever data is now on the disk.

2. Go to the Main Menu

- Start the program, or if you have been using the program, press Escape to return to the Main menu.
- Make sure that the current location, indicated at the top left, is a disk drive.

  If the current location is a ProDOS prefix, that is, the name of a disk, or a disk and a subdirectory, then you need to change the current location to a disk drive. (AppleWorks needs to know the physical location.) Use option 5, `Other Activities`. Then use option 1, `Change current disk drive or ProDOS prefix`. Pick the disk drive, and return to the Other Activities menu.

3. Choose to format a disk

- On the Main Menu, choose option 5, `Other Activities`.
- Choose option 5, `Format a blank disk`.

4. Give the disk a new name

- Enter a name for the disk. Press Return.

  The disk name must begin with a letter; it can include lowercase and uppercase letters, numbers, and periods.

  Maximum length: 15 characters

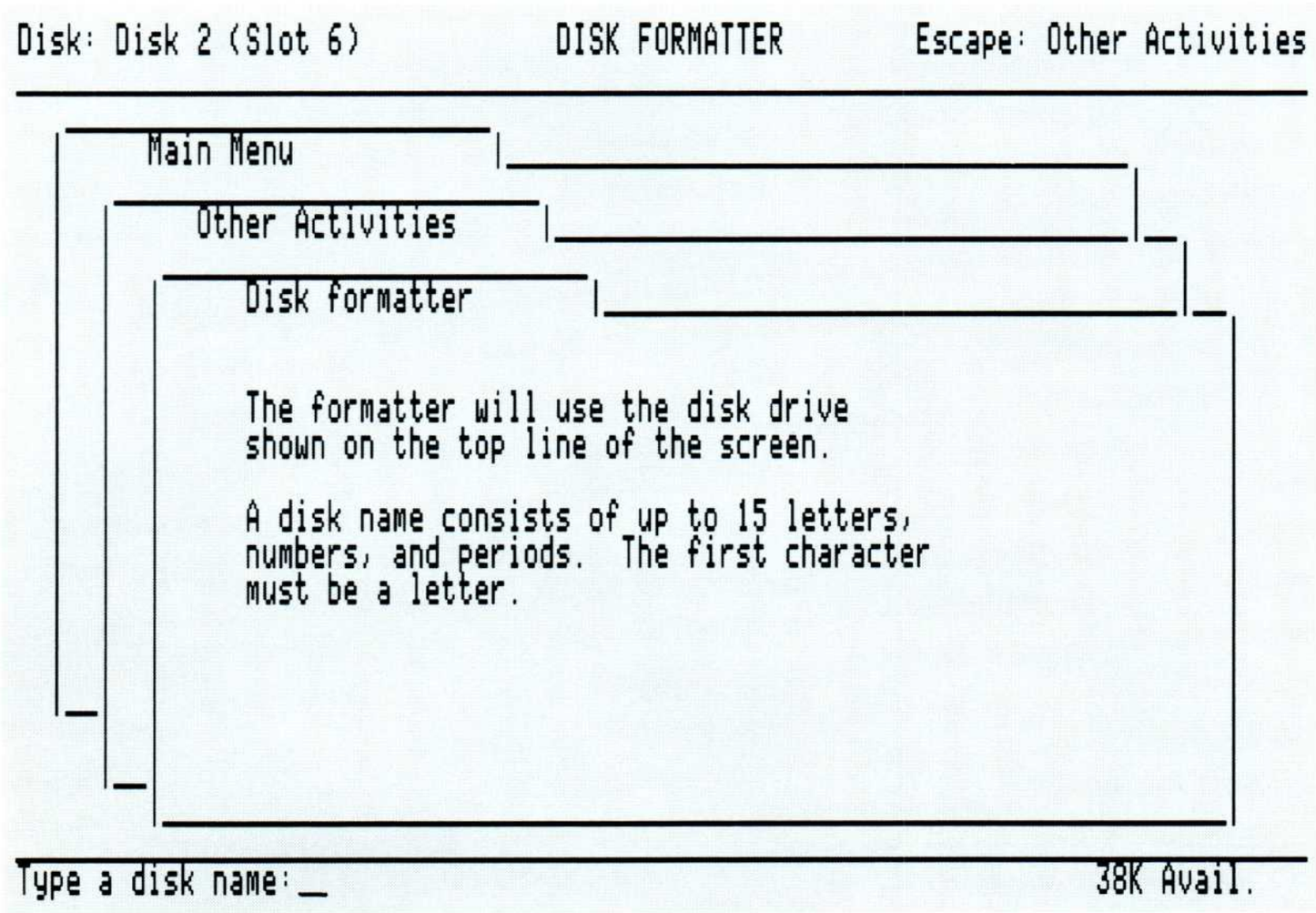
5. Put the disk in

- Put the disk in the current location.
- Press the Space bar to continue.

  AppleWorks tells you the name of any disk that has data on it, and asks if you really want to destroy the current contents of the disk. Type `Yes`, and press Return.

  AppleWorks formats the disk.

  You can go ahead and prepare a few more disks at this time. Just type in a new name, on the Disk Formatter display, and continue.



Setting up a subdirectory

Every disk has a directory that shows what files are on that disk. Among those files may be subdirectories.

The larger your disk space, the more files you can put on the disk. But if you have forty or fifty files out there, it can be hard to find the one you want. That's where subdirectories come in handy.

A subdirectory acts like a folder in a file cabinet; inside, you can put a number of related files. Subdirectories allow you to group files in meaningful units, under names such as *Memos, Forecasts,* or *Invoices*.

So when you're looking for the memo you sent out last May, you first open the subdirectory called *Memos* and look for the one dated May. That's a lot faster than trying to remember what you might have named the file and scrolling through a hundred filenames.

You must create a subdirectory *before* you try to save a file to it. Here's how.

Tips: See page 220.

1. Start on the Main Menu

- Start the program, or if you are in the middle of the program, press Escape to return to the Main Menu.

2. Check the name of the disk

- Look at the top left of the Main Menu. If your current location is a ProDOS prefix, you will see the name of the disk there.
- If the current location is just a disk drive, choose option 5, `Other Activities`. Then choose option 2, `List all files on the current disk drive`. This will also tell you the name of the disk. Return to the Other Activities menu.

You need the exact spelling of the disk's name. If it's complicated, jot it down.

3. Choose to create a subdirectory

- On the Main Menu, choose option 5, `Other Activities`.
- Choose option 3, `Create a subdirectory`.

  The subdirectory will be created on your current disk. So now all you have to do is name the subdirectory.

4. Type the pathname

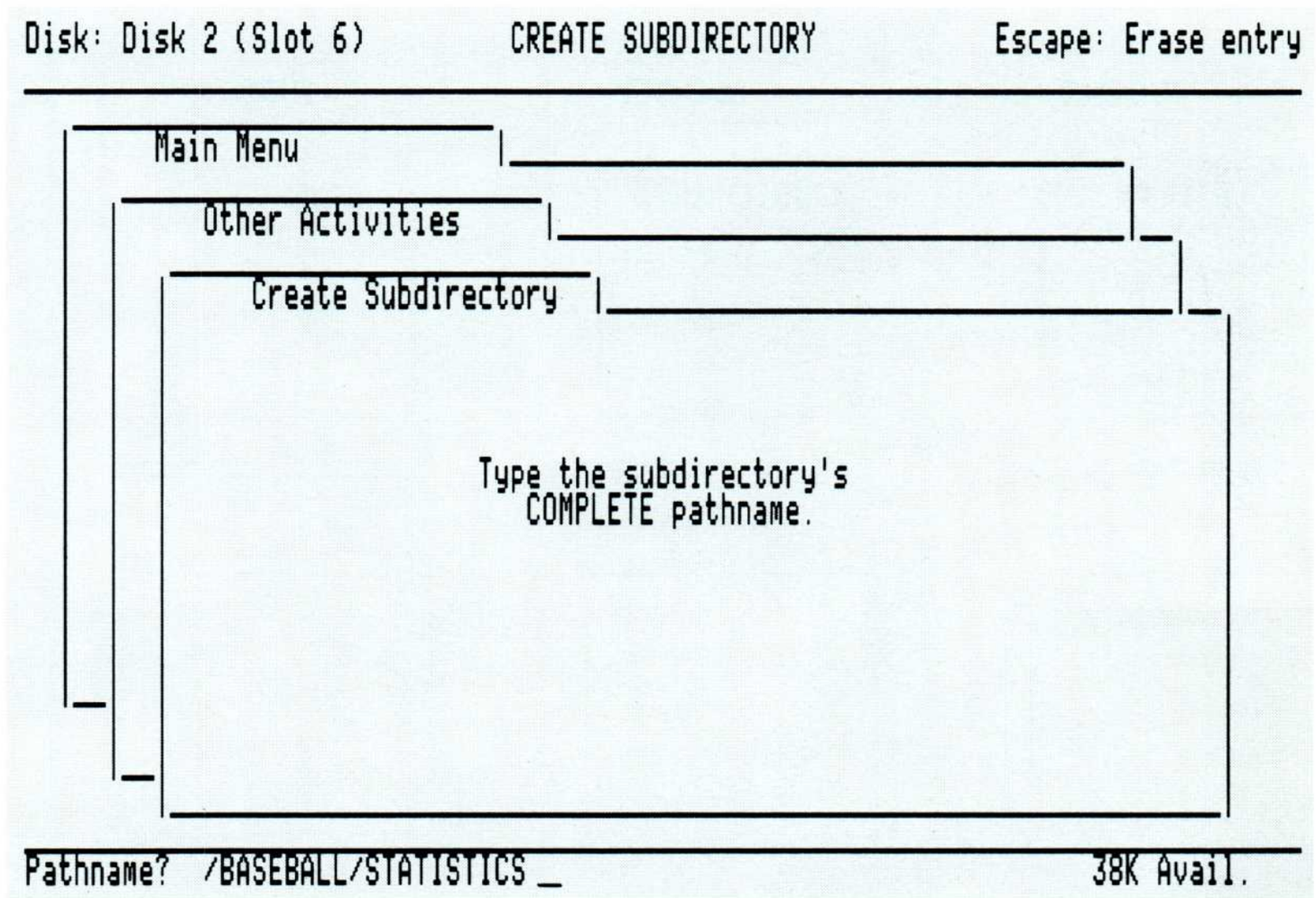
- Enter the complete pathname leading to the subdirectory. Press Return.

  For example, on the disk BASEBALL, you might create a subdirectory called STATISTICS. The pathname would be:

  `/BASEBALL/STATISTICS`

  Be sure to put a slash in front of the subdirectory name. The name must begin with a letter; it can contain uppercase or lowercase letters, numbers, and periods—no spaces.

  Maximum length: 15 characters

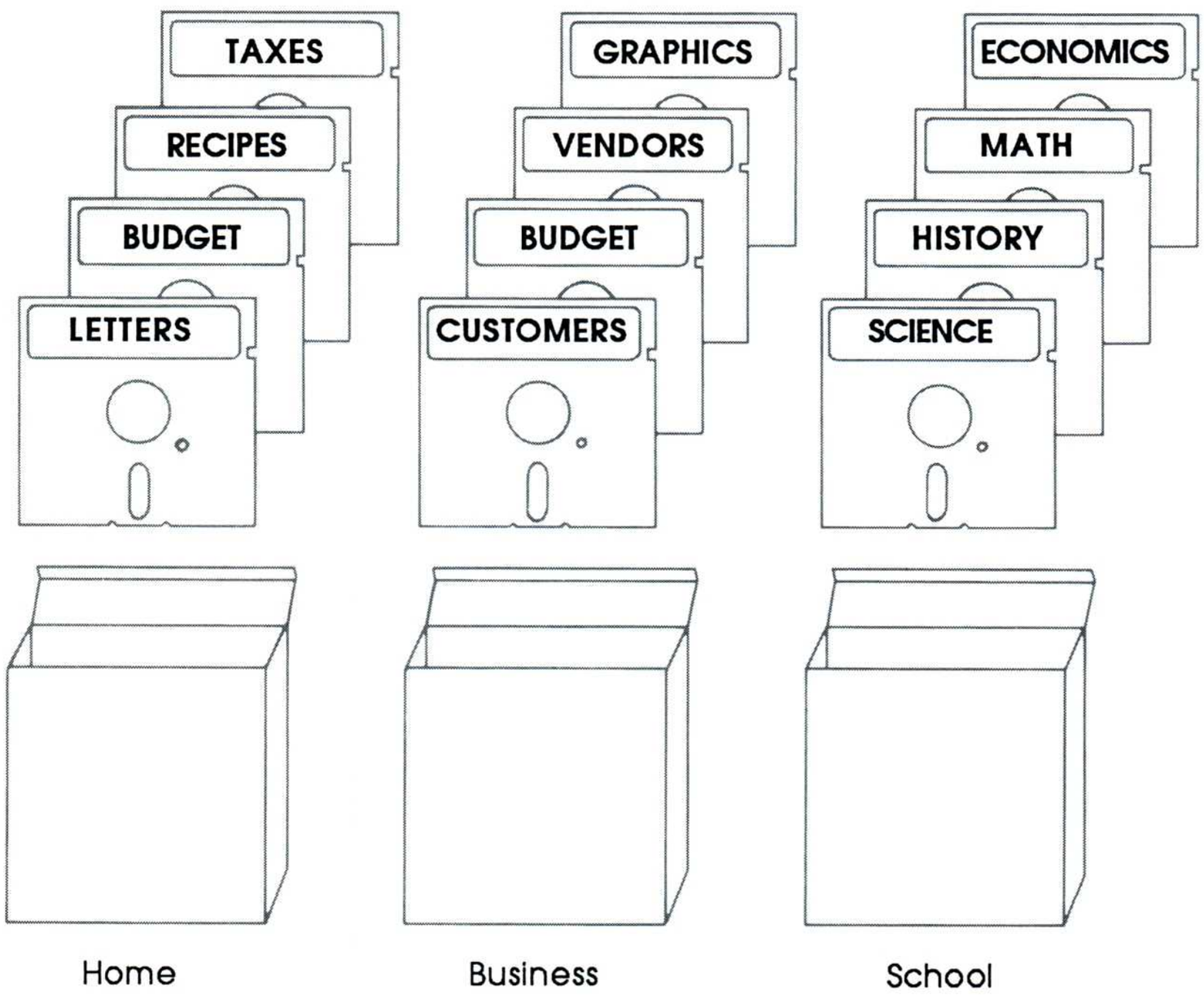


Organizing files on disks

The more you work, the more files you end up with. At first, they're easy to find. But after a while, you need some kind of organizing principle to help you keep track. Here are two approaches to organizing.

Physically

If you use 5.25-inch flexible disks, you'll probably want to organize your files by keeping related groups on different disks. For example, one disk might contain all your work on one project; another might be devoted to monthly and quarterly budgets.

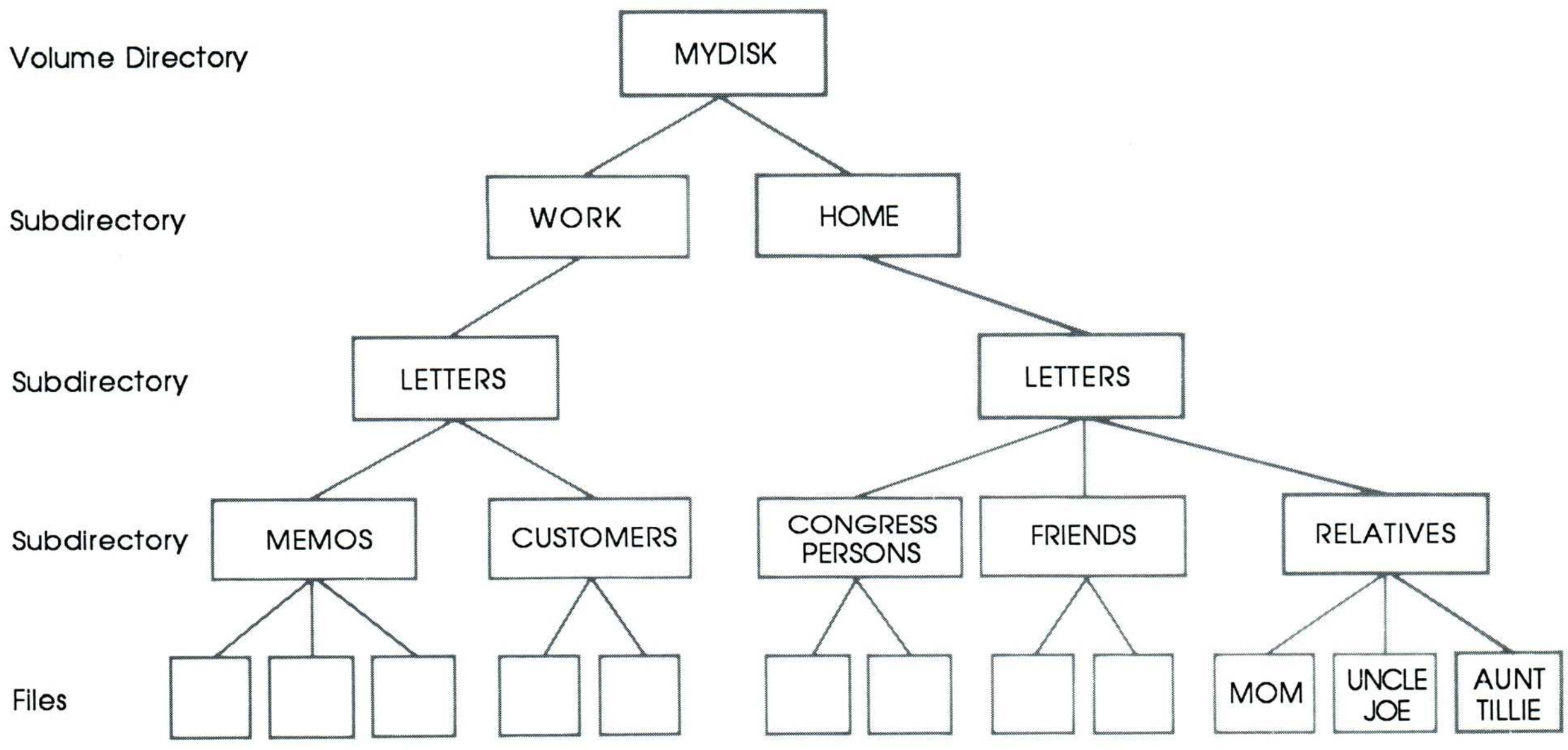


Logically

A 3.5-inch disk holds the equivalent of several 5.25-inch disks; a hard disk holds the equivalent of dozens. With that many files on a single disk, you need another approach to organizing files.

Subdirectories help you organize a multitude of files in meaningful groups, so that you don't need to browse through a long list to find the one you want.

You can have subdirectories within subdirectories. For instance, you could create one subdirectory named *WORK* and another named *HOME*. Within the subdirectory WORK, you might have a subdirectory called *LETTERS,* and within that, one called *MEMOS* for internal memos, and another called *CUSTOMERS* for letters to customers.



Saving files

People who have worked for hours without saving a file only to have the power go out—erasing all data from the computer's memory—have a maxim: Save early, and save often!

There are several different ways to save your files with AppleWorks. For instance, you can save one or more files with their current names to the current location, replacing the old versions with the new. Or you can save a file to the same disk, but under a new name. Or, using the old name, you can save the file to a new location.

You can manage all of these feats from several places on the Main Menu. But there are a few shortcuts.

Pressing ⌘-S from within a file saves the file under its current name to the current location.

Pressing ⌘-N from within a file lets you change the filename, so that the next time you save the file it will not replace the earlier version.

Tips: See page 220.

Saving one file—the fast way

- To save just the file you are working on, when you are sure you want it to replace the current version on the disk, and you want to go on working on the file afterward, press ⌘-S for Save.

Saving several files to the current location

- To save several files, when you want them all to go to the current location, press Escape to return to the Main Menu. Choose option 3, `Save Desktop files to disk`.
- Use the Right Arrow to mark files you want to save. Use the Up Arrow and Down Arrow to move the highlighting. Use the Left Arrow to cancel a selection. When you have selected all the files you want to save, press Return.
- Choose option 1, `Save the file on the current disk`.
- When AppleWorks asks about each file, decide whether you really want to save it to the current location or to a new one. And if you decide on the current location, choose whether to replace the old version or bless this version with a new name.

Saving files to a different location

- Press Escape to return to the Main Menu. Choose option 3, `Save Desktop files to disk`.
- Use the Right Arrow to mark files you want to save. Use the Up Arrow and Down Arrow to move the highlighting. Use the Left Arrow to cancel a selection. When you have selected all the files you want to save, press Return.
- Choose option 2, `First change to a different disk or directory`.
- Pick another disk, or type in the ProDOS prefix leading to another disk or subdirectory. Press Return. That becomes the new current location.
- Accept option 1, `Save the file on the current disk`, because that is your new location.

If you already have a file by that name in that location, you must now decide whether to have the new version replace the old one or to rename the new version. Do so and proceed.

Changing the filename

- While inside the document, press ⌘-N for Name.
- Type a new filename, and press Return.

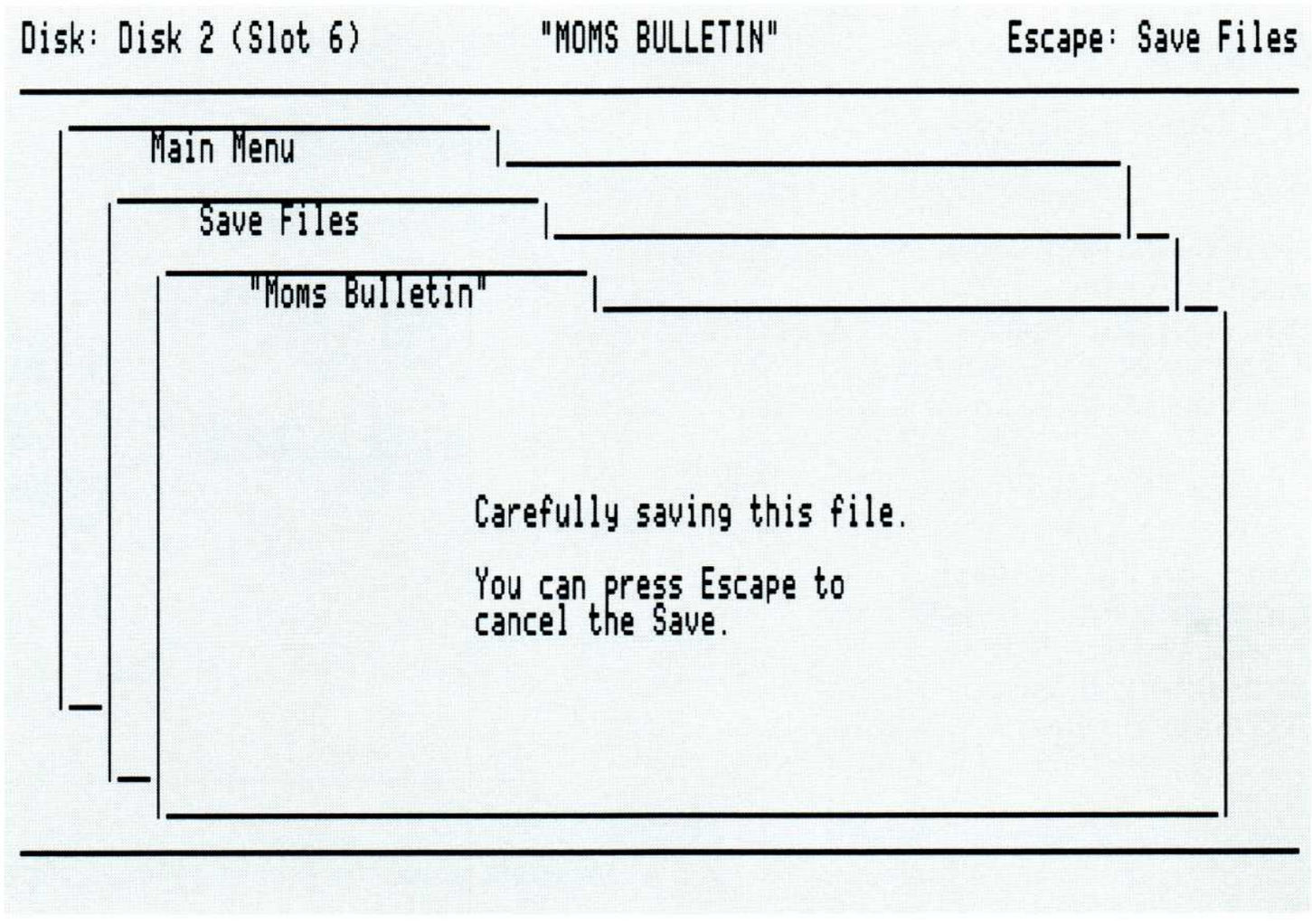
  This changes the filename but does not save the file. The next time you do save the file, though, it will have this new name.

You may also change the name when you are using Main Menu option 3, `Save Desktop files to disk`—AppleWorks provides this option when you are about to save the new version on top of the old.

Canceling a save

- When AppleWorks tells you that it is carefully saving your file, you can cancel the process by pressing Escape.

  This only works *during* the save. Afterward is too late.



Removing files from the Desktop

You can have a maximum of 12 files on your Desktop at any one time. But there are times when you may not be able to squeeze that many files onto your Desktop.

Essentially, the Desktop is as big as your computer's free memory when you start AppleWorks. At that time, the program reserves any leftover space for your Desktop.

But there are times when you are working with very large files, or with very little free space in the computer's memory, or both (big file, small Desktop). To give yourself some room to maneuver, you may need to remove a few files from the Desktop.

Tips: See page 222.

1. Start on the Main Menu

- Press Escape to return to the Main Menu.
- Choose option 4, `Remove files from the Desktop.`

  AppleWorks provides you with a list of all files now on the Desktop.

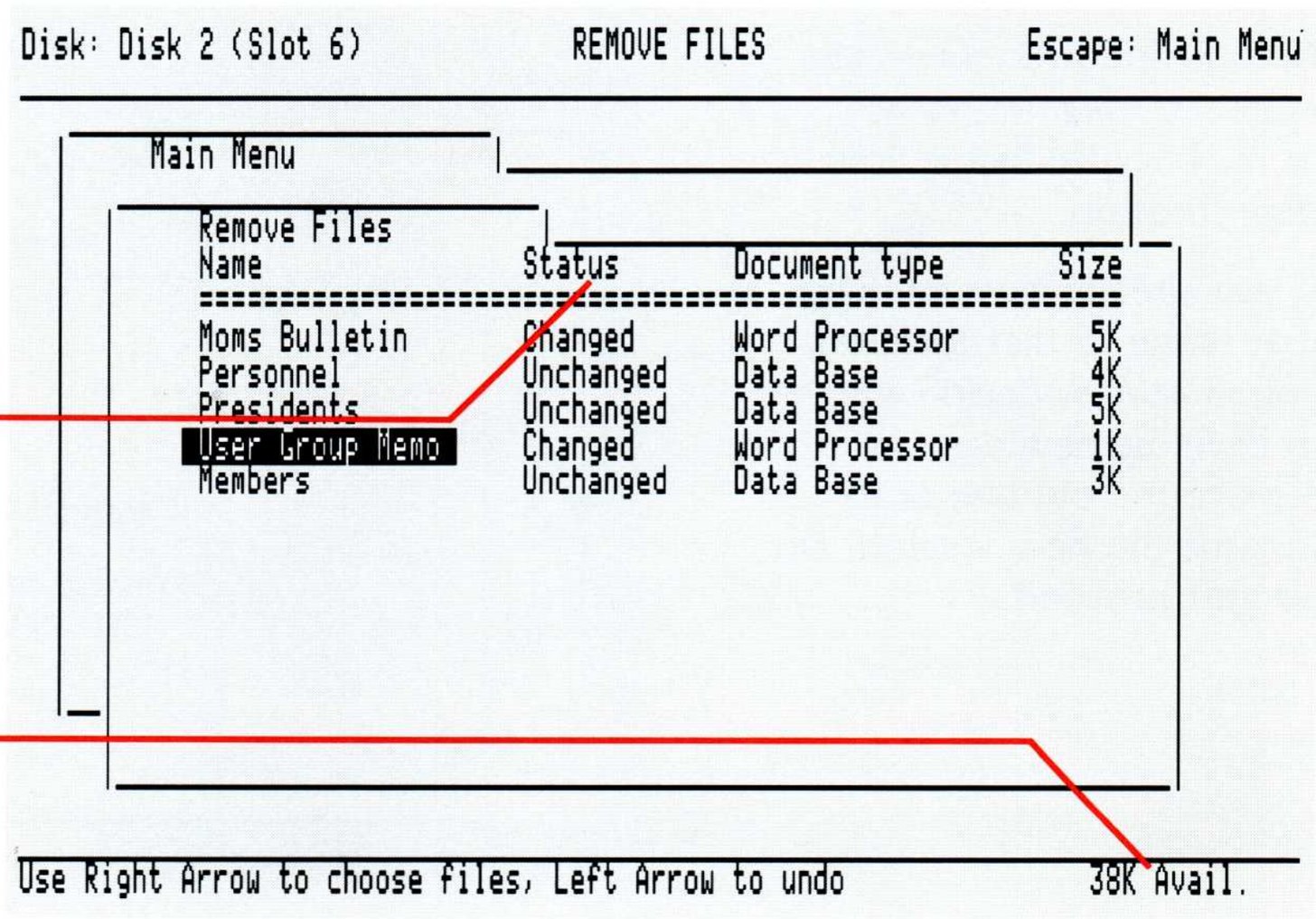
2. Pick the files you want to remove

- Use the Right Arrow to select files. Use the Up Arrow or Down Arrow to move through the list of files. Use Left Arrow to cancel a selection. Press Return.

  You've chosen to remove these files. If you selected a file that has not been changed, AppleWorks erases it from the Desktop. But with any file you have changed, AppleWorks needs to know how you want to dispose of the file.

Status lets you know whether you've made any changes to a file or if you've already saved this version.

Room on the Desktop, measured in kilobytes. A kilobyte is 1,024 characters, or about 200 5-letter words.



3. Save the file to the current location, or...

- To save the file at the current location, choose option 1, `Save the file on the current disk.`
- If you want to preserve the earlier version, give this one a new name. Choose option 2, `Save with a different name`. Type in the new filename, and press Return.

A filename must begin with a letter; it may contain uppercase or lowercase letters, numbers, and periods—no spaces.

Maximum length of a filename: 15 characters

4. Save the file elsewhere, or...

- When asked where you want to save the file, choose option 2, `First change to a different disk or directory.`
- Pick a disk drive or the ProDOS directory. If you pick the directory, type in the beginning part of the pathname, known as the prefix. Press Return. That sets your new location as the current location, and you now return to the Remove Files menu, with your new disk or directory shown at the top left of the screen.
- Choose option 1, `Save the file on the current disk`, because your location is now the current one.

5. Trash it!

- When asked what you want to do with a file you are removing from the Desktop, choose option 3, `Throw out changes to the file.`

After asking you to confirm that you really want to do this, AppleWorks erases the changes and does not save a copy of the file. If you already had a copy on disk, that copy remains unscathed.

If you want to get rid of the copy on the disk, too, return to the Main Menu, choose option 5, `Other Activities`, and then choose option 4, `Delete files from disk`. Use the Right Arrow to select the files you want to delete from the disk; press Return. To avoid accidents, AppleWorks asks you to confirm that you really want to erase each file; answer `Yes`, and the file is gone.

Switching between files on the Desktop

Once you have a number of files on your desktop, you may want to jump from one to another, or you may need to make room for one more.

Tips: See page 222.

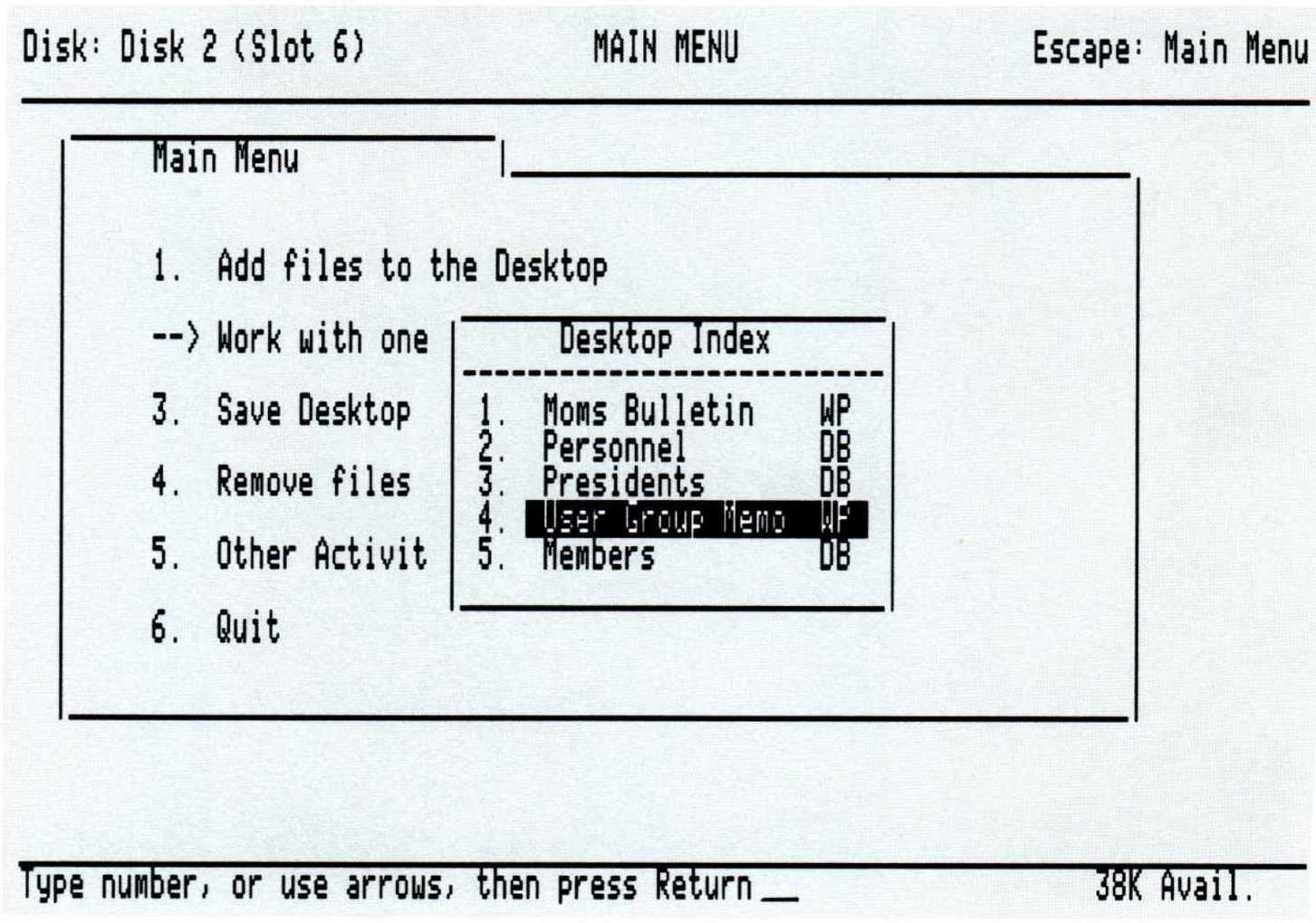
Switching between files

- When you have several files on the Desktop, press ⌘-Q for Quick change. You'll see the Desktop Index.
- Use the Down Arrow or Up Arrow to move the highlighting to the file you want, and then press Return.

AppleWorks takes you directly to that document.

Picking a file to work with—another way

- When you have several files on your Desktop, return to the Main Menu, choose option 2, `Work with one of the files on the Desktop`. You get the Desktop Index.
- Use the Down Arrow or Up Arrow to move the highlighting to the file you want, and then press Return.



Watching memory

- To make sure that the Desktop has enough room for another file, press ⌘-Q for Quick change, and look at the lower right of the screen.

  The figure there tells you how many K (or kilobytes) are still available on your Desktop.

Remember that anything you put on your clipboard (moving a passage, or copying it) eats up the space available on your Desktop.

Also, if you are trying to shoehorn one more file onto the Desktop, remember that the file will use a little more room on the Desktop than it did on the disk; the extra space is used by AppleWorks to keep track of the file's location and status.

And, if you are going to add something to the file, you'll need room for that, too.

If you want to see how much room a file will take up before you actually bring it onto the Desktop, look in the next column.

Making room for a new file

- Go to the Main Menu, and choose option 1, `Add files to the Desktop`. Tell AppleWorks where to find the disk with this file on it. Then look at the size of the file. If it is smaller—by at least 2K—than the room available on the Desktop (indicated at the bottom right of the screen), select the file and have it added to the Desktop.
- If the file is larger than the room available, press Escape to return to the Main Menu and choose option 4, `Remove files from the Desktop.` Pick enough files to make room for your new one, and for any additions you plan to make.
- To clear out whatever you may have on the clipboard and regain that space, press ⌘-C and copy one character to the clipboard.

Using sample files

The sample files provided with AppleWorks show you (among other things) how to create a budget, computerize your address book, and evaluate loans under different circumstances.

Some files you can take as rough models for your own work. Others you'll find can serve as templates: In other words, you can copy these files, and, with a few modifications, use the files themselves for your own work.

Some data bases have specialized reports already prepared. To get one of these reports when you're in that particular Data Base, press ⌘-P and choose to get an existing report.

Tips: See page 223.

1. Browse through the tips

- As you learn an application, read the tips on each sample file to see how you might modify it for your own situation.

For descriptions, see page 223.

2. Add the file to the Desktop

- On the AppleWorks Main Menu, choose option 1, `Add files to the Desktop`.
- If you are using 5.25-inch disks, put the *Sample Files* disk in the current location. (Side 1 has files used in the tutorial; Side 2 has files used in the additional practice, plus some that are just for your use.) On the Add Files menu, select the current location.
- If you are using 3.5-inch disks, your sample files are on your program disk. Make sure that it's in your current location. Then, on the Add Files menu, select the current location.
- Pick the file you want to investigate.

3. Explore

- See if you can figure out how the file is designed and what it is supposed to do.
- Ask yourself: Is this something I could use in my own work?
- If so, try entering some data to see if the file might be suitable for you.
- If you want to save the changes you make, be sure to save them under a new filename, so the original survives.

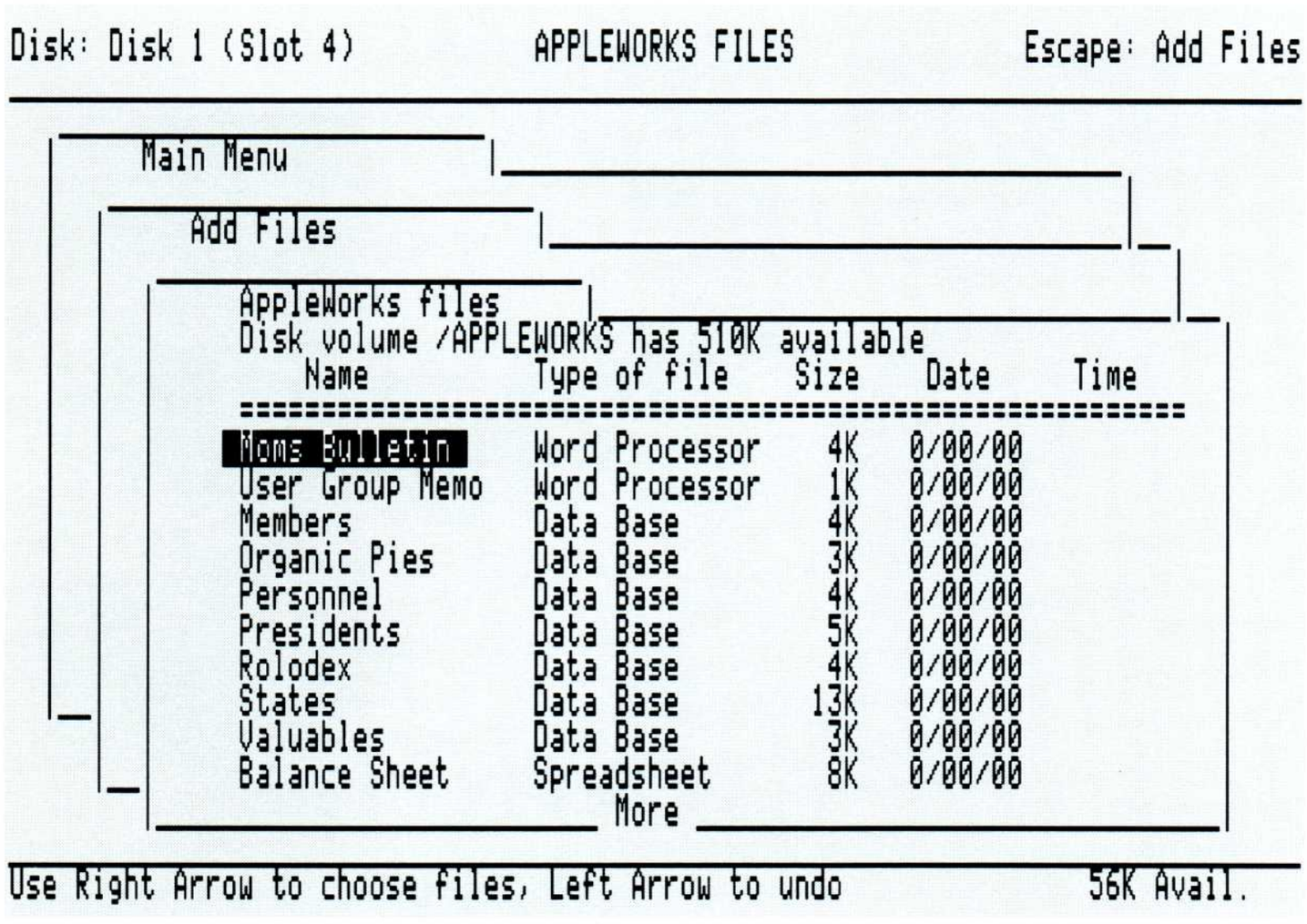
4. Test and revise

- Test any formulas to make sure they are the ones you would use; if not, make corrections. (Press ⌘-Z to see them all.)
- Rewrite category names, report names, and row and column names.
- Revise any report formats to your taste.
- Try entering some more of your own information, and do whatever you need, to make this file your own—reorder columns, change column widths, add and subtract categories, introduce new rows and records.

5. Save under a new name, on a new disk

- Press Escape to return to the Main Menu.
- Choose option 3, `Save Desktop files to disk.`
- Select the file.
- Choose option 2, `First change to a different disk or directory.`
- If you are using 5.25-inch disks, replace the *Sample Files* disk with a formatted AppleWorks data disk, and make sure the location is highlighted. Then press Return. If you are using 3.5-inch disks, put a formatted AppleWorks data disk in another drive, and make sure that the current location is correct.
- Choose option 1, `Save the file on the current disk.`
- If by some chance you now risk overwriting the original file, AppleWorks warns you, and gives you the chance to assign the file a different name. Do so.

  This way, you do not damage your original sample file, and you have your new version in a convenient place.



Quitting

You can stop anytime. The quick-and-dirty route: Turn off your computer. But when you do that, you will lose any work that you've done since you last saved a file.

A safer route: Use the Quit command. AppleWorks will then help you put away each file you've changed, so you don't lose any by mistake.

Tips: See page 226.

1. Escape to the Main Menu

- Press Escape until you reach the Main Menu.

2. Choose Quit

- Select option 6, `Quit`.
- Answer `Yes`, meaning you really want to quit.

3. Decide what to do with your files

- For each file that you have changed, decide whether to save it to the current disk, save it elsewhere, or throw away the changes.

  AppleWorks keeps you from throwing away work by mistake.

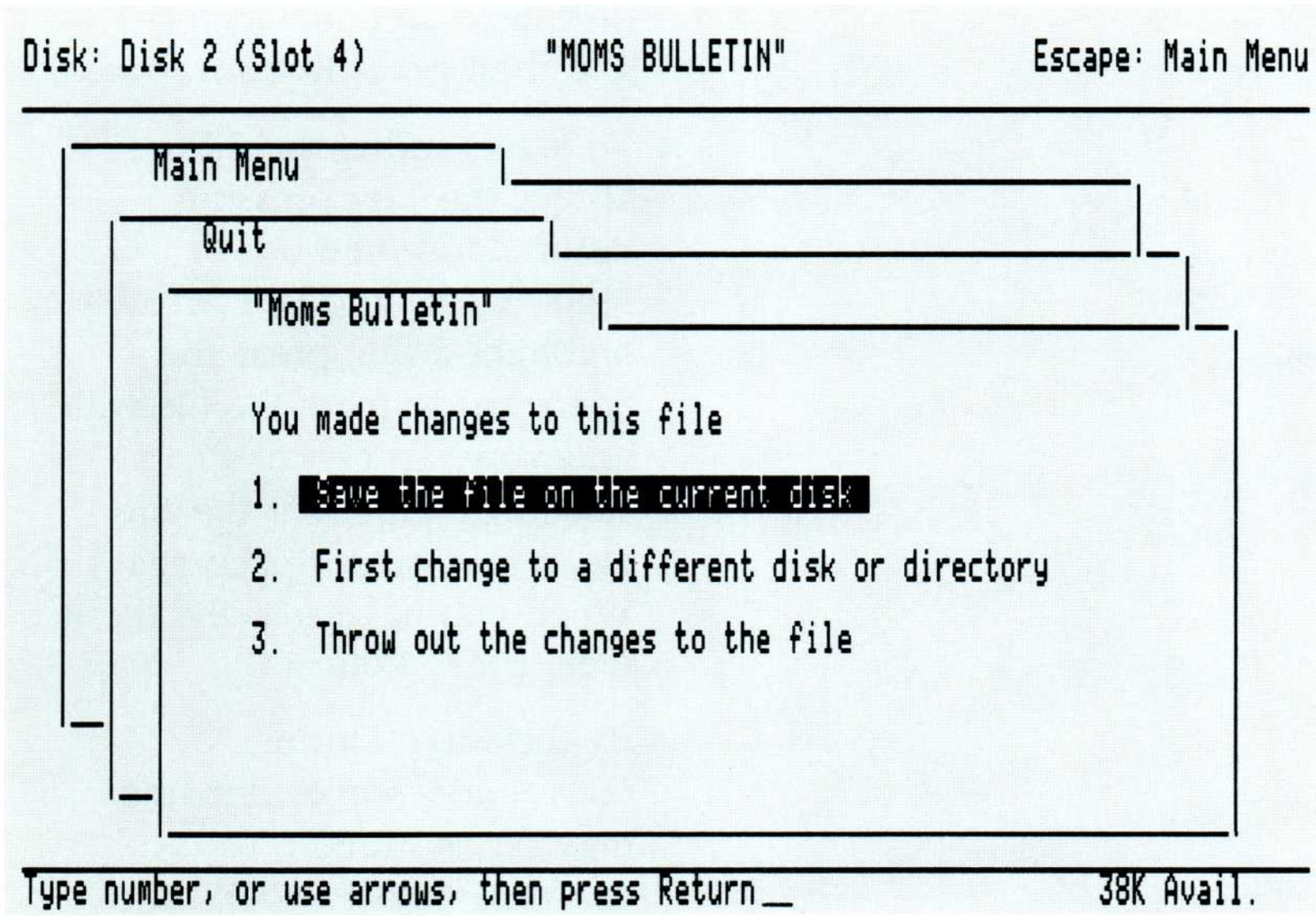
4. Remove your program disk

- When you have finished dealing with each file, the screen goes blank, then displays the message, `ENTER PREFIX`. Take your program disk out of the main drive.
- If you do want to start AppleWorks again, put your *Startup* disk (5.25-inch disk users) or *Program* disk (3.5-inch disk users) back in the drive and press Control-Apple-Reset..

  If you are using a program selector, you return to its main menu. You don't need to remove any disks.

5. Start another program

- Put a new program disk in, and press Control-Apple-Reset, to start the computer again.
- Or, if you are using a program selector, select another program.



Converting files to ProDOS

To add a file, AppleWorks relies on the operating system known as ProDOS. But you may have some files created under earlier operating systems, DOS 3.2 or DOS 3.3; under the Apple III operating system, SOS; or in the programs Apple Writer orVisiCalc. Here's what you have to do to convert those files for AppleWorks' use.

You'll need your original disk and either the *ProDOS User's Disk* or the *System Utilities* disk.

The CONVERT program on the *ProDOS User's Disk* assumes two disk drives. If you are using a computer with at least 128K, use the *System Utilities* disk.

To convert DOS 3.2 files to DOS 3.3 files, use *System Utilities*.

From DOS with *System Utilities*

- Using *System Utilities*, format a disk in ProDOS. Name your new disk something like `/CONVERTED`
- On the Main Menu of the *System Utilities* disk, choose option 8, `Advanced Operations`.
- Choose option 3, `Change a Disk's Format`. Insert or swap disks as prompted. Convert your disk from DOS 3.2 to DOS 3.3, or from DOS 3.3 to ProDOS.

From DOS 3.3 with the *ProDOS User's Disk*

- On the Main Menu of the *ProDOS User's Disk*, choose option 2, `DOS <-> PRODOS CONVERSION`.
- Make sure that the arrow in the second line points to ProDOS. (If not, type R to reverse the direction.)
- Make sure that the slot and drive information, abbreviated in the second line, refers to the drive in which you have your DOS 3.3 disk. (If not, use option C, `Change DOS 3.3 Slot and Drive`.)
- Press T to start transferring files to ProDOS.
- To convert all the files on the disk, type an equal sign (=) and then press Return.
- To select individual files, accept the ? by pressing Return, and then use Right Arrow and Left Arrow to highlight a file; press the Space bar to mark the file with an arrow. To cancel a selection, highlight the file again and press Space again. When you have selected the files, press Return.

By the way: During conversion some filenames may be shortened, to conform with ProDOS rules.

From SOS

- In any SOS program, create an ASCII or DIF file.

  AppleWorks can read that file and use it as the basis for a new AppleWorks document.

From Apple Writer

- If you have an old version of Apple Writer, based on DOS 3.3, convert files to ProDOS.
- If you have version 2.0 (1984) or later, you can use the files without converting. Put the disk in your current location.
- On AppleWorks' Main Menu, choose option 1, `Add files to the Desktop`.
- Choose option 3, `Make a new file for the Word Processor`.
- On the Word Processor menu, choose `From a text (ASCII) file`.
- Give the pathname for your AppleWriter file. Press Return. Then name your new Word Processor document.

  All AppleWriter files are ASCII text files.

From VisiCalc and FlashCalc

- Convert any VisiCalc files created under DOS 3.3 to ProDOS files. (FlashCalc produces ProDOS files, so no conversion is needed for its files.)
- On AppleWorks' Main Menu, choose option 1, `Add files to the Desktop`.
- Choose option 5, `Make a new file for the Spreadsheet`.
- On the Spreadsheet menu, choose option 3, `From a VisiCalc (R) file`.
- Put the disk with your files on it in the current location. Enter the pathname to your VisiCalc or FlashCalc file. Press Return. Name your new spreadsheet.

  You get a new spreadsheet with labels, values, and formulas intact. (VisiCalc can also turn out a DIF file that AppleWorks can use as the basis for a new spreadsheet; but that does not preserve the formulas. See the tips on page 226.)

Try this!

Here are a few exercises you can try to see if you've absorbed some of the key points in this chapter.

If you need help with any of the steps, see the sections mentioned. They're all earlier in the chapter.

1. Add a Word Processor file

- Start the file from scratch.
- Name it `Hello`.
- Type a paragraph announcing that you are now using AppleWorks.
- And, without quitting the program, go on to the second step, in the next column.

Help: See "How to Start AppleWorks," "Using Files—in General," and "Starting a New Document."

2. Format a disk

- From inside AppleWorks, format a blank disk. (Make sure it has nothing valuable on it, because all data will be wiped clean.)

  Help: See "Preparing a Disk to Store Your Files."

3. Set the ProDOS prefix

- Make that disk your current location, using the ProDOS prefix.

  Help: See "Setting a Standard Location for Files."

4. Create a subdirectory there

- Make a subdirectory to hold a series of hello's. Call it `GREETINGS`.

  Help: See "Setting Up a Subdirectory" and "Organizing Files on Disks."

5. Save your file in the subdirectory

- Put the document `Hello` in the subdirectory `GREETINGS`.

  Help: See "Saving Files."

Chapter 2

Using the Word Processor

Creating a Word Processor document

Here's how to start writing a letter or report.

Tips: See page 228.

1. Create the file

- Choose `Add Files to the Desktop` from the Main Menu.
- Choose `Word Processor` from the Add Files menu.

2. Choose from scratch or from another file

- Choose `From Scratch` or `From a text (ASCII) file` from the Word Processor menu.

  If you're beginning a brand-new document, choose `From Scratch`.

  If you want to start with a file created with some other program, make sure it has been saved in ASCII Format. If the file is in the current drive, just type the name of the file and press Return. If the file is in another drive, you must type the complete pathname and press Return.

3. Give it a name

- Type a name for your new file in response to the request.
- Press Return.

  You see an almost empty screen—a blank page for you to write on.

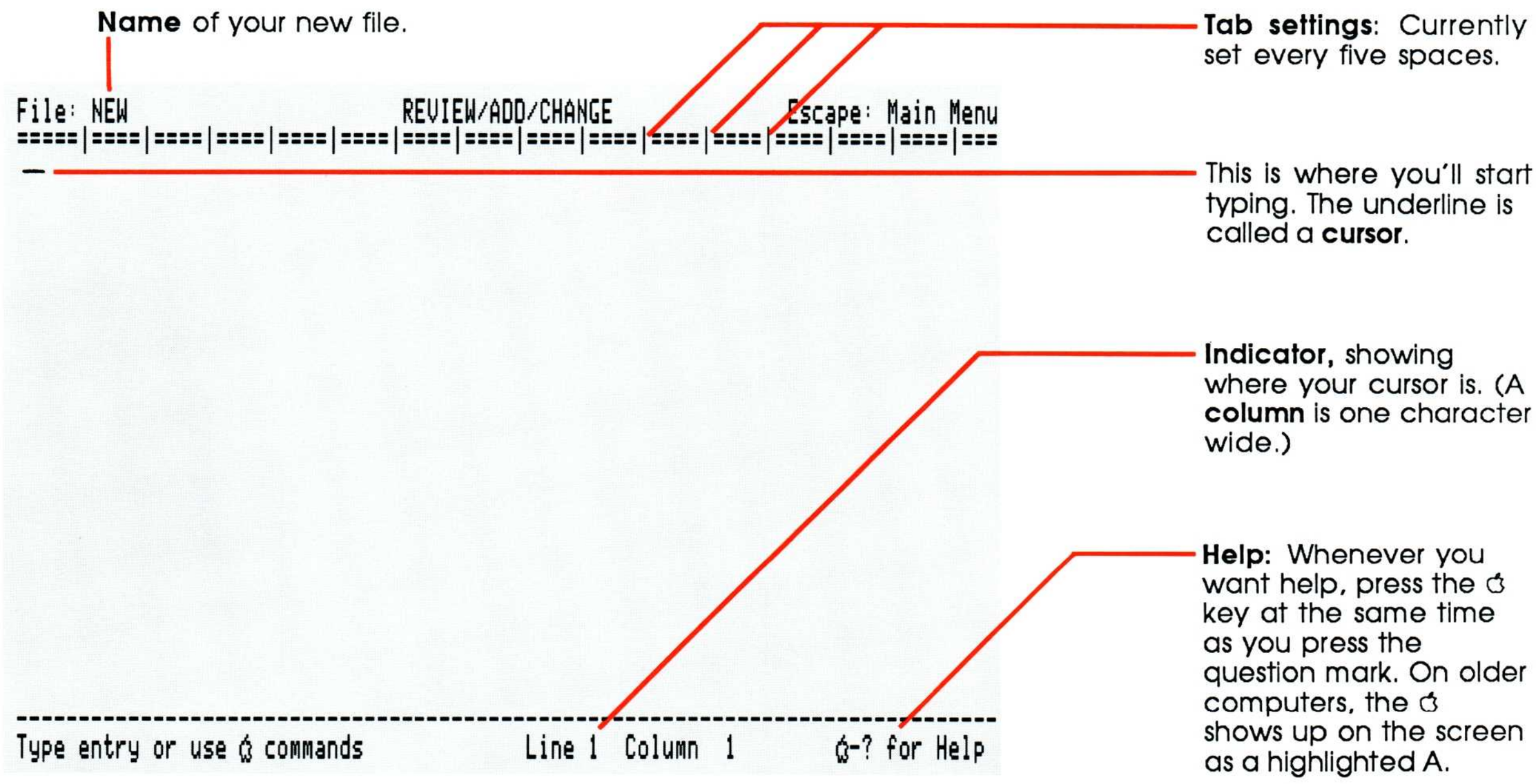
  The name can be up to 15 characters long. It must start with a letter. It can contain uppercase or lowercase letters, numbers, periods, and spaces (no other punctuation).

4. Start writing

- Type.

  On the next page you'll find out more about entering text.

  Here's what you see on the screen.



Entering text

You have two ways to enter text. Each method has its own cursor. The insert cursor is an underline. The replace cursor is a solid rectangle. Each blinks to let you know where it is.

You can *insert* a new character; that moves the character above the cursor to the right, along with any other following text. Or you can *replace* an existing character with one you type.

You can switch from one cursor to another by pressing ⌘-E for Exchange.

When you enter information into a Word Processor document, AppleWorks fits each line into the margins you have set. If you come to the end of a line in the middle of a word, AppleWorks brings the whole word down to the beginning of the next line. This is called *word wraparound;* it means you don't have to press Return to get a new line—you can just go on typing.

Tips: See page 230.

Inserting

- Make sure your cursor is a blinking underline. If not, press ⌘-E for Exchange.
- Type.

  Whatever you type appears to the left of the character your cursor is under. That character moves to the right, along with any other text that follows. For example, you notice that you've left out a few letters in the word *apple.* You move your insert cursor back to the *e* and type `pl`. Here's what happens:

```
ape for you

appe for you

apple for you
```

Replacing

- Make sure your cursor is a blinking rectangle. If not, press ⌘-E for Exchange.
- Type.

  Whatever you type will replace the character your cursor is on. You go on replacing until you encounter a carriage return, indicating that you have reached the end of a paragraph. From that point on, whatever you type is added to the end of the paragraph.

Using tabs

To line up text in neat columns, use tabs. Tab settings—indicated by vertical lines within the dashes across the top of the display—show where the cursor will go when you press the Tab key.

When making columns, use tabs instead of pressing the Space bar. That way you can be sure that, when you print, the text will line up in the columns you want.

By the way: When using tabs, do not use proportional fonts or justification. When you plan to use boldface, underlining, subscript, or superscript, be sure to set up your text in columns first—*then* add the formatting.

Tips: See page 231.

Setting and clearing tabs

- Press ⌘-T for Tab.
- Use the Left Arrow and Right Arrow to move the cursor along the dashes to the spot where you want to insert a tab stop or remove one.
- Press S to set a tab or C to clear one. Press R to remove all existing tabs.
- Press Escape when you are finished.

  Among the dashes along the top of the display, the vertical lines indicate existing tab stops. New documents have tabs every five spaces.

  By the way: As you move your cursor left and right, your position is shown in the column indicator at the bottom right of the display.

Moving to a tab

- Press Tab.

  That takes your cursor to the next tab.

  To move the cursor back to the previous tab, press ⌘-Tab.

Starting a new line

Every time you press Return, you start a new paragraph. Within a paragraph, you don't have to press Return at the end of each line, as you do when you use a typewriter. Instead, you just keep typing, and AppleWorks takes any word that will not fit at the end of the line and moves it down to begin the next line.

By the way: AppleWorks considers Return a character. If you want, you can see the Return symbol in your text on the screen; just press ♁-Z for Zoom. It's the rectangle made out of dots, at the end of the paragraph. To return to regular text, press ♁-Z again.

For AppleWorks, a Return signals the end of a paragraph; so any text before it, up to the previous Return, is treated as part of the paragraph, even if it is only one line of text. For instance, if you press Return after each line in an address, the street information—one line—is considered a paragraph.

In the middle of a paragraph

- Keep typing.

  AppleWorks fits what you type between the margins. If you come to the end of a line in the middle of a word, AppleWorks moves the whole word down to the beginning of the next line as you continue typing.

This feature, called *word wraparound,* lets you keep typing your paragraph without having to press Return to start a new line, the way you would on a typewriter.

Sometimes you want to keep two words together in the same line, no matter where they fall. After the first word, press ♁ at the same time you press the Space bar; that makes the space between the two words "sticky." A caret appears on the screen to mark the sticky space; and, no matter how you change your margins, those two words will always appear on the same line.

In the middle of a line

- Press Return.

  That moves your cursor down to the next line.

  Each time you press Return, you end one paragraph and start another. That new paragraph continues until you press Return again.

If you come back later and insert any text, the text following the insertion will be rearranged only to the end of the paragraph you are in, that is, to the next Return.

In a letter, for instance, there would be a Return at the end of each line in an address. If you had to add a title to the name line, the address line would not be affected.

Beginning a new paragraph

- Press Return.

  That moves the cursor down to the next line.

  In AppleWorks, a paragraph has only one Return—at its end.

Putting in a blank line

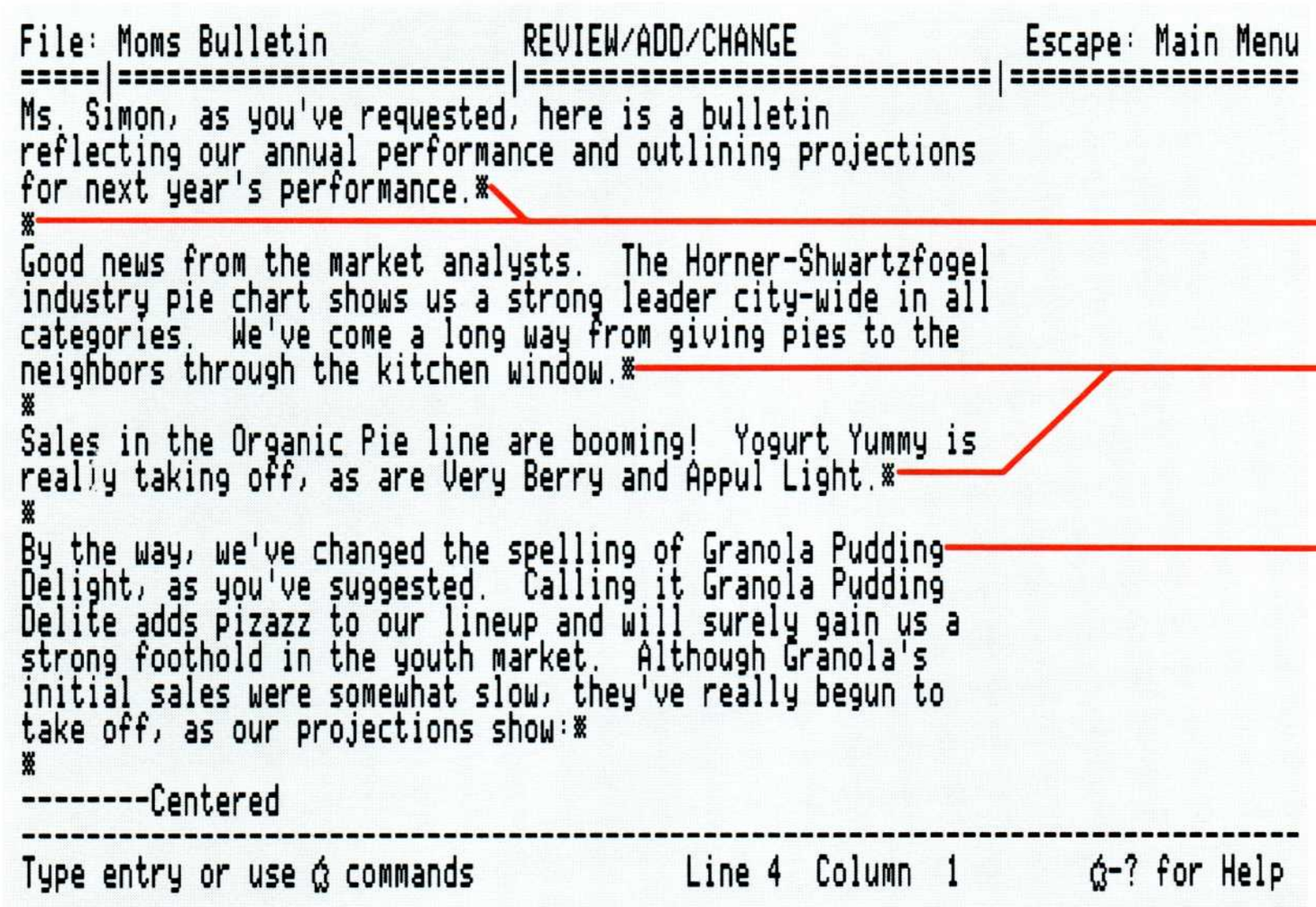
- Press Return twice.

  The first Return moves the cursor to the next line; the second Return leaves that line blank and moves down to the next one. Result: a blank line. You're ready to type on the next line.

Deleting a Return

- Press ⌘-Z to zoom in to see the Return symbol.
- Use the Left Arrow or Right Arrow to move the cursor to the right of the Return you want to delete.
- Press the Delete key.

To delete a large block of text, including several Returns, press ⌘-D for Delete, and then follow the instructions in the lower left of your screen, using arrow keys to highlight the text *and* the Return symbols. Then press Return.



Moving around in your document

You can move your cursor character by character, word by word, line by line, screen by screen, or in one leap from the beginning to the end of the document. Here's how.

Tips: See page 233.

To the next character or line

- Use the arrow keys.

  The Left Arrow and Right Arrow move your cursor one character at a time; the Up Arrow and Down Arrow, one line at a time.

To the first character of a word

- Press ♁ at the same time as you press the Right Arrow or Left Arrow.

  If you're moving to the right, your cursor will end up on the first letter of the next word.

  If you're headed to the left, and your cursor is inside a word, the cursor will end up on the first letter of that word; pressing ♁ and the Left Arrow again will move the cursor to the first letter of the preceding word.

  For AppleWorks, a word is any group of characters separated by spaces.

To tab stops

- Press the Tab key.

  That takes you to the next tab stop.

  To move the cursor back to the previous tab stop, press ⌘-Tab.

Up or down one whole screen

- Press ⌘ and at the same time press the Up Arrow or Down Arrow.

  If you are moving forward through your document, use ⌘ with the Down Arrow; the cursor jumps to the bottom of the screen, and then, when you press both keys again, to the bottom of the next screen.

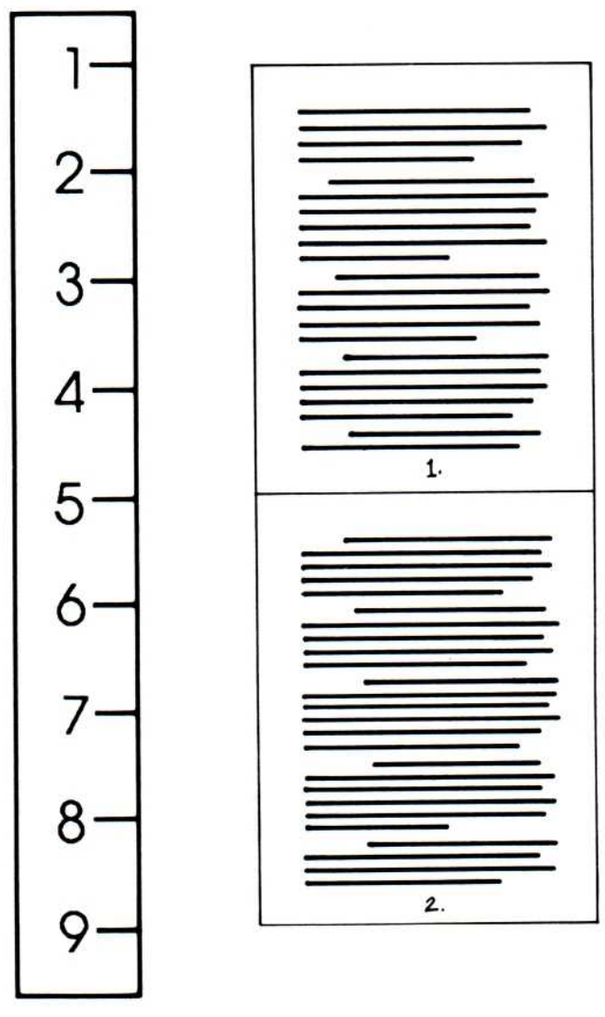
  If you are moving back to the beginning of your document, use ⌘ with the Up Arrow; the cursor jumps to the top of your screen, and then, when you press both keys again, to the top of the screen before that.

  Each screen displays twenty lines.

To the beginning, middle, or end

- Press the ⌘ key at the same time as a number from 1 to 9.

  The beginning of the document is 1; 9 is the end. Imagine a ruler as long as your document, dividing it into eight equal segments, like this:



Deleting

You can delete information in several ways. All methods erase permanently; once deleted, the material is gone.

Also, whenever you delete anything, all existing page calculations go away because the information used to calculate them has changed.

Tips: See page 233.

One character or more

- Make sure the cursor is just to the right of the character you want to delete.
- Press Delete.

  The character is erased, and the cursor moves back one character.

You can continue deleting characters to the left as long as you want.

The rest of a line

- Press ⌘-Y.

  That removes everything from your cursor to the end of the line. If the paragraph continues on the next line, that material moves up to fill the space.

You can do this until you reach the end of the paragraph; ⌘-Y does not delete a Return at the end of the line.

Large groups of text

- With your cursor at one end of the text you want to delete, press ⌘-D for Delete.
- Use arrow keys or the ⌘ key in combination with the Up Arrow or Down Arrow, or a number from 1 to 9 to spread the highlighting over the text you want to delete, including any Return symbols.
- Press Return.

  The highlighted text disappears.

  Remember: ⌘-1 takes you to the beginning of the document; ⌘-5 to the midpoint; ⌘-9 to the end. You can then use the arrow keys to take you to the exact spot you want the highlighting to end.

  If you decide in the middle of this operation that you really don't want to delete, press Escape instead of pressing Return. Your text will not be deleted.

Printer option or page break

- Press ⌘-Z to zoom in so you can see the printer options.
- Move the cursor to the line that includes the printer option or page break.
- Press ⌘-D for Delete.
- Press Return.

  Remember: When you delete anything, all existing page calculations go away. If you do not care where page breaks may fall, you do not need to press ⌘-K again; AppleWorks calculates pages as part of the printing process.

A Return

- Press ⌘-Z to zoom in to see the Return symbols.
- Move the cursor to the Return symbol.
- Press ⌘-D for Delete.
- Press Return.

  Or move the cursor to the right of the Return symbol and press Delete.

Finding

Let AppleWorks find a particular word, a page, a printer option—even a marker you set in the text. Here's the fast way to find what you want.

A tip: Put your cursor at the *beginning* of the area you want AppleWorks to search. If you want to search through your whole document, skip to the first line by pressing ⌘-1.

Tips: See page 234.

Some text

- Press ⌘-F for Find.
- Choose `Text` to indicate you want to find any text that matches what you are about to type. If you've previously found or replaced text, AppleWorks supplies the same text, in case you want it again. (You can accept it with a Return or use arrow keys and the Delete key to get rid of it, and then type in something new.)
- Type the text you want, and press Return.
- If you want to find the next occurrence of the text, choose `Yes`, and then press Return.

  AppleWorks moves the cursor to the text and highlights it. The text may be a phrase, a few words, one word, or part of a word—up to 30 characters long, including spaces.

  In matching what you type to what it finds in the document, AppleWorks ignores uppercase and lowercase in this particular search. If you want AppleWorks to pay attention to uppercase and lowercase, see the next column.

Text with uppercase and lowercase as is

- Press ⌘-F for Find.
- Choose `Case Sensitive Text` to indicate you want to find any text that matches exactly what you are about to type, including uppercase and lowercase. If you've previously found or replaced text, AppleWorks supplies the same text, in case you want it again. (You can accept it with a Return or use arrow keys and the Delete key to get rid of it, and then type in something new.)
- Type the text you want, and press Return.
- If you want to find the next occurrence of the text, choose `Yes`, and then press Return.

  AppleWorks moves the cursor to the text and highlights it. The text may be a phrase, a few words, one word, or part of a word—up to 30 characters long, including spaces.

A page

- Be sure you have calculated page numbers, either by pressing ⌘-K, or by printing the document.
- Press ⌘-F for Find.
- Highlight `Page` and press Return.
- Type the page number and press Return.

  Your cursor moves to the page break line at the end of that page.

A printer option

- Press ⌘-F for Find.
- Choose `Options for Printer`.
- Type the two-letter code for the printer option you want, and press Return.

A marker you set up earlier

- Press ⌘-F for Find.
- Choose `Marker`.
- Type the number of the marker (1, 2, or 3, for example) and press Return.

  By the way: You can set up a marker before any line or paragraph in your text, so you can jump to that place quickly, finding the marker. (The marker will not be printed.) Press ⌘-O for Options, type SM for Set a Marker, and press Return. Type the number of this marker (any number from 0 to 254), press Return, and then press Escape.

  It's OK to have more than one occurrence of the same marker; to find the next one, enter Yes when you are asked if you want to find the next occurrence.

Replacing

You can have AppleWorks search for a particular word or phrase and replace it with another one—one occurrence at a time, or throughout the whole document in a single pass. This can be a big help when you realize you misspelled someone's name on every page, or when the product you've just spent six pages describing suffers a name change.

A tip: This process works like finding. You need to put your cursor at the *beginning* of the area you want AppleWorks to search. If you want to search through your whole document, skip to the first line by pressing ⌘-1.

Tips: See page 234.

1. Decide whether capitalization matters

- Press ⌘-R for Replace.
- Choose `Text` or `Case sensitive text`, and press Return.

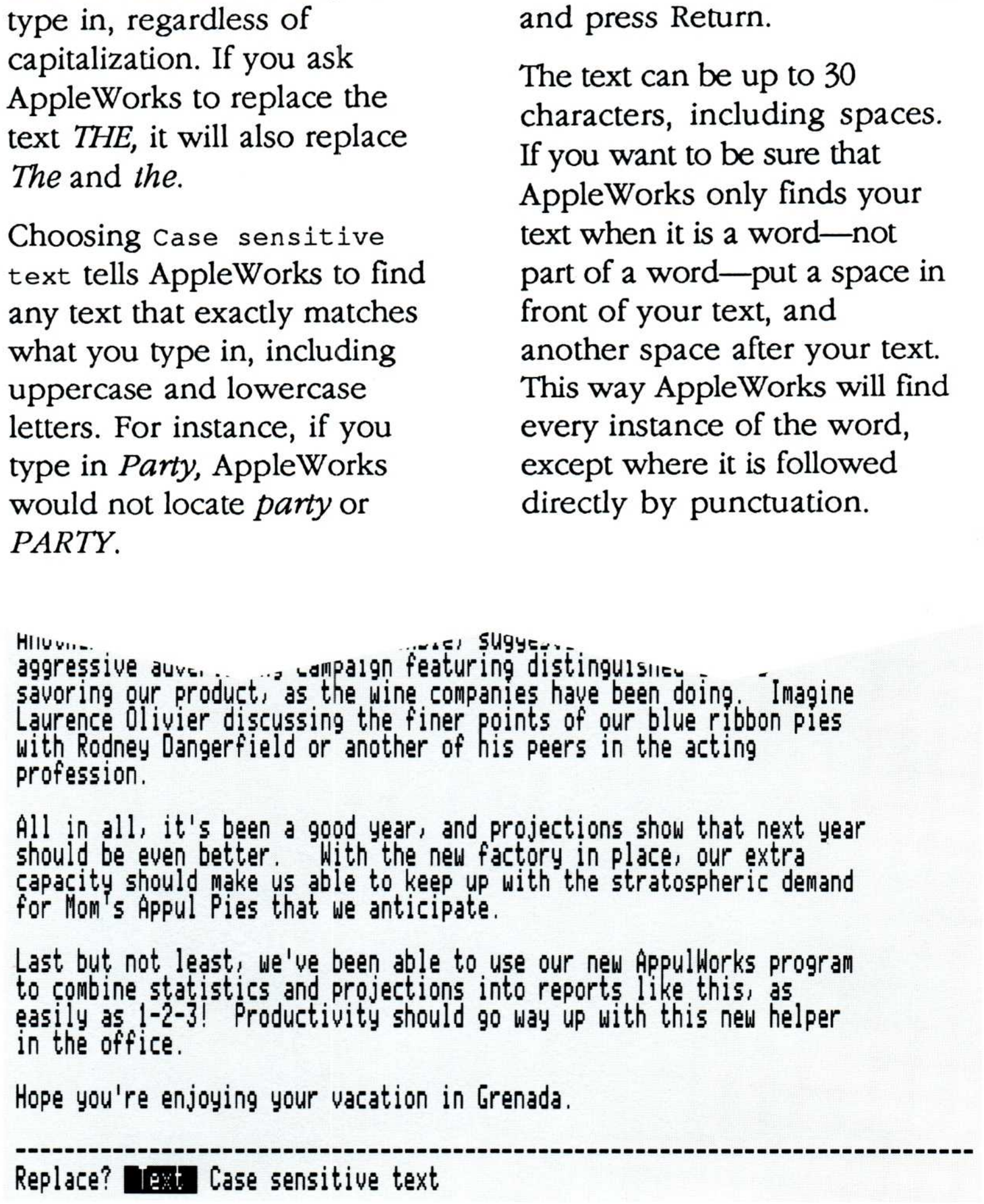
  Choosing `Text` tells AppleWorks to replace any text that matches what you type in, regardless of capitalization. If you ask AppleWorks to replace the text *THE,* it will also replace *The* and *the.*

  Choosing `Case sensitive text` tells AppleWorks to find any text that exactly matches what you type in, including uppercase and lowercase letters. For instance, if you type in *Party,* AppleWorks would not locate *party* or *PARTY.*

2. Type in the text you want replaced

- If you've already found or replaced some text this session, you see the text you last entered to be found or replaced. You can accept that with a Return, or use the arrow keys and the Delete key to get rid of it, then type in new text, and press Return.

  The text can be up to 30 characters, including spaces. If you want to be sure that AppleWorks only finds your text when it is a word—not part of a word—put a space in front of your text, and another space after your text. This way AppleWorks will find every instance of the word, except where it is followed directly by punctuation.



3. Type in the new text

- After the phrase `Replace with what`, type in the new text.
- Press Return.

  This, too, can be up to 30 characters, including spaces.

4. Decide how you want changes made

- Choose `One at a time` or `All`.
- Press Return.

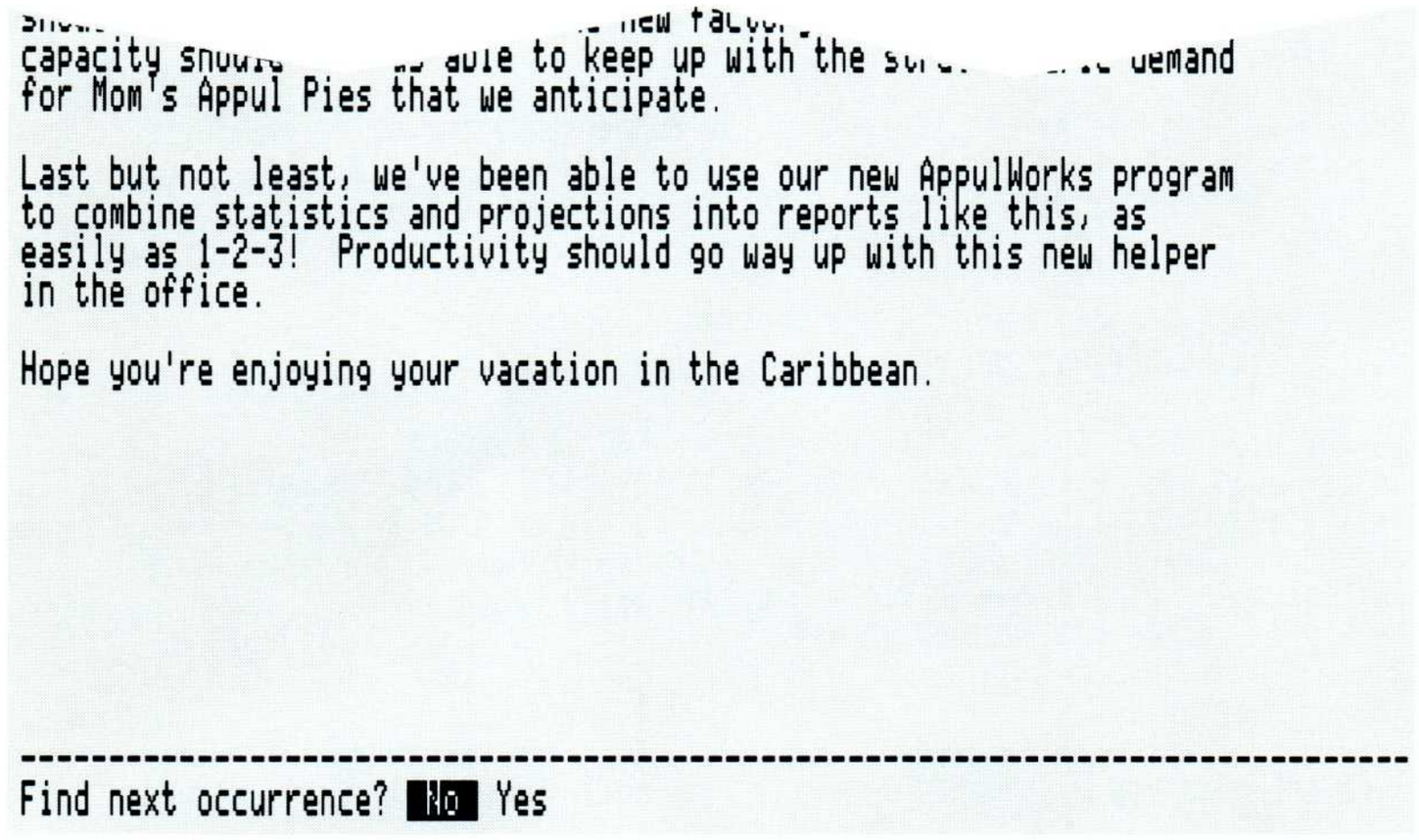
  Choosing `All` tells AppleWorks to replace every occurrence of your original text with the new text. AppleWorks does that immediately.

  But if you feel cautious and want to look at each instance before deciding whether or not to replace it, you can let AppleWorks find and highlight each occurrence of the original text.

5. Continue

- If you chose to replace one at a time, AppleWorks highlights the first occurrence of your original text and asks you whether you want to replace this one. If so, highlight `Yes`, and press Return. If not, just press Return.
- When AppleWorks asks if you want it to go on to find the next occurrence, press Return for `No`, if you've finished, or highlight `Yes` and press Return to go on.

  You can continue like this until AppleWorks finds no more occurrences of your original text.



Moving or copying within a document

Moving means removing a passage from one place, and then putting it somewhere else. Nothing remains at the original location.

In copying, you leave the original in place and put a copy somewhere else.

You can move or copy words, paragraphs, or blocks of information—up to a total of 250 lines.

Tips: See page 235.

1. Get in position

- Move your cursor to the first or last character of the information you want to move.

2. Decide whether to move or copy

- If you want to remove the text from this spot, and put it somewhere else, press ⌘-M for Move.
- If you want to leave the original here, make a copy, and place the copy somewhere else, press ⌘-C for Copy.

Before

```
File: Moms Bulletin          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|=====================|============================|=================
Ms. Simon, as you've requested, here is a bulletin
reflecting our annual performance and outlining projections
for next year's performance.¶
¶
Good news from the market analysts.  The Horner-Shwartzfogel
industry pie chart shows us a strong leader city-wide in all
categories.  We've come a long way from giving pies to the
neighbors through the kitchen window.¶
¶
Sales in the Organic Pie line are booming!  Yogurt Yummy is
really taking off, as are Very Berry and Appul Light.¶
¶
By the way, we've changed the spelling of Granola Pudding
Delight, as you've suggested.  Calling it Granola Pudding
Delite adds pizazz to our lineup and will surely gain us a
strong foothold in the youth market.  Although Granola's
initial sales were somewhat slow, they've really begun to
take off, as our projections show:¶
¶
--------Centered
------------------------------------------------------------------------
Type entry or use ⌘ commands          Line 1  Column  1      ⌘-? for Help
```

3. Choose where

- Choose `Within document`.

  AppleWorks zooms in on the text to show you all the Return symbols and printer options in the text. That way you can be very precise about what information and printer options you are copying or moving.

4. Highlight the text

- Move the cursor to the end or beginning of the passage you want to move or copy.
- Press Return.

  If you are highlighting a large piece of text, you can jump the cursor through your material: Press ⌘ and the Up Arrow or Down Arrow, or a number from 1 to 9. (1 is the beginning of the document, 9 is the end.)

  Be sure to include any surrounding spaces, blank lines, printer options, or Return symbols that you want to take with the passage.

5. Go to the new location

- Move the cursor to the place you want the passage to begin.
- Press Return.

  The passage appears in its new location.

  If you have inadvertently brought along some spaces, blank lines, or Return symbols, you can clean them up with the Delete key.

```
File: Moms Bulletin          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|=====================|============================|=================
Ms. Simon, as you've requested, here is a bulletin
reflecting our annual performance and outlining projections
for next year's performance.¶
¶
Sales in the Organic Pie line are booming!  Yogurt Yummy is
really taking off, as are Very Berry and Appul Light.¶
¶
Good news from the market analysts.  The Horner-Shwartzfogel
industry pie chart shows us a strong leader city-wide in all
categories.  We've come a long way from giving pies to the
neighbors through the kitchen window.¶
¶
By the way, we've changed the spelling of Granola Pudding
Delight, as you've suggested.  Calling it Granola Pudding
Delite adds pizazz to our lineup and will surely gain us a
strong foothold in the youth market.  Although Granola's
initial sales were somewhat slow, they've really begun to
take off, as our projections show:¶
¶
--------Centered
--------------------------------------------------------------------------------
Type entry or use ⌘ commands          Line 5  Column  1       ⌘-? for Help
```

After move, a new second paragraph

Moving or copying between documents

You can copy or move information from one document and put it into another. You start in the document you are cutting or copying material *from*.

You can transfer a passage from another Word Processor document, a data base, or a spreadsheet. Each must be prepared slightly differently; but once the material is on the clipboard, you can proceed in the same way, pasting it into your Word Processor document.

With Spreadsheet and Data Base material, you "print" reports onto the clipboard. That sounds odd, but it's so that the data will be properly formatted on the clipboard, making it easy to read.

Tips: See page 236.

From another Word Processor document

- Put your cursor on the first or last character of the passage you want to transfer.
- If you want to remove the text from this location, and put it in another document, press ⌘-M for Move. If you want to leave the original here, and place a copy in the other document, press ⌘-C for Copy.
- Choose `To clipboard`.
- Move the cursor to the other end of the passage.
- Press Return.

  The passage is now on your clipboard.

  For the next steps, see the last column, "Into a Word Processor Document."

From a Data Base report

- Press ⌘-P from your report. (You must make a report; you cannot move or copy directly from the data base.)
- Choose `The clipboard (for the Word Processor)`.
- If your report has a header, type the date, and then press Return; if not, just press Return.

  The passage is now on the clipboard.

  For the next steps, see "Into a Word Processor Document."

  By the way: Pay particular attention to the number of characters per line in your report. You can have a maximum of 225 characters per printed line; but you cannot set up your Word Processor document to accommodate that many characters. Make sure that your Data Base report has no more characters per line than will fit between the margins you've set up for your Word Processor document; otherwise, your Data Base information will not be formatted correctly.

From a Spreadsheet report

- Press ⌘-P to indicate you want to print a report.
- Choose `All`, `Rows`, `Columns`, or `Block`.
- If you selected anything other than `All`, highlight the area you want to print, and press Return.
- Choose `The clipboard (for the Word Processor)`.
- If your report has a header, type the date, and then press Return; if not, just press Return.

  Your report is now put on the clipboard. For the next steps, see the next column.

  By the way: Formulas are not transferred, since there is nothing your Word Processor can do with them.

  Make sure that your report does not have more characters per line than will fit between the margins you've set up for the Word Processor document. If you do, the extra data in each row will be wrapped around, and will appear in the wrong place.

Into a Word Processor document

- Switch to the Word Processor document you want to paste the information into.
- Move the cursor to the place where you want the passage to begin.
- If you want to paste this information more than once, press ⌘-C to copy the passage, leaving the original on the clipboard for future use.
- If you want to paste this information only once, press ⌘-M to move the passage from your clipboard, leaving the clipboard empty.
- Choose `From clipboard`. AppleWorks transfers the report into the Word Processor document.

  You can now edit the material as part of your Word Processor document.

Formatting for printing

With printer options, AppleWorks gives you control over the way your text appears on the printed page.

If you want, you can print without changing any of the standard settings for margins, spacing, and paper size. These standard settings are shown on this page.

Or, by using the printer options, you can modify those settings and add more special formats.

Standard settings

The document on this page has been printed using the standard AppleWorks settings for margins, paper size, spacing, printing density, and justification.

Platen width (the widest distance your printer can print) = 8 inches

Top margin = 0 inches

Right margin = 1 inch

Left margin = 1 inch

Single spacing

Lines per inch = 6

Characters per inch = 10

Unjustified (the text lines up along the left margin, but is ragged on the right)

Paper length = 11 inches

Bottom margin = 2 inches

Ms. Simon, as you've requested, here is a bulletin reflecting our annual performance and outlining projections for next year's performance.

Sales in the Organic Pie line are booming! Yogurt Yummy is really taking off, as are Very Berry and Appul Light.

Good news from the market analysts. The Horner-Shwartzfogel industry pie chart shows us a strong leader city-wide in all categories. We've come a long way from giving pies to the neighbors through the kitchen window.

By the way, we've changed the spelling of Granola Pudding Delight, as you've suggested. Calling it Granola Pudding Delite adds pizazz to out lineup and will surely gain us a strong foothold in the youth market. Although Granola's initial sales were somewhat slow, they've really begun to take off, as our projections show:

Organic Pie Projections

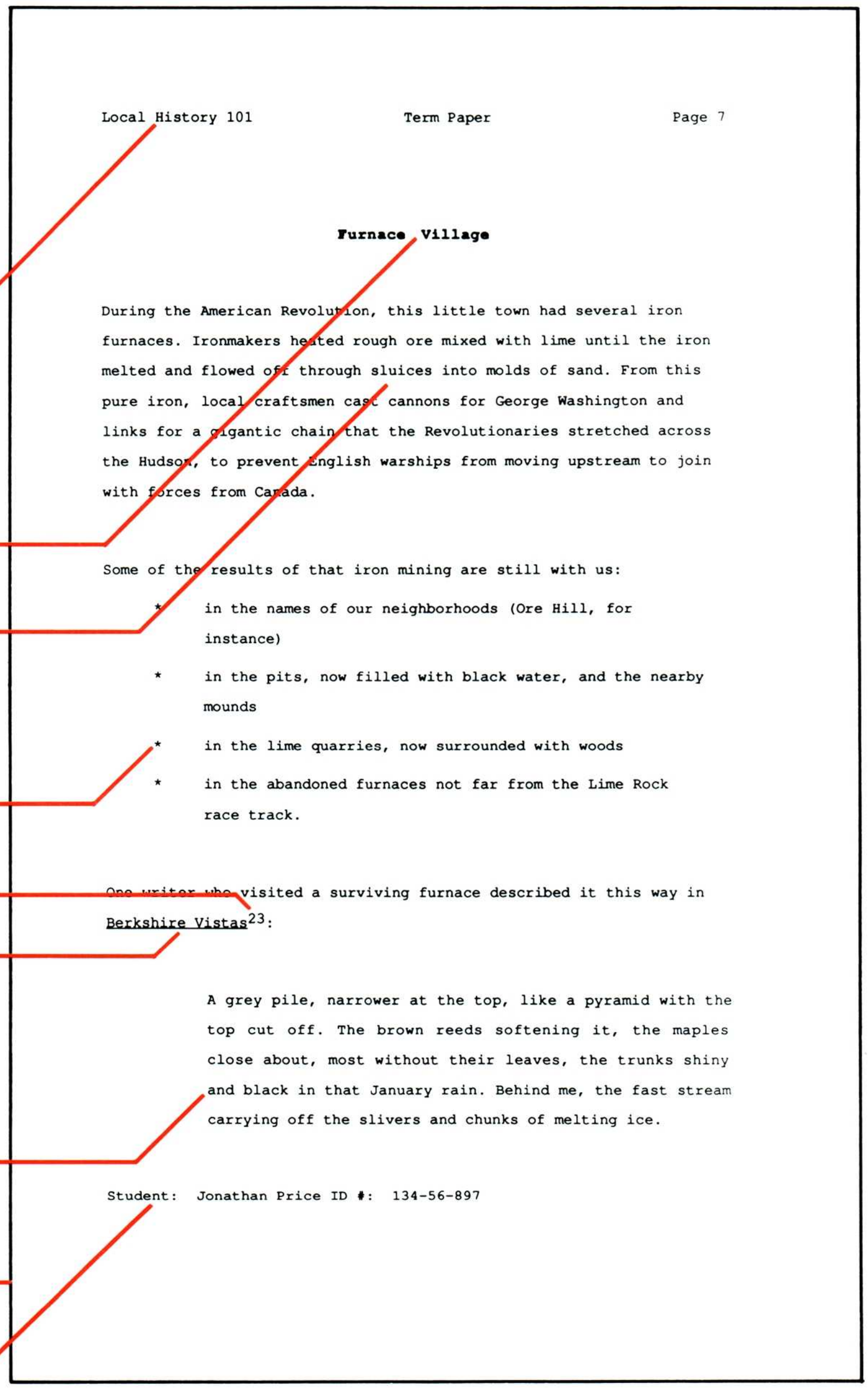
Pie		Oct	Nov	Dec	Qtr
Yogurt Yummy	High	360	540	810	1710
	Low	240	360	540	1140
	Expected	300	450	675	1425
Ragamuffin	High	120	132	165	417
	Low	80	88	110	278
	Expected	100	110	138	348
Vegetable	High	300	303	318	921
	Low	200	202	212	614
	Expected	250	252	265	768

Here are the stats on our best-selling organic pies:

Pie Name	Units Sold	Units/Mo	Date	Total Sa	Total Pr	Profit/U
Apple Light	4000	2000	Jul	$16,000	$5,000	$1.20
Carob Crunch	3600	900	May	$14,000	$4,000	$1.11
Coconut Cust	2800	700	May	$12,000	$3,000	$1.07
Kumquat	600	150	May	$3,600	$1,200	$2.00
Pure Peach	800	400	Jul	$3,200	$670	$0.84
Ragamuffin	500	250	Jul	$2,000	$450	$0.90
Rhubarb	400	200	Jul	$1,600	$400	$1.00
Squash Bloss	400	200	Jul	$1,600	$400	$1.00
Strawberry S	460	200	Aug	$1,600	$300	$2.83

Special formats, using printer options

To add a printer option, press ⌘-O for Option, then type the two-letter code, press Return, enter any necessary information, and press Return and then Escape. On this report, you can see a few of the many options available, with notes on how they differ from the standard settings.



Page header with page number

Title centered with boldface for emphasis

Lines per inch changed to 8 with double spacing

Bulleted list made possible by indenting option

Superscript (text above the line) for footnotes

Underlining

Left margin changed to 2 inches here

Paper length changed to 14 inches for special purposes

Page footer

Using printer options—in general

To set horizontal and vertical spacing, indentation, justification, pagination, and the style of type, you use the printer options.

The list of options may look long, but you'll find that you usually only use five or six on a document. And the whole list is grouped so that similar functions come together—that makes it easier to find the one you want.

Different options apply to different amounts of text. Depending on their nature, some options will stay active to the end of a line, others to the end of a paragraph, and still others to the end of the document—or until you change the option.

This section shows how you'll use options in general. The next six sections go into more detail about the options that control horizontal spacing, indenting, vertical spacing, pagination, headers, and type style.

Tips: See page 238.

1. Get the Printer Options display

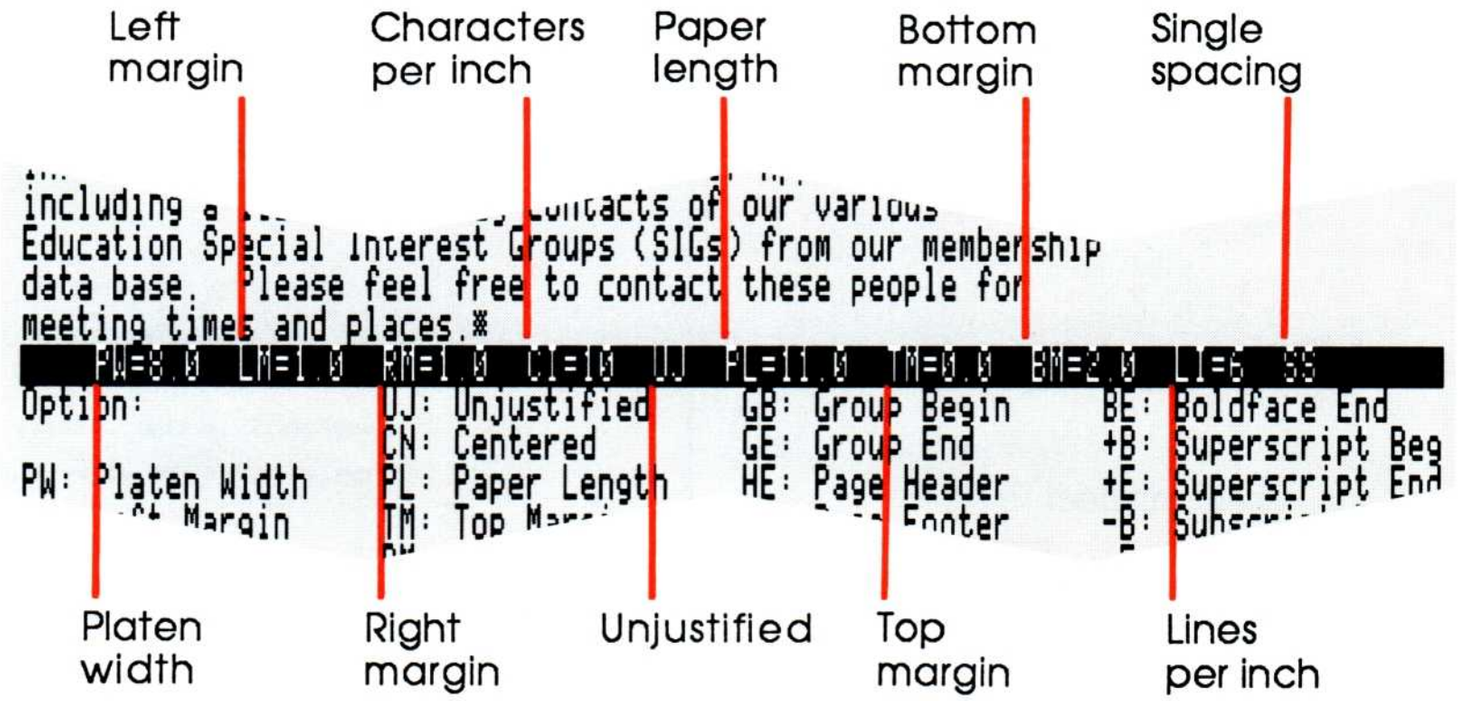
- Put your cursor in the first paragraph you want the option to apply to. Or, if the option will apply to less than a whole paragraph, put the cursor on the first character you want the option to apply to.
- Press ⌘-O.

  This brings you a list of all the printer options and shows you your text zoomed in to make all current options visible.

  (If you want the option to apply to the whole document, press ⌘-1 to get to the beginning, before you press ⌘-O.)

2. Pick an option

- Type the two-letter code for the option you want.
- Press Return.
- If the option needs further information, such as the number of inches, type that, and press Return.



3. Pick another option

- Type the two-letter code for the next option, press Return, type in any other information needed, and press Return.
- When you have entered all the options you need and want to leave the options screen, press Escape.

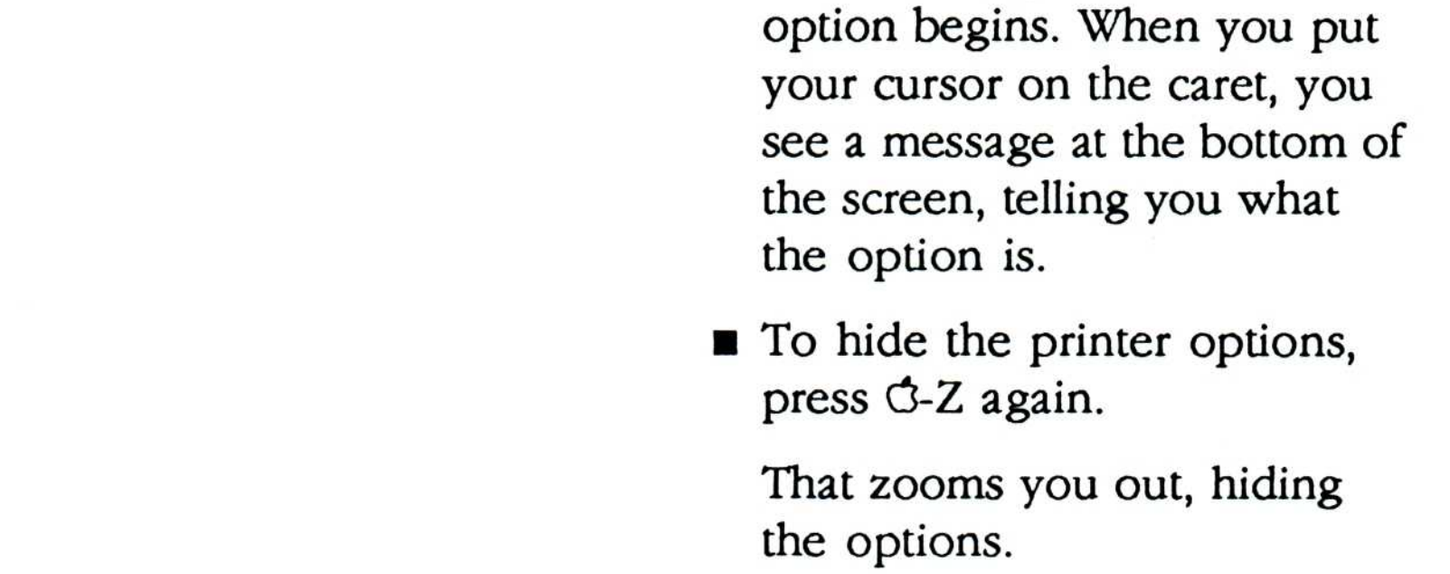
4. Zoom in and out to see, then hide, options

- If you want to find out what printer options are in your text, press ⌘-Z to zoom in. Just above the paragraph, you see dashed lines with messages announcing each printer option. And if an option applies to less than a whole paragraph, you see a caret at the spot where the option begins. When you put your cursor on the caret, you see a message at the bottom of the screen, telling you what the option is.
- To hide the printer options, press ⌘-Z again.

  That zooms you out, hiding the options.

5. If you want to delete an option

- Put the cursor on the printer option line or symbol.
- Press ⌘-D for Delete.
- Press Return.



Controlling horizontal spacing

Using printer options, you can control the width of your text, the number of characters per inch, and the way one character fits together with the next. You can make your average line longer or shorter or have characters tightly packed or widely spaced.

These options stay in effect until you change them. To see any variations from standard settings, zoom in by pressing ⌘-Z. (Only those settings which differ from the standard settings will be displayed.)

When you press ⌘-O for Options, you see a highlighted bar summarizing your current settings. Many of these will work perfectly well from one document to the next, so you won't need to change them. For instance, unless you change the width of your paper or printer, you won't need to adjust the setting for platen width.

Tips: See page 240.

Platen width

- Press ⌘-O for Options.
- Type PW for Platen Width, and press Return.
- Type in the width of your printer's platen (the distance the print head travels from left to right), and press Return.
- Press Escape to leave the Printer Options display.

On most printers, the printhead travels 8 inches. That leaves one half inch of white space on ordinary letter paper. So the platen width is usually a little less than the width of the paper. You might think of the platen width as the maximum length of a line, in inches, when both left and right margins are set to zero.

You can figure out the length of your longest line by subtracting both left and right margins from the platen width.

Ordinarily you change the platen width only when you change the size of paper you're using.

Left margin

- Press ⌘-O for Options.
- Type LM for Left Margin, and press Return.
- Type the margin you want, in inches and tenths of inches, and then press Return.
- Press Escape.

Your screen can display a maximum of 77 characters per line, so even if you set both left and right margins to zero, AppleWorks will wrap any word that extends into column 78. The longest line you'll see on the screen is 77 characters wide.

Standard: 1 inch

Maximum: 9 inches

Minimum: 0 inches

Right margin

- Press ⌘-O for Options.
- Type RM for Right Margin, and press Return.
- Type the margin you want, in inches and tenths of inches (for example, 2.3), and press Return.
- Press Escape.

Standard: 1 inch

Maximum: 9 inches

Minimum: 0 inches

Characters per inch

- Press ⌘-O for Options.
- Type CI for Characters per Inch, and then press Return.
- Enter the number of characters per inch, and then press Return.
- Press Escape.

You can enter any number from 4 to 24, depending on what your printer can manage. Please check your printer manual for this information.

More characters per inch means narrower characters and spaces; fewer characters per inch means wider characters and spaces.

By the way: Don't ask your printer to print more characters per inch—or fewer—than it's designed for. If you do, it will just continue printing at whatever setting was in effect before.

Standard: 10 characters per inch

Maximum: 24

Minimum: 4

Proportional spacing

- Press ⌘-O for Options.
- Type P1 or P2 and then press Return.
- Press Escape.

P1 and P2 are two kinds of proportional spacing; that means each character takes up a different amount of space. The space devoted to each letter is proportional to its true width, in contrast to "monospaced" type, which devotes the same amount of space to every letter, whether it's an *i* or an *m*. Proportional spacing, then, lets AppleWorks fit the letters together more snugly.

Some printers can handle one proportional font, some two, some none. If you choose P1 or P2, and your printer does not have the font available, it goes on printing as before. Check your printer manual.

And even if your printer allows for proportional spacing, make sure that AppleWorks supports proportional spacing for your printer. See chart, page 242.

When you choose a proportional font, it stays in effect until you choose another one or change the characters per inch.

To indent, center, or justify

Several printer options allow you to adjust the horizontal placement of the text within a paragraph.

Normally, your text aligns on the left, leaving the right side of the paragraph uneven. That's called *unjustified* text. With other options, you can have AppleWorks adjust the text during printing (not on the screen) by adding fractional or full spaces between words depending on what printer you use, so that the text lines up on both the left and right margins. (That's called *justified*.) Or you can center text within the margins.

You can create a hanging paragraph, too: The first line begins at the left margin, but all lines after that are indented. Indenting, then, applies to the second and following lines.

You can also create outlines and bulleted lists, using printer options.

Tips: See page 243.

Justifying and unjustifying

- Put the cursor on the line where you want the change to take effect. Press ⌘-O for Options.
- Type the two-letter code for the option you want: JU for justified, or UJ for unjustified. Then press Return.
- Press Escape.

During printing, the document will stay justified or unjustified from here on, until you pick the other option, or centering.

Standard: unjustified

Centering

- Put the cursor on the line where you want to begin centering the text.
- Press ⌘-O for Options.
- Type CN for Centered, and press Return.
- Press Escape.

The text will be centered until you change to unjustified or justified text.

Justified text lines up on the right and left margins.

Centered

New left margin

```
File: JOURNAL                    REVIEW/ADD/CHANGE                Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Centered
                        Offering of Stock¤
¤
--------Justified
This stock offering has the following advantages:¤
     ¤    substantial tax savings at state and federal level¤
     ¤    industry-wide growth at a rate well over 20%¤
--------Indent: 10 chars
But there are a number of disadvantages.  The management is
          not experienced.  The marketing plan seems thin.
          The manufacturing plant is in a shambles.¤
Here's what the journal has to say:¤
--------Left Margin:  2.0 inches
--------Indent: 0 chars
          There is nothing to recommend this company, except
          the newspaper accounts, and although they are
          entertaining, they provide no real information.¤




--------------------------------------------------------------------------------
Type entry or use ⌘ commands          Line 18  Column  1      ⌘-? for Help
```

Hanging indent: first line goes to the left margin, and the rest of the paragraph is indented.

Hanging a paragraph

- Put the cursor in the paragraph where you want the hanging paragraphs to begin.
- Press ⌘-O for Options.
- Type IN for indenting after the first line, and press Return.
- Type in the number of spaces you want the second and following lines to be indented; press Return.
- If you want the entire paragraph to start at a different left margin, including the indentation, enter a different Left Margin (LM) value.
- Press Escape.

  The first line will start at the left margin, and all the following lines will be indented.

To stop creating hanging paragraphs, put the cursor in the paragraph, press ⌘-O for Options again, type IN, press Return, type 0 (zero), press Return, and press Escape. You may also want to reset any margins you changed.

Making a bulleted list

- Type the introduction to your list; it may be as many lines as you like. Press Return.
- Press ⌘-O for Options.
- Type LM for Left Margin, press Return, and specify the amount you want to move this text in. (If your regular left margin is 0, you might specify 1 inch.) Press Return, and Escape from the Printer Options menu.
- Type an asterisk, then press Tab, and enter the text for that bulleted item. If you type more than one line of information, AppleWorks will wrap the text around, so it starts right under the asterisk.
- If you want the text in these items to spill over, but not to start right under the asterisk, use IN to indent it 5 characters (the usual tab setting).

When you want to return to regular text, change the margin back, and set IN to zero.

Outlining

- For major topics, start at the left margin.
- For minor topics, increase the left margin.
- For even more trivial topics, increase the left margin even more.

If you're sure you won't be revising, and you know that most of your entries will be only one line long, you could use tabs. But if you think you might change some of the text and if some topics take more than one line, you'll find changing the margins saves you a lot of time.

Do not rely on spacing with the Space bar to establish the different indentations; spacing that looks fine on screen may turn out to print irregularly, because you've told the printer to use a different paper width, characters per inch, justification, or font.

It's always safest to set up indentations using printer options.

Controlling vertical spacing

Through printer options, you can control the way your text fits on the page, vertically. You start by specifying the length of your paper—if it is different from the standard setting, which is 11 inches—and then set top and bottom margins to define the area in which you'll be printing. Then you can change the number of lines per inch, skip a number of lines, or switch from single to double or triple spacing.

Remember, though, that you do not need to set all these options every time you start a document. You only need to change them if you want to vary from the standard margins, spacing, or paper size.

Tips: See page 243.

Setting the paper length

- If you are going to use paper that is not the standard 11 inches long (for instance, if you are going to use mailing labels), go to the top of the document and press ♁-O for Options.
- Type PL for Paper Length, and then press Return.
- Type the length of the paper in inches and tenths of an inch, and then press Return.
- Press Escape.

  AppleWorks uses this information to figure out where other elements such as headers belong on the page.

  Your printer is usually set up to interpret a "Top-of-Page" command as a directive to move to the top of an 11-inch page. When you change the paper length to something other than 11 inches, you must also go to Printer Specifications on the Other Activities menu, and change

  `Accepts top-of-page commands` to `No`.

  Standard: 11 inches

  Maximum: 25.4 inches

Setting the top and bottom margins

- Move the cursor to the first page that you want these margins to apply to.
- Press ♁-O for Options.
- Type TM for Top Margin, or BM for Bottom Margin, and press Return.
- Type the length in inches and tenths of an inch from the top (or bottom) of the paper to the first (or last) line of printing, and press Return.
- Press Escape.

  The standard top margin is designed for some sheet-feed printers, where you fit the paper in yourself, lining it up so that the printhead is facing the spot where you want the first line of type. In that case, you don't want AppleWorks to move down at all before typing; hence the 0.0 top margin. But for the ImageWriter II with a sheet feeder, set top and bottom margins to 1 inch.

  Standard for the top margin: 0.0 inches

  Standard for the bottom margin: 2.0 inches

  Maximum: 9.0 inches

Setting lines per inch

- Put the cursor in the first paragraph you want to have a different number of lines per inch.
- Press ⌘-O for Options.
- Type LI for Lines per Inch, and press Return.
- Type either 6 or 8, and press Return.
- Press Escape.

  8 lines per inch is fairly compressed—not a good idea for lengthy single-spaced passages. Using 8 lines per inch with double or triple spacing gives you additional possibilities.

  Standard: 6.

  Alternative: 8.

Skipping lines

- Move the cursor to the last line before where you want AppleWorks to begin skipping some lines.
- Press ⌘-O for Options.
- Type SK for Skipping lines, and press Return.
- Type the number of lines you want skipped at this point, and press Return.
- Press Escape.

  By the way: Use this option to leave spaces for illustrations. When you calculate pages using ⌘-K, AppleWorks takes the skipped lines into account, so page breaks will be accurate.

  You cannot skip lines in the middle of a paragraph.

  Maximum number of lines you can skip: 90

Single, double, or triple spacing

- Put the cursor in front of or in the paragraph in which you want the new spacing to take effect.
- Press ⌘-O for Options.
- Type SS for Single Spacing, DS for Double Spacing, or TS for Triple Spacing. Press Return.
- Press Escape.

  On the screen, your lines are single-spaced. Double or triple spacing takes effect only when you print. When you press ⌘-K, AppleWorks calculates the page breaks correctly, and shows you where they will fall.

  The spacing option appears at the beginning of the paragraph your cursor is in, and applies from the beginning of that paragraph until you change the setting.

  Standard: single spacing

Handling pagination

You can have AppleWorks calculate where pages will begin and end, start a new page before the current one is full, and add headers or footers to each page, complete with page numbers. You can even make sure that certain information stays together on one page, rather than being broken up, some on one page, some on the next.

Tips: See page 245.

Calculating pages

- Press ⌘-K for calculate.
- Choose the printer you'll use in printing. Press Return.

  Lines marking the end of each page appear in your document.

Use the arrow keys to move your cursor through the document, looking at the page breaks.

To make the page breaks go away, just start typing. Since that changes the text, and that outdates the pagination, the page breaks disappear.

By the way: You don't have to calculate pages before printing—AppleWorks does that automatically.

AppleWorks can number pages up to page 511.

Creating a new page

- Put the cursor on the line that you want to appear at the top of the new page.
- Press ⌘-O for Options.
- Type NP for New Page and press Return.
- Press Escape.

  If you specify a new page in the middle of a paragraph, AppleWorks puts the page break before the paragraph. To get a new page in the middle of a paragraph, you have to break the paragraph in two yourself by inserting a carriage return where you want the paragraph to break—before you use the New Page option.

  AppleWorks will not overrule any of your New Page breaks, but it will have to break pages between them if the text in between is longer than one page.

```
File: JOURNAL                    REVIEW/ADD/CHANGE                Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Page Header
Analysis                    Page ^#
--------Centered
                        Offering of Stock#
#
--------Justified
This stock offering has the following advantages:#
     #    substantial tax savings at state and federal level#
     #    industry-wide growth at a rate well over 20%#
--------Indent: 10 chars
But there are a number of disadvantages.  The management is
          not experienced.  The marketing plan seems thin.
          The manufacturing plant is in a shambles.#
Here's what the journal has to say:#
--------Left Margin:  2.0 inches
        Indent: 0 chars
```

```
Analysis                    Page 1

                        Offering of Stock

This stock offering has the following advantages:
     *    substantial tax savings at state and federal level
     *    industry-wide growth at a rate well over 20%
But there are a number of disadvantages.  The management is
          not experienced.  The marketing plan seems thin.
          The manufacturing plant is in a shambles.
Here's what the journal has to say:
          There is nothing to recommend this company, except
          the newspaper accounts, and although they are
          entertaining, they provide no real information.
```

Keeping information together on one page

- Put your cursor in the first paragraph of the material you want to group together.
- Press ⌘-O for Options.
- Type GB for Grouping Begin, and press Return, then Escape.
- Move the cursor to the line *after* the last paragraph in your grouping.
- Press ⌘-O for Options, again.
- Type GE for Grouping End, and press Return, then Escape.

  AppleWorks will now make sure that whatever you have grouped together all appears on the same page—unless the grouping is larger than a page.

  In this way, you can group together the introductory sentence of a paragraph and the bulleted items that follow; the title and the first paragraph of a section; or items in a list.

Printing page numbers

- Put the cursor wherever you want the page number to be printed—that could be in your regular text, in a header, or in a footer.
- Press ⌘-O for Options.
- Type PP for Print Page number, and press Return.
- To escape from printer options, press Escape.

  AppleWorks puts a caret (^) where the page number will be printed. If you put your cursor on the caret, you'll see the explanation `Print Page No.` at the bottom of the screen.

  When preparing to print your document, AppleWorks calculates pages, assigning page numbers whether or not you've asked for them to be printed. Normally, it just goes 1, 2, 3. But if you assign the first page the page number 51, it goes 51, 52, 53. Whichever number belongs to this page gets printed where the caret is, and AppleWorks assigns the following page numbers accordingly.

  To have your page numbers printed on every page, use this method to put PP in a header or footer.

Changing a page number

- To change the page number AppleWorks would ordinarily assign to a page, move the cursor somewhere in the area before the text on that page begins. To change the page number that will appear in the header, put the cursor on the page before. To change the page number that will appear in the footer, put the cursor anywhere on the page itself.
- Press ⌘-O for Options.
- Type PN for Page Number, and press Return.
- Type the number of the page, and then press Return.
- To leave printer options, press Escape.

  By the way: When assigning your first page some number other than 1, put the cursor before the text begins.

Setting up headers and footers

You can put a one-line header at the top of each page. AppleWorks skips down the distance you specify for the top margin, prints the header, then skips two lines, and begins to print your text.

And you can put a one-line footer at the bottom of each page. AppleWorks prints the last line of the text, then skips two or more lines, and prints the footer on the last printing line before the bottom margin.

A header or footer contains only one line of text. Once defined, the header or footer is printed on all following pages. On the screen, though, you see its text only at the point you created it.

Tips: See page 246.

1. Position the cursor

- If you are going to start your headers or footers on some page after page one, calculate the pages by pressing ⍥-K.
- For a header, put the cursor on the very first line of the document (before any text), or on the page *before* the one on which you want the headers to start.
- For a footer, make sure the cursor is somewhere on the page where you want the footers to start.

2. Choose the option

- Press ⍥-O for Options.
- Type HE for Header or FO for Footer, and press Return.
- Press Escape to leave printer options.

  In your text, a dashed line appears announcing the header or footer.

```
File: JOURNAL                    REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Page Header
Analysis                  Page ^※
--------Centered
                    Offering of Stock※
※
--------Justified
This stock offering has the following advantages:※
     *    substantial tax savings at state and federal level※
     *    industry-wide growth at a rate well over 20%※
--------Indent: 10 chars
But there are a number of disadvantages.  The management is
    PW=8.0  LM=1.0  RM=1.0  CI=10  UJ  PL=11.0  TM=0.0  BM=2.0  LI=6  SS
Option:              UJ: Unjustified    GB: Group Begin     BE: Boldface End
                     CN: Centered       GE: Group End       +B: Superscript Beg
PW: Platen Width     PL: Paper Length   HE: Page Header     +E: Superscript End
LM: Left Margin      TM: Top Margin     FO: Page Footer     -B: Subscript Begin
RM: Right Margin     BM: Bottom Margin  SK: Skip Lines      -E: Subscript End
CI: Chars per Inch   LI: Lines per Inch PN: Page Number     UB: Underline Begin
P1: Proportional-1   SS: Single Space   PE: Pause Each page UE: Underline End
P2: Proportional-2   DS: Double Space   PH: Pause Here      PP: Print Page No.
IN: Indent           TS: Triple Space   SM: Set a Marker    EK: Enter Keyboard
JU: Justified        NP: New Page       BB: Boldface Begin  MM: Mail Merge
```

3. Type the text

- On the line directly after the dashed announcement, type the contents of the header or footer.

  You have one line for text.

4. Add a page number, if you want

- Somewhere in the line following the dashed announcement of your header or footer, type `Page` if you want the word in front of the page number.
- Put the cursor where you want the page number in the header or footer.
- Press ⌘-O for Options. Type PP for Print Page number, and press Return.
- To leave printer options, press Escape.

  A caret appears where the page number will be printed.

  Whenever the header or footer is printed, the page number for that page is included.

5. Stop headers or footers, if you need to

- To stop a header or footer, press ⌘-O, type HE or FO, and, instead of entering any text, create an empty line by pressing Return.

  That creates an empty header or footer—and as far as the reader is concerned, your headers or footers stop there. (You can always start them again later.)

  By the way: A header or footer with an empty line takes up just as much space as one with text in it—three lines.

Changing the style of type

When you print, you can emphasize some passages by having them printed in boldface, **like this,** or underlined, like this. You can raise some text above the regular text—superscript—or put some below—subscript. Superscript and subscript allow you to do footnote numbers, fractions, and mathematical formulas.

These styles begin where you place the option, and continue to the end of the paragraph or line, or to the point where you place the option that stops the style—whichever comes first.

AppleWorks inserts a caret (^) before the first character in the new style, and right after the last one in that style, when you specify the end; if you let the style run to end of the paragraph, AppleWorks does not put in a closing caret. To see what each caret means, just put the cursor on it, and an explanation will appear at the bottom of the screen.

Tips: See page 247.

Boldface

- Put the cursor on the first character you want boldfaced.
- Press ⌘-O for Options. Type BB for Begin Boldface; press Return and then Escape.
- Type until you reach the end of the passage you are boldfacing—or move your cursor to that point.
- To end boldface, press ⌘-O for Options. Type BE for Boldface End, and then press Return and Escape.

  AppleWorks inserts a caret (^) right before the first boldfaced character. All characters after that are boldfaced until the paragraph ends, or until you stop the boldfacing (in which case AppleWorks inserts a caret right after the last boldfaced character).

Shortcut: Press Control-B to begin boldface, and press it again to end boldface.

To boldface an entire document, see the tips on page 247.

Underlining

- Put the cursor on the first character you want underlined.
- Press ⌘-O for Options. Type UB for Underline Begin; press Return and then Escape.
- Type until you reach the end of the passage you are underlining—or move your cursor to that point.
- To end underlining, press ⌘-O for Options. Type UE for Underline End, and then press Return and Escape.

  AppleWorks inserts a caret (^) right before the first underlined character. All characters after that are underlined until the paragraph ends, or until you stop the underlining (in which case AppleWorks inserts a caret right after the last underlined character).

Shortcut: Press Control-L to begin underlining, and press it again to end underlining.

Superscript

- Put the cursor on the first character you want to raise above the regular line of text.
- Press ⌘-O for Options.
- Type +B for Begin superscript. Press Return and then Escape.
- Type to the end of the passage you want in superscript, or move your cursor right after the last superscript character.
- To end superscripting before the end of the line, press ⌘-O for Options. Type +E for End superscript; press Return and then Escape.

  AppleWorks inserts a caret (^) right before the first superscript character. The superscript continues to the end of the line, or to the place you marked as the end of superscript, in which case AppleWorks inserts another caret right after the last superscripted character.

  Remember: This command will automatically end at the end of the line.

Subscript

- Put the cursor on the first character you want to put below the regular line of text.
- Press ⌘-O for Options.
- Type -B to begin subscript. Press Return and then Escape.
- Type to the end of the passage you want in subscript, or move your cursor right after the last subscript character.
- To end subscripting before the end of the line, press ⌘-O for Options. Type -E to end subscript; press Return, then Escape.

  AppleWorks inserts a caret (^) right before the first subscript character. The subscript continues to the end of the line, or to the place you marked within that line as the end of subscript, in which case AppleWorks inserts another caret right after the last subscripted character.

  Remember: this command will automatically end at the end of a line.

Back to normal

- Press Return. That ends the paragraph and, with it, the special printer commands.
- To remove one of the carets indicating that the style will start or stop during printing, place the cursor just to the right of it, and then press the Delete key.

Printing

Here's how to print your Word Processor document.

Tips: See page 248.

Starting to print

- Make sure your printer is on and ready to go.
- Press ⌘-P for Print.
- If you want to print from the beginning, choose `Beginning`. If you want to print from the beginning of the page the cursor is on, choose `This page`. If you want to print from the paragraph the cursor is in, choose `Cursor`.
- Choose the printer you want to use.

  The printing begins. If the document contains Data Base categories for Mail Merge, then, before printing begins, you will be asked if the information in those categories should be merged during printing.

  To stop the printing, press Escape. To stop the printing for a moment, press the Space bar; to start it again, press the Space bar again.

  By the way: Some printers have a storage area for incoming data (a buffer), so even though you have pressed Escape to stop sending data to the printer, the printer still has some data to print; it will continue printing until its buffer is empty.

Pausing after each page

- If you want to put in a new piece of paper for each page you print, put your cursor at the beginning of the document, and then press ⌘-O for Options.
- Type PE for Pause Each to have the printer pause after each page, and press Return.
- To leave printer options, press Escape.

Pausing here

- To make the printer pause when it reaches a particular place in your document, put the cursor at that spot, and then press ⌘-O for Options.
- Type PH for Pause Here, and press Return.
- Press Escape.

  This can be useful if you want printing to stop before the end of a document. Maybe you just want to print the name and address segment of a letter. Put the cursor at the beginning of the segment and the PH option at the end. Print from the cursor position to the Pause Here. When the printer pauses, press Escape to stop printing.

Entering from the keyboard

- To have the printer stop during printing so that you can type in some information directly from the keyboard, put the cursor right where the information will start.
- Press ⌘-O for Options.
- Type EK for Enter from the Keyboard, and press Return.

  AppleWorks inserts a caret (^) into the text. When you print the document, the printer stops at the spot you designated, waiting for you to type in information. You type it in, and then press Return. That signals the printer to start up again.

  By the way: This feature lets you personalize letters by putting the recipient's name or a personal comment into a form letter. Use an EK for each line.

  For a whole series of form letters, use the Mail Merge function. See Chapter 5, "Using Mail Merge."

Printing a series of files

- To print several files as one long document, go to the first file, and press ⌘-K to calculate pages.
- Move to the last page. Note the page number. If the last page is not full and you don't want empty space between the two files, move the text on that page onto the clipboard.
- Use ⌘-Q for Quick switch and choose the next file.
- Paste the text in at the beginning.
- Use the printer option PN to assign the page number you noted before to the first page of this file.

  Do this for each file. Then print the files.

Try this!

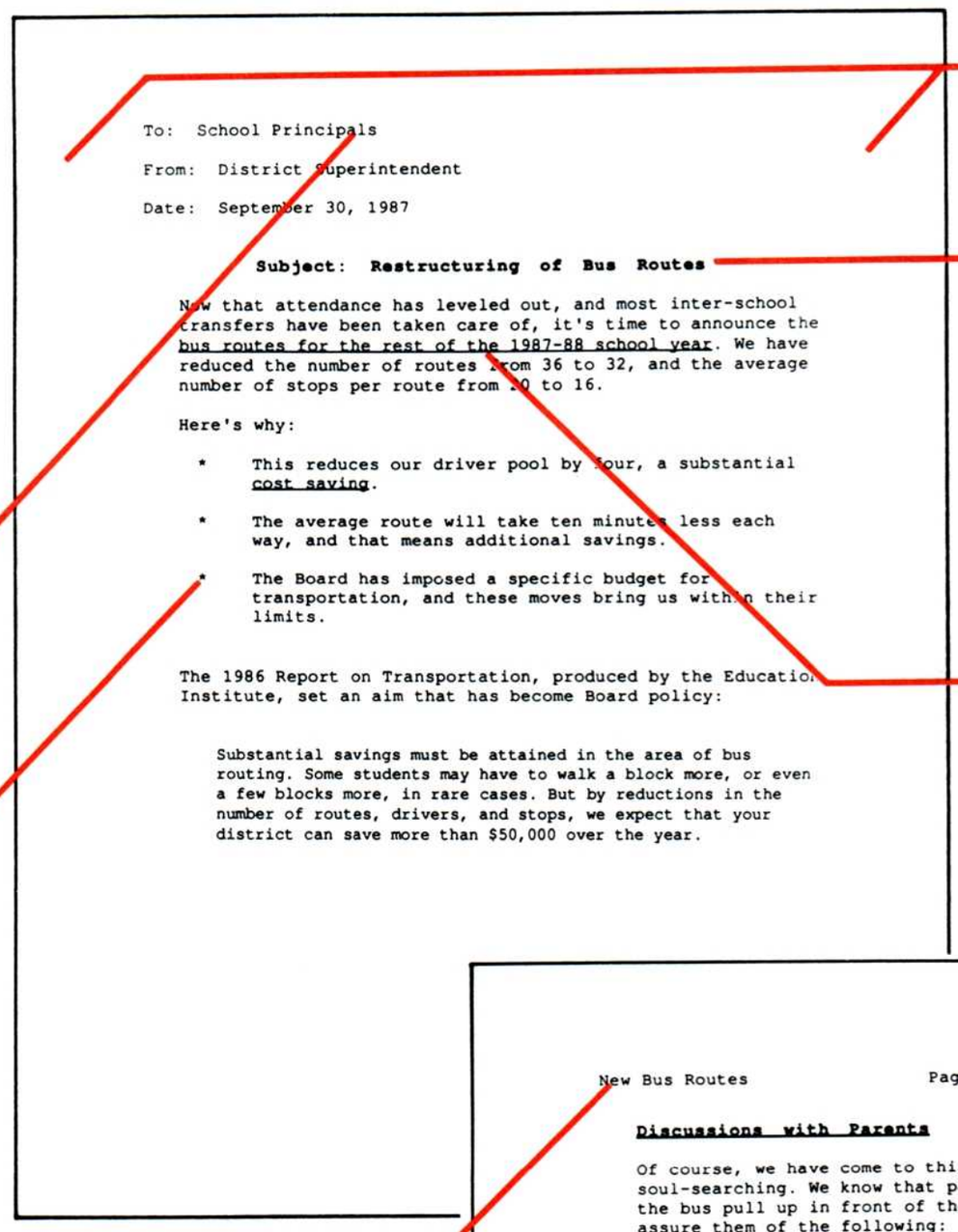
Here is a challenge. Try to recreate the document shown here. If you feel like it, you can use this as a review of the material in "Using the Word Processor."

See what you can do without help. But if something gets confusing, turn to the sections indicated in the callouts.

Start to recreate this document. See "Creating a Word Processor Document."

Bulleted list: See "To Indent, Center, or Justify."

Header and **automatic page numbering:** See "Handling Pagination" and "Setting up Headers and Footers."



To: School Principals

From: District Superintendent

Date: September 30, 1987

Subject: Restructuring of Bus Routes

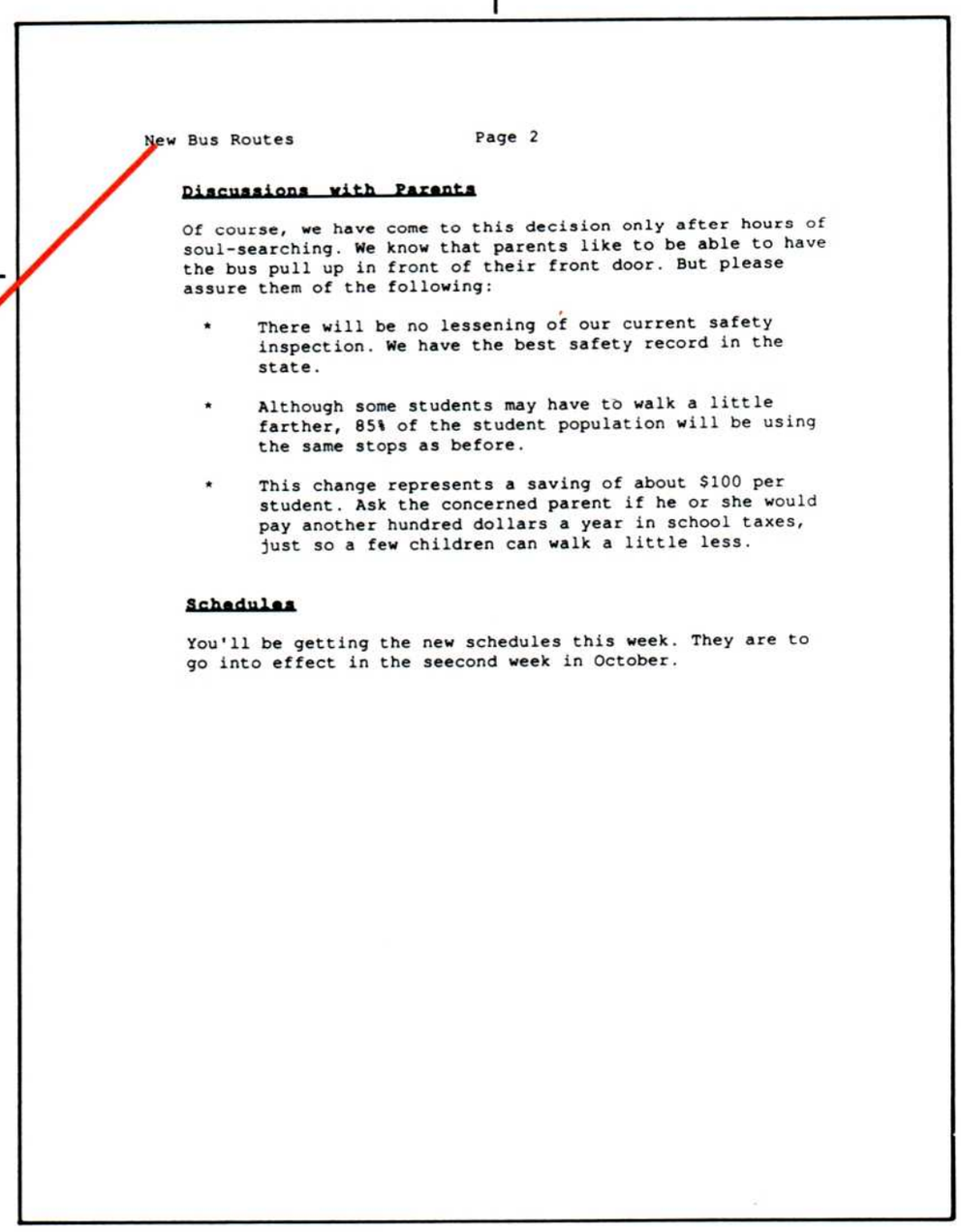
Now that attendance has leveled out, and most inter-school transfers have been taken care of, it's time to announce the bus routes for the rest of the 1987-88 school year. We have reduced the number of routes from 36 to 32, and the average number of stops per route from 20 to 16.

Here's why:

* This reduces our driver pool by four, a substantial cost saving.
* The average route will take ten minutes less each way, and that means additional savings.
* The Board has imposed a specific budget for transportation, and these moves bring us within their limits.

The 1986 Report on Transportation, produced by the Education Institute, set an aim that has become Board policy:

> Substantial savings must be attained in the area of bus routing. Some students may have to walk a block more, or even a few blocks more, in rare cases. But by reductions in the number of routes, drivers, and stops, we expect that your district can save more than $50,000 over the year.



New Bus Routes Page 2

Discussions with Parents

Of course, we have come to this decision only after hours of soul-searching. We know that parents like to be able to have the bus pull up in front of their front door. But please assure them of the following:

* There will be no lessening of our current safety inspection. We have the best safety record in the state.
* Although some students may have to walk a little farther, 85% of the student population will be using the same stops as before.
* This change represents a saving of about $100 per student. Ask the concerned parent if he or she would pay another hundred dollars a year in school taxes, just so a few children can walk a little less.

Schedules

You'll be getting the new schedules this week. They are to go into effect in the seecond week in October.

New margins: See "Controlling Horizontal Spacing."

Centered head. See "To Indent, Center, or Justify."

Underline. See "Changing the Style of Type."

Chapter 3

Using the Data Base

Anatomy of a data base

AppleWorks' Data Base helps you work with information you usually keep in lists: names and addresses, schedules, personnel and payroll files, inventories. With the Data Base, you can organize the information, keep it up to date, find a particular piece of information quickly, and create reports, tables, and mailing labels.

Here are two ways you can look at the information in a data base—as one individual record after another (single-record layout) or as a table showing many records at once (multiple-record layout).

To switch from one view to another, press ⌘-Z. This lets you zoom from single-record to multiple-record layout.

Tips: See page 252.

Single-record layout

To look at all the information about a particular topic, look at it in single-record layout.

File: the entire data base

Activity: what you are doing right now

Escape: where you go if you press Escape

```
File: Presidents                REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records

Record 1 of 40
================================================================================
Name: George Washington
Number: 1
Political Party: Fed
Birth Year: 1732
Birthdate: Feb 22
Birthplace: Va
Inauguration Date: 1789
Inauguration Age: 57
Year of Death: 1799
Date of Death: Dec 14
Age at Death: 67
Vice President: John Adams


--------------------------------------------------------------------------------
Type entry or use ⌘ commands                                        ⌘-? for Help
```

Record: all the information about one person or item

Category: one type of information—sometimes known as a field

Entry: the information in one category

Help: Press ⌘-? for help.

Multiple-record layout

This layout shows several of your Data Base records on the screen at one time.

AppleWorks normally displays the first five categories in your data base. By pressing ⌘-L for Layout, you can switch columns around, change the width of the columns, move some off the screen (but not out of memory), and bring others into view.

Occasionally, an individual entry extends beyond the width of the column. The rest of the data lies behind (or underneath) the next entry, waiting for you to zoom into single-record layout, to see it all.

Category: one type of information—sometimes known as a field

Arrangement: These records are arranged numerically. You can also arrange records alphabetically or chronologically.

Entry: the information in one category of one record

Record: all the information about one person or item; one row is a record.

Column: the space available for each category; you can change a column's width, move it around, add a new one, or delete an old one.

```
File: Presidents                REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Name            Number    Political Party Birth Year     Birthdate
=============================================================================
George Washingt 1         Fed             1732           Feb 22
John Adams      2         Fed             1735           Oct 30
Thomas Jefferso 3         Dem-Rep         1743           Apr 13
James Madsion   4         Dem-Rep         1751           Mar 16
James Monroe    5         Dem-Rep         1758           Apr 28
John Quincy Ada 6         Dem-Rep         1767           Jul 11
Andrew Jackson  7         Dem             1767           Mar 15
Martin VanBuren 8         Dem             1782           Dec  5
William Henry H 9         Whig            1773           Feb  9
John Tyler      10        Whig            1790           Mar 29
James Knox Polk 11        Dem             1795           Nov  2
Zachary Taylor  12        Whig            1784           Nov 24
Millard Fillmor 13        Whig            1800           Jan  7
Franklin Pierce 14        Dem             1804           Nov 23
James Buchanan  15        Dem             1791           Apr 23
-----------------------------------------------------------------------------
Type entry or use ⌘ commands                                  ⌘-? for Help
```

Creating a data base from scratch

You can create a data base for any group of similar items—personnel records, invoices, videotapes, books, phone numbers, and addresses.

The information these items have in common forms the basis for your categories. A personnel file might have categories for name, address, phone number, hire date, salary, tax deductions, number of vacation days, and number of sick leave days.

An inventory file might have categories for the name of the article, the date it was bought, the store, the original price, depreciated value, and warranty.

In creating a data base from scratch, you start a file, create some categories, and then type in the entries for every category in a record.

Tips: See page 253.

1. Add a file

- Choose `Add files to the Desktop` on the Main Menu.
- Choose `Make a new file for the Data Base` from the Add Files menu.
- Choose `From scratch`. Press Return.
- Type a name for your new file. Press Return.

  You are now in the Change Name/Category display.

  A filename begins with a letter, and may contain 15 characters—uppercase or lowercase letters, numbers, periods, or spaces.

2. Enter some category names

- Make sure you have the replace cursor (the solid rectangle), and type the name of your first category.
- If there is anything left at the end of the line, press ⌘-Y to get rid of it. Press Return.
- Type your next category, and press Return. Repeat this until you have typed in your last category.

  By the way: When you want all the entries in a category converted to a standard date or time format, use the word *date* or *time* in the category name, for example, *Birthdate, Begintime,* or *Quittime.*

  When AppleWorks encounters *time* or *date* in the category name, it converts any numbers you enter into a standard format, making comparison and sorting easier. The standard format: Feb 27 86.

  Maximum number of characters in a category name: 20

  Maximum number of categories: 30

3. Correct your category names

- Use the Up Arrow or Down Arrow to move to other names.
- Use either the insert or the replace cursor to correct a name.

4. Insert or delete a name

- Press ⌘-I to insert a category name ahead of the one the cursor is on.
- Press ⌘-D to delete the category name your cursor is in.

  If you have created any special layouts or reports, you will be given a warning before you insert or delete categories; if you go ahead, your layouts and reports are deleted.

5. Enter data

- Press Escape when you are satisfied with the category names.
- Press the Space bar to begin inserting new records. This will take you to a screen that displays your categories, with room for you to enter information.
- Type your information for each category; press Return each time.
- When you have entered the information for the last category, press Return again, and AppleWorks presents you with the next record, ready for you to enter more information into.

  To leave an entry blank, just press Return. When you finish one record, your last Return brings you the next empty record. You can go on and on like this.

  When you want to take a look at several of your records at once, press ⌘-Z to zoom out for a larger view, in multiple-record layout. Want to return to single-record layout? Press ⌘-Z again.

This record is now ready for data to be entered.

```
File: List                      INSERT NEW RECORDS     Escape: Review/Add/Change


Record 1 of 1
================================================================================
Subject Area: -
Speaker's Last Name: -
Work Phone: -
Home Phone: -
Street: -
City: -
State or Province: -
Zip Code: -
Country: -
Notes: -




--------------------------------------------------------------------------------
Type entry or use ⌘ commands                                          56K Avail.
```

Entering and editing information

Once you have started a Data Base file and created your categories, you can enter information in either single-record or multiple-record layout.

To insert a character, use the underline cursor (the insert cursor). To replace a character, use the solid rectangle (the replace cursor). To switch from one to the other, press ⌘-E for Exchange.

To move the cursor past characters without changing them, use the Left Arrow and the Right Arrow.

You can get rid of a mistake by putting the cursor just to the right of the character and then pressing Delete. To erase the rest of the line, starting from where the cursor is, press ⌘-Y.

You can have AppleWorks copy an entry into other records (that's called *dittoing* an entry), or put the same information into the same category in every new record you create (that's called a *standard value*).

Tips: See page 256.

To insert text

- Put your cursor at the spot you want to insert the information. Make sure that the cursor is in "insert mode" (a blinking underline).
- Type whatever you want to insert.
- Press Return to confirm that entry, and move the cursor to the next one.

  If there's another entry below, your cursor drops to it; if there is no entry below, the cursor goes back to the first character of the entry you just made.

To replace characters

- Put the cursor at the spot you want to start replacing characters. Make sure that the cursor is in "replace mode" (a blinking rectangle).
- Type the text.
- Press Return to confirm that entry.

  If there's another entry below, your cursor drops to it; if there is no entry below, the cursor goes back to the first character of the entry you just made.

To ditto an entry

- In multiple-record layout, place your cursor in the entry you want to be replaced with the entry directly above it.
- Press ⌘-".

  Don't press Shift.

This copies the entry directly above the one your cursor is on into your current entry. Any existing entry is replaced by the entry above, and the cursor moves down a record.

To put a standard value in each new record

- If you want AppleWorks to insert the same entry in the same category in every new record, make sure you are in Review/Add/Change; then press ⌘-V for standard Values. You see an empty record unless you have already entered some standard values.
- Move the cursor to the category you want to have a standard value.
- Type the information you want AppleWorks to insert in that category on every new record you create. Press Return.
- Press Escape to return to Review/Add/Change.

  From now on, each time you insert a new record (by pressing ⌘-I, or by adding new records at the end of the file) this value will appear in that category.

To stop having a standard value entered, go through the same steps as above, and, instead of typing an entry, press ⌘-Y when the cursor is at the beginning of the entry. Press Return, and then Escape.

To enter a time or date in standard format

- Put the cursor in an entry under the category with time or date in the name.
- Enter the date in any common format.

  You don't need to use a colon or indicate AM or PM. You can use 24-hour format.

AppleWorks converts the date to a three-letter month (Mar), a one- or two-digit day (27) and a two-digit year (87). For instance, Mar 23 88.

AppleWorks converts the time to hours of the business day. For example, 659 becomes 6:59 PM, and 2 becomes 2:00 PM. To ensure that AppleWorks gets AM or PM right, add an *a* or *p* to the time.

Deleting

You can delete various amounts of information, in different ways.

Tips: See page 260.

A character or two

- Put the cursor just to the right of the character.
- Press Delete.

One entry

- Put cursor at the start of the entry.
- Press ⌘-Y and then Return.

  This gets rid of the rest of an entry from the cursor position to the end of the category.

Highlighted records in a multiple-record layout ready to be deleted

```
File: Members                        DELETE RECORDS      Escape: Review/Add/Change
Selection: All records

Last Name       First Name      Street          City            State
================================================================================
Johnson         Gerri           1197 Baker Ave  Sunnyside       CA
Murphy          Reilly          1234 Ocean      Ocean View      CA
Diaz            Elizabeth       1256 Blair      Ocean View      CA
Hara            Dolores         1226 Blue Oak   Ocean View      CA
Portola         Elizabeth       1876 Sonoma Ave Ocean View      CA
Schreiber       Patricia        1980 Inglewood  Sunnyside       CA
Davis           Pat             1999 Boston Dri Sunnyside       CA
Smith           Carl            123 Avenida Man Ocean View      CA
Davison         Paul            1236 Plaza Stre Sunnyside       CA
Mavis           Paul            124 Coopers Blv Mountain Valley CA
Contrares       Marein          1090 Mountain V Mountain Valley CA
Ampfel          David           19887 Mountain  Mountain Valley CA
Danielson       Maurice         Portola View Dr Portola         CA
Mashima         Karl            1123 Sunset     Portola         CA
Kohn            Kathryn         120998 Sunset # Portola         CA
--------------------------------------------------------------------------------
Use cursor moves to highlight records, then press Return                53K Avail.
```

A category

- To delete a category, press ⌘-N for Name.
- Press Return, since you are not changing the name of the file.
- Put the cursor in the category you want to delete.
- Press ⌘-D to delete the category. Press Return.
- If you are willing to lose all your entries in that category, and your report formats, answer `Yes`.
- Press Escape to return to Review/Add/Change.

  When you delete a category, you lose all your report formats; you need to rebuild them with your existing categories.

One or more records in multiple-record layout

- Put the cursor anywhere in the record you want to delete.
- Press ⌘-D for Delete.
- Use the Up Arrow or Down Arrow to move the highlighting to any other records you want to delete.
- Press Return.

  By the way, if you want to delete large pieces of your data base, you can highlight whole screens of information at a time; use the ⌘ key with the Up Arrow or the Down Arrow.

One or more records in single-record layout

- Move to the record you want to delete.
- Press ⌘-D to delete that record. If this is the record you want to delete, answer `Yes`. AppleWorks deletes it and shows you the next record.
- Keep answering `Yes` as AppleWorks displays succeeding records you want to delete.
- When you reach a record you want to preserve, answer `No`.
- Press Escape to stop deleting records.

After deletion

```
File: Members                    REVIEW/ADD/CHANGE              Escape: Main Menu
Selection: All records

Last Name       First Name      Street          City            State
================================================================================
Johnson         Gerri           1197 Baker Ave  Sunnyside       CA
Davis           Paul            124 Coopers Blv Mountain Valley CA
Contrares       Marein          1090 Mountain V Mountain Valley CA
Ampfel          David           19887 Mountain  Mountain Valley CA
Danielson       Maurice         Portola View Dr Portola         CA
Mashima         Karl            1123 Sunset     Portola         CA
Kohn            Kathryn         120998 Sunset # Portola         CA
Robertson       Robert          12009 Avenida P Portola         CA
Steel           David           1251 Mountain D Portola         CA
Buena           Robert          #7 Vista Point  Mountain Valley CA
-               -               -               -               -



--------------------------------------------------------------------------------
Type entry or use ⌘ commands                                    ⌘-? for Help
```

Moving around in your data base

There's one way to move around inside an entry, and another to move from one entry to another.

You can move forward and back within any entry using the Left Arrow and the Right Arrow.

But when you've finished creating or revising the entry, AppleWorks needs to know that you're ready to go on to another entry. To confirm what you've just done, and then move on to the next entry, AppleWorks offers you several techniques, depending on where you want to go next.

Tips: See page 261.

Within an entry

- To move past characters without changing them, use the Left Arrow and the Right Arrow.
- To cancel what you've just written and restore the former entry, press Escape.

  These moves apply in both single-record and multiple-record layout.

To the next entry

- To confirm what you've just entered and move to the next entry press Return.
- To move to the next entry from an entry you have not changed, press Tab.
- To move back to the previous entry in that record, press ⌘-Tab.
- To move down to the next entry without confirming or changing the current entry, press the Down Arrow. To move up to the previous entry, press the Up Arrow.

  These moves apply in both single-record and multiple-record layout.

  Return *usually* moves you to the next entry down. But, in multiple-record layout, you can make it move the cursor to the category on the right. To do this, press ⌘-L for Layout, press Escape, and choose `Right`.

To the same category in the next record

- In multiple-record layout, press Return.
- Anywhere in a record in single-record layout, press ⌘-Down Arrow to move to the next record. To move to the previous record, press ⌘-Up Arrow. Or go to the last category in a record, and press the Down Arrow; or go to the first category, and press the Up Arrow.

Through the file

- Press ⌘ and the Down Arrow or the Up Arrow.

  In single-record layout, this shows you the next or previous record.

  In multiple-record layout, this jumps you to the bottom or top of the current screen, then to the bottom of the next screen or to the top of the previous screen.

  You can also move the cursor proportionally through the file, by pressing ⌘ with a number from 1 to 9, 1 being the beginning and 9 the end.

From single- to multiple-record layout and back

- Press ⌘-Z to zoom in and out from one layout to the other.

  As you zoom from one layout to the other, your cursor stays in the same entry (unless you changed the layout between zooms). You can then move through the entry, categories, or records in that layout.

Inserting records

Where possible, start from single-record layout. That way, you see every category, and you have plenty of room for each entry.

Into a new file

- When you have started a new file and entered all your category names, press Escape.
- To begin inserting records, press the Space bar when prompted. You see the first blank record in single-record layout.
- Type information into the first category, and then press Return.
- Keep filling out entries that way.

  When you finish one record, your last Return brings you the next empty record. Or press ⌘-Down Arrow to go to the first entry in the next record.

  To go to multiple-record layout, press ⌘-Z for Zoom.

Into an existing file in single-record layout

- In Review/Add/Change, press ⌘-I for Insert.
- Type information into the first entry, and then press Return.
- Keep filling out entries that way.

  When you finish one record, your last Return brings you the next empty record.

  When you want to return to the place where you pressed ⌘-I in Review/Add/Change, press Escape.

  All the new records go *before* the record the cursor is on when you press ⌘-I.

Into an existing file in multiple-record layout

- In Review/Add/Change, press ⌘-I for Insert. You get an empty record in single-record layout.
- Type information into the first entry, and then press Return.
- Keep filling out entries that way.

  When you finish one record, your last Return brings you the next empty record.

  When you want to return to the place where you pressed ⌘-I in Review/Add/Change, press Escape and then Return.

  All the new records go *before* the record the cursor is on when you press ⌘-I.

At the end of an existing file

- Move the cursor to the last record in the file.
- If you are not in single-record layout, press ⌘-Z to zoom in.
- To get past this record, press ⌘-Down Arrow. Answer `Yes` to insert new records.
- Enter information in each entry, pressing Return after each.

  When you finish one record, your last Return brings you another empty record.

  All the new records go *after* the record the cursor was on when you pressed ⌘-Z.

Finding or selecting certain records

You can have AppleWorks find any records that contain a particular number, word, or piece of text. For instance, it could turn up everyone whose Zip code was 94609.

Or you can set up a series of complex rules by which AppleWorks should select records. AppleWorks will display only those records that meet your criteria.

For example, in a personnel file, you could have AppleWorks locate and display the records for all employees who have accumulated more than 21 days of vacation and who are earning more than $20,000 a year.

By the way: If you have *selected* a few records from your data base and then ask AppleWorks to *find* a particular fact, AppleWorks only looks in the selected records.

Tips: See page 261.

Finding any records containing a key fact

- Press ⌘-F for Find.
- Type the information (up to 30 characters) you want AppleWorks to look for. Press Return.

AppleWorks displays all the records that contain that information, no matter what category the information happens to be in; you see these records in whatever layout you started in, so the entry containing your value *may* be off-screen. (If you don't see the information, change to single-record layout by pressing ⌘-Z, and then scroll through the records.)

Having found these records, you can then delete some, arrange them in a certain order, move them, or copy them.

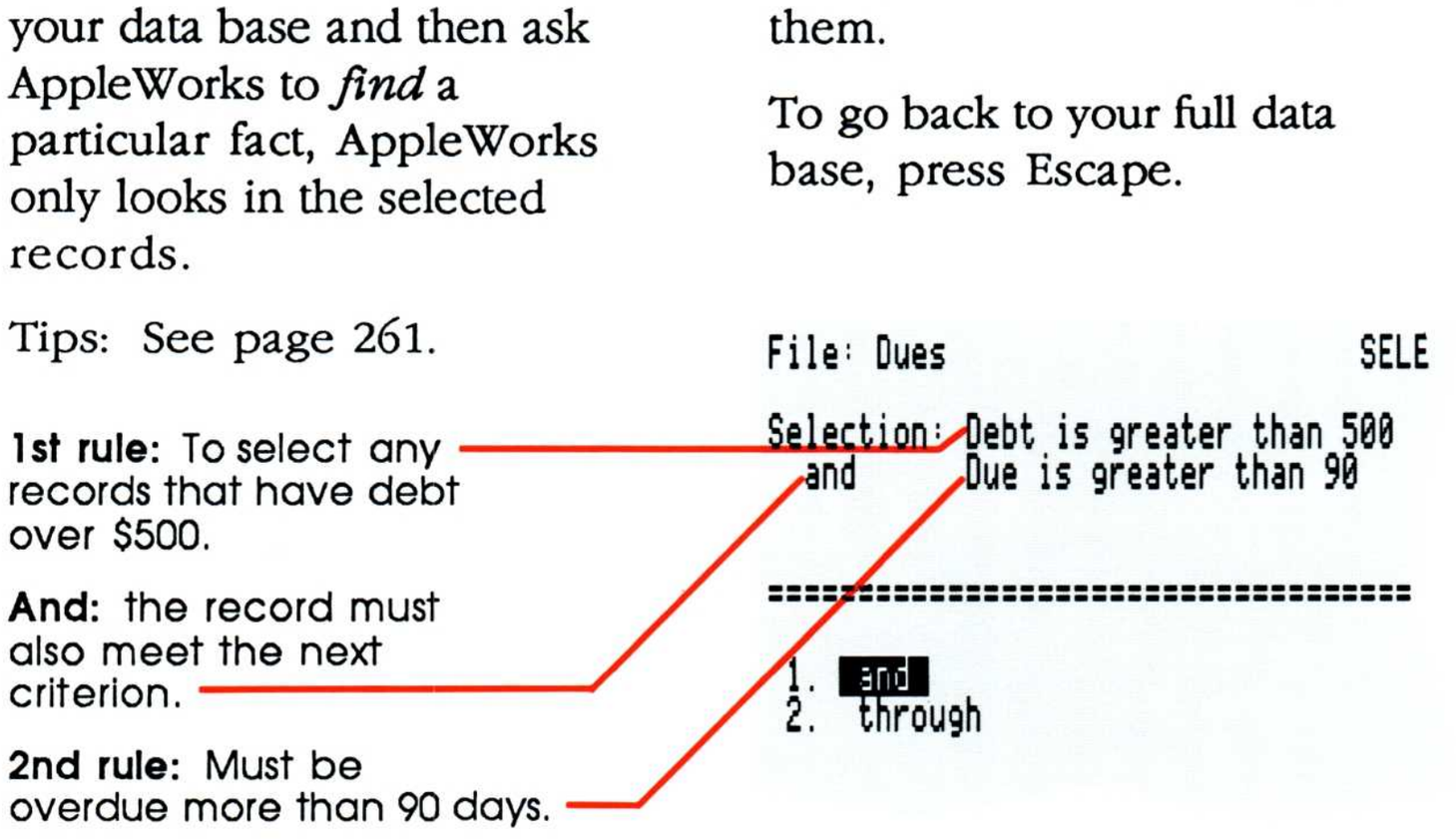
To go back to your full data base, press Escape.

Using rules to select records

- Press ⌘-R for Record Selection.
- Choose the category you want to use as the basis for your first selection.
- Choose a method of comparison. (You may want only those records in which the entry in that category is *greater than,* or *less than,* a particular value. Or you may want all the records in which a particular category *is blank.*)
- Enter the information you want compared with the entry in that category.
- If your guideline is complete, press Escape. If you want to add a second selection rule, choose a connector: *and, or, through*. Make up a second selection rule. (You can have three selection rules).

AppleWorks selects and displays any records that meet your selection standards.

If you want to select *all* records again, press ⌘-R, and choose `Yes` to indicate that you do want AppleWorks to select and display all records again.



Arranging records in order

You can sort your records based on the entries in a particular category. For instance, you could arrange your records alphabetically by customer's last name; or chronologically, by date of last visit; or numerically, by amount owed.

You can arrange in Review/Add/Change or in Report Format. (If you do it in Report Format, the arrangement must be redone each time you print the report, because the data may have changed in the meantime.)

Tips: See page 263.

1. Pick the category

- In either single-record or multiple-record layout, put the cursor in any entry in the category by which you want your records arranged.
- Press ⌘-A for Arrange.

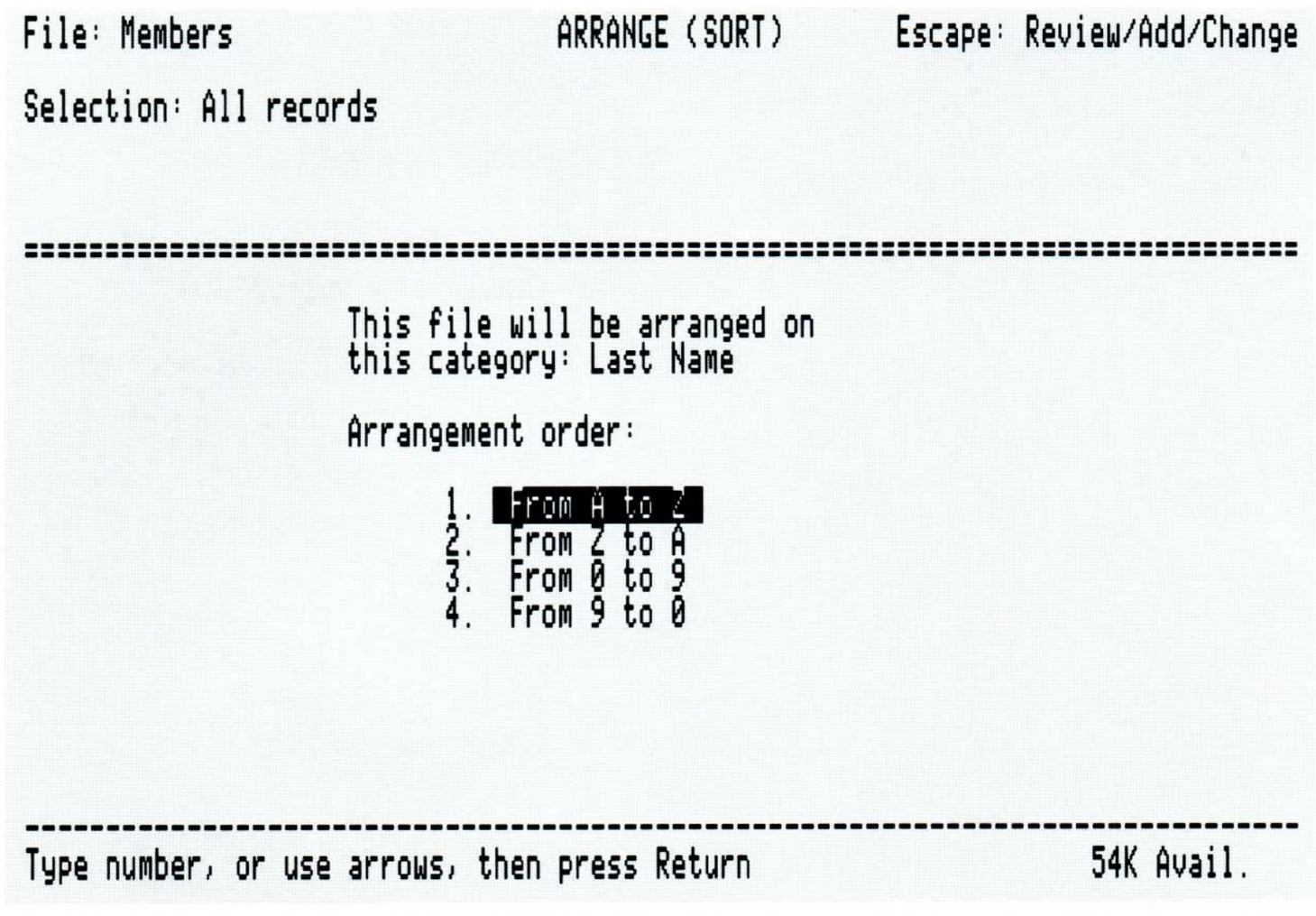
2. Choose how to arrange the records

- Choose the way you want the records arranged—A to Z, Z to A, 0 to 9, 9 to 0, or, if this category has standard dates or time, chronologically, or in reverse chronology.
- Press Return.

Your records appear in multiple-record layout, arranged in the order you chose—even if you started out in single-record layout.

You can arrange records by several categories. First arrange by the values in the least important category, then by the values in the next most important, and so on, to the most important.

For instance, if you were about to call members who owed back dues, starting, in each area code, with the ones who owe the most, you would first sort the phone numbers, so you can do all your local calls at once, then sort the amounts due, from 9 to 0, so that in each area code you are calling the biggest debtors first.



To copy or move records in a data base

You can choose a few records and move them to another part of your file. Or you can leave the originals where they are, make a copy, and put the copied records somewhere else in the file.

When you *copy* several records, or when you want to copy the current record in several different locations in your data base, the copies go onto the clipboard, while your originals remain in place.

When you *move* one or more records, you actually remove them from one place in your data base and preserve them on the clipboard.

In either case, when you reach the new location, you can *copy* the records from the clipboard (in which case a copy survives on the clipboard for later use), or you can *move* them from the clipboard (in which case the clipboard is left empty).

Tips: See page 266.

Duplicating one record many times

- In Review/Add/Change, put the cursor anywhere in the record you want to copy.
- Press ⌘-C for Copy.
- Choose `Current record`.
- Type the number of copies you want. Press Return.

The copies appear after the record your cursor is in.

By the way: You can start this process in single-record or multiple-record layout.

When you are about to enter a series of records in which most of the data is the same, you can make a copy of the current record and insert as many as 99 duplicates, right below it. Then all you have to do is add the unique information for each record.

Maximum number of copies of the current record: 99

Copying a group of records

- Make sure you are in multiple-record layout.
- Put the cursor anywhere in the first or last record of the group you want to copy.
- Press ⌘-C for Copy.
- Choose `To clipboard`.
- Use arrow keys to highlight the records you want to copy.
- Press Return. The records are now copied onto the clipboard.
- Move the cursor to the record just after the place you want the group of records to go.
- Press ⌘-M if you want the records to go just this one place. Press ⌘-C if you're going to put them someplace else, too.
- Choose `From clipboard`.

The records are copied from the clipboard into your file.

Maximum number of records you can copy: 253

Moving one or more records

- Make sure you are in multiple-record layout.
- Put the cursor anywhere in the first or last record of the group you are going to move.
- Press ⌘-M for Move.
- Choose `To clipboard`.
- Use the arrow keys to highlight all the records you want to move.
- Press Return. The records are now cut from the file and moved to the clipboard.
- Move the cursor to the record just after the spot you want these records to go.
- Press ⌘-M if you want the records to go just this one place. Press ⌘-C if you're going to put them someplace else, too.
- Choose `From clipboard`.

The records are moved from the clipboard and pasted into your file, right before the record your cursor is in.

File: Valuables MOVE RECORDS Escape: Review/Add/Change

Selection: All records

Item	Model Number	Serial Number	Date Purchased	Where Purchased
Pendant	none	none	Aug 21 82	The Jewelers
Color Televisio	CT678-01	332-46-778	Apr 23 83	TVs Unlimited
VCR	SP-100	SP456-99-001	May 15 85	Arnie's Audio V
Computer	Apple IIe	A345-87-8902	Dec 20 85	Computer Store
Computer	Apple Macintosh	M77-895-2301	Jan 31 86	Computer Store
CD Player	CD-1000	CD757-862	Mar 1 86	Al's AV Boutiqu
Microwave Oven	MW-27	none	May 12 86	Gourmet Shop
[illegible]	CA335		[illegible] 1 86	[illegible]

Highlight the records to be moved.

File: Valuables REVIEW/ADD/CHANGE Escape: Main Menu

Selection: All records

Item	Model Number	Serial Number	Date Purchased	Where Purchased
Pendant	none	none	Aug 21 82	The Jewelers
Computer	Apple IIe	A345-87-8902	Dec 20 85	Computer Store
Computer	Apple Macintosh	M77-895-2301	Jan 31 86	Computer Store
CD Player	CD-1000	CD757-862	Mar 1 86	Al's AV Boutiqu
Microwave Oven	MW-27	none	May 12 86	Gourmet Shop
Cassette Deck	CA335	546-99-0076	Jun 1 86	Arnie's Audio V

Move to the clipboard; now records are no longer in the file.

File: Valuables REVIEW/ADD/CHANGE Escape: Main Menu

Selection: All records

Item	Model Number	Serial Number	Date Purchased	Where Purchased
Pendant	none	none	Aug 21 82	The Jewelers
Computer	Apple IIe	A345-87-8902	Dec 20 85	Computer Store
Computer	Apple Macintosh	M77-895-2301	Jan 31 86	Computer Store
CD Player	CD-1000	CD757-862	Mar 1 86	Al's AV Boutiqu
Microwave Oven	MW-27	none	May 12 86	Gourmet Shop
Color Televisio	CT678-01	332-46-778	Apr 23 83	TVs Unlimited
[illegible]	SP-100	SP456-99-001	May 15 85	Arnie's Audio V
[illegible]	CA335		[illegible] 1 86	[illegible]

Move (or copy) into file at new location. The move is completed.

Changing the layout of your records

Sometimes you start out with one organization in mind for your records and then see that another one would be more convenient, or more meaningful. You realize you need to change the layout.

Here's how you can change the order of categories, switch columns around, widen or narrow a column, even hide a whole category temporarily (without deleting the information from your data base) and then bring it back later. The key to all these transformations: pressing ⌘-L for Layout.

Tips: See page 267.

Switching columns in multiple-record layout

- Make sure you are in multiple-record layout.
- Press ⌘-L for Layout.
- To switch the column your cursor is in with the column on the right, press ⌘->. (Don't press the Shift key with the > key.)
- To switch the column your cursor is in with the column on the left, press ⌘-<. (Don't press the Shift key with the < key.)

Use Left Arrow and Right Arrow to move from one column to another.

Press Escape twice to return to Review/Add/Change.

Changing column width in multiple-record layout

- Make sure you are in multiple-record layout.
- Press ⌘-L for Layout.
- To widen the column your cursor is in, press ⌘-Right Arrow.
- To shrink the column your cursor is in, press ⌘-Left Arrow.

Press Escape twice to return to Review/Add/Change.

```
File: Valuables                CHANGE RECORD LAYOUT    Escape: Review/Add/Change

================================================================================

                  --> or <--  Move cursor
                   >  ⌘   <   Switch category positions
                  --> ⌘  <--  Change column width
                  ⌘-D         Delete this category
                  ⌘-I         Insert a previously deleted category

--------------------------------------------------------------------------------

Item           Model Number    Serial Number   Date Purchased  Where Purchased
-------------- --------------- --------------- --------------- ---------------
Pendant        none            none            Aug 21 82       The Jewelers
Computer       Apple IIe       A345-87-8902    Dec 20 85       Computer Store
Computer       Apple Macintosh M77-895-2301    Jan 31 86       Computer Store

-------------------------------------------------------------------- More --->
Use options shown above to change record layout                   52K Avail.
```

Hiding a category—and revealing it

- Be sure you are in multiple-record layout.
- Press ⌘-L for Layout.
- To hide the category your cursor is in, so that it does not show up in multiple-record layout, press ⌘-D.
- To bring a category out of hiding, so it appears just to the left of the category your cursor is in, press ⌘-I. Choose the category you want to reinsert, and press Return.
- Press Escape twice to return to Review/Add/Change.

When you hide a category, you do not lose the information; it stays in the record and continues to appear when you display the record in single-record layout.

Moving categories in single-record layout

- Make sure you are in single-record layout. (If not, press ⌘-Z for Zoom.)
- Press ⌘-L for Layout.
- Put your cursor on the first letter of the name of the category whose position you want to change.
- Press ⌘ at the same time as any arrow key to place the category where you want it. You can move the category up, down, left, or right; you must move around—not through—the other categories.
- Press Escape twice to return to Review/Add/Change.

```
File: Members                CHANGE RECORD LAYOUT    Escape: Review/Add/Change

                    Return or arrows    Move cursor
                    ⌘ and arrows        Move category location

================================================================================
Last Name: Ampfel
First Name: David
Street: 19887 Mountain Valley Lane
City: Mountain Valley
State: CA
Zip Code: 77777
Phone Number: 555-7788
Special Interest: Administration/Education
SIG Leader: 0
```

```
File: Members                CHANGE RECORD LAYOUT    Escape: Review/Add/Change

                    Return or arrows    Move cursor
                    ⌘ and arrows        Move category location

================================================================================
First Name: David       Last Name: Ampfel
Street: 19887 Mountain Valley Lane
City: Mountain Valley       State: CA   Zip Code: 77777
Phone Number: 555-7788

Special Interest: Administration/Education
SIG Leader: 0
```

Adding or deleting a category

To add or delete a category requires a different strategy from moving it around—and may have a wider impact.

When you insert or delete a category, you lose any layout you've developed for your records and any formats for reports, because these are based on your current categories.

Tips: See page 265.

Adding a new category

- Make sure you are in Review/Add/Change for the file you want to change.
- Press ⌘-N for Name. AppleWorks asks you to type a new filename, if you want. You don't, so press Return.
- Put your cursor on the category you want to appear right *after* the one you are about to insert.
- Press ⌘-I for Insert.
- If you're prepared to abandon your record layouts, answer `Yes`.
- A blank line, with the cursor at the beginning, appears. Type the name of your new category. Press Return.
- Press Escape to return to Review/Add/Change .

Deleting a category—permanently

- Make sure you are in Review/Add/Change for the file you want to change.
- Press ⌘-N for Name. AppleWorks asks you to type a new filename, if you want. You don't, so press Return.
- Put your cursor anywhere in the category you want deleted.
- Press ⌘-D to delete the category.
- If you're prepared to abandon your custom record layouts, answer `Yes`. Press Return.
- Press Escape to return to Review/Add/Change.

Changing the name

Sometimes you discover that the name you gave a file or category is just not descriptive enough—or it's too long, or too boring, or too revealing. Here's how to change it.

Tips: See page 265.

Of a file

- Make sure you are in Review/Add/Change for the file whose name you want to change.
- Press ⌘-N for Name.
- Type the new filename. Press Return.
- Press Escape to return to Review/Add/Change.

Of a category

- Make sure you are in Review/Add/Change.
- Press ⌘-N for Name. AppleWorks tells you that you can change the filename; you don't want to now, so press Return.
- Move the cursor to the first letter of the category name you want to change.
- Revise the category name. Press Return.
- Press Escape to return to Review/Add/Change.

Copying and moving between documents

You can copy or move Data Base records from one place to another within one Data Base document or between Data Base documents.

You can also paste those records into a Word Processor document. But to do that, you must format a report as if you were about to print it, so that your arrangement of the data comes over to the Word Processor document intact.

Tips: See page 266.

To copy records between data bases

- Make sure you are in multiple-record layout and that both data bases are on the Desktop.
- Put the cursor anywhere in the first or last record of the group you want to copy.
- Press ⌘-C for Copy.
- Choose `To clipboard`. Use the Up Arrow or Down Arrow to highlight the records you want to copy. Press Return. The records are now copied onto the clipboard.
- Use ⌘-Q to display the other document names; highlight the one you want, and press Return to switch to that document. If you find yourself in single-record layout, press ⌘-Z to Zoom into multiple-record layout.
- Move the cursor to the record just *after* the spot you want the record or group of records to go.
- Press ⌘-C. Choose `From clipboard`.

  The records are copied from the clipboard into the other file, but they also remain intact in your original file.

To move records between data bases

- Make sure you are in multiple-record layout, and that both data bases are on the Desktop.
- Put the cursor anywhere in the first or last record of the group you are going to move.
- Press ⌘-M for Move.
- Choose `To clipboard`.
- Use the arrow keys to highlight the records you want to move.
- Press Return. The records are now cut from the file and moved to the clipboard.
- To switch to the other document, press ⌘-Q, highlight the file, and press Return. If needed, press ⌘-Z to Zoom into multiple-record layout.
- Move the cursor to the record just *after* the spot you want these records to go.
- Press ⌘-M for Move.
- Choose `From clipboard`.

  The records are moved from the clipboard and pasted into your file, right before the record your cursor is in. (They no longer exist in your original file.)

To print records to a Word Processor document

- In Review/Add/Change, press ⌘-P for Print.
- Get an existing report format, or create a new one.
- Select the records you want, arrange them, move categories around, add a calculated category or totals, if necessary. Basically, set the report up the way you want it to read when you paste it into the Word Processor document.
- Press ⌘-O to see printer options. Make sure the line width is less than the line width in your Word Processor document. If not, increase characters per inch and left and right margins, or go back to the Report Format and shrink columns.
- While you're on the Options display, tell AppleWorks how to handle blank entries, headers, and spacing.
- Press Escape to go back to Report Format.
- Press ⌘-P to print.
- Choose to print to the clipboard (for the Word Processor). Fill in the data or just press Return. You get a message that the report is now on the clipboard. Press the Space bar to continue.
- To switch to the Word Processor document, if it is on the Desktop, press ⌘-Q and select the file. If the document is not on the Desktop, press Escape three times to return to the Main Menu, then choose Option 1, `Add files to the Desktop`, and add that file.
- Move the cursor to the spot you want the Data Base report to start.
- Press ⌘-C to copy the material from the clipboard. Select `From the clipboard`.

Your report is now pasted into the Word Processor document.

For information about preparing the report format, and printing it, look ahead to the sections on creating Data Base reports.

Anatomy of Data Base reports

When you want to issue a report on the information in your data base, AppleWorks helps you set up a format for your report, in one of two styles.

One style of report is a table, which resembles the multiple-record layout of information on the screen.

The other style of report is a series of labels, each of which resembles the single-record layout you've seen on the screen.

In preparing a report, you choose a style, then switch your categories around, select your records, and make other adjustments. Next you decide how you want that report to appear on paper—what margins, what spacing. When you're ready, you print it.

The format for your report—without any data—is saved when you save your data base. You can have up to 8 report formats with each data base.

A table-style report

A table lines up your information in rows and columns. Here's an example of a table-style report.

Category name: As in multiple-record layout, these appear at the top of columns.

Calculated category: You can have AppleWorks calculate each entry in this column based on a formula using figures in other entries in the same record.

Title: You can add one to your report.

Header: Text you put at the top of every page of your report.

Column totals: You can have AppleWorks add up the figures in a column.

Arrangement: You can sort records alphabetically, numerically, or chronologically—just for this report.

Right-justified category: This format makes it easier to compare numbers and add them up.

```
Insurance
File:   Valuables                                                    Page 1
Report: Insurance                                                  August 1
Item            Model Number    Serial Number Purch Price  Replace  Difference
--------------- --------------- ------------- ----------  -------  ----------
Cassette Deck   CA335           546-99-0076       325.00    325.00
CD Player       CD-1000         CD757-862         450.00    450.00
Color Television CT678-01       332-46-778        535.00    400.00      135.00
Computer        Apple IIe       A345-87-8902     1000.00    950.00       50.00
Computer        Apple Macintosh M77-895-2301     2000.00   2000.00
Microwave Oven  MW-27           none              150.00    150.00
Pendant         none            none              350.00    595.00     -245.00
VCR             SP-100          SP456-99-001      545.75    475.00       70.75
                                                 5355.75*  5345.00*      10.75*

Press Space Bar to continue                                        51K Avail.
```

A label-style report

This style resembles a series of mailing labels—short forms filled in with a minimum of data.

Header: Text you put at the top of every page of your report.

Selection: You can select records that fit certain conditions—just for this report.

Title: You can add one to your report.

Category name: You can include them, or leave them out.

Arrangement: You can sort records just for this report. Here they're sorted alphabetically.

Left-justified category: This category will print right next to the one to its left without gaps.

```
File:  Valuables
Report:  Analysis
Selection:  Purch Pr ce greater than 500
Individual

Color Television CT678-01
332-46-778
Date Purchased:  Apr 23 83
TVs Unlimited 555-9996
Purch Price:  535.00
Replace Value:  400.00

Computer Apple IIe
A345-87-8902
Date Purchased: Dec 20 85
Computer Store 555-1132
Purch Price:  1000.00
Replace Value:  950.00

Computer Apple Macintosh
M77-895-2301
Date Purchased:  Jan 31 86
Computer Store 555-1132
Purch Price:  2000.00
Replace Value:  2000.00

VCR SP-100
SP456-99-001
Date Purchased:  May 15 85
Arnie's Audio Visual 555-9872
Purch Price:  545.75
Replace Value:  475.00
```

Starting a Data Base report

To begin a report, you create a name and a format for it.

A format defines how you want records arranged, which categories should be included, and where they should go.

Later, you can use that format for other reports—or duplicate it and then revise it. Eventually, when it's served its purpose, you may want to erase it.

Creating a new table format

- In Review/Add/Change, press ⌘-P for Print, indicating you want to print a report.
- Choose `Create a new "tables" format.`
- Type a name for your new report. Press Return.

You now see the Report Format display for a table-style report. In the section "Customizing a Table Report" you'll find out how to use it to set up your report.

The name of a report can have up to 19 characters: letters (uppercase or lowercase) or numbers.

Creating a new label format

- In Review/Add/Change, press ⌘-P for Print, indicating you want to print a report.
- Choose `Create a new "labels" format.`
- Type a name for your new report. Press Return.

You now see the Report Format display for a label-style report. In the section "Customizing a Labels Report," you'll find out how to use that to customize your report.

The name for your report can be up to 19 characters: uppercase or lowercase letters or numbers.

Table style format resembles multiple-record layout.

Options you have available.

Categories are identified by letters, to make it easier for you to specify them.

Examples of records from the file; they reflect the changes you make.

```
File: Names                          REPORT FORMAT          Escape: Report Menu
Report: Top Names
Selection: All records

================================================================================
--> or <--  Move cursor                          ⌘-J  Right justify this category
 >  ⌘   <   Switch category positions            ⌘-K  Define a calculated category
--> ⌘  <--  Change column width                  ⌘-N  Change report name and/or title
⌘-A  Arrange (sort) on this category            ⌘-O  Printer options
⌘-D  Delete this category                       ⌘-P  Print the report
⌘-G  Add/remove group totals                    ⌘-R  Change record selection rules
⌘-I  Insert a prev. deleted category            ⌘-T  Add/remove category totals
--------------------------------------------------------------------------------

Name         Street       City         State      Zip        Phone          Bu
-A---------- -B---------- -C---------- -D---------- -E--------- -F---------- -G
Joe Espana   987 Curtz Av Sun City     Ca         95432      (415)555-678 Ap
Stan Smither 99 Alma Ave  Sunville     Ca         99999      (408)555-989 Su
Joe Christen 995 Albion W Sarano       Ca         89724      (907)555-234 Sa

-------------------------------------------------------------------- More --->
Use options shown above to change report format                  53K Avail.
```

Getting an existing report format

- Be sure you are in Review/Add/Change.
- Press ⌘-P for Print.
- Choose option 1, `Get a report format`.
- Select one of the report formats for this file from the list.

You see the Report Format display for that report. You can now make any changes you want and print the report.

If you haven't previously created any formats for this file, option 1 is not highlighted, and AppleWorks suggests you create one.

By the way: If you press Escape to leave the Report Format and then realize you want to go right back into that format, choose option 6, `Keep working with current format`.

Duplicating an existing format

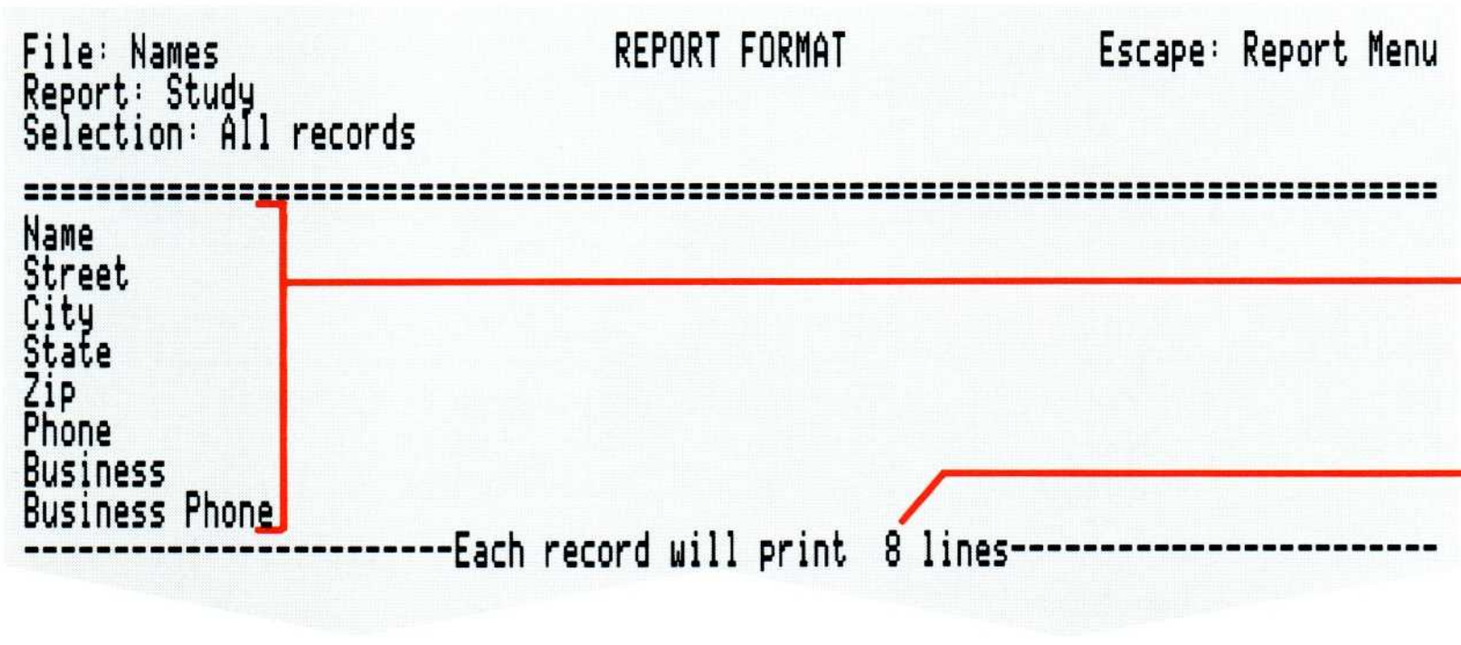
- Be sure you are in Review/Add/Change.
- Press ⌘-P for Print, indicating you want to print a report.
- Choose option 4, `Duplicate an existing format`.
- Select a format from the list.
- Type a new name for this format, and press Return.

You see the Report Format display for the report. You can now make any changes you want and print the report.

Choose this option when you want to use an existing format as the basis for a format with a new name and new layout. This preserves the original format for future use, while allowing you to create a new format derived from it.

Erasing an existing format

- Be sure you are in Review/Add/Change.
- Press ⌘-P for Print.
- Choose option 5, `Erase a format`.
- Select the report format you want to delete.
- Choose `Yes`, to show you really want to erase the format.



Customizing a table report

Once you have chosen to create a new table format for your report, you see the Report Format display, which helps you arrange the categories and information the way you want. You're arranging the format to suit your needs—*customizing* it.

The example records at the bottom of the Report Format display show you the effect of all changes. You can also preview the report on the screen—press ⌘-P and choose to print to the screen.

Tips: See page 267.

Changing the width of a column

- Use the Left Arrow or the Right Arrow to move the cursor to the column you want to work on.
- Press ⌘-Right Arrow to widen the column.
- Press ⌘-Left Arrow to make the column narrower.

Switching the positions of categories

- Put the cursor on the category you want to move.
- To switch that column with the one on its right, press ⌘->. Do not press the Shift key.
- To switch that column with the one on its left, press ⌘-<. Do not press the Shift key.

```
File: Members                    REPORT FORMAT              Escape: Report Menu
Report: Ed SIG Leaders
Selection: SIG Leader equals 1

================================================================================
--> or <--  Move cursor                      ⌘-J  Right justify this category
 >  ⌘  <   Switch category positions        ⌘-K  Define a calculated category
--> ⌘  <--  Change column width             ⌘-N  Change report name and/or title
⌘-A  Arrange (sort) on this category        ⌘-O  Printer options
⌘-D  Delete this category                   ⌘-P  Print the report
⌘-G  Add/remove group totals                ⌘-R  Change record selection rules
⌘-I  Insert a prev. deleted category        ⌘-T  Add/remove category totals
--------------------------------------------------------------------------------

Last Name      First Name     Phone Number  Special Interest                L
-A------------ -B------------ -C----------- -D--------------------------- e
Johnson        Gerri          555-9872      Administrative/Education        n
Murphy         Reilly         555-6783      General Curriculum              7
Diaz           Elizabeth      555-7541      Social Studies Curriculum       5

--------------------------------------------------------------------------------
Use options shown above to change report format                  49K Avail.
```

Example records

Hiding a category—and restoring it

- Put the cursor in the category you want to leave out of your report.
- Press ⌘-D to delete it for the moment.

  This only hides the category. The information is still in your data base; it just won't show up in your report.

To bring a category back out of hiding for your report, put the cursor to the right of the position you want the category to reappear in; press ⌘-I for Insert, pick the category, and press Return.

Selecting some records

- Press ⌘-R to change the rules by which AppleWorks selects the records to include in your report.
- Set up the rules.
- Press Escape when you have completed the rules.

For more information on selection rules, see "Finding or Selecting Certain Records," earlier in this chapter.

Arranging your records

- Put the cursor anywhere in the category by which you want your records arranged.
- Press ⌘-A for Arrange.
- Choose the way you want to sort the entries in that category: A to Z, Z to A, 0 to 9, 9 to 0—or, if it is a column of standard dates or times, in chronological or reverse chronological order. Press Return.

The records are rearranged for you.

By the way: Because any change to a single entry in this category might invalidate the whole arrangement, this particular arrangement of the records will not be saved along with the report.

Customizing a table report—continued

Here are a few more ways you can make your table more readable and meaningful.

To provide readers with more information about your topic, you can change the report's name and add a title explaining what it's about.

You can line up entries in a column along the right margin; tnis is called right-justification. With columns of numbers, it often makes for easier comparison.

And you can have AppleWorks add up all the numbers in one column and then break out subtotals within that column. You can even create a new column, just for this report, in which each entry is the result of a calculation performed on numbers previously entered in other columns—this is a *calculated category.*

Tips: See page 267.

Changing the name, adding a title

- To change the report's name (it appears at the top left of your report), press ⌘-N for Name. Type in a new name (up to 19 characters long). Press Return.
- Type a title (up to 78 characters long), and then press Return. (If you don't want to add a title, just press Return.)

The title is printed at the top left of each page; under it comes your filename and then your report name.

Right-justifying a category

- Move the cursor to the category.
- Press ⌘-J for Justify.
- Type the number of decimal places you want to the right of the decimal point. (With alphabetic information, type 0.) Press Return.
- Type the number of blank spaces you want placed to the right of each entry, to separate it from the entry in the next category. Press Return.

  AppleWorks fills the column with 9's to show you how the information will line up when printed. If you have decimal places, they are now aligned.

  To undo right justification, press ⌘-J again.

Adding up a column

- Put the cursor in the column.
- Press ⌘-T for Totals.
- Type the number of decimal places you want to the right of the decimal point. Press Return.
- Type the number of blank spaces you want to put between this column and the one on its right. Press Return.

AppleWorks fills the category with 9's, indicating where numbers and decimal points will appear in the report. At the bottom of the column, the double-dashed line shows where the total will go.

To turn off the totals, put your cursor in the column again, and press ⌘-T. Information from your sample records will replace the 9's.

If your column is not wide enough to contain the total, then, during printing, AppleWorks prints a row of number signs, like this: ####. That means: No room for total! You need to use ⌘ and Right Arrow to make the column wider.

Breaking out subtotals

- First use ⌘-T to total up the entries in every column in which you will want subtotals.
- Put your cursor in the column whose entries will define the groups you want subtotals for. For instance, if you want subtotals by Zip code, put your cursor in the Zip code column. Every time the Zip code changes, you will get subtotals in every category you've marked for totals.
- Press ⌘-G for Group totals.
- If you want to print all the records—and the subtotals—answer `No`. If you just want the subtotals, answer `Yes`.
- If you want to go to a new page after each subtotal, answer `Yes`. If not, `No`.

In your report, *any* column that you've asked to have totaled will now show subtotals as well, every time the value changes in the controlling category. For instance, in a membership report with a total in the Amount Owed category, if you base the subtotals on the Zip code category, then you would get a subtotal in the Amount Owed category for each Zip code.

Creating a calculated category

- Put your cursor in the column you want to appear *to the right* of your new calculated category.
- Press ⌘-K. The new column is inserted, full of 9's, showing where numbers may appear in the printed report.
- Type a name for the new category (up to 20 characters long). Press Return.
- Type in the formula for calculating the category entry, using the column letter labels to represent the categories. Start with the letter just below the name of a category then, add a math function (+, -, *, or /) and a number or another category's letter. For instance, your formula might be A*1.06, meaning "Take the entry in column A, and multiply that by 1.06." You can continue your formula, making it more complex. (You may not use parentheses to group operations you want done first.) When your formula is complete, press Return.
- Type the number of decimal places you want; press Return; enter the number of blank spaces you want after this column, and press Return.

Customizing a labels report

Once you have used ⌘-P and chosen `Create a new "labels" format` for your report, you see the Report Format display for labels. You can now arrange the categories and information the way you want.

Notice that there is a dashed line below your last category, with a message indicating how many lines each label will be if you make no adjustments.

To see your data instead of the categories, press ⌘-Z for Zoom. You see information from your first record. If that record has any blank entries, you may have trouble seeing how your labels will look when full of data. If that makes a difference to you, return to the data base, and change the order (⌘-A) so that your first record has some data in each category. (You can still have the records in whatever order you want in the *report*.)

If you're not sure how to use ⌘-P to start a report, please turn back a few sections to "Starting a Data Base Report."

Tips: See page 270.

Moving categories around

- In the Report Format display, put the cursor on the first character of the category you want to move.
- Press ⌘ with one of the arrow keys, to move the category up, down, left, or right.

You can have more than one category on one line—First Name and Last Name, for example.

To see what this arrangement does to the data in your sample record, press ⌘-Z. You can continue to move the data around using ⌘ and the arrow keys.

Deleting a blank line or a category

- Put the cursor on the first character of the category or anywhere in the blank line.
- Press ⌘-D.

  This deletes a category, leaving a spacing line; to get rid of the blank line, press ⌘-D again.

Deleting a category from your report does not delete it from your data base. You can always reinsert it.

To see what your data looks like now, press ⌘-Z for Zoom.

```
File: Members                    REPORT FORMAT          Escape: Report Menu
Report: Special
Selection: All records

================================================================================
Last Name
First Name
Street
City
State
Zip Code
Phone Number
Special Interest
SIG Leader
-----------------------Each record will print  9 lines-----------------------



--------------------------------------------------------------------------------
Use options shown on Help Screen                                  ⌘-? for Help
```

Inserting a blank line or a category

- To reinsert a category you previously deleted, put your cursor on the line you want the category added to.
- To insert a blank line, put the cursor on the line *above* or *below* the spot you want that spacing line to appear.
- Press ⌘-I for Insert.
- Pick the category or type of spacing line you want to insert. Press Return.

  The category appears at the cursor location or the spacing line appears above or below it.

  By the way: The only categories you can insert at this point are the ones you previously deleted using the Report Format display. If you haven't deleted any, you won't be able to insert any.

Maximum lines: 15

Selecting some records

- Press ⌘-R to change the rules by which AppleWorks selects the records to include in your report.
- Set up the rules.
- Press Escape when you have completed the rules.

Your rules are saved with the report format.

For more information on selection rules, see "Finding or Selecting Certain Records," earlier in this chapter.

Arranging your records

- Put the cursor on the first character of the category by which you want your records arranged.
- Press ⌘-A for arrange.
- Pick the way you want the entries in that category arranged: A to Z, Z to A, 0 to 9, 9 to 0—or, if it is a column of standard dates or times, in chronological or in reverse chronological order. Press Return.

The records are rearranged for you, and will appear in that order when you print. The arrangement is not saved with the report format.

Customizing a labels report—continued

Here are a few more ways you can make your labels more readable and meaningful.

You can provide a detailed title, insert a category name when it might help readers understand the entry, and adjust the position of entries. As you're making these changes, you can zoom in to see how individual entries will look in the new format.

Tips: See page 270.

Changing the name, adding a title

- To change the report's name (it appears at the top left of the Report Format display), press ⌘-N for Name. Type in a new name (up to 19 characters long). Press Return.
- The new name replaces the old one on the screen, your cursor lands just above the row of dashes, and you are asked for a title.
- If you want a title, type it in, and then press Return. If you don't want a title, just press Return.

  The title can be up to 79 characters long. It will appear at the top left of each printed page of your report—under the filename and report name.

Printing a category name with the entry

- Put the cursor on the first character of the category name you want to appear in the label.
- Press ⌘-V. (The V resembles the proofreader's mark meaning to insert; you are inserting the category name here.)

The category name, followed by a colon, appears in front of the entry from your first record. When you print the report, the category name will be followed by the colon and the entry from each record. For example, it might read

```
Home Phone:  555-6219
```

To remove the category name, put your cursor on the first letter of the name and press ⌘-V.

Fitting one category right after another

- Place the categories on the same line, in the order you want them to appear.
- Put the cursor on the first character of the category on the right.
- Press ⌘-J to left justify the data in that category.

A left-pointing arrow appears next to that category; when the report is printed, that entry will start one space to the right of the one before it, no matter how long the first entry is. Thus, if your second category is Last Name, the person's last name will start just one space after the last character of the first name.

To see how this will look, press ⌘-P, and choose to print to the screen.

Seeing one individual record after another

- Press ⌘-Z to zoom in and see the data from your first record displayed.
- To move to the next record, press ⌘->. (Don't use the Shift key.) To move back to the previous record, press ⌘-<. (Don't use the Shift key.)
- To zoom back out to see category names only, press ⌘-Z.

Preparing to print a report

To set up a report format, you pressed ⌘-P, indicating you planned to do some printing. From the Report Format display, you can press ⌘-O and set your printer options to control the way the report is actually laid out on the printed page.

You get the Printer Options display for a table or for labels. When you're through setting options, press Escape to return to the Report Format display. From there you can press ⌘-P again to print your new report.

Tips: See page 271.

Setting platen width and paper length

- In the Report Format display, press ⌘-O for Options.
- Type the code for platen width (PW) or paper length (PL) and then press Return.
- Type in the new platen width or paper length in inches. Press Return.

Platen width is the distance the print head travels, left to right, on your paper.

Standard paper width is 8.5 inches; standard platen width is 8 inches. Standard paper length is 11 inches.

Maximum PW: 25.5 inches

Maximum PL: 25.5 inches

Setting margins

- In the Report Format display, press ⌘-O for Options.
- Type the code for Left Margin (LM), Right Margin (RM), Top Margin (TM), or Bottom Margin (BM). Press Return.
- Type in the margin in inches and tenths of an inch. Press Return.

Standard for left and right margins: 0.0 inches

Standard top margin: 0.0 inches

Standard bottom margin for table reports: 2.0 inches; for label reports: 0.0 inches

Adjusting characters and lines per inch

- In the Report Format display, press ⌘-O for Options.
- Type the code for Characters per Inch (CI) or Lines per Inch (LI). Press Return.
- Type in the number of characters you want per inch (from 4 to 24) or lines per inch (6 or 8). Press Return.

The setting for characters per inch establishes the density of your line, horizontally. You can set this anywhere from 4 (wide open) to 24 (packed) depending on what your printer can handle.

The option to set the lines per inch determines the vertical spacing

Standard for CI: 10

Standard for LI: 6

Adding or deleting a header

- In the Report Format display, press ⌘-O for Options.
- Under Formatting Options, find the code PH and look at the answer on the right. `Yes` means you want to have a header printed at the top of each page. `No` means you want none.
- If you want to change the setting, type PH. Then press Return, and `Yes` will turn to `No`, or `No` to `Yes`.

The header consists of the filename, the report name, the title, the record selection rule, the page number, and, if you want, the date. (You add the date when you actually go to print.)

Standard: Yes, print a header.

Sending special codes to the printer

- In the Report Format display, press ⌘-O for Options.
- Type SC, for Special Codes.
- On the Special Codes display, type whatever codes you want the printer to follow in printing your report. (You might enter the code that turns on an option not otherwise available, such as boldface color.) When you are through, press ^.

You can find these codes in your printer manual. AppleWorks will send those codes to the printer before your report. If you make a mistake when typing them in, you cannot press Escape to escape, because Escape is a common printer code, and you need to be able to enter it as one of your special codes. Just press ^, then type SC again, and when AppleWorks asks if the codes are OK, answer `No`; you'll be able to retype the codes.

Preparing to print a report—continued

Here are more ways to format your report for printing.

Sometimes you do not have information in a particular entry. For instance, in your data base of business contacts, you may have a few people who have no business name. In printing a mailing label for such a person, do you want to leave the line blank when there is no business name? Or do you want to omit the line altogether, and move the other lines up to take its place?

With printer options, you can tell AppleWorks how to handle blank entries in a table or in labels, and whether to use single, double, or triple spacing in a table. You can add the date and page numbers to your report, too.

What to do if an entry is blank in a table

- In the Report Format display, press ⌘-O to see the printer options.
- On the Printer Options display, under Formatting Options, find PD, the code for printing a dash when an entry is blank. Then look on the right. `Yes` means print the dash; `No` means don't.
- If you want to change the setting, type PD and press Return. `Yes` changes to `No`, or vice versa.

  If you say `Yes`, AppleWorks prints a dash in any entry that is blank, unless the category includes numbers aligned on the right, in which case AppleWorks replaces the dash with a zero.

  Standard: No

What to do if an entry is blank in a label

- In the Report Format display, press ⌘-O to see the printer options.
- On the Printer Options display, under Formatting Options, find OL and the code for omitting a line when all entries on a line are blank. Look at the setting on the right. `Yes` tells AppleWorks to omit the line; `No` says not to.
- If you want to change the setting, type OL, then press Return. `Yes` changes to `no`, or vice versa.
- If you do omit a line in the middle of your label, you may want to add one at the bottom so that all labels are the same length. This is particularly important with mailing labels. To keep the same number of lines in each record, make sure that the last formatting option, KS for Keep Same, says `Yes`.

```
File: Members                    PRINTER OPTIONS          Escape: Report Format
Report: Special
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width              8.0 inches    PL: Paper Length          11.0 inches
    Left Margin               0.0 inches    TM: Top Margin             0.0 lines

                        ----------Formatting options----------
                        SC: Send Special Codes to printer                    No
                        PD: Print a Dash when an entry is blank              No
                        PH: Print report Header at top of each page          Yes
                        OL: Omit Line when all entries on line are blank     Yes
                        KS: Keep number of lines the Same within each record Yes
--------------------------------------------------------------------------------
Type a two letter option code                                        49K Avail.
```

Formatting options: When you type the code and press Return, No turns to Yes, as if you were pressing an on/off switch.

Code for option at right

Special codes for labels report

Spacing in a table

- In the Report Format display, press ⌘-O to see the printer options.
- On the Printer Options display, type SS for single spacing, DS for double spacing, and TS for triple spacing.
- Press Return.

  (Labels use only single spacing because they have so little space.)

Putting in page numbers

- In Report Format, press ⌘-O to see the printer options.
- Make sure the setting for PH is `Yes`, meaning "Yes, print a header on every page." To change `No` into `Yes`, type PH, and press Return.

Page numbers are automatically part of the header, so when the report is printed, page numbers will appear in the top right corner.

If you say no to PH, you omit the filename, report name, date, and page number from the information at the top of each page. If you added a title, that will survive, atop each page.

Adding the date

- When you're ready to print your report, press ⌘-P. Tell AppleWorks where to print the document.
- If you want a date on your report, type it in, and press Return. If you prefer not to have any date on the report, just press Return.

(You will not be offered the chance to enter a date if you told AppleWorks you did not want any headers on your report. The date is part of the header.)

Setting the width: Options affecting the width of your text

Setting the length: Options affecting the length and density of your text

Formatting options: When you type the code and press Return, No turns to Yes, as if you were pressing an on/off switch.

Code for option at right

```
File: Members                    PRINTER OPTIONS          Escape: Report Format
Report: Ideas
================================================================================
-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width              8.0 inches    PL: Paper Length            11.0 inches
LM: Left Margin               0.0 inches    TM: Top Margin               0.0 inches
RM: Right Margin              0.0 inches    BM: Bottom Margin            2.0 inches
CI: Chars per Inch            10            LI: Lines per Inch           6

    Line width                8.0 inches        Printing length          9.0 inches
    Char per line (est)       80                Lines per page           54

                    --------------------Formatting options--------------------
                    SC:  Send Special Codes to printer                    No
                    PD:  Print a Dash when an entry is blank              No
                    PH:  Print report Header at top of each page          Yes
                         Single, Double or Triple Spacing (SS/DS/TS)      SS


--------------------------------------------------------------------------------
Type a two letter option code                                      48K Avail.
```

Making mailing labels

You can print the information from your data base onto mailing labels.

Create a label-style report format. Move the categories to the positions you want, left-justifying the ones on the right and deleting any you do not want included. To see how the data looks, press ⌘-Z.

Now you need to make sure that arrangement will fit on your mailing labels.

Tips: See page 274.

1. Count your lines

- On the Report Format, note the number of lines in your label. (The dashed line tells you how many lines will be printed in each label.)

  If you have left some blank lines at the bottom of your labels, those will be included in each label.

  In general, it is a good idea to move the dashed line up as far as you can, within the limits of good taste, so each label is three to five lines long.

2. Measure your paper labels

- Measure the actual height of each paper label, from top to bottom, in inches.

Number of lines in label

```
File: Rolodex                    REPORT FORMAT          Escape: Report Menu
Report: LABELS
Selection: All records

================================================================================
Name
Business
Street
City          State  Zip

----------------------Each record will print  5 lines----------------------

--------------------------------------------------------------------------------
Use options shown on Help Screen                                  ⌘-? for Help
```

```
File: Names
Report: LABELS

Joe Espana
Applied Accounting
987 Curtz Ave
Sun City      Ca 95432

Stan Smithers
99 Alma Ave
Sunville      CA 99999

Joe Christensen
995 Albion Way
Sarano        CA 89724

Chris Stanley
446 Salinas Dr
Solano        Ca 90211

Deborah Harrod
Country Crafts
8765 Sand Hill Rd
Pageville     Ca 98124
```

3. Decide whether the lines will fit on a label

- Figuring you are going to print at the standard 6 lines per inch, calculate whether or not your record will fit onto the physical label. For instance, if you have five lines on your record, and your label is an inch high, your data will fit.

  To find out how many lines could fit on one physical label, multiply its height (in inches) by 6. If your record has fewer lines than that, you're OK. If the same, you might just make it.

  But if you have more lines than will fit on the physical label, return to the Report Format display and make some adjustments:

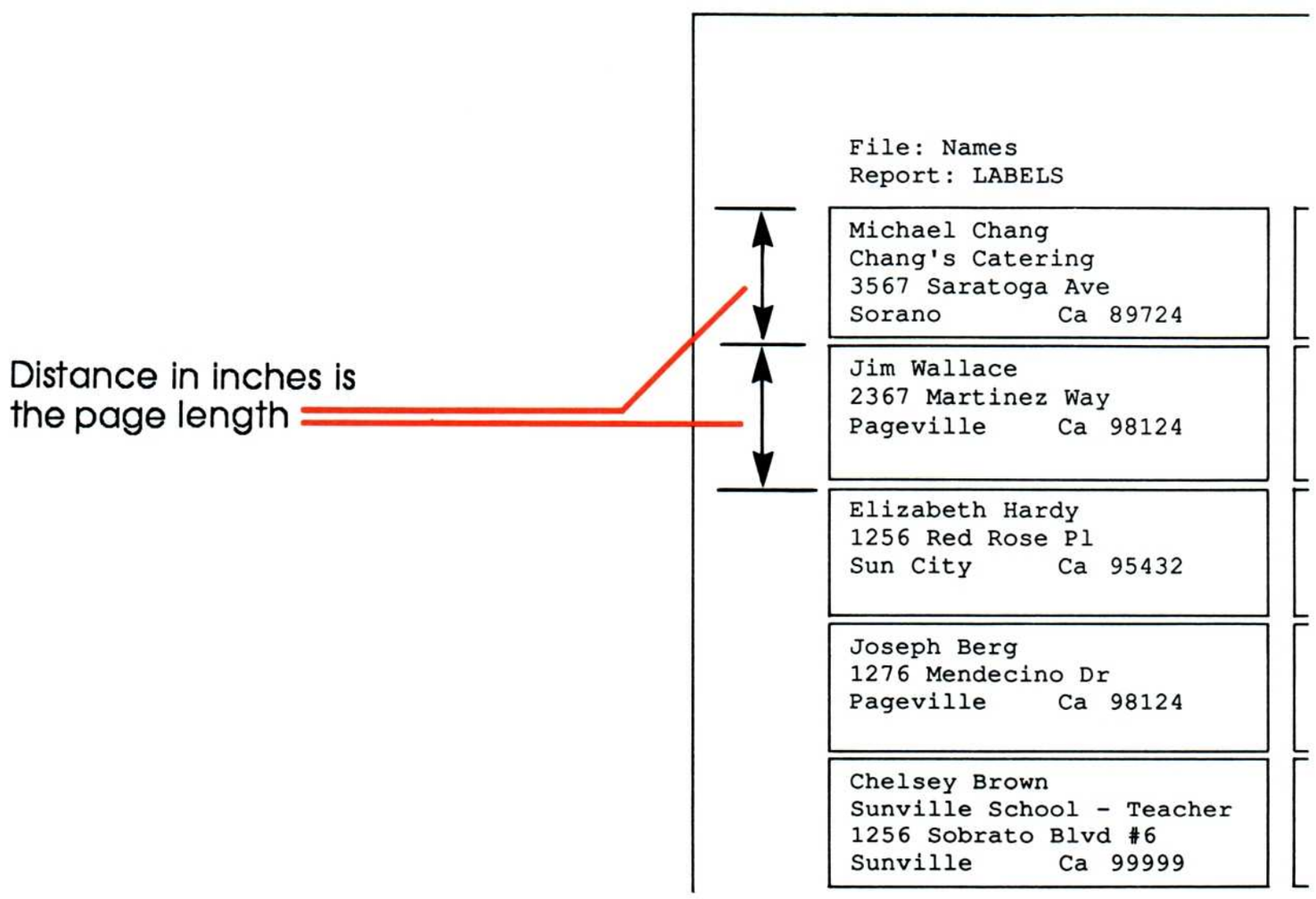
1. Put more categories on each line, or delete a category or blank line.
2. If that isn't enough, press ⌘-O, type LI, press Return, type 8, and press Return, to get eight lines to the inch. Make sure that PH is No so there will be no headers to upset the regular flow of mailing labels.
3. If that doesn't work, buy bigger labels.

4. Measure the label vertically

- Measure the distance from the top of one label to the top of the next, in inches. You are going to pretend that is the length of your physical page.

5. Pretend that is your paper length

- In Report Format, press ⌘-O for printer options.
- On the Printer options display, type PL for Paper Length, press Return, and then type in the distance from the top of one label to the top of the next, in inches. (Turn fractions into decimals, so that 1 1/2 inches becomes 1.5 inches.) You are telling AppleWorks to expect some very short pages.



(Steps for making mailing labels continue on the next page.)

6. Turn off the top-of-page command

- You must also make sure that AppleWorks will not send your printer top-of-page commands, which assume an 11-inch page. Press Escape over and over to return to the Main Menu.
- Choose option 5, `Other Activities`.
- Choose option 7, `Specify information about your printers`.
- Choose `Change printer specifications`. If you have more than one printer, choose the one you will be using for the mailing labels.
- Check option 2, `Accepts top-of-page commands`. If the option is `Yes`, change it to `No`. Now your printer will not advance your paper 10 inches after printing just one 1-inch label.

7. Check the width

- Measure the width of your paper labels in inches. You want to make sure your longest line of information will fit horizontally.
- In Report Format, press ⌘-O to see printer options.
- Set the top and bottom margins to 0 (zero); set left and right margins to 0.2 inch.
- Set platen width to the width of your labels.
- Set characters per inch (CI) somewhere between 12 and 17, depending on what your printer can handle.
- Make a note of the estimated line width; it should be less than the width of your label. If it isn't, increase the characters per inch.

8. Double check the width

- On the Printer Options screen, note the characters per line (estimated in the middle of the screen). It should be more than you have in your longest line, if possible.
- Press Escape to return to the Report Format display.
- Press ⌘-P, and then print to the screen. Look for the longest line, count it, and make sure it has fewer characters than the estimate on the Printer options display. If not, increase the characters per inch.

  If your lines are still wider than your labels, it's time to edit some entries or to buy wider labels.

9. Keep the labels lined up

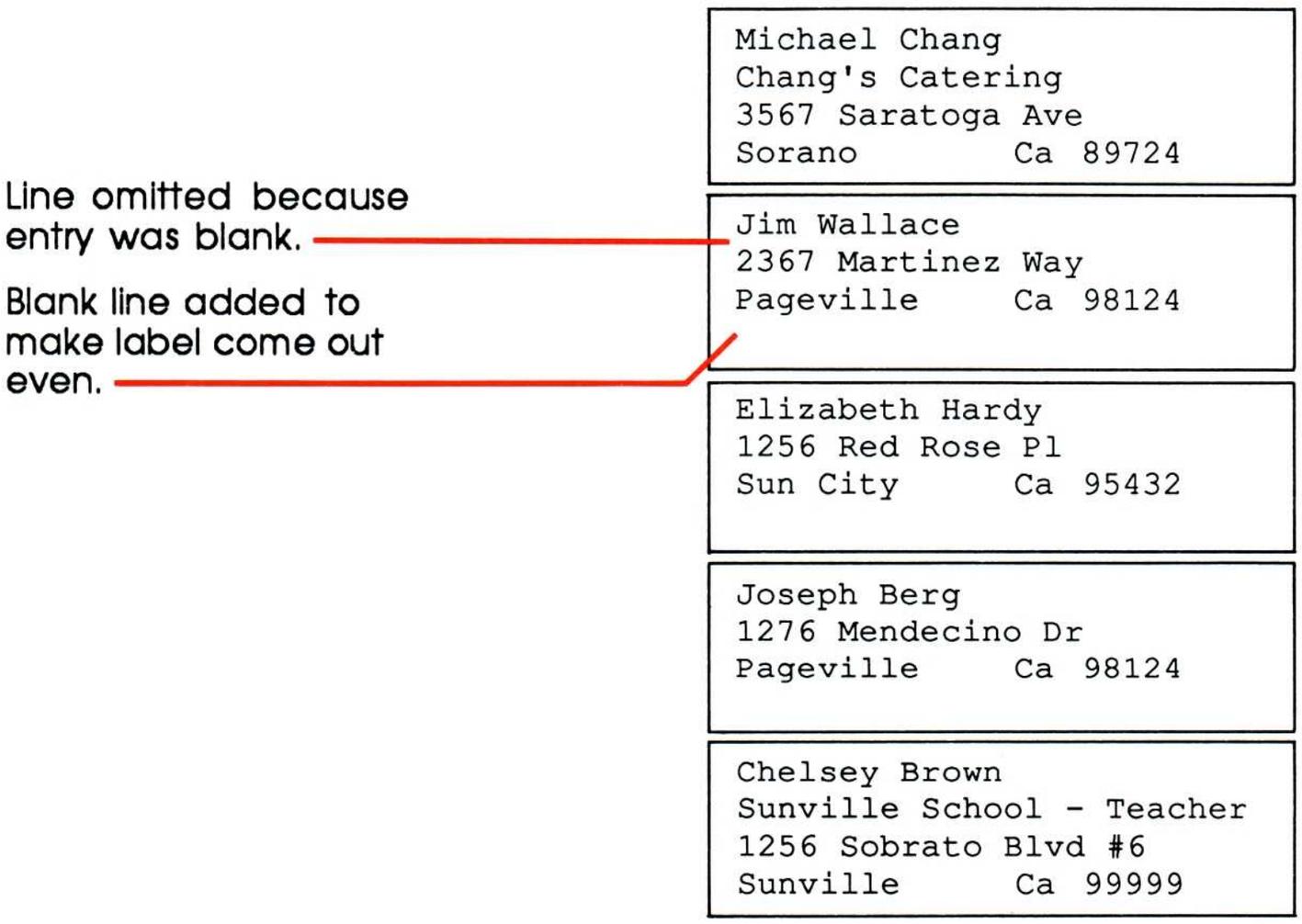
- To keep an occasional blank entry from throwing off the regular printing of your labels, start at the Report Format, and press ⌘-O for Options.
- Make sure that OL is `Yes`, and KS is also `Yes`. That way AppleWorks will omit the line when all the entries on it are blank, but will add blank lines at the end, so your printing doesn't begin to slip off the physical labels.

10. Print a test run

- Before you print all your labels, try a small group to see how your settings are working.

  You might print to the screen for a first try.

  Then print another batch using your printer with plain paper; after a page or two press Escape. You should be able to see if the text will land on the labels correctly.



Printing a Data Base report

Once you have customized your format, it's easy to print your Data Base report.

1. Start in Report Format

- Go back to the Report Format display.

  Take one last look at the format to make sure it's the way you want it.

2. Tell AppleWorks you want to print

- Press ⌘-P for Print.

3. Tell AppleWorks where to print

- Choose where you want the report printed.

  Your printers come first on this list, followed by the opportunity to print to the screen (as a preview) or to the clipboard for later use in a Word Processor document, in Mail Merge, or on a disk as an ASCII or DIF file.

If all you want is a paper copy, choose the printer you had in mind when you set up your format. Make sure it is connected to your computer, powered on, and ready to print.

4. Add a date, if needed

- If you decided to have headers on your report, you now get a chance to add a report date. Type it in, and then press Return. If you don't want a date in the header, just press Return.
- Respond to the question of how many copies you want: Just type in a number from 1 to 9.

5. Pause or stop, if you want

- During printing, you can make the printer pause by pressing the Space bar.
- You can stop the printing and return to the Report Format display by pressing Escape.

  As soon as you enter one of these commands, AppleWorks stops sending information to the printer. But the printer already has a certain amount of information in its memory, so it goes on printing until it's used up everything it has already received. Be patient. The printer will run out of things to print in a few seconds.

Try this!

Here's a challenge, to help you review the Data Base. Try to do the exercise without turning back to the rest of the chapter. But if you need a hint on a step, look at the bottom of each column, and you'll find where to look for help.

1. Create a data base

- You've just volunteered to help start a data base for your local parks department. They have a lot of plants to take care of, and they want to be able to look up a plant by name and find out what kind of soil each one prefers, how much sun it needs, how much watering it requires, what kind of pruning to do, what diseases and bugs attack it, and what kind of humidity it can tolerate.

  Set up a data base with a category for each of these topics.

  For help, see "Creating a Data Base From Scratch."

2. Revise the layout

- The groundskeepers like what they've seen of your data base, but they wonder if you could add two other categories: plant type (annual, perennial, bulb, fern, cactus, or grass) and warnings (for poisonous berries or irritating leaves).
- They also want to change some column widths. The plant names can be as long as 12 characters. But soil only takes 4 characters to define (sand or clay or rock). Sun, water, and humidity don't take any more than five characters each. Diseases can take up to 20 characters.
- In multiple-record layout, they do not need to see diseases. They'll zoom to single-record layout to see those.

  For help, see "Changing the Layout of Your Records," and "Adding or Deleting a Category." You may also want to look at "Changing the Name."

3. Enter one record

- To show the parks people how data will look in your data base, enter information about the juniper, a tree that likes full sun; can survive in clay, with little water, in very humid air; requires very little pruning; and has no particular hazards for workers.

  For help, see "Entering and Editing Information" and "Moving Around in Your Data Base."

4. Make up a label-style report

- The commissioner of parks wants to see what kind of reports your data base will generate. Using your one record, create a format that will devote one page to each record, putting in a dash wherever an entry is blank, providing a header with page numbers and the date.

  For help, see "Preparing to Print a Report."

5. Make up a table-style report

- For the health department, the commissioner wants to be able to print out a list of all plants that have a warning about poison. He wants to see the plant name, type, and warning, but nothing else in the table.

- The commisioner wants you to print this double spaced, without a date, with fairly wide margins, under the title "Commissioner's Report on Health Hazards in Our Parks."

  For help, see "Customizing a Table Report," and "Preparing to Print a Report."

Chapter 4

Using Mail Merge

To send out form letters

To take information such as names and addresses from a data base, and have it inserted in a form letter, you use the Mail Merge function of AppleWorks.

First you prepare a Data Base table-style report containing whatever records and categories you want to use.

Then you write your letter and mark where you want to bring data from each category into the letter.

When you print, AppleWorks makes a separate copy of the letter for each data base record, inserting the data base information in the spots you've indicated, personalizing each form letter.

1. Make a table

- Select the data base that contains the information you want to use in the letters. While you are in Review/Add/Change, press ⌘-P for Print.
- Choose to make a new table.
- Use ⌘-A to sort the records so that they are in the order you want the letters printed in.
- Use ⌘-R to select the records you want to use.
- Press ⌘-P again, and choose `The clipboard (for Mail Merge)`. Press the Space bar.

  You get the message that your data is now on the clipboard, ready to be merged with your Word Processor document. Don't use the clipboard for any copying or moving until you've actually printed your form letters.

  Be sure you *print* using ⌘-P to put the data on the clipboard—do not use ⌘-C or ⌘-M.

2. Write that letter!

- Start a Word Processor file from scratch, or revise an existing file.
- Wherever you want the information from a particular record to be inserted, leave your cursor in that position, and press ⌘-O for Options. For instance, you might want to have your letter address each person by first name, so you would stop one space after the *Dear*.
- Type MM for Mail Merge, and press Return.

  A list of Data Base categories appears. If you get the message that there is no Mail Merge data on the clipboard, you must return to the data base and print your report to the clipboard (for Mail Merge), as described in step 1.

```
PW=8.0  LM=1.0  RM=1.0  CI=10  UJ  PL=11.0  TM=0.0  BM=2.0  LI=6  SS
Option: mm          UJ: Unjustified    GB: Group Begin     BE: Boldface End
                    CN: Centered       GE: Group End       +B: Superscript Beg
PW: Platen Width    PL: Paper Length   HE: Page Header     +E: Superscript End
LM: Left Margin     TM: Top Margin     FO: Page Footer     -B: Subscript Begin
RM: Right Margin    BM: Bottom Margin  SK: Skip Lines      -E: Subscript End
CI: Chars per Inch  LI: Lines per Inch PN: Page Number     UB: Underline Begin
P1: Proportional-1  SS: Single Space   PE: Pause Each page UE: Underline End
P2: Proportional-2  DS: Double Space   PH: Pause Here      PP: Print Page No.
IN: Indent          TS: Triple Space   SM: Set a Marker    EK: Enter Keyboard
JU: Justified       NP: New Page       BB: Boldface Begin  MM: Mail Merge
```

3. Pick the category

- From the list of categories available in your data base report, pick the one whose data you want entered here.
- Tell AppleWorks whether or not to print the line even if it's blank. Answer `Yes` if you want a spacing line to be "printed" when there is no information in that category for a particular record and no other text on that line in the Word Processor document. (For instance, someone might not have any business name.) Answer `No` if you don't want a spacing line.
- If you want to add the data from another category on the same line, type MM again, press Return, and pick that category. When you want to go on writing, or put a Mail Merge category on another line, press Escape.

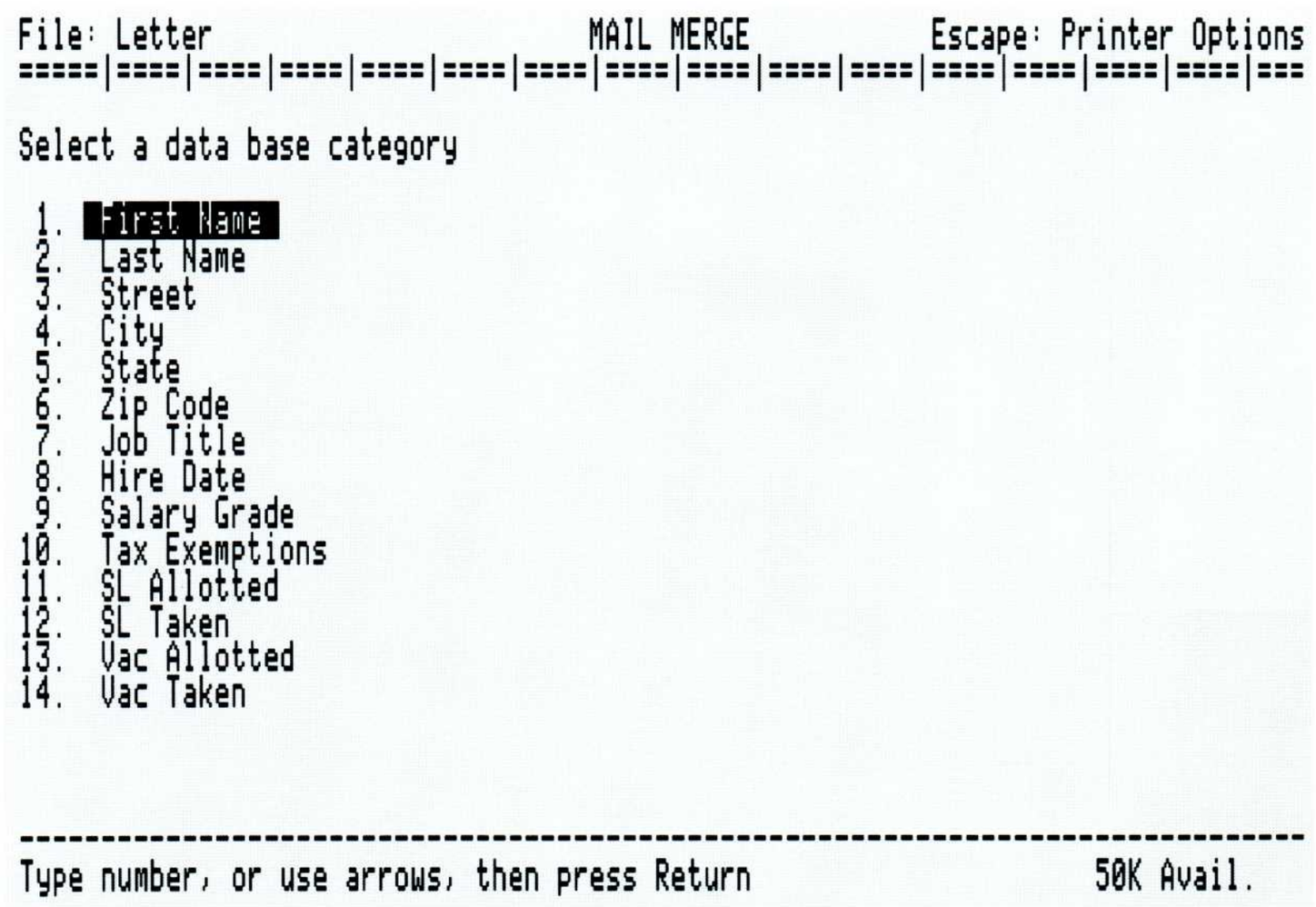
You can put more than one category on a single line. AppleWorks adds one space at the end of each category. If you put in the first name, immediately followed by the last name, there will be one space between them. To have punctuation follow a category without an intervening space, you must delete the space that AppleWorks adds after the category.

4. Print the letter

- Press ⌘-P to indicate you're ready to print the Word Processor document.
- Choose to print from the beginning.
- Choose the printer you are going to use. If you want to have the merged documents saved as a file, print to a text file on a disk.
- Choose whether you want to print the document with the information from the categories merged in, or unmerged (as you see it on the screen). For a test, try unmerged. For the actual letters, you need to merge.

If you've used the clipboard since you printed the data base report to the clipboard, you'll get a message, `There's no mail-merge data on the clipboard.` That means you have to go back to the data base and print the report to the clipboard again.

Remember, do not use ⌘-C or ⌘-M to put the data base information on the clipboard. The Mail Merge function will not work properly if you do.



Chapter 5

Using the Spreadsheet

Anatomy of a spreadsheet

AppleWorks' spreadsheet is an electronic worksheet.

You enter the numbers and formulas that you need to complete a particular task, and the spreadsheet cranks through all the complex calculations for you, freeing you to spend more time thinking about what you are doing, and examining various "What If" situations.

Here are some of the key elements you'll use in making your own spreadsheets.

Name: the name you gave to this file when you set it up

Column: one vertical line of information starting at the top with a letter or letters

Label: text describing part or all of a spreadsheet

Cell: the space in which you enter information—at the intersection of a row and a column

Row: one horizontal line of information starting with a row number

Value: a number, function, formula, or reference to another cell

```
File: Balance Sheet          REVIEW/ADD/CHANGE          Escape: Main Menu
========A=========B=========C=========D=========E=========F=====
  1|
  2|
  3|                                                    1985    PERCENT
  4|
  5|BALANCE SHEET
  6|
  7|
  8|ASSETS
  9|
 10|CURRENT ASSETS
 11|Cash                                              $27,500       4.97%
 12|Marketable Securities                             $50,000       9.04%
 13|Net Accounts Receivable                          $100,000      18.08%
 14|Inventory                                         $70,000      12.66%
 15|Prepaid Expenses                                   $2,000        .36%
 16|Other                                               $500        .09%
 17|Total Current Assets ---------------------->  $250,000      45.21%
 18|
-------------------------------------------------------------------------
E17: (Value, Layout-D0, Protect-V) +E11+E12+E13+E14+E15+E16

Type entry or use ⌘ commands                                  ⌘-? for Help
```

Cell indicator: Shows coordinates and contents of highlighted cell (the one you are working in). If the cell contains a formula, you see the formula rather than the result.

Formulas: Behind some numbers are the formulas you used to calculate them.

Highlighting: Shows where you can type. You insert or replace characters here, and, when your entry is perfect, press Return or an arrow key to enter the information in the cell.

Formatting

You can format the way every value or label appears throughout the spreadsheet—globally. Or you can establish a format for the values or labels in just a few cells—locally.

You can control the position of labels so that they line up against the left or right margin of the cells, or in the center.

You can control the format of numbers so that they appear with dollar signs, percent signs, or commas. And you can decide how many figures appear after the decimal point.

Left justified: The labels are aligned against the left margin of their cells. (You could also have them right justified or centered within the cells.)

Appropriate: The number of places after the decimal point depends on the number of places necessary to represent each value accurately.

Exception: You can set up a special format for certain cells. These cells are not in the standard format, which calls for a fixed number of places after the decimal point.

Dollar signs: You can have AppleWorks add these in front of your figures.

Column widths: You can change these to accommodate your numbers.

```
File: Our Budget              REVIEW/ADD/CHANGE              Escape: Main Menu
=======A========B========C========D========E==========F==========G======
  6|        Description                          Jan        Feb        Mar
  7|
  8|
  9|  Income:
 10|        Tom                                $1,250.25  $1,250.25  $1,250.25
 11|        Joyce                              $1,345.56  $1,345.56  $1,345.56
 12|                                           ---------  ---------  ---------
 13|        Total Income                       $2,595.81  $2,595.81  $2,595.81
 14|
 15|        Days in month                             31         28         31
 16|
 17|
 18|  Expenses:
 19|        House
 20|              Mortgage                       $600.00    $600.00    $600.00
 21|              Insurance                       $75.00     $75.00     $75.00
 22|              Property Taxes                 $100.00    $100.00    $100.00
 23|
-------------------------------------------------------------------------------
G15: (Value, Layout-A) 31

Type entry or use ✿ commands                                  ✿-? for Help
```

Fixed decimal: All values have the same number of places after the decimal point. In a column, the points are lined up vertically for easier reading and comparison.

Standard: You can set up a standard format for all values and have AppleWorks apply it to whatever you type in—here, it's a dollar sign and fixed number of places after the decimal point.

How to create a spreadsheet

You can create a spreadsheet as soon as you have started AppleWorks and see the Main Menu. Essentially, you begin a new file, give it a name, type in your labels, and enter your numbers.

Once you've done that, you can add formulas for calculating relationships between those numbers. (We'll cover that in a later section,"Using Formulas.")

Tips: See page 281.

1. Begin a new file

- On the Main Menu, choose option 1, `Add files to the Desktop`.
- Choose option 5, to make a new file for the Spreadsheet.

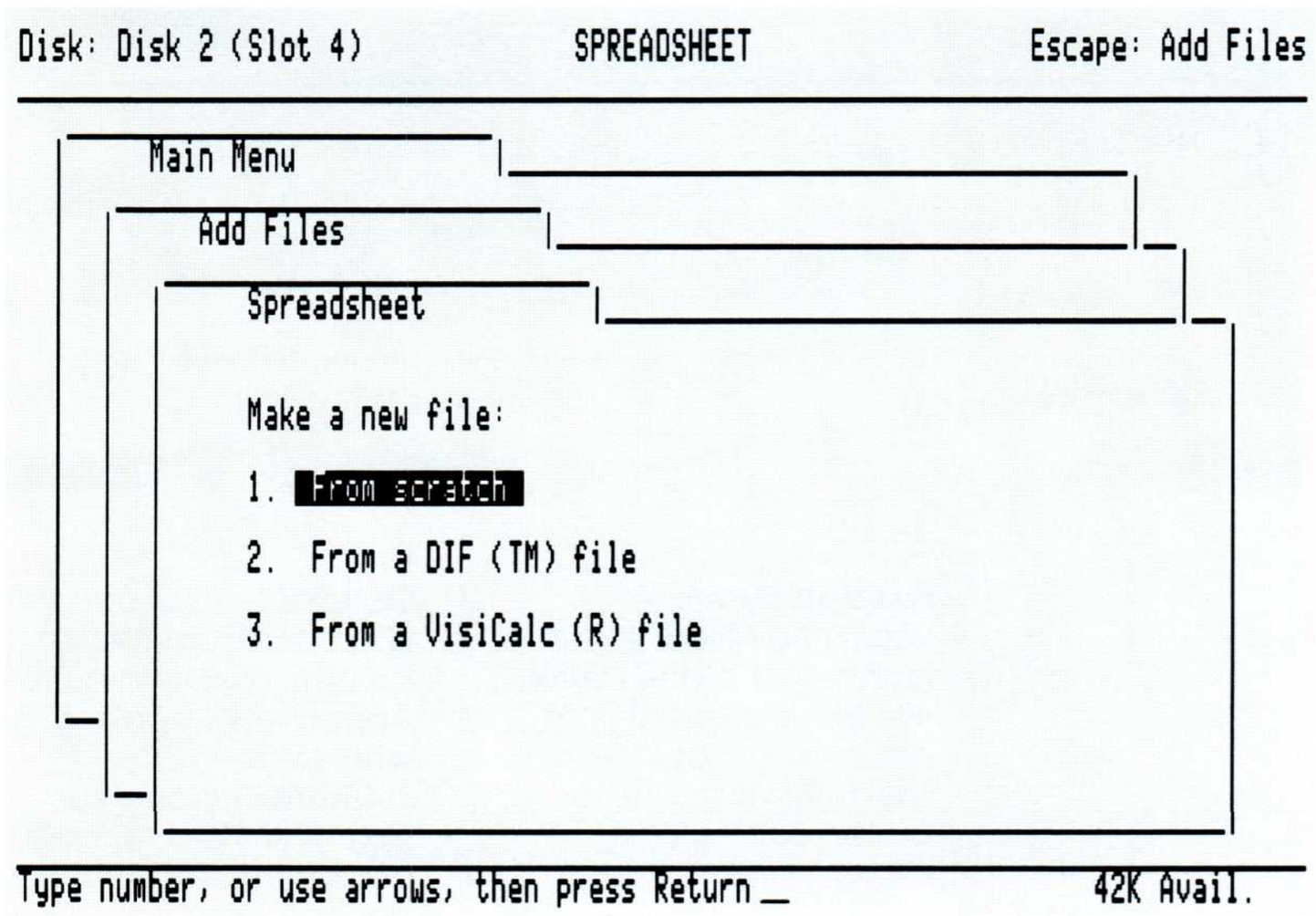
2. Indicate the source of your file

- If you're starting from scratch, choose option 1.
- If you are basing this new AppleWorks file on one produced in DIF format, choose option 2, and then type the pathname that will point AppleWorks to the location of the DIF file. For instance, if the file FIGURES is on the disk SPECIAL, your pathname would be

  `/SPECIAL/FIGURES`

- If you are basing this new AppleWorks file on one produced by VisiCalc, choose option 3, and then type the pathname that will point AppleWorks to the VisiCalc file.

  If you are starting with a DOS 3.3 file, you must use your operating system to convert it to a ProDOS file. ProDOS is the operating system AppleWorks uses.



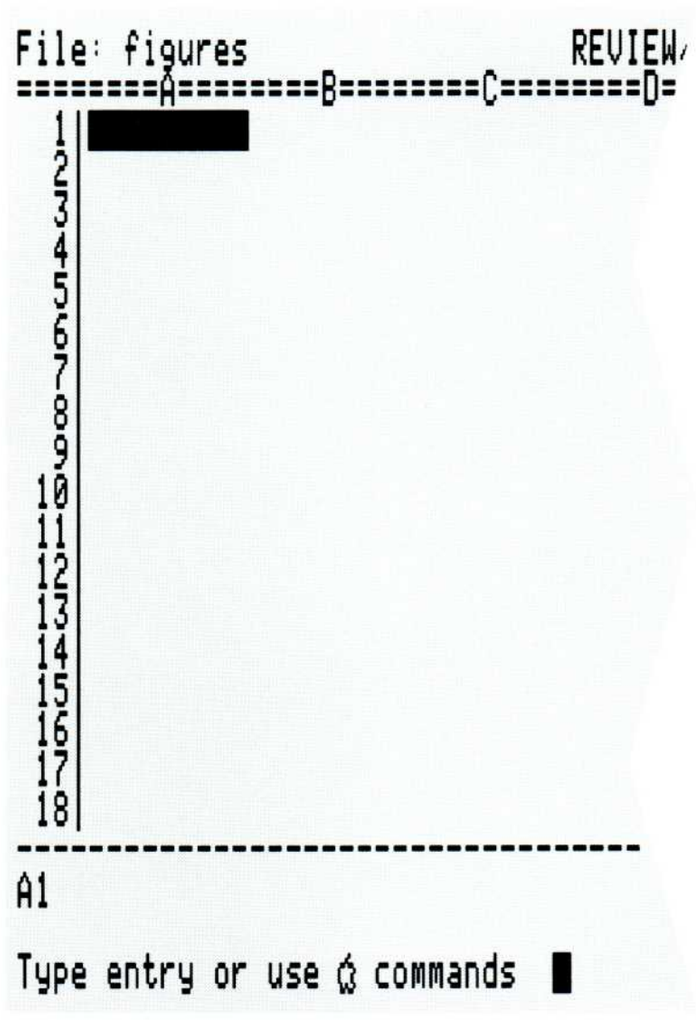
3. Give your file a name

- Type in a name for your new file.
- Press Return.

  The name should begin with a letter, followed by up to 15 uppercase or lowercase letters, numbers, spaces, or periods, but no other punctuation.

You now see an empty spreadsheet, ready for you to go to work.

Maximum length of the file's name: 15 characters



4. Enter some labels

- Use arrow keys to move the highlighting to the first cell in which you want a label.
- Type the label. If it does not begin with a letter, start with quotation marks (") so that AppleWorks recognizes it as a label, not a value. If your label exceeds the width of one column, AppleWorks extends the highlighting into the next column, and you can keep going until the label is complete.
- Use an arrow key to enter the label into that cell, and move to another cell.

  You can see the label being created as you type, right after the word `Label,` in the lower left of your screen.

  Your label, then, can cover more than one column. (A value cannot.)

5. Enter some values

- Use arrow keys to move the highlighting to the first cell in which you want a number.
- Type the number.
- Use an arrow key to move to another cell.

  The numbers appear in the lower left of your screen, preceded by the word `Value`.

If you enter a number that is longer than the cell, AppleWorks remembers the number, but displays a row of number signs (###) so you will know there are more digits than it can show. You can widen the column so that you can see the whole number.

You're ready to add more labels and values; then you can put in some formulas and do some calculations.

Moving through your spreadsheet

You can move through your spreadsheet one cell at a time, one screen at a time, or one eighth of the document at a time.

As soon as you highlight a cell, you can enter information into it. After you've finished an entry, you confirm it—putting it into the cell—by moving the highlighting or by pressing Return. (When you press Return, your highlighting stays in the same cell.)

Tips: See page 285.

Up, down, left, and right

- To move highlighting from one cell to another, use the arrow keys.
- If you hold an arrow key down until you reach the edge of the window, the window will move over, revealing columns or rows that were not visible before.

The highlighting moves one cell at a time.

One cell left and right

- Press Tab to move one cell to the right; press ⌘-Tab to move one cell to the left.

To the right or left side of the screen

- Press ⌘ at the same time as the Left Arrow or Right Arrow.

  The highlighting moves to the cell on the right or left edge of the screen; and then, if you press the two keys again, it moves in the same direction across another whole screen of information.

Up or down one screen at a time

- Press ⌘ at the same time as the Up Arrow or Down Arrow.

  The highlighting moves to the cell on the top or bottom of the screen; and then, if you press the two keys again, it moves in the same direction, across another whole screen of information.

Through the document, vertically

- To move up or down through the document by eighths, press ⌘ at the same time as a number from 1 to 9.

  1 takes you to the beginning, 9 to the end. 5 is the middle.

Entering information in a cell

As soon as you highlight a cell, you can enter information into it.

As you type a label, it appears in the cell and in the lower left of the display, below the cell indicator. But as you type a value, it does not appear in the cell until you enter the value by pressing Return or an arrow key. As you type, the value will appear below the same line as the cell indicator. This allows you to compare your new entry with any value currently in the cell.

Entering a label

- Move the highlighting to the cell, and then type the label.

  It appears in the cell and in the lower left corner of the screen.

  If your label extends beyond the cell, AppleWorks extends the highlighting into the next cell (unless that cell has a value in it) so your label can cover more than one column of information.

  If the adjacent cell has a value in it, AppleWorks slides the label behind the value; it's still there—you can see it in the cell indicator, but it is not displayed. If you want to see the entire label, you can widen the column by using ⌘-V.

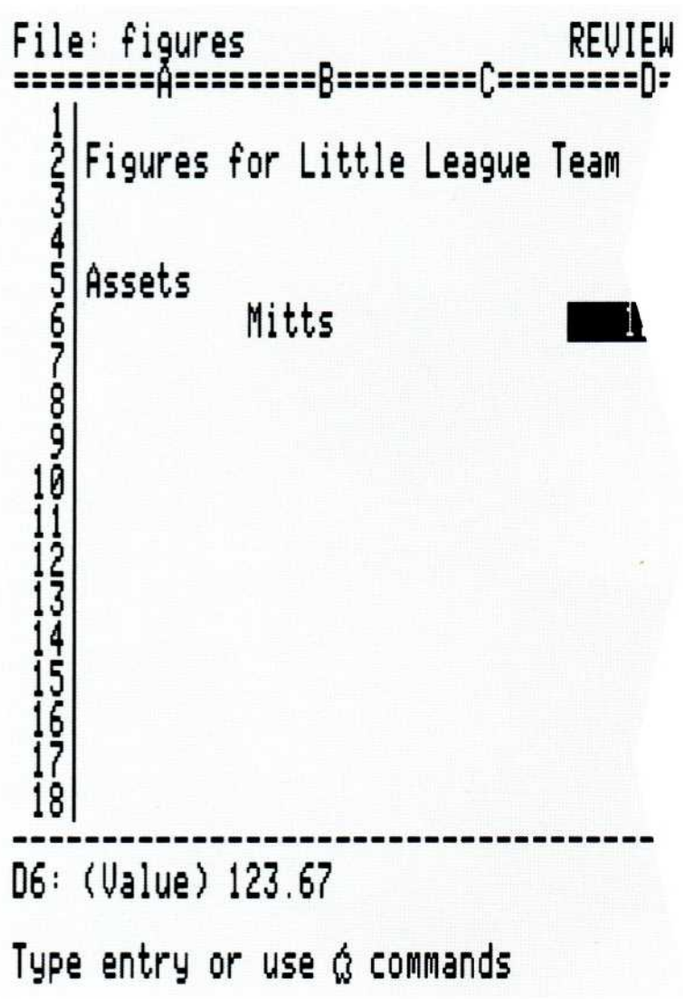
  When you highlight a cell that already has a value in it and start typing a label, the label immediately replaces the value in the cell, unless you've protected values from changes. See "Protecting Your Cells," later in this chapter.

Entering a value

- Move the highlighting to the cell, then type the value.

  The numbers appear at the lower left corner of your screen, preceded by the description `Value`. You can compare any value already in the cell with the number you are now typing—before confirming the new version.

  If you enter a number that is longer than the cell, AppleWorks will remember it when you confirm the entry, but display a row of number signs (###) so you will know there are more digits than it can show.



Deleting a few characters

- Press Delete to erase the character to the left of your cursor.

Confirming what you've typed—and staying put

- Press Return.

  AppleWorks puts what you have typed into the cell. The highlighting stays in the cell.

Confirming—and moving on

- Press one of the arrow keys, Tab, or ⌘-Tab.

  AppleWorks puts what you've just typed into the cell and then moves the highlighting.

  Tab moves you one cell to the right; ⌘-Tab moves you one cell to the left.

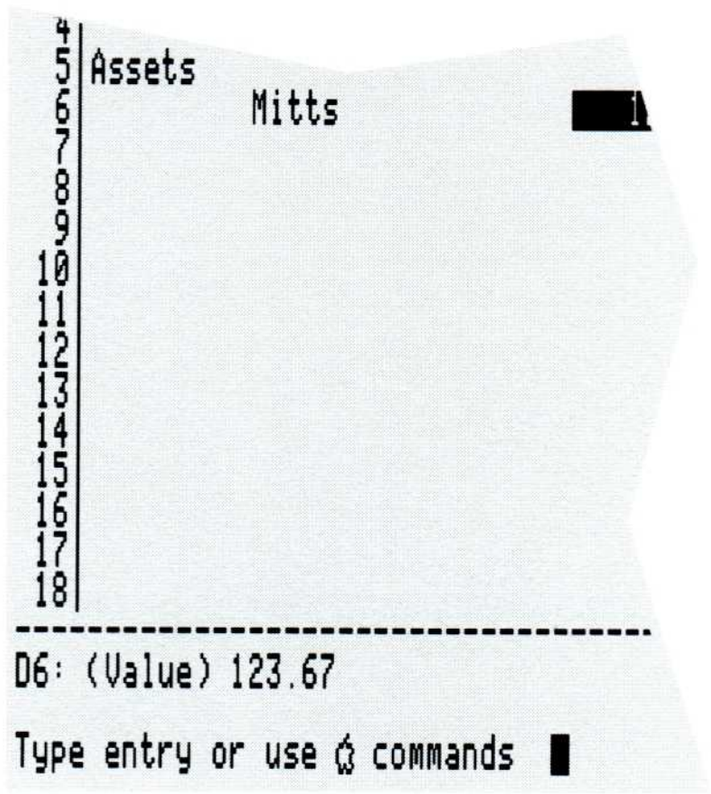
Editing an existing entry

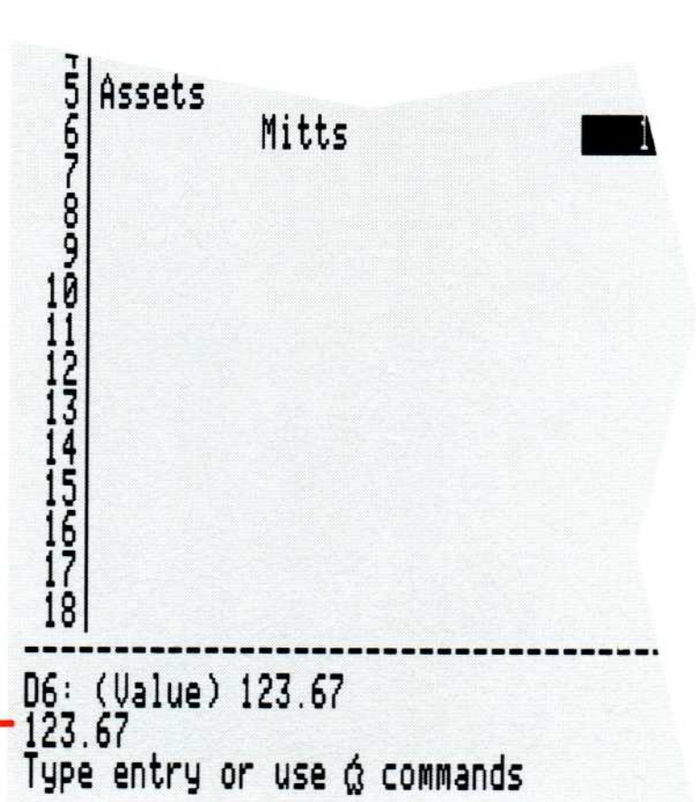
Editing is different from entering a new label or value, which just replaces the original entry. With editing, you are making a change here and there, but leaving a lot of your original intact.

Indicating that you want to edit the contents of a cell

- Move the highlighting to the cell you want to edit and press ⍟-U.

  AppleWorks puts the contents of the cell right below the cell indicator. You can now use the arrow keys to move back and forth *within that entry*.





After pressing ⍟-U, you can edit the value.

Inserting or replacing characters

- To insert a character, use the arrow keys to move the underline cursor to the character you wish to end up *after* what you insert. Type.
- To replace a character, use the arrow keys to move the rectangular cursor to the character you want to replace. Type.

  To change from one cursor to the other, press ⍟-E.

Deleting

- To delete a character, use the arrow keys to move the cursor to the character to the right of the one you want to erase. Press the Delete key.

Erasing the rest of the entry

- Use the arrow keys to place the cursor on the first character you want to delete. Press ⌘-Y or Control-Y.

  AppleWorks removes the character your cursor was on and everything else to the end of the entry.

Restoring the former entry

- To undo whatever you have just typed and restore the original entry, press Escape.

Creating labels

You should label your rows and columns, so that later you—or another reader—will understand what your figures mean.

If your label goes beyond the limits of one cell, AppleWorks will continue it in the next cells, as long as they have no numbers in them and are unprotected. Even when the next cell is protected, or contains a number, your label can continue: AppleWorks just does not display it all.

Beginning with a letter

- Move the highlighting to the cell and start typing. Begin with a letter.

  AppleWorks takes any entry that starts with a letter as a label.

Beginning with a number or a space

- Move the highlighting to the cell, press Shift, and type a double quotation mark (").
- Then type the number or space and the rest of your label.

  The quotation mark signals AppleWorks that what follows is a label, even though it looks like a number or a blank space. That's important: You wouldn't want AppleWorks to try calculating your label.

  The " is not part of the actual label; it's just a signal saying, "Label to follow."

Repeating

- To make a line of characters (such as dashes, letters, or equal signs), press Shift and type a quotation mark, and then hold down the key for the symbol you want repeated, until it fills up the cell. (Do not go beyond the limit of the cell.)
- Press Return or an arrow key to confirm the entry.

  From now on, when the highlighting is on this cell, the cell contents in the lower left corner of the screen will have `(Label) Repeated-=` (or whatever your repeated character is).

  Later, if you widen the column, AppleWorks will repeat the character enough times to fill out the column.

  You cannot edit a repeated cell with ⌘-U; but you can replace it—highlight the cell, and type a new entry.

  Maximum for a repeated label: 71 characters.

Applying one format to all

- To make sure that all labels end up aligned in the same way, no matter where you type them, start by pressing ⌘-V.
- Choose `Label format`.
- Choose `Left justify` (labels aligned against the left margin of each cell), `Right justify` (labels aligned against the right margin), or `Center` (labels centered within each cell).

Applying one format to a few labels

- Press ⌘-L for cell Layout.
- Tell AppleWorks whether the labels you are talking about are in one entry, in one or more rows, in one or more columns, or in a block.
- Use arrow keys to highlight the area. Press Return.
- Choose `Label format`.
- Choose which alignment you want: along the left or right margin of the cell, centered, or standard (the same as all cells outside of the highlighted area). Press Return.

Putting in values

There are several ways you can put numbers into your spreadsheet.

You can type the number or something that yields a number. You can type a reference to another cell, called a *pointer*, telling AppleWorks to take the number in the other cell and put it in this one.

You can use one of AppleWorks' built-in functions, such as @SUM, which totals up all the numbers in a list you provide and puts the result in the cell.

Finally, you can build your own formula out of numbers, functions, pointers, and arithmetic operators (such as plus and minus) and have the result of that calculation put into the cell.

If you enter a number that is longer than the cell, or if a formula yields a number that is, AppleWorks will remember the number, but display a row of number signs (###) so you will know there are more digits than it can show. (Later you can widen the column, revealing the whole number.)

A number

- Type the number.

  The number appears at the lower left corner of your screen. When you press Return, Tab, or an arrow key, it is entered into the cell.

You can also precede a number with a plus sign, minus sign, or decimal point.

A reference to a number in another cell

- Start with a plus sign (+) or a minus sign (-), and then type the coordinates of the other cell.

  This reference is known as a pointer. AppleWorks looks in the other cell, finds whatever number is there, and brings it back to this cell.

In providing the coordinates, be sure you give the column letters before the row number. For instance, AC3 refers to the cell in column AC, at row 3.

You might find it easier to do it this way: Enter the plus or minus sign, and then use the arrow keys to move the highlighting to the other cell. Press Return. Your highlighting returns to the original cell, and AppleWorks inserts the cell coordinates.

A function

- Begin with the @ sign. Then type in the abbreviation for the function.
- If the function needs more information to work with, place the additional information within parentheses.

For details on functions, see "Using Functions," later in this chapter.

A formula

- Begin with a number (preceded by a plus or minus sign, if you want), a pointer, a function, or a left parenthesis.
- Type in the rest of the formula.

If you began with a left parenthesis, be sure to close the parentheses.

The result of the calculation will appear in the cell when you confirm the entry by pressing Return, Tab, or an arrow key; when you highlight the cell, you will see the formula after the cell indicator, in the bottom left corner of the screen.

For details, see "Working With Formulas," later in this chapter.

Formatting your values—throughout

You can set up a standard format for numbers (for example, a fixed number of decimal places). AppleWorks will take any number you enter and display it in that format.

You can then just type in the number and let AppleWorks add commas, dollar signs, parentheses, and percent signs. If you want, it will make sure that each has the same number of figures after the decimal point.

The number as you typed it in is not lost. AppleWorks remembers it, and if you change the way you want it displayed (for instance, with more decimal places, or no dollar sign), AppleWorks can go back to the original number.

The standard format for values applies throughout the spreadsheet—except in areas where you use ⌘-L to set up a local layout for a few cells. To check the current standard format, press ⌘-? and scroll to the end of the help display.

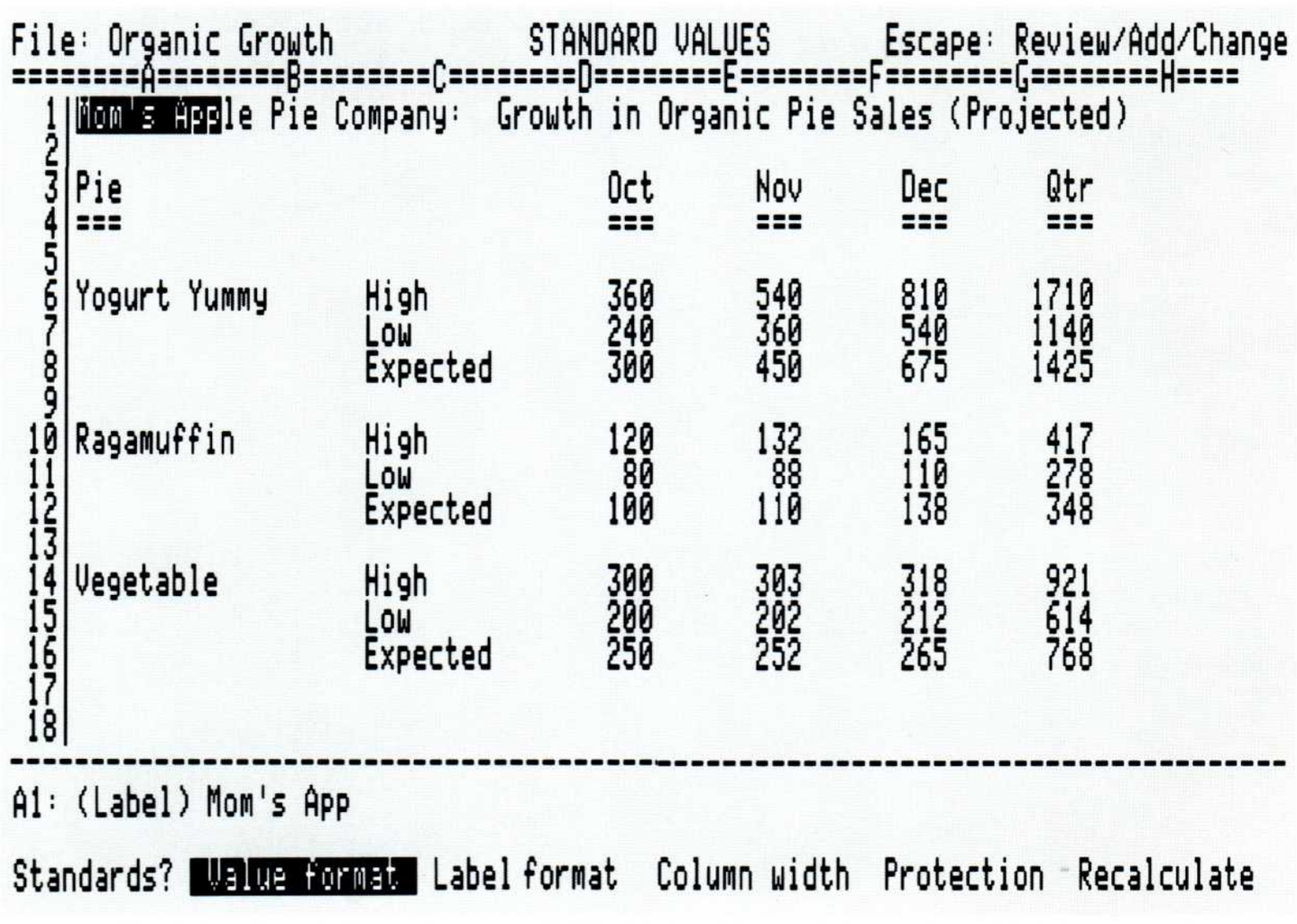
Tips: See page 288.

Commas between thousands

- To have AppleWorks insert commas between thousands, and parentheses around any negative values, press ⌘-V, and then choose `Value format`.
- Choose `Commas`.
- Type the number of figures you want after each decimal point.

Dollar signs

- To have AppleWorks insert a dollar sign before each amount, commas between thousands, and parentheses around every negative amount, press ⌘-V, and then choose `Value Format`.
- Choose `Dollars`.
- Type the number of figures you want after each decimal point.



Percentages

- To have AppleWorks transform whatever you type into a percentage, with a percent sign after it, press ⌘-V, and choose `Value format`.
- Choose `Percent`.
- Type the number of figures you want after each decimal point.

  To enter 7%, type in the decimal version, .07. AppleWorks multiplies every number by 100 and then adds a percent sign at the end. So .07 is displayed as 7%.

Fixed number of decimal places

- To make sure that every number has the same number of figures after the decimal point, press ⌘-V, and choose `Value format`.
- Choose `Fixed`.
- Type the number of figures you want after each decimal point.

  Maximum number of decimal places: 7

Appropriate number of decimal places

- To have numbers displayed using all the figures you typed in after the decimal point, or all the figures needed for accuracy, press ⌘-V, and choose `Value format`.
- Choose `Appropriate`.

  AppleWorks drops any zeros after the decimal point, but otherwise preserves whatever you type in, or whatever figures appear after the decimal point as the result of a calculation. For instance, one half would be displayed as .5; one quarter as .25; and one sixth as .1666667.

  The numbers appear right-justified in the column, with a blank in the leftmost position of every column.

```
File: Organic Growth          STANDARD VALUES      Escape: Review/Add/Change
========A========B========C========D========E========F========G========H====
  1 Mom's Apple Pie Company:  Growth in Organic Pie Sales (Projected)
  2
  3 Pie                              Oct      Nov      Dec      Qtr
  4 ===                              ===      ===      ===      ===
  5
  6 Yogurt Yummy       High          360      540      810     1710
  7                    Low           240      360      540     1140
  8                    Expected      300      450      675     1425
  9
 10 Ragamuffin         High          120      132      165      417
 11                    Low            80       88      110      278
 12                    Expected      100      110      138      348
 13
 14 Vegetable          High          300      303      318      921
 15                    Low           200      202      212      614
 16                    Expected      250      252      265      768
 17
 18
----------------------------------------------------------------------------
A1: (Label) Mom's App

Value format? Fixed Dollars  Commas  Percent  Appropriate
```

Formatting one or more cells

Even if you have set up a standard format for your spreadsheet, you can have AppleWorks format a few cells in a different way.

You can change the format of cells in certain rows, in certain columns, in one entry, or in a block of cells.

You have the same choices of format as you do when you set the standards for the whole spreadsheet.

To make sure your formatting will apply to anything you later enter into cells that are now blank, work with a block, rather than rows or columns. When you establish a new format for a row or a column, it applies to every value now there, but it will not affect any values you enter later. On the other hand, when you format the cells in the current entry or in a block of entries, the formatting will apply to any values you enter there later, and to any changes you make.

Tips: See page 289.

Formatting the values

- Press ⌘-L for cell Layout.
- Choose `Value format.`
- Pick a format. Press Return. Where appropriate, pick the number of figures you want after each decimal point. (You can have from 0 to 7.)

  Fixed lets you set the number of figures after the decimal point.

  Dollars puts a dollar sign in front of each figure, a comma to set off thousands, and parentheses around negative values.

  Commas puts commas between thousands, puts negative values in parentheses, and lets you set a fixed number of figures after a decimal point.

  Percent multiplies each figure by a hundred and adds a percent sign afterward.

  Appropriate keeps each figure the way you typed it in, or, if it is the result of a calculation, with enough figures after a decimal point to display it accurately.

  Standard just means to make the format of this cell like those in the rest of the spreadsheet.

Formatting labels

- Press ⌘-L for cell Layout.
- Choose what you want to format—one entry, a block of entries, one or more rows or columns. If necessary, use arrow keys to highlight the area. Press Return.
- Choose `Label format`.
- Choose a format, and press Return.

  The formats describe how the label will be positioned within the cell: aligned against the left margin, against the right, in the center—or in the standard format.

Widening or narrowing columns

- Press ⌘-L for cell Layout.
- Choose `Columns`. If necessary, use arrow keys to highlight the area. Press Return.
- Choose `Column width`. Press Return.
- Use the ⌘ key with the arrow keys to widen or narrow the columns. Press Return.

  (To widen all columns in the spreadsheet, use ⌘-V.)

Defining the protection for one or more cells

- Press ⌘-L for cell Layout.
- Choose what you want to protect—one entry, a block of entries, one or more rows or columns. If necessary, use arrow keys to highlight the area. Press Return.
- Choose `Protection`.
- Choose what kind of changes you want to allow to be made to the highlighted cells. Press Return.

  You can allow someone to enter only labels, only values, nothing at all, or—in removing protection—anything at all.

  Using ⌘-L tells AppleWorks which cells you want protected, and how, but you turn protection off and on—throughout the spreadsheet—using ⌘-V. Each new spreadsheet starts out with protection on, so any cells you specify protection for using ⌘-L will be protected right away unless you have turned off protection using ⌘-V. With ⌘-L, then, you define the protection for a group of cells; with ⌘-V you turn it off and on for every cell whose protection you defined with ⌘-L.

Using functions

A function performs a mathematical or logical calculation on one or more values. For instance, the arithmetic function we know as + (plus) adds two numbers together.

You'll notice that except for the arithmetic ones, all functions begin with an @ sign. (That's to distinguish their names from labels.) Most require some extra information (a value or two, for instance) to do their job; that information, called the *argument,* appears in parentheses following the function's name. For instance, @AVG(A4...A10) gives you the average of the values in cells A4 through A10. Here, @AVG is the function, and (A4...A10) is the argument.

The values you provide in the argument can be numbers, cell references, a range (a series of adjacent cells, such as A4...A10), or a list (a series of individual numbers, cell references, or ranges, such as 5, A4, B6...B9).

Doing arithmetic

- Type the first value.
- Follow that with the symbol for the function (+, -, *, /, or ^).
- Complete the function with the second value.

Either value can be a number or a cell reference.

About ^: When you want to multiply a number by itself a certain number of times, place the exponentiation sign (^) after the number, and follow that with the number of times you want to have the number multiplied by itself. For example, to calculate 8 * 8 * 8, you write 8^3.

Examples, all resulting in the value 9, assuming B4=3, B7=9, and C9=12:

```
3+6

C9-B4

C9-3

3*B4

3*3

99/11

3^2

B4^2
```

Using @ABS

- To have AppleWorks strip away any minus sign and display the absolute value, enter @ABS, followed by the number in parentheses.

  For instance, each of the following would result in AppleWorks displaying 9.25, assuming J3=9.25:

```
@ABS(-9.25)

@ABS(J3)

@ABS(-9-.25)
```

Here's an example of a time when you might want to use @ABS. You may have been working on accounts payable, with every figure preceded with a minus sign, but you now want to include the total owed in a sentence, "We owe a total of..." For that you just want the absolute value—the number itself, without any minus sign.

Using @AVG

- To have AppleWorks calculate the average of a group of numbers, type @AVG, and follow that with a list or range of numbers in parentheses.

  If A4=3, A5=4, and A6=5, then both of these will equal 4:

```
@AVG(A4...A6)
```

```
@AVG(A4,A5,A6)
```

When you provide a *range*, such as A4...A6, AppleWorks ignores any blank cells and labels, rather than evaluating them as zero. You can think of this average as the average of any numbers that actually appear in the cells. But if you specifically name a cell in a *list,* such as (B3,B22,N8), AppleWorks figures you really want it to count whatever is there, and treats a blank or a label as a zero.

By the way: Do not use a plus sign in the argument, like this: @AVG(B3+B22+N8). AppleWorks will add the values and get a single number. The average of a single number is the number itself. As a result, what you expect to be an average turns out to be a sum. Correct punctuation: @AVG(B3,B22,N8)

Using @CHOOSE

- To have AppleWorks pick a value from a list, depending on its position, enter @CHOOSE, followed by the cell that holds the value identifying the position, then the values for each position, in parentheses.

For instance, if cell A6 holds a code for the position (1 for first position, 2 for second position, 3 for third, and so on), and if you want the value $500 displayed whenever that code is 1, $600 when it is 2, and $750 when it is 3, then the formula would be

```
@CHOOSE(A6,500,600,750)
```

For instance, a county tax assessor must apply a different tax for agricultural lands (code 1, perhaps), residential areas (code 2), and business zones (code 3). Whenever he reassesses a property, he enters the code in B6. To get the correct tax rate in the current cell, he would enter

```
@CHOOSE(B6,3.25,2.5,5.25)
```

If B6 yields a 1, this cell displays the tax rate for farm land, 3.25. (Further formulas would calculate the actual tax, using this rate.)

Using @COUNT

- To find out how many cells have a value entered in them, use @COUNT, followed by a range of cells.
- To find out how many cells are in a list, use @COUNT, followed by a list of cells.

If you enter a range, the function counts only the number of entries that have values in them; it ignores labels and blanks. For instance, if B3, B4, and B5 have values, B6 is blank, and B7 has a label in it, @COUNT (B3...B7) would yield 3.

On the other hand, when you enter a list, the function just counts the number of cells, whether blank or not, label or value.

Using @IF

- When you state a possible relationship between two numbers (such as *A6 is less than B6*), and you want AppleWorks to display one number if that is true, and another if it is false, start with @IF.
- Then, after an opening parenthesis, put in the relationship you want to test. First comes a number, then a logical operator (see below for a list), and then another number. For instance, < means *less than,* so if you want the condition to be *if A6 is less than B6,* you would start

```
@IF(A6<B6
```

- Then put a comma, followed by the value you want AppleWorks to use if the relationship turns out to be true, another comma, and the value you want AppleWorks to use if the relationship turns out not to be false. If you want 50 when A6<B6 is true, and 66 when it is false, the formula would be

```
@IF(A6<B6, 50, 66)
```

The statements use the following operators: <, <=, >, >=, =, <>, @AND, @OR. A<B means A is less than B. A<=B means A is less than or equal to B. A>B means A is greater than B. A>=B means A is greater than or equal to B. A=B means A equals B. A<> means that A is not equal to B. @AND goes in front of a series of arguments and means that they all must be true before AppleWorks chooses the true value. @OR goes in front of a series of arguments and means that if any one of them is true, then AppleWorks should evaluate the statement as true.

Examples of @IF, all of which result in 5, when A4 is 99 and B4 is 3:

```
@IF(B4<A4,5,0)
@IF(B4<=A4,5,0)
@IF(A4>B4,5,0)
@IF(A4>=B4,5,0)
@IF(A4=B4,0,5)
@IF(A4<>B4,5,0)
@IF(@AND(B4<A4,A4=99),5,0)
@IF(@OR(B4<A4,A4=0),5,0)
```

Using @INT

- To have AppleWorks give you the integer (or whole number) part of a value, start with @INT.
- In parentheses, put the value.

  The value can be a cell reference, a number, or a formula that yields a number.

For instance, when M66 is 4.55, the following yield 4:

```
@INT(M66)
@INT (4.55)
@INT(8.6-M66)
```

Using @LOOKUP

- When you want AppleWorks to take a particular number and look in a table for the largest value that is equal to or less than that number, and then return with the value it finds in the adjacent cell, you start with @LOOKUP.
- Then, after an opening parenthesis, you put the value you want AppleWorks to start with.
- Then put a comma, and give the range AppleWorks should look in for a value that is equal to or less than that number. (The values in the range must be in numerical order from low to high.) Close the parentheses.
- If the range extends along part of a *row*, drop down to the cells in the row below, and insert the numbers that AppleWorks should choose the results from. (It will display the value in the cell below the one it determines to be equal to or less than your original number.)
- If the range extends along part of a *column*, move over to the cells in the column on its right, and insert the numbers that AppleWorks should choose the result from. (It will display the value in the cell to the right of the one it determines to be equal to or less than your original.)

If your original number is less than any number in the range, AppleWorks uses the lowest value; if your original is higher than the highest number in the range, AppleWorks uses the highest value.

For example, your local school district has three tax rates. The rate depends on income level, which is in cell H15. Your table looks like this:

	AC	AD	AE
12 level	15000	20000	35000
13 tax rate	.02	.04	.09

You write

```
@LOOKUP(H15,AC12...AE12)
```

When the income is $25,000, AppleWorks returns with the .04 tax rate.

Using @MAX and @MIN

- To find the highest or lowest value in a range or list, start by entering @MAX for maximum or @MIN for minimum.
- In parentheses, put the range or list.

For instance, these formulas would all produce the value 12, when A1=1, A2=3, A3=12, A4=15, A5=19.

```
@MAX(A1...A3)

@MIN(A3...A5)

@MAX(A1,A2,A3)

@MIN(A3,A4,A5,198)
```

Using @NPV

- To find the net present value of future cash flows, start with @NPV.
- Include the annual interest rate, in decimal form, followed by a list or range of the cells containing the annual cash payments.

For instance, if you lend a friend a thousand dollars, and she agrees to pay it back in six annual payments of $200 each, you may wonder how much that will all be worth in today's dollars, assuming an inflation rate of 5%. You would enter $200 in cells B1, B2, B3, B4, B5, and B6, and then enter the formula:

```
@NPV(.05,B1...B6)
```

The result would be $1015.14.

Using @ROUND

- To make sure that you get accurate totals when you calculate using currency amounts that are accurate to fractions of a cent, but displayed as whole numbers, start with @ROUND, and in parentheses put the number, a comma, and the number of decimal places you want. For example

```
@ROUND(2.3456,2)
```

Ordinary rounding introduces inaccuracies into any totals based on the results; but using @ROUND preserves the accuracy of your calculations afterward.

Using @SQRT

- To find the number that, multiplied by itself, would equal a value you specify, start with @SQRT for Square Root, and then add the value in parentheses.

  For instance, to find the square root of 64, enter

```
@SQRT (64)
```

Using @SUM

- To add up numbers in a list or range, type @SUM, and then, put the list or range, enclosed in parentheses . For instance,

```
@SUM(A4...A8)
```

```
@SUM(23,A5,B6)
```

Providing warnings

- To remind yourself that a certain value is not yet available, enter @NA in that cell. AppleWorks will take that warning to heart in its calculations, and display it in any cell that depends on the value here.

- If you apply a test to a particular value and find it exceeds the limits you've set, you can have AppleWorks announce the error by putting @ERROR into the argument of your @IF statement.

  For instance, you know that the value in cell H7 should be less than $100. You can tell AppleWorks: If H7 turns out to be more than $100, display ERROR in this cell.

```
@If(H7>100,@ERROR,H7)
```

Anticipating the order of operations

- AppleWorks performs calculations from left to right.
- Put parentheses around any operations you want done before the usual left-to-right calculation.

  For instance, 2^2 equals 4. 2^2+3 works out to 7. And 2^2+3*2 equals 14. In other words, instead of doing exponentiation and multiplication first, then adding, AppleWorks just works from left to right, getting 4, then 7, and multiplying that by 2. It's as if the formula here read: (2^2+3)*2.

  Without parentheses, 2*2+3*2 works out to 14, because AppleWorks multiplies 2 times 2, gets 4, adds 3 to that, gets 7, and multiplies that by 2.

  If you want this formula to work the way you would expect, algebraically (using precedence rules), you must group the operations you want done first: (2*2)+ (3*2). That equals 10, because AppleWorks performs the operations inside the parentheses first, getting 4+6, or 10.

Working with formulas

Here are some ways to develop and use formulas.

Formulas are mathematical statements that calculate a number. A formula may be as simple as a pointer, referring to a value in another cell, or as complex as monthly compound interest. Formulas may contain any of the following: numbers (617, 21), pointers to values in other cells, arithmetic operators (+,-,*,/,^), and other functions.

Be careful in creating all formulas: The whole worth of your spreadsheet depends on their validity and precision.

Beginning a formula

- Begin with + or -, 0-9, (, or @.

  For example, these are all valid formulas:

```
+A6*8

-B8/2

9/N7

2^3

(2*B5)+(A6/4)

@SUM(B4...B8)
```

Using pointers

- To have AppleWorks work with a value in a particular cell, type in the cell coordinates preceded with a plus sign (+) or minus sign (-).
- Or type an opening parenthesis and then use the arrow keys to move the highlighting to the cell you want to point to. Press Return. AppleWorks types in the cell coordinates for you!

Copying a formula

- To copy a formula into another cell, move the highlighting to the cell containing the formula.
- Press ⌘-C for Copy.
- Select `Within the worksheet.`
- Move the highlighting to the new cell, and press Return.
- If you want to keep all pointers the same as they were in the original, choose `No change`. If you want AppleWorks to adjust all pointers according to their new location, choose `Relative`.

Anticipating the order of operations

- AppleWorks calculates your formula from left to right. Use parentheses to show AppleWorks what operations to perform first.

  Suppose you have the formula +3^2+4*2. In algebra, you would do exponentiation and multiplication first, so this would evaluate to 9+8, or 17.

  But AppleWorks proceeds from left to right, getting a total after each operation, and using that as part of the next calculation. Here, for instance, it calculates 3^2 and gets 9, adds 4 to that to get 13, and then multiplies 13 by 2 to get 26.

  If you wanted AppleWorks to do the exponentiation and multiplication first, you would write (+3^2)+ (4*2).

Showing and printing out your formulas

- If you want to review your formulas on paper, first press ⌘-Z to zoom in on them.
- Press ⌘-H to print the ones displayed on your current screen.
- Or press ⌘-P and print out part or all of your spreadsheet with the formulas visible.

  You may not be able to see all of some formulas. How much of the formula you can see depends on how long the formula is and how wide you've set the column.

Calculating

You can have AppleWorks recalculate all your formulas every time you add or revise a single entry. Or, if you are adding a lot of entries at once, and want to get them all in without interruption, you can postpone recalculation until you're ready. That's known as manual recalculation. The standard is automatic recalculation.

You can also determine which way AppleWorks will make its calculations—by rows or by columns. In this way, you can control which formula will be calculated first and which second, so that the first one has yielded a value in time for the second one to use it in its calculations. The standard is by columns.

Automatically

- Press ⌘-V, for Values, and choose `Recalculate`.
- Choose `Frequency`.
- Choose `Automatic`.

  AppleWorks will now recalculate formulas each time you change or add an entry.

Manually

- Press ⌘-V, for Values, and choose `Recalculate`.
- Choose `Frequency`.
- Choose `Manual`.

  AppleWorks will now recalculate formulas only when you say to.

  You tell AppleWorks to recalculate by pressing ⌘-K for calculate.

Row by row or column by column

- Press ⌘-V, for Values, and choose `Recalculate`.
- Choose `Order`.
- Choose `Rows` or `Columns`.

  The method you choose depends on where the cells are that your formulas point to.

If all your cell references are *above* the formulas, then you can use row-by-row order and be sure that formulas will not refer to cells that have not yet been calculated.

If all your cell references are to the *left* of the formulas, then you can use column-by-column order and be sure that formulas will not refer to cells that haven't yet been calculated.

If *any* cell references are below and to the right of the formulas, or if some references are above and to the right, *and* some are below and to the left, neither method will give all your formulas calculated correctly with one pass of calculation. You'll have to choose one method and then recalculate several more times manually.

Now

- Be sure that you have previously used ⌘-V to set the frequency of recalculation to manual.
- Press ⌘-K to recalculate now.

With forward references

- Have the spreadsheet calculated once, and then calculate it again, manually.

  Forward references are not a good idea, but sometimes you can't avoid referring to a cell that is below and to the right of your current cell. The first time through, that cell may have no value, because it has not been calculated yet. The second time, it will have a value, so your forward reference should mean something, and the calculation should yield a correct value for the first cell.

Arranging rows

You can arrange rows in your spreadsheet according to the entries in one column. Essentially, you sort the entries in that column in alphabetical order from A to Z or Z to A, or in numeric order from 0 to 9 or 9 to 0—and the rows come along for the ride. For example, for one report, you might sort your invoices numerically by Zip code, or your personnel budget alphabetically by last name.

Tips: See page 300.

1. Start in the column you want sorted

- Move the highlighting to the column that contains the information by which you want your rows arranged.
- Put the highlighting on the top or bottom cell in the group of rows you want arranged.
- Press ⌘-A, for Arrange.

2. Decide what rows to sort, and how

- Use the arrow keys to spread highlighting up or down the column, to include any rows you want arranged. Press Return.
- Choose the way you want entries in that column arranged. Press Return.

AppleWorks sorts the selected rows based on the information in the one column.

If you are sorting by number, be sure not to highlight any labels, or they will be folded into your new arrangement. In sorting, AppleWorks ignores the distinction between uppercase and lowercase letters.

Formulas that refer to a cell you've rearranged continue to refer to the same cell, in its new location.

Finding a phrase or a cell

Sometimes you're in one part of the spreadsheet and want to get to another section fast. You can have AppleWorks look for some unique feature of a cell in that area. When AppleWorks finds it, the window will jump to that section of the spreadsheet—a lot faster than if you were leaning on an arrow key.

The object of the search can be the cell coordinates, a fragment of text, a word, or a phrase—but not a number. If you want to keep going back to the same place, over and over, or to keep searching for the same phrase, you can tell AppleWorks to go out and look again for the last thing it looked for.

Finding text

- Move the highlighting above and to the left of the area of the spreadsheet you want searched for the text. (AppleWorks searches for text across one row and then moves down and searches the next.)
- Press ⌘-F for Find.
- Choose `text`, press ⌘-Y to delete whatever text you looked for before, and then enter text up to 25 characters long. Press Return.

Finding a cell

- If you want to find a particular cell, press ⌘-F for Find, choose `Coordinates`, then type in the coordinates for the cell, such as A19 or B3, press ⌘-Y if you need to delete any other text in the line, and press Return.
- If you have already made a search earlier and want to find the same thing as before, choose `Repeat last`.

  The highlighting moves to the first instance of the text, or to the specified cell.

  AppleWorks ignores the difference between uppercase and lowercase in its search and displays the first cell that contains the text you entered, whether it is a separate word or part of a word.

Copying information

Within one spreadsheet, you can copy information (a label, number, pointer, or formula) from one cell or from a range of cells. The cells in the range must be adjacent to each other—all in the same row and next to each other, or all in the same column, one under the other. Similarly, the cells you paste into must be adjacent to each other.

And you can copy one or more whole rows—within one spreadsheet, or from one to another.

When you copy within the same spreadsheet, you can copy pointers and formulas into other cells and make the cell references in the copies depend on their new location. (This is known as a relative copy.) Or you can have all references stay the same, even in the new location. (No change.)

When you copy rows to the clipboard and then paste them back somewhere else in the same spreadsheet, or in another one, the references automatically change to reflect the new position; the references are relative.

To make the copy

- Place the highlighting at one end of the section you want to copy.
- Press ⌘-C for Copy.
- If you are going to copy a series of cells—part of a row, or part of a column—within this spreadsheet and you want to make some references relative, and some unchanged, choose `Within worksheet`. If you are going to copy one or more entire rows to put in another spreadsheet, and if you want all references to be made relative, choose `To clipboard`.
- Use arrow keys to highlight the material that will be copied as the source. Press Return.

To paste it in

- If you want to paste the material you put on the clipboard into another spreadsheet, press ⌘-Q to switch to the other spreadsheet, or press Escape to return to the Main Menu and add the other spreadsheet to the Desktop. Move the highlighting to the row just below the location you are going to insert the new rows. Press ⌘-C, and choose `From clipboard`.
- If copying within the same worksheet, move the cursor to the top-left corner of whatever blocks of cells you want filled with this material, press the period to see highlighting preview the location your material will be pasted in, or just press Return to have it pasted in.

To keep references the same

- When you've shown where you want the copy to go *within the same worksheet*, AppleWorks asks you about any references. If you want the cell references to remain exactly as they were, choose `No change`.

When you keep the references the same, they continue to point to the same cell they did before, not a cell in the same relative position (up three rows and over two columns to the right, for instance). For instance, if you have cell D28 holding the current total of your assets, and your copied formula uses that total to figure your possible estate, you want the formula to continue to point to D28. You do not care about a cell that happens to be in the same relative position as D28 used to be.

When you are copying a row or column into another spreadsheet, all your formulas and their references are made relative to their new positions, but they now refer to cells in the new spreadsheet, so you should make sure the values that now appear in the copied cells make sense.

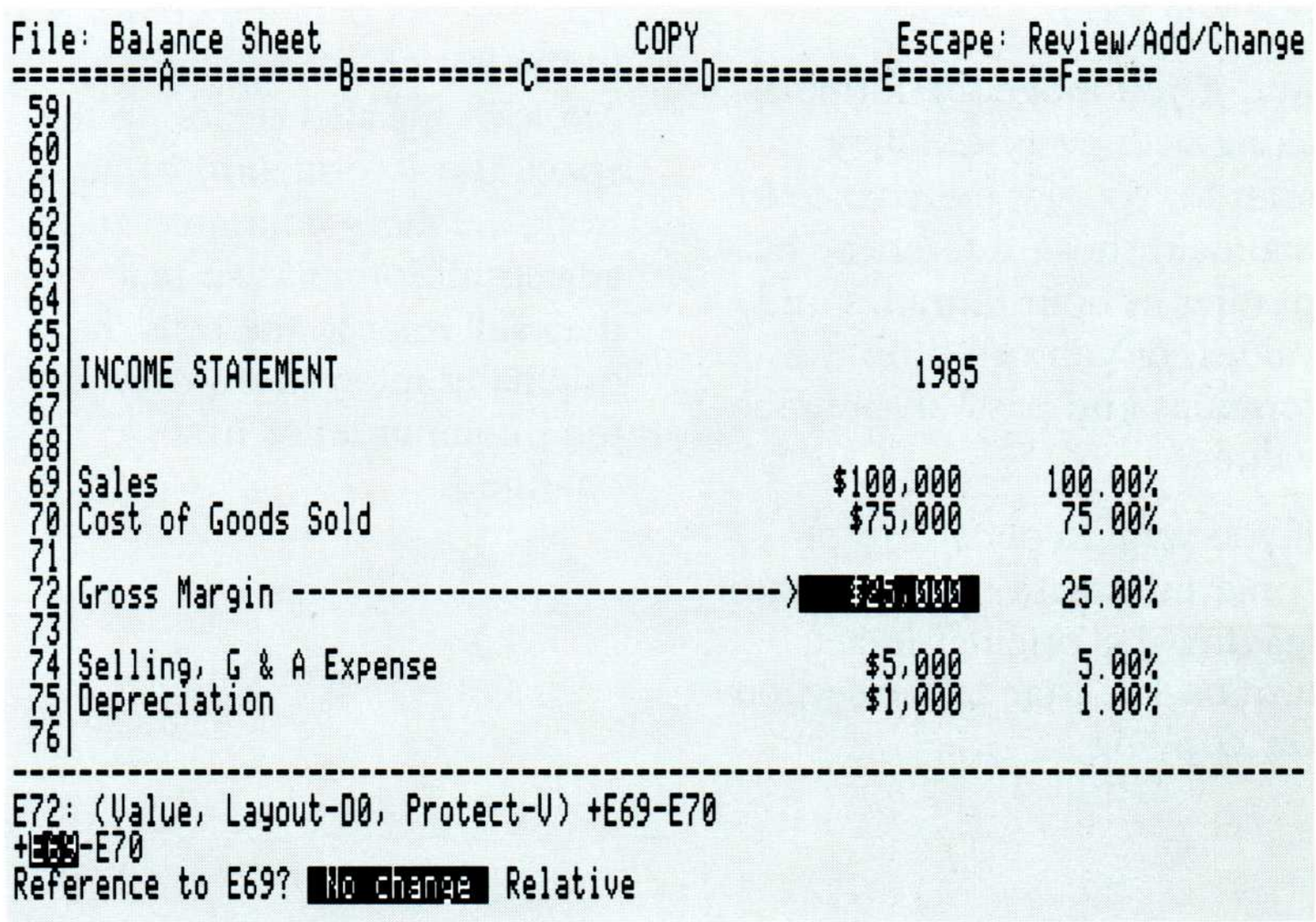
To make references change

- To have AppleWorks adjust all references so they reflect their new positions, after copying *within the same worksheet*, choose `Relative` for each reference when AppleWorks asks about it.

This means that if one reference pointed to a cell three rows above the source, then it will now point to the cell three rows above the spot you pasted the information into.

This can be helpful when you are copying a block of interrelated formulas.

If you copied one or more rows to the clipboard, and now are pasting into the same spreadsheet or another one, `From the clipboard`, your references are automatically changed to keep them pointing to the cells in the same relative position as before.



Moving rows and columns

Moving means you are removing the information from one place and then pasting it in elsewhere.

You can move up to 250 rows or 125 columns from one place in the spreadsheet to another. Formulas continue to refer to the same cells they used to.

You can also move rows from one spreadsheet to another. If the formulas refer to cells you are not moving, the formulas will be brought over in such a way that they continue to refer to cells in the same relative position. (If the original formula referred to a cell three rows up, then the new one will too.)

And if you move the formulas along with every cell they refer to, you get the chance to maintain those references by pasting in both formulas and values; or you can drop the formulas and paste in only the values.

If you want to put a *copy* of some information somewhere leaving the original intact, turn back a page to the section on copying.

Moving columns within your spreadsheet

- Move the highlighting to a column that will form the left or right edge of the group you want to move. (If you only want to move one column, put the highlighting there.)
- Press ⌘-M for Move.
- Choose `Within worksheet`.
- Choose `Columns`.
- Use the Left Arrow or Right Arrow to highlight the columns you want to move. Press Return.
- Use arrow keys to move the highlighting to the column just to the right of the area you want the columns to appear in. Press Return.

  AppleWorks puts the columns to the left of the highlighting. AppleWorks also closes up the space the information came from, reletters columns, and adjusts all formulas so that they still refer to the cells they originally referred to, even if their column letter has changed.

Moving rows within your spreadsheet

- Move the highlighting to a row that will form the top or bottom edge of the group you want to move. (If you only want to move one row, put the highlighting there.)
- Press ⌘-M for Move.
- Choose `Within worksheet`.
- Choose `Rows`.
- Use the Up Arrow or Down Arrow to highlight the rows you want to move. Press Return.
- Use arrow keys to move the highlighting to the row just below the area you want the rows to appear in. Press Return.

  AppleWorks puts the rows above the highlighting. AppleWorks also closes up the space the information came from, renumbers rows, and adjusts all formulas so that they still refer to the cells they originally referred to, even if their row numbers have changed.

Moving rows from one spreadsheet to another

- Move the highlighting to a row that will form the top or bottom edge of the group you want to move. (If you only want to move one row, put the highlighting there.)
- Press ⌘-M for Move.
- Choose `To clipboard`.
- Use the Up Arrow or Down Arrow to highlight the rows you want to move. Press Return. If asked, tell AppleWorks it's OK to clear or remove the entries in most cells.
- Press ⌘-Q and choose the other spreadsheet. If it is not on the Desktop, press Escape to go back to the Main Menu, and choose option 1, `Add files to the Desktop`. Add your spreadsheet.
- Use arrow keys to move the highlighting to the row just below the area you want the rows to appear in.
- To remove the material from the clipboard and paste it in, press ⌘-M for Move. To leave a copy on the clipboard and paste one in here, press ⌘-C for Copy.
- Choose `From clipboard`. If you have moved all the cells referenced within the formulas along with the cells containing those formulas, AppleWorks offers you the chance to drop the formulas, or bring them along, in such a way that they will continue to refer to the same cells in their new locations. If you just want the values, without the underlying formulas, choose `Values only`. To paste in the formulas as well, choose `Formulas and values`.

AppleWorks puts the rows above the highlighting. If the formulas referred to cells outside the material you moved, then they are brought over to the new spreadsheet and changed to refer to cells in the same relative position as before. For instance, if the pointer referred to a cell three rows up, and one to the right, then the formula still includes a pointer to a cell three rows up, and one to the right.

In the spreadsheet you moved the material out of, AppleWorks closes up the space the information came from, renumbers rows, and adjusts all formulas so that they still refer to the cells they originally referred to, even if their row numbers have changed.

Inserting or deleting areas

You can insert or delete rows and columns, widen one or all the columns, or blank out the entries in a particular area of the spreadsheet.

Tips: See page 304.

Inserting rows or columns

- Move the highlighting to the row that you want to end up below the inserted rows, or to the column you want to end up to the right of the inserted columns.
- Press ⌘-I for Insert.
- Choose `Rows` or `Columns`.
- Type the number of rows or columns you want to insert. Press Return.

  AppleWorks inserts the rows or columns. If you added columns, it reletters the columns to the right. If you added rows, it renumbers the rows below. It also reworks formulas that refer to these relettered columns and renumbered rows so the formulas still refer to the cells they originally referred to. The cells you have inserted follow the spreadsheet standards.

Maximum number of rows or columns you can add: 9

Deleting rows or columns

- Move your highlighting to a cell at one end of the first row or column you want to delete.
- Press ⌘-D for Delete.
- Choose `Rows` or `Columns`.
- Use the arrow keys to highlight the rows or columns you want to delete. Press Return.

AppleWorks deletes those rows or columns. The part of the spreadsheet below or on the right is closed up; the closed-up rows are renumbered, the closed-up columns relettered, and formulas reworked so they still refer to the cells they originally referred to.

Original spreadsheet

```
File: Home Budget1
========A========B========C========D=
 22|
 23|General Expenses:
 24|Food
 25|Medical
 26|
 27|Household:
 28|Rent/Mortgage                  $
 29|Maintenance
 30|Utilities                      $
 31|Other                          $2
 32|
 33|Transportation:
 34|Car Loan                       $7
 35|Gas
 36|Maintenance
 37|
 38|
 39|TOTAL EXPENSES                 $1.
----------------------------------------
A30: (Label) Utilities

Insert? Rows Columns
```

Three new rows added after row 29

```
File: Home Budget1                REVIEW
========A========B========C========D
 22|
 23|General Expenses:
 24|Food
 25|Medical
 26|
 27|Household:
 28|Rent/Mortgage
 29|Maintenance
 30|
 31|
 32|
 33|Utilities
 34|Other
 35|
 36|Transportation:
 37|Car Loan
 38|Gas
 39|Maintenance
----------------------------------------
A30

Type entry or use ⌘ commands
```

Blanking out areas

- To put blank entries in every cell in a particular area of your spreadsheet, put the highlighting on the top left cell in the area you want to blank out.
- Press ⌘-B for Blank.
- Choose whether you want to blank out this particular entry, rows, columns, or a block of cells.
- Use arrow keys to highlight the area you want to blank out. Press Return.

  AppleWorks wipes out the entries in the highlighted area, unless you previously used ⌘-L to protect a cell from any change, and ⌘-V to turn that protection on. For any cells that you have protected, you will be warned that you are about to clear the entry; you can stop the process there, or let it go on. If you proceed, AppleWorks removes whatever protection you have set for the cell.

  If some formula happens to refer to a cell that you have blanked, it finds a zero in the cell.

Changing the width of columns

- To change the width of all columns, press ⌘-V, choose `Column width`, and use ⌘ with arrow keys to change the width of all columns. Press Return.
- To change the width of one or several columns, press ⌘-L for Layout, choose `Columns`, highlight the columns, press Return, choose `Column width`, and use ⌘ with arrow keys to change the widths. Press Return.

Opening another window

Sometimes you want to compare two parts of the spreadsheet, but they're not next to each other. Here's a way you can look at two far-flung sections of your spreadsheet—at once.

Imagine that you are looking at your spreadsheet through a window—the screen. You can open another window onto another part of your spreadsheet. That way, you will have two windows, one next to the other, or one above the other, depending on what you want to look at.

You can move the data in one window, while the other data stays put; or you can move through the data in both at the same pace, in the same direction. You can work in either window. And when you're through, you can go back to the single, larger window.

At times, a simpler approach may be useful: Just freeze the titles at the top or left of your spreadsheet, so you can move the numbers and still know what they refer to. (See the last column on the next page.)

Tips: See page 304.

To split the spreadsheet into two windows

- If you are going to split your spreadsheet into two side-by-side windows, move the highlighting to a cell in the column that will form the left boundary of the window on the right.
- If you are going to split your spreadsheet into a top and a bottom window, move the highlighting to a cell in the row that will form the top boundary of the bottom window.
- Press ⌘-W for Windows.
- Choose `Side by side` or `Top and bottom`.

  You get two windows on your spreadsheet. The highlighting stays where it was.

  To move through the data in your window, use arrow keys just as you would in a single, large window.

To jump from one window to the other

- Press ⌘-J for Jump.

  The highlighting jumps from one window into the other window.

  If you have frozen your titles, the highlighting will not end up in the titles.

To synchronize movement in both windows

- Press ⌘-W again.
- Choose `Synchronized`.

  Now whatever movement you cause with arrow keys in one window will be echoed in the other window.

  To go back to moving the data in one window independently of the other, press ⌘-W again, and choose `Unsynchronized`.

To return to one window

- Press ⌘-W for Window.
- Choose `One`.

  AppleWorks restores the single window, with a view of the data around whatever cell you last highlighted.

Freezing your titles

- To freeze some of your labels in place, so you can still read them as you move data past, put the highlighting in the top left corner of the area that contains the data you will want to move.
- Press ⌘-T for Titles.
- Choose `Top` to freeze the titles above the highlighting, `Left side` to freeze the titles to the left of the highlighting, or `Both` to freeze the titles above and to the left. Press Return.

  These labels are now frozen as titles. You can use the arrow keys to move data past the titles; this way, you can always see the labels, even if you move the Down Arrow so far down that the data begins to scroll up, under the top titles, and even if you move the Right Arrow so far that the data begins to scroll left, under the left titles. You can now always identify what the numbers refer to.

  To thaw out your titles, press ⌘-T again, and choose `None`, meaning you want no title area frozen.

```
File: Home Budget1              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D============H========I========J========K===
  4|                                  4|
  5|                                  5|
  6|                                  6|
  7|                          Jan     7|              April
  8|INCOME                            8|
  9|                                  9|
 10|Employment Income:                10|
 11|Pay Check 1              $2,000   11|            $3,000
 12|Pay Check 2              $2,200   12|            $2,500
 13|                                  13|
 14|Investment Income:                14|
 15|Interest                   $100   15|              $400
 16|Other                        $0   16|               $45
 17|                                  17|
 18|TOTAL INCOME             $4,300   18|            $5,945
 19|                                  19|
 20|                                  20|
 21|EXPENSES                          21|
-----------------------------------------------------------------------------
I21

Type entry or use ⌘ commands                                    ⌘-? for Help
```

Protecting your cells

You can protect the information in some of the cells in your spreadsheet, so that no one can accidentally wipe out or garble what you've spent hours developing.

Protection works in two stages: First you pick some cells and define the kind of protection you want for them. Second, you turn that protection on or off.

What kinds of protection are available? You can prevent people from changing anything in the cell; or you can allow only labels to be entered or changed, or only values.

When you specify that a cell should allow only a label, or only a value, you can enter a new label or value, or edit the old one, while protection is on. But you will not be able to put a label where values only are allowed, or vice versa.

When you're about to work on a great many cells at once, you may want to turn protection off, so you can make changes without any hindrance, and when you're through, turn it back on again.

To define protection for a cell or block of cells

- Move the highlighting to the cell you want to protect, or to a cell in one corner of the block of cells.
- Press ⌘-L for Layout.
- Choose `Entry` (for one cell) or `Block` (for several). Use arrow keys to highlight the block.
- Choose `Protection`.
- Choose what changes you want to allow in these cells: You could allow someone to enter only labels, only values, or nothing at all.

  That defines what you'll allow to be changed, and what you won't allow, in these cells.

  To go back to allowing someone to make any kind of entry into these cells, repeat the process, and choose `Anything`.

You are defining protection for particular cells. Now that you have highlighted one entry, or a block of entries, the protection you defined here will extend to blank cells in that area.

Or for current entries in rows and columns

- Move the highlighting to a cell in a row or column at the edge of the group whose entries you want to protect. If you just want to protect the entries in one row or column, go to an entry there.
- Press ⌘-L for Layout.

  Choose `Rows` (for one or more) or `Columns` (for one or several). Use arrow keys to highlight the others.
- Choose `Protection`.
- Choose what changes you want to allow in the cells that now have entries in them: You could allow someone to enter only labels, only values, or nothing at all.

  To go back to allowing someone to make any kind of entry into these cells, repeat the process, and choose `Anything`.

You are defining protection for only particular cells—the ones that now have entries in them. So anyone who tries to enter or change some data in one of those cells will encounter the protection you've defined here—if protection has been turned on. You cannot protect the blank cells in a whole row or column.

To turn protection on

- Press ⌘-V for Values.
- Choose `Protection`.
- Choose `Yes` to have whatever protection you've set up applied to those cells.

To turn protection off

- Press ⌘-V for Values.
- Choose `Protection`.
- Choose `No` to have protection withdrawn.

  This takes protection off all the cells for which you previously defined it, so you can work on them without hindrance.

To see if a cell is protected

- Put the highlighting on the cell.
- Look in the cell indicator, at the bottom left of the screen. If the cell is protected, you will see the message that it is protected, followed by a code. `L` means you can enter labels only; `V`, values only; `N`, nothing at all.

```
File: Home Budget1                    LAYOUT          Escape: Review/Add/Change
========A========B========C========D========E========F========G========H====
  4|                                    HOME BUDGET
  5|
  6|
  7|                                Jan      Feb      Mar    Total
  8|INCOME
  9|
 10|Employment Income:
 11|Pay Check 1                    $2,000   $2,000   $2,000   $6,000
 12|Pay Check 2                    $2,200   $1,500   $1,700   $5,400
 13|
 14|Investment Income:
 15|Interest                         $100       $0      $75     $175
 16|Other                            $0       $0      $25      $25
 17|
 18|TOTAL INCOME                    $4,300   $3,500   $3,800  $11,600
 19|
 20|
 21|EXPENSES
-------------------------------------------------------------------------------
D11: (Value) 2000

Protection:  Allow?  Labels only  Values only  Nothing  Anything
```

Preparing to print a report

When you plan a report based on the information in your spreadsheet, you first decide how the report will appear on the printed page; for that you use printer options.

Tips: See page 305.

Setting margins

- In Review/Add/Change, press ⌘-O for Options.
- Type the code for the margin you are going to set, using LM for Left Margin, RM for Right Margin, TM for Top Margin, BM for Bottom Margin. Press Return.
- Enter the margin in inches and tenths of an inch. Press Return.

  Standard for all margins: 0.0 inches

  Maximum when using 8.5 x 11 paper: 6.9 inches

Adjusting characters and lines per inch

- In Review/Add/Change, press ⌘-O for Options.
- Type the code for Characters per Inch (CI) or Lines per Inch (LI). Press Return.
- Type in the number of characters you want per inch, from 4 (wide open) to 24 (packed tight); for lines per inch, type 6 (standard) or 8 (closer together). Press Return.

  Standard for CI: 10

  Standard for LI: 6

Options affecting the length of text and density of lines

Options affecting the width of your report and density of characters

Code that stands for option at right

```
File: Home Budget1                PRINTER OPTIONS        Escape: Review/Add/Change
=============================================================================


-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width            8.0 inches      PL: Paper Length          11.0 inches
LM: Left Margin             0.0 inches      TM: Top Margin             0.0 inches
RM: Right Margin            0.0 inches      BM: Bottom Margin          0.0 inches
CI: Chars per Inch          10              LI: Lines per Inch         6

    Line width              8.0 inches          Printing length       11.0 inches
    Char per line (est)     80                  Lines per page        66

                    --------------------Formatting options--------------------
                    SC:  Send Special Codes to printer                      No
                    PH:  Print report Header at top of each page            Yes
                         Single, Double or Triple Spacing (SS/DS/TS)        SS




-----------------------------------------------------------------------------
Type a two letter option code _                                    44K Avail.
```

Setting the spacing

- To tell AppleWorks whether you want your report single, double, or triple spaced, start in Review/Add/Change, and press ⌘-O for Options.
- Type SS for Single Spacing, DS for Double Spacing, or TS for Triple Spacing. Then press Return.

When you set the Lines per Inch option, you are talking about how much space each line takes up, whether or not it has text or is blank. Here you are telling AppleWorks whether to fill every line, every other line, or every third line.

Setting platen width

- If you have a printer with a wide carriage, you may need to specify the distance the print head travels along the platen—the roller that supports the paper. Press ⌘-O for Options.
- Type PW, for Platen Width, and press Return.
- Type the distance in inches. Press Return.

  Usually you will need to change the platen width only when you add a new printer that does not have the standard-width platen. The figure you give here should match the one you supplied when you were specifying information about your printer, under option 5, `Other Activities`, on the Main Menu.

  The distance needed is not the full width of the platen; it is the distance travelled by the print head, from left to right.

  Minimum line length: 1.5 inches

  Standard: 8.0 inches

  The maximum width you should use: 16 inches

Setting paper length

- If you are planning to use paper with a length other than 11 inches, start in Review/Add/Change and press ⌘-O for Options.
- Type PL for Paper Length. Press Return.
- Type the length of the paper in inches. Press Return.

  Standard: 11 inches

  Maximum: 25.5 inches

Preparing to print a report—continued

You can add a header—a running title, with the name of the file, and the date—if you wish, and you can send special codes to the printer, telling it to do something fancy, such as boldfacing the whole document.

And, just to make sure your document will not be too wide for the report you've set up, you may want to check some totals on the Printer Options display.

Adding a header

- To add a header on every page of your report, start in Review/Add/Change and press ⌘-O for Options.
- If the option PH says `No`, type `PH` for Print a Report Header. Press Return.

The option changes from `No` to `Yes`, so that you will now have a header. If it says `Yes` to begin with, don't bother to type `PH`.

The header will contain the name of your file, the date if you enter one at the time of printing, and the page number.

To delete headers, when PH says `Yes`, type `PH` again; this switches you back to `No`.

Using special codes

- To use an option that your printer offers, and that AppleWorks has not already covered in the Printer Options display, press ⌘-O for Options.
- Type SC for Special Codes, in order to have AppleWorks send codes to your printer before the spreadsheet report. For instance, you might want to send codes to boldface the whole document.
- Type in the control codes, and type ^ when you are done.

  Any key you type (except ^) becomes a special code. So if you press Return or Escape, they are assumed to be special codes. If you make a mistake, type ^ and then type SC for a chance to retype the codes.

  The codes you need should be in your printer manual. You do not need to enter these special codes in your description of your printer, reached through the Other Activities menu.

Keeping an eye on characters per line

- Watch the figure for characters per line change as you change the settings for left margin, right margin, and characters per inch. This number must be at least as large as the number of characters on your longest row—or else the data in your row may be wrapped around onto the next line, causing confusion.

When you decide you are ready to print and press ⌘-P, you will get a chance to highlight the areas to be printed. When you have done that, AppleWorks reports how many characters wide that information is and how many characters you've allowed per line in the printer options. You're OK as long as your options number is higher.

If not, press Escape, go to the Printer Options display, and increase the characters per inch, or decrease the left and right margins.

Results: These figures change as you change the options, showing you the results of your work.

Key figure: The number of characters per line must be higher here than in the longest row of your report.

```
File: Home Budget1                PRINTER OPTIONS        Escape: Review/Add/Change
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width            8.0 inches      PL: Paper Length          11.0 inches
LM: Left Margin             0.0 inches      TM: Top Margin             0.0 inches
RM: Right Margin            0.0 inches      BM: Bottom Margin          0.0 inches
CI: Chars per Inch           10             LI: Lines per Inch          6

Line width                  8.0 inches          Printing length       11.0 inches
Char per line (est)         80                  Lines per page        66

                    --------------------Formatting options--------------------
                    SC:  Send Special Codes to printer                    No
                    PH:  Print report Header at top of each page          Yes
                         Single, Double or Triple Spacing (SS/DS/TS)      SS


--------------------------------------------------------------------------------
Type a two letter option code _                                    44K Avail.
```

Printing a report on paper

Having set up the page, you are ready to print. You need to decide what information to include: all the information in the spreadsheet, certain rows or columns, or a block of figures somewhere in the spreadsheet.

If you choose to print the whole spreadsheet, AppleWorks assumes that the boundaries for your report are the farthest reaches of your entries. (It won't print a lot of blank cells.)

If you decide to print part of the spreadsheet, you set the boundaries yourself.

Tips: See page 306.

1. Start in a corner

- Make sure you are in Revew/Add/Change.
- Move the highlighting to a cell that marks the corner of the area you intend to print.
- Press ⌘-P for Print.

2. Choose what to print

- Choose whether you want to print all your information, certain rows or columns, or just a block.
- If you chose anything less than the whole spreadsheet, use arrow keys to highlight the area you want to print. Press Return.

3. Check the width

- Make sure that the information you have identified is not any wider than the line you set up with printer options.
- If your information is wider than the line you set up, press Escape, then press ⌘-O, and change CI (characters per inch) and LM and RM (left and right margins) to make enough room for the information.
- If your information is not as wide as the line, you're in good shape. You won't lose any data in printing or have it spill into the next line.

4. Pick a printer

- Choose the printer you want to use.

5. Set a date for your report—and print!

- If you want your report to show a date, type in a date, and then press Return. If you do not want the report to have a date, just press Return.
- Enter the number of copies you want printed. Press Return, and printing will begin.

Printing—but not on paper

You can "print" your spreadsheet report onto the clipboard so it will arrive in your Word Processor document arranged neatly.

Or you can "print" the formatted report to a disk in a form that resembles what someone else's printer would do with the material. This is an ASCII file, but it includes the codes that the particular printer expects, at the other end of the line. This printer is known as your "disk printer."

When a friend wants to use your spreadsheet in another program that uses ASCII or DIF files, you will want to "print" a formatted version to a file on a disk. Similarly, if you want to use a spreadsheet's values as entries in a new data base, you need to create a DIF file, column by column. These files do not include printer codes.

For all these files, you will need to prepare a pathname in advance.

Tips: See page 306.

Preparing a pathname

- Because AppleWorks will need a complete pathname in order to save your file on the right disk, press Escape to return to the Main Menu.
- Choose option 5, `Other Activities`.
- Choose option 2, `List all files on the current disk drive`.
- Make a note of the disk volume name. The name of the disk or directory begins with a slash, like this:

  `/MEMOS`

- After the disk volume name, write down a name for your new file, preceded by a slash, like this:

  `/MEMOS/BUDGET`

  Now you are ready for the moment when AppleWorks asks you to provide it with a complete pathname for your new file.

  The filename can be up to 15 characters long. It must begin with a letter, but may continue with uppercase or lowercase letters, numbers, periods, and spaces.

Preparing a "disk printer"

- On the Main Menu, choose option 5, `Other Activities`.
- Choose option 7, `Specify information about your printer(s)`.
- If you have one or two printers named under the last category, Change printer specifications, choose option 2, `Add a printer`. If you have three printers (the maximum), choose option 3, `Remove a printer`, and delete one, then return to the Printer Information display, and choose option 2.
- Pick the printer you or the recipient of this file will eventually use. If you do not know what kind of printer will be used, choose Silentype.
- Give the printer a name.
- Choose `Print onto disk or on another Apple`.
- Make sure the settings are as follows: line feed—No; top-of-page—Yes; end of page—No. Enter the platen width in inches.
- Press Escape to return to the Main Menu.

  AppleWorks can now include the codes this printer understands.

Printing to a disk

- Press ⌘-P for Print.
- Choose how much of the spreadsheet you are going to print. Press Return.
- At the top of your Print display, check the width of your report to make sure it is no wider than the line you set up in Printer Options. If it is wider, press Escape, then ⌘-O, and change the options for characters per inch, left and right margins.
- Choose to print to the disk printer you have set up. Its name is followed by the word `(disk)`. Enter a date, if you want; press Return.
- Give your new file a pathname.

  The report, formatted as if you were printing it on paper, is now placed on the current disk or in the current location.

To confirm that, press Escape to return to the Main menu; choose option 5, `Other Activities`, and then option 2, `List all files on the current disk drive`. This file will come after regular AppleWorks files.

Printing to the clipboard for the Word Processor

- In Review/Add/Change, highlight a cell that marks one corner of the area you want to "print" to the clipboard for use in a Word Processor document.
- Press ⌘-P for Print.
- Choose how much of the spreadsheet you are going to print: If anything less than the whole spreadsheet, use arrow keys to highlight the area. Press Return.
- Check the width of your report to make sure it is no wider than the line you set up in Printer Options, and no wider than the line you are using in the Word Processor document. If so, press Escape, and change the options for characters per inch, left and right margins.
- Choose to print to `The clipboard (for the Word Processor)`.
- Enter a date, if you want; press Return.

  The report, formatted as if you were printing it on paper, is now placed on the clipboard. You can now switch to the Word Processor document and paste in the report from the clipboard, using ⌘-C or ⌘-M.

Printing to an ASCII or DIF file

- Move the highlighting to a cell on the corner of what you want to "print" in one of these formats.
- Press ⌘-P for Print.
- Choose how much of the spreadsheet you are going to print. Press Return.
- Check the width of your report to make sure it is no wider than the line you set up in Printer Options. If it is, press Escape, and change the options for characters per inch, left and right margins.
- Choose `A text (ASCII) file on disk`, or `A DIF (TM) file on disk`.
- For DIF, say whether you want AppleWorks to save entry after entry going row by row or column by column. (If you are going to create an AppleWorks data base with this material, choose columns.)
- Provide a pathname for the new file, including the volume name, subdirectory if any, and new filename.

  The report, formatted as if you were printing it on paper, is now placed on the disk in ASCII or DIF format.

Try this!

Here are a few tasks to try your hand at, to review some of the material in this chapter, "Using the Spreadsheet."

1. Start a spreadsheet

- Starting from scratch, create a spreadsheet called *Income.*

  For help, turn back to "How to Start a Spreadsheet."

2. Enter labels

- Drop down a few rows and create column labels showing months, starting with January in column C, and ending with a year-end total.
- Separate these labels from the area reserved for values by a repeating line of dashes.
- In column A, assign one row to *Salary*, another to *Dividends*, and another to *Interest.* Skip a row, and put in TOTALS.

  For help, see "Creating Labels" and "Copying Information."

```
File: Income                    REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=======
 1
 2
 3
 4                      January February    March    April      May      June
 5
 6
 7                     ==========================================================
 8 Salary                  2000     2000     2000     2000     2000     2000
 9 Dividends                150      123      165      187      190      123
10 Interest                  55       58       59       65       68       69
11                     ----------------------------------------------------------
12 TOTALS                 2205     2181     2224     2252     2258     2192
13
14
15
16
17
18
------------------------------------------------------------------------------
A14

Type entry or use ¢ commands                                    ¢-? for Help
```

3. Add values

- Enter any amount you wish in the January salary cell.
- Copy that amount into every other month.
- Add irregular payments across the year for dividends and interest.
- Create three formulas in the last column to add up the salary, dividends, and interest for the year.
- Put in a formula to add up the results of these formulas in the year-end column.

  For help, see "Putting in Values" and "Copying Information."

4. Add another formula, and copy it

- Underneath the three figures in the January column, put in a formula to provide a monthly total.
- Copy the formula to the other columns, and make sure that the references change with the position, to produce accurate totals for each month.
- To check your accuracy, add a formula to total up the row of monthly totals, and see if that matches the year-end total. If it does, have it display "100%" in a cell below the other information.

  For help, see "Putting in Values" and "Using Functions."

5. Print it!

- Print a portion of the spreadsheet.
- Then press ⌘-Z to show the formulas and use ⌘-H to print the ones visible on-screen.

  See "Preparing to Print a Report" and "Printing a Report on Paper."

```
File: Income                    REVIEW/ADD/CHANGE              Escape: Main Menu
========H========I========J========K========L========M========N========O====
 1|
 2|
 3|
 4|
 5|     June     July   AugustSeptember  October November December Year-End
 6|                                                                    TOTAL
 7|==========================================================================
 8|     2000     2000     2000     2000     2000     2000     2000    24000
 9|      123      135      182      199      145      170      132     1901
10|       69       72       75       79       83       87       92      862
11|--------------------------------------------------------------------------
12|     2192     2207     2257     2278     2228     2257     2224    26763
13|
14|                                                                     100%
15|
16|
17|
18|
--------------------------------------------------------------------------
O14: (Value, Layout-P0) +O12/(@SUM(C12...N12))

Type entry or use ⌘ commands                                    ⌘-? for Help
```

Chapter 6

Using Printers

Adding a printer

In order for AppleWorks to send the right codes to your printer, you need to give the program some information about the printer. AppleWorks comes with codes for most popular printers, so if you have a common printer, you won't have to do much more than tell AppleWorks which one.

But if you have a printer that AppleWorks does not know about, you will need to provide a little more information. This is known as adding a custom printer—one customized just for you.

1. Start on the Main Menu

- Choose option 5, `Other Activities`.
- Choose option 7, `Specify information about your printer(s)`.

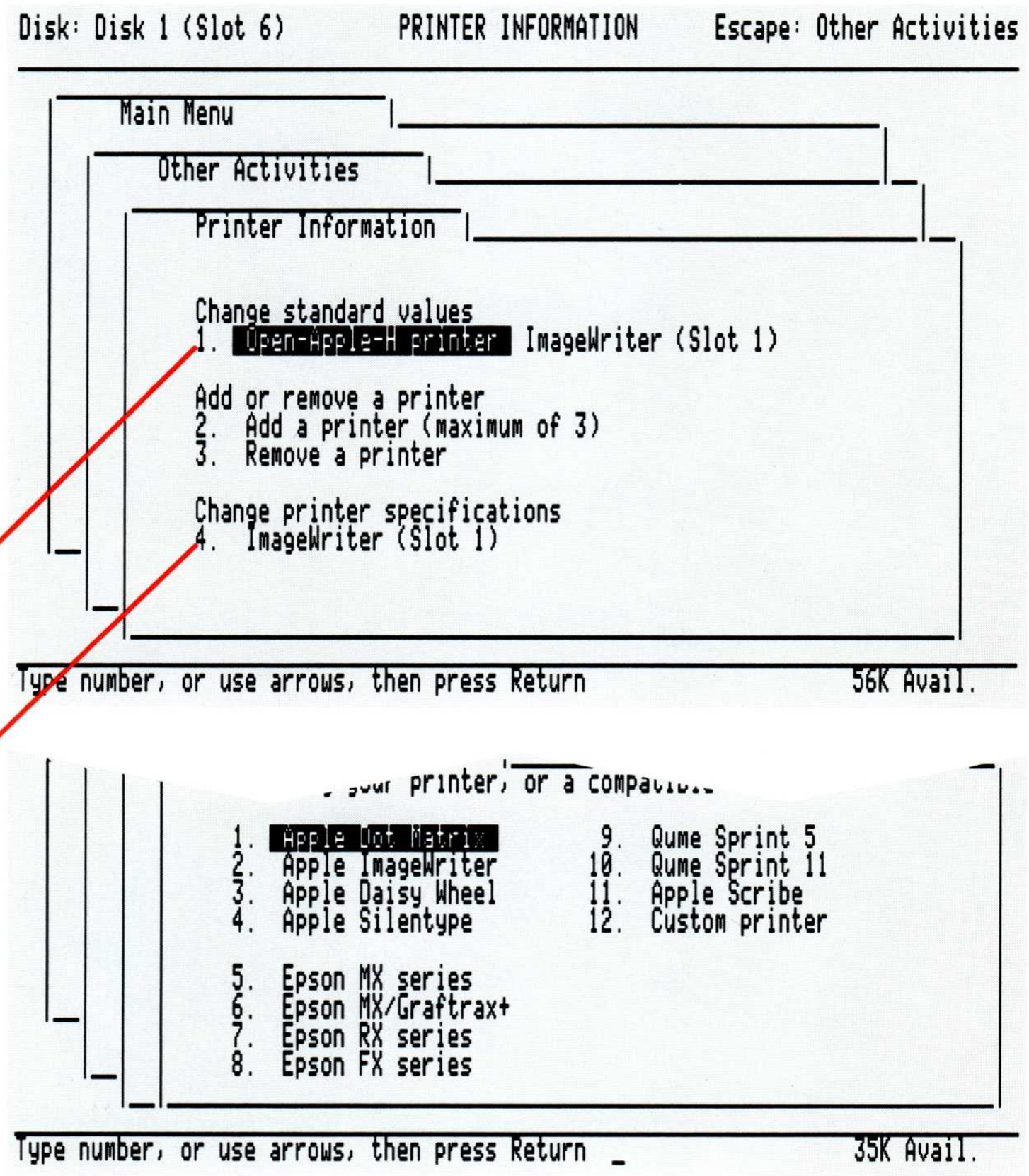
  You see the Printer Information display.

2. Choose to add a printer

- Choose `Add a Printer`.
- Identify your printer on the list, if it is there. If you do not see your printer (or one you are sure is compatible with yours) on the list, choose `Custom Printer`.

Open Apple-H: The printer you want used when you press ♁-H to print a copy of the display.

Current printers: AppleWorks lists whatever printers it expects to communicate with.



3. Name your printer

- Give your printer any name you like. Press Return.
- Choose the means of access to your printer.

  If you have one printer connected to a computer with a built-in disk drive, choose access through slot 1 (that's the equivalent of port 1); if you have a second printer attached, that is in slot 2 (port 2). For other Apple II computers, your printer may be attached to one of several ports; tell AppleWorks which one.

  If you intend to send your files to disk, perhaps for use by a friend on another printer, pick `Print onto disk or on another Apple` for the means of accessing the printer. But be sure that the printer you have already identified in step 2 will be the one your friend uses to print.

4. Adapt the specifications, if needed

- On the next display, change any specifications you know are incorrect for your printer. (See the printer manual.)

  To do this, type the number of the specification, press Return, then choose `Yes`, to change the value to `No`. For option 4, type in the new platen width.

  If you are using a non-Apple parallel or serial interface card for your printer, choose option 5, and enter the setting asked for.

  In general, if you have identified a printer on AppleWorks' own list, these specifications will be OK, so you will not need to change any of them, except in unusual circumstances. In any case, consult your printer manual before setting any of these specifications.

5. Add codes for a custom printer

- If you are adding a custom printer, choose to tell AppleWorks what codes your printer expects for various settings.

  See the next page for advice on how to enter these codes.

  If you did not tell AppleWorks you were going to add a custom printer, you do not see this option.

Specifying codes

Once you have added a custom printer to AppleWorks' list of printers, and gone through the first four or five specifications (described in the section before this), you are ready to tell AppleWorks what codes your printer expects for some major functions.

On the last display choose `Printer codes.`

You need to have your printer manual at your side to enter these codes. (By the way: Some manuals may refer to the codes as *sequences of control characters*.)

Characters per inch

- Choose option 1, `Characters per Inch.`
- Type a number for characters per inch. Be sure it is a setting your printer can handle.
- Then type the specific code needed by your printer to print with that number of characters per inch. (Do not press Return or Escape unless you mean that to be part of the code.)
- When you finish typing the code, press ^. That signals AppleWorks that you have completed the code.

  If you make a mistake, press ^, then enter the number, and, when asked if the code is correct, say No. You can then reenter the code.

  Repeat this process for each number of characters per inch that your printer can manage, from 4 to 24. Use whole numbers only.

  When you finish the last code, press ^ to confirm it, and escape back to the Printer Codes menu.

Lines per inch

- On the Printer Codes display, choose option 2, `Lines per Inch.`
- Choose either 6 or 8 lines per inch.
- Type in the code for that setting.
- When you finish the code, press ^. That signals AppleWorks that you have completed the code. (Do not press Return or Escape unless you mean that to be part of the code.)

  If you make a mistake, press ^, then enter the number, and, when asked if the code is correct, say No. You can then reenter the code.

  Now enter the codes for the other setting, if you want to use it.

  When you finish the second code, press ^, and then press Escape to return to the Printer Codes menu.

Boldface, subscript, and superscript

- On the Printer Codes menu, choose option 3.
- Choose `Boldface Begin`.
- Type in the codes that tell your printer to start that feature. (Do not press Return, Space, or Escape unless you mean that to be part of the code.)
- When you finish the code, press ^. That signals AppleWorks that you have completed the code.

  If you make a mistake, press ^, then enter the number, and, when asked if the code is correct, say `No`. You can then reenter the code.

  Repeat this process for the other enhancements if you intend to use them. Press ^ to return to the Enhancements menu and Esc to return to the Printer Codes menu.

Underlining

- Choose option 4 on the Printer Codes menu.
- On the Underlining menu, choose the method your printer uses.
- If you chose option 2, `Printer has start/stop underline commands`, then choose `Underline Begin`, and enter the codes your printer expects.
- When you finish the sequence of "control characters," press ^. That signals AppleWorks that you have completed the code.

  (Do not press Return or Escape unless you mean that to be part of the code.)

  If you make a mistake, press ^, then enter the number, and, when asked if the code is correct, say No. You can then reenter the code.

  Repeat the process for Underline End. Press ^ to confirm the codes and then press Escape to return to the Printer Codes menu.

Serial interface for the Apple IIc

- If you have an Apple IIc, choose option 5 on the Printer Codes menu.
- On the Serial Interface menu, choose `Baud Rate`. On the Baud Rate menu, choose the highest rate your printer can receive.
- On the Serial Interface menu, choose `Data format` . On the Data Format menu, choose the format your printer expects.
- On the Serial Interface menu, choose `Parity`. On the Parity menu, choose the form your printer prefers.
- Press Escape to return to the Printer Information menu.

Printing in color

Using an ImageWriter II, you can print your Spreadsheet report, Data Base report, or Word Processor document in one or more colors. To do this, you need to tell AppleWorks the special codes that turn on color.

With the Spreadsheet and Data Base, you provide the codes, and AppleWorks sends them to the printer before printing. You get the whole document printed in one color.

With a Word Processor document, you can have as many as three colors in addition to black. To achieve this colorful effect, you need to add a new printer, and pretend to define options that you don't normally use (such as subscript). But instead of providing the real printer code for that option, you're going to enter the code that turns on a particular color (such as red). Then you can go back to your document and enter the option; even though it's still called subscript, you know it's really red.

Make sure your color ribbon is inserted and that your printer is turned on.

A Spreadsheet report

- In Review/Add/Change, press ⌘-O for Options.
- Type SC for Special Codes.
- If you previously entered some codes here, AppleWorks asks you: "Is this OK?" Answer No.
- Enter the keystrokes for the color you want. For the ImageWriter II, consult the manual or reference card for color codes. Do not put in any spaces. When you've finished, press ^. (Do not press Return to confirm the entry; the Return would be considered part of the code.)
- If you make a mistake, press ^, then return to this point, answer No, and type it over.
- Return to the Main Menu. Choose option 2. Choose your spreadsheet.
- In Review/Add/Change, press ⌘-P to print. Choose the amount you want to print and then choose ImageWriter as your printer.

  AppleWorks sends the special code to the printer before it prints the spreadsheet, so the spreadsheet will be printed in that color.

A Data Base report

- In Review/Add/Change, press ⌘-P for Print.
- Get a report format, or create a new one.
- Press ⌘-O for Options.
- Type sc for Special Code. Press return.
- If asked "Is this OK," say No. (You want to enter a new code.)
- Enter the keystrokes that turn on the color you want. For the ImageWriter II, consult the manual or reference card for color codes. Do not put in any spaces. When you've finished, press ^. (Do not press Return to confirm the entry; the Return would be considered part of the code.)
- If you make a mistake, press ^, then return to this point, answer No, and type it over.
- Press Escape to return to Report Format.
- Press ⌘-P for Print. Choose ImageWriter as your printer.

  The data base should be printed in the color you chose.

A Word Processor document

- Make a copy of the AppleWorks program disk.
- On the Main Menu, choose option 5, `Other Activities`. Then choose option 7, `Specify information about your printer(s)`.
- If you have three printers, remove one; if you have a custom printer already set up, that's the one to remove.
- Choose to add a printer. Choose `Custom printer`.
- Give your new printer a name.
- Indicate how your printer is accessed (through which port or slot); press Return.
- Set line feed, top-of-page, end of page, and platen width correctly for your printer. Select the last option, `Printer codes`.
- Pick either option 3, `Boldface, Subscript and Superscript`, or option 4, `Underlining`. Choose the one you can do without in this document.
- Choose to enter the code that begins that option. Instead, enter the code that begins the color you want printed whenever you insert the printer option into your text.

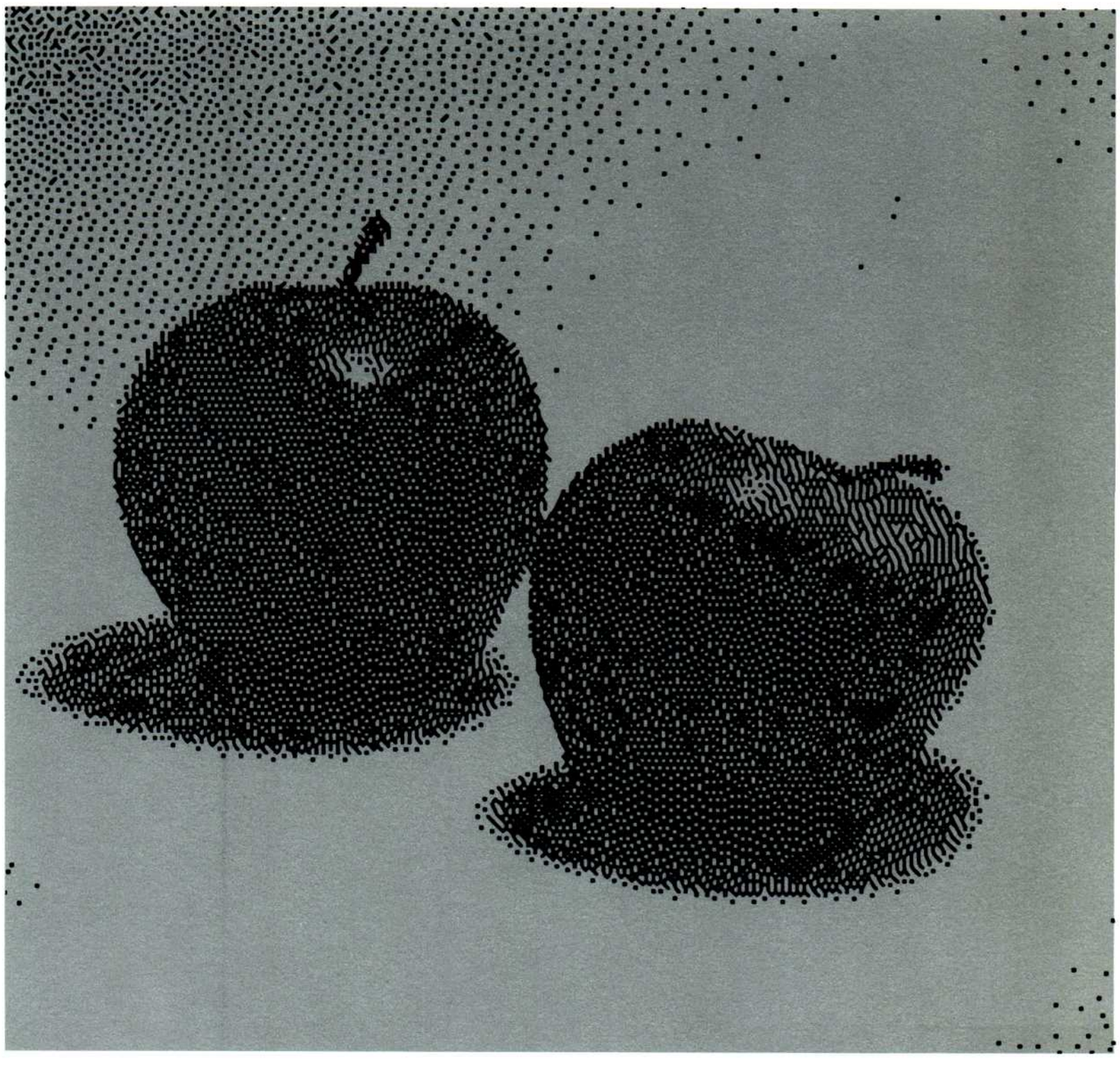
  For the ImageWriter II, consult the manual or reference card for color codes. Do not put in any spaces. When you've finished, press ^. (Do not press Return to confirm the entry; the Return would be considered part of the code.)
- If you make a mistake, press ^, then return to this point, answer No, and type it over.
- Do the same for one or two other colors, if you are willing to give up the other options.
- If you want to print some of your text in black, pick one last option and, instead of its begin code, type the code for black:

  Escape K 0

  (That's a zero. Don't press the Space bar anywhere in these sequences.)
- Look at each option's end codes. Make sure they are blank (otherwise, your colors may get turned off before you want).
- Escape back to the Main Menu then choose option 2 and go back to your document.
- Enter the codes where you want the colors to begin.
- Press ⌘-P for Print, and choose your custom printer as your printer.

Part II

Tips on AppleWorks



Chapter 7

Tips on Starting to Use AppleWorks

Getting into *Using AppleWorks*

Conventions used

We use this typeface to represent text you will see on the screen:

```
Type number, or use arrows, then press Return _
```

We use ⍥ to represent the Open Apple key. There are a number of commands, called *Apple commands* that you perform by pressing ⍥ at the same time as another key. For instance, ⍥-C means press the ⍥ key at the same time as the C, to Copy.

Finding something

You can look topics up in the table of contents or the index—or you can browse through the book. If you like to browse, you might want to keep the general organization of the book in mind. The first part, "How to Use AppleWorks," contains the following chapters:

- "Starting to Use AppleWorks" (Chapter 1)
- "Using the Word Processor" (Chapter 2)
- "Using the Data Base" (Chapter 3)
- "Using Mail Merge" (Chapter 4)
- "Using the Spreadsheet" (Chapter 5)
- "Using Printers" (Chapter 6)

In "How to Use AppleWorks," each two-page spread begins with a major topic, announced in the far left column, and then presents a series of subtopics in the columns to the right. Flip through the major topics first, then scan the columns for the particular procedure you're after. Then read down, for the step-by-step instructions.

The second part, "Tips on AppleWorks," provides extra information about most of these topics, in the same order. The more obscure the information, the more likely it is to end up in tips. If only a few people need the information, it appears in tips.

For definitions of key terms, turn to the glossary, just before the index.

What to do first

What equipment you need

You need any Apple II with at least 128K of RAM (Apple IIe or later), a monitor, and at least one disk drive. To get the most out of AppleWorks, you'll probably also want a second disk drive (or hard disk drive) and a printer.

Using the memory expansion card

Make sure that your Apple II Memory Expansion Card is located in a slot with a number lower than that of the slot to which your startup disk drive is connected. You can have a maximum of 12 files on the Desktop at one time, but this card expands the size of your Desktop and the size of your files.

AppleWorks recognizes the memory expansion card and any other Apple cards with memory, such as the Apple IIe Extended 80-Column Text Card. If the memory expansion card has less room than the 80-column card, AppleWorks will clear whatever you have stored on the 80-column card, and will use it's extra memory. (Be sure to put away any files you have on this card, known as RAM, *before* starting AppleWorks. The 80-column card allows only about 56K for the Desktop, so AppleWorks checks the memory expansion card to make sure that it has more room for files and at least one area open on its directory. (Even if you have tiny files, you can have no more than 50 filenames in the directory of the memory expansion card.) If you have other programs on the memory expansion card, or other files, they could reduce the amount of available memory to less than 56K, so you may want to delete a few before loading AppleWorks.

The advantage to running AppleWorks from the memory expansion card is speed. Parts of the program that normally stay on disk until needed will be loaded into available memory when you start; they are instantly available. That makes AppleWorks run faster. But if you crowd the card with other files and programs, AppleWorks makes room by removing parts of the AppleWorks program from memory and accessing them from the disk, growing slower again. One

drawback: When you save files to the memory expansion card, you must remember to save them to disk before turning off the power, because the card loses its memory when the power goes off.

On a 256K Apple II Memory Expansion Card, with the entire AppleWorks program on it, you have about 80K left for the Desktop. When you start AppleWorks, it is automatically loaded into the SYSTEM.DESKTOP area on your memory expansion card, and it runs from there.

Using a hard disk drive

You can store AppleWorks on your hard disk and run it from there. You will need to use different methods to put AppleWorks on the hard disk, depending on whether you want to run it every time you turn on the computer, or if you will sometimes want to run other programs from the hard disk.

If you want to run AppleWorks every time you turn on the computer:

1. Make sure the controller card for the hard disk is in a higher-numbered slot than any other disk controller.
2. Format your hard disk using the *ProDOS User's Disk* or *System Utilities* disk.
3. Copy all your Startup and Program files onto the hard disk. Do not put them in a subdirectory.
4. Make sure you do not have a program disk in any other drive. Turn on the computer.

(If you wish to leave your controller card in a lower-numbered slot, you may restart your computer from BASIC by typing `PR#n` where *n* is the slot in which the controller card for the hard disk is installed.)

If you want to run more than one program from your hard disk:

1. Format your hard disk using the *ProDOS User's Disk* or *System Utilities* disk.
2. Copy the file named ProDOS from your *System Utilities* disk or *ProDOS User's Disk* onto the hard disk and name it PRODOS. Do not put it in a subdirectory.
3. Copy the file BASIC.SYSTEM from your *System Utilities* disk or *ProDOS User's Disk* onto the hard disk and name it BASIC.SYSTEM. Do not put it in a subdirectory.
4. Create a subdirectory called APPLEWORKS on the hard disk.
5. Copy all the startup and program files for AppleWorks into that subdirectory. Keep all the names the same.

6. If the controller card for your hard disk is in a higher-numbered slot than any other disk controller card, turn on your computer; if it is not in a higher slot, turn on the computer and type `PR#n`, where *n* is the slot number in which the hard disk controller card is installed.
7. To start AppleWorks from BASIC, where HARDISK is the pathname to your hard disk, type

   ```
   /HARDISK/APPLEWORKS
   ```

   Press Return.
8. Then type

   ```
   Aplworks.system
   ```

   Press Return.

(When you store other programs on the hard disk, put each in its own subdirectory, and go through a similar process to get it started.)

Copying your disks

For more information about copying disks, see the manual that came with your *ProDos User's Disk* or *System Utilities* disk.

Getting help

There's a reminder on the screen whenever you can call for help. Depending on what computer you have, you'll see one of these signals at the bottom right of the display:

- an outline of an apple, followed by a question mark
- an inverse, or highlighted `A`, followed by a question mark

That means: Hold down the ♁ key and at the same time press the question mark. (You don't have to press Shift.)

Looking it up

Don't forget the Quick Reference Card—once you feel at ease with the program, this card will provide you with answers faster than this book can.

You can make up your own quick reference sheets, too. Whenever you see a screen display you want to study, press ♁-H to make a hard copy of the display. AppleWorks will send it to the printer. Then you can make notes on the paper version.

How to start AppleWorks

If you can't start AppleWorks

If you have made a copy of your *Startup* and *Program* disks and given the copies new names, they will not work; the program looks for those disks by name. So copy the name as well as the disk.

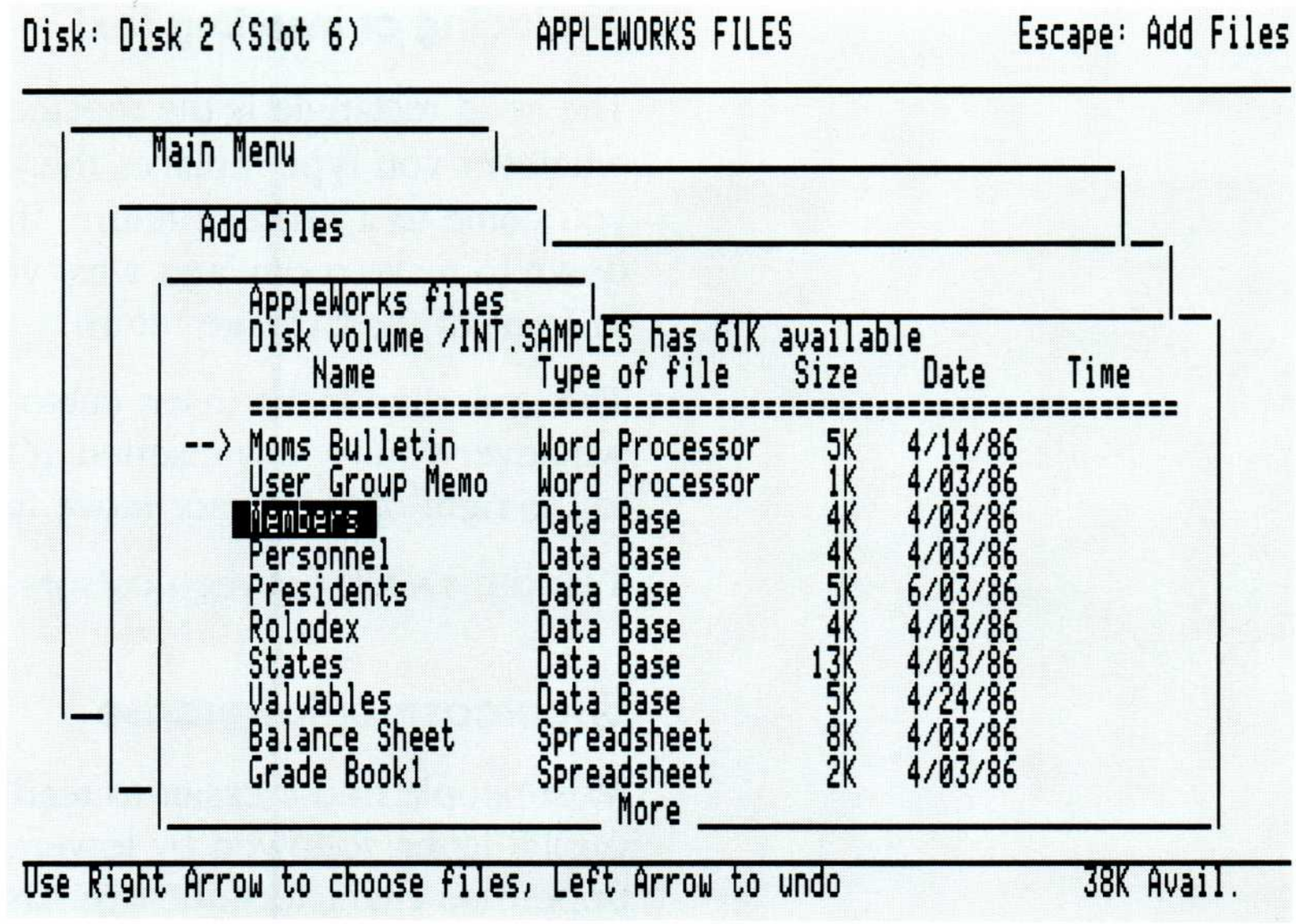
If you try to start up AppleWorks using the original disks that came in the package, you will not get far, because the program needs to be able to write new information on the disk, such as today's date. The original disks are write-protected. The solution: You must make a copy of each disk (using the same name) and then start over with the copies. Save your originals in a secure area—away from heat, sun, and water.

If you are trying to start AppleWorks on a 5.25-inch disk drive, and that drive is connected to a slot with a number lower than the slot you have a 3.5-inch drive connected to, AppleWorks will look for the program disk in the 3.5 drive. Solution: Start from the higher slot, that is, from the 3.5-inch drive; or connect the 5.25-inch drive to a slot higher than the one used for the 3.5-inch drive. Or press Control-Ⓒ-Reset, and type `PR#n`, where ***n*** is the number of the slot connected to your drive.

Throughout AppleWorks

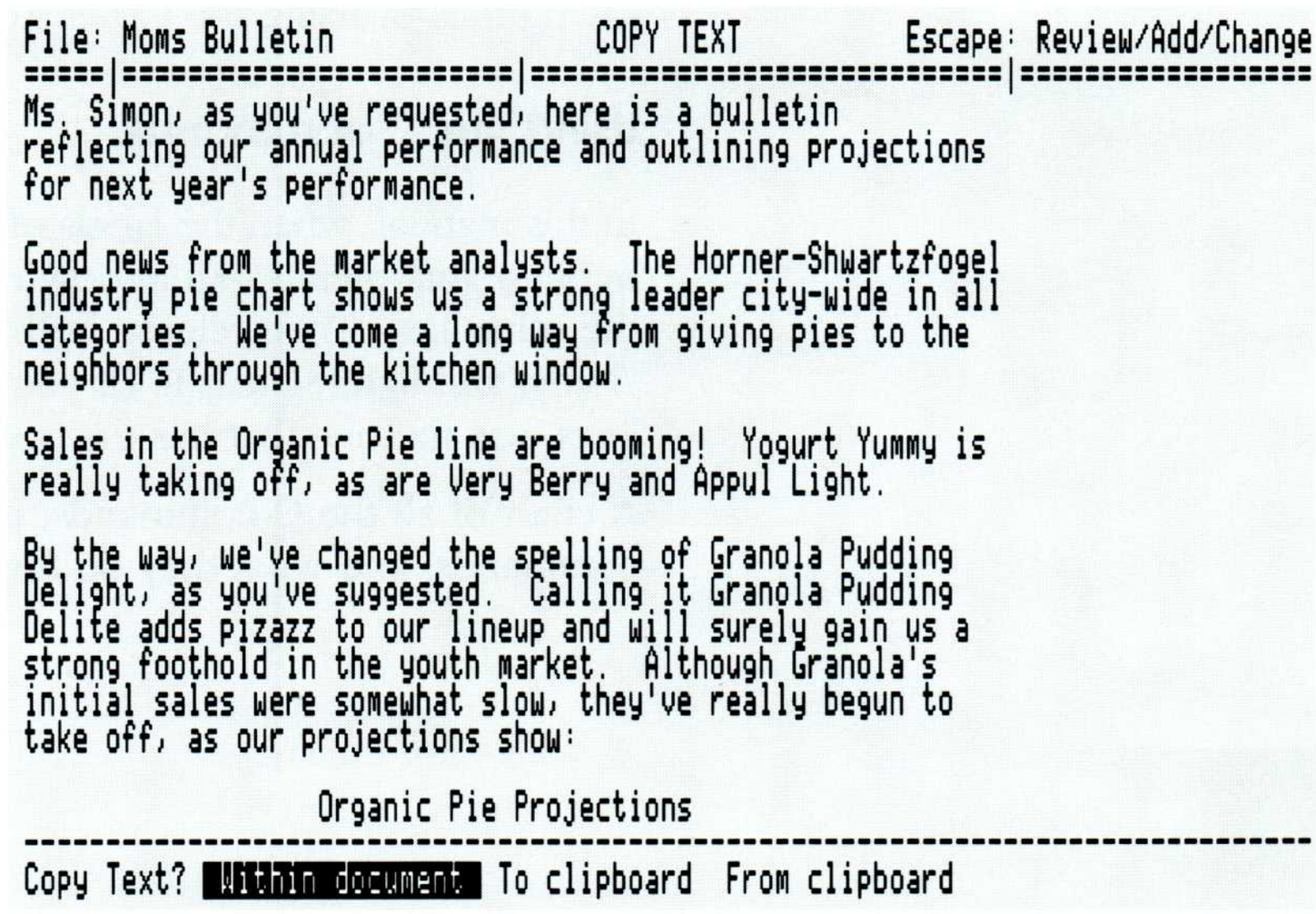
Choosing from a list

If you are choosing only one file, you can highlight it and press Return. If you are choosing a number of files, a file is not chosen unless it has an arrow pointing at it. Once you've selected all the files you want, press Return.



Selecting an answer

When AppleWorks offers you several possible answers in the line at the bottom of the screen, you can respond with the first letter of whatever answer you like, and that will be enough. For instance, if the answer you want is `Within document`, just type `W`.



Replacing or inserting text

The solid rectangle is the replace cursor. When you see this cursor, whatever you type replaces the character under the cursor. Once you come to a carriage return, though, the carriage return moves down to make room, and what you type from then on gets inserted in front of the carriage return.

The underline is the insert cursor. When you see this cursor, whatever you type is inserted at the cursor position. The characters to the right of the cursor move further to the right, to make room.

You can switch between cursors by pressing ♁-E for Edit.

Uppercase or lowercase

Most people find it easier to read a filename that begins with a capital letter, followed by lowercase letters. When the filename is all uppercase characters, the eye has to look twice to distinguish between S and 5, I and 1, O and 0.

Escaping to the previous display

If you are working in a file and then press Escape to go back to the Main Menu, you may be able to zip back to your file. Look at the top right for an indication of where Escape will take you. Generally, Escape will take you back to your file if you have not been busy saving files or using the Other Activities menu in the meantime.

Using the ♁ commands

In this manual, when the labels of two keys are separated by a hyphen, that means: Hold down the first key while you lightly press the other key. Then release both. Hence, ♁-R means hold down the ♁ key, and lightly press R. (If you have a keyboard with two Apple keys, use the one that has the open outline.)

A chart of all the ♁ commands, plus a few other combination commands, and what they do for you starts on the following page.

Keyword	Keystroke	Word Processor	Data Base	Spreadsheet
Arrange	⌘-A	NA	Arrange category	Arrange rows
Blank	⌘-B	NA	NA	Blank out cells
Copy	⌘-C	Copy text	Copy records	Copy entries
Delete	⌘-D	Delete text	Delete records or report category	Delete columns or rows
Edit	⌘-E	Switch between insert and replace cursors	Switch between insert and replace cursors	Switch between insert and replace cursors
Find	⌘-F	Find text, page, or marker	Find records	Find entry or text
Group	⌘-G	NA	Add or remove group totals in a report	NA
Hard copy	⌘-H	Print a hard copy of current screen display	Print a hard copy of current screen display	Print a hard copy of current screen display
Insert	⌘-I	NA	Insert record or previously deleted report category	Insert rows or columns
Justify or Jump	⌘-J	NA	Justify report category	Jump to other window
Calculate	⌘-K	Calculate page-break	Define a calculated report category	Recalculate values
Layout	⌘-L	NA	Change record layout	Change cell layout
Move	⌘-M	Move text	Move records	Move rows or columns
Name change	⌘-N	Change filename	Change name of file, category, or report	Change filename
Options	⌘-O	Display printer options	Display printer options	Display printer options
Print	⌘-P	Print text	Go to report menu or print report	Print spreadsheet

(Table continues on the following page.)

Keyword	Keystroke	Word Processor	Data Base	Spreadsheet
Quick change	Apple-Q	Switch to another file on Desktop	Switch to another file on Desktop	Switch to another file on Desktop
Replace or Record	Apple-R	Replace text	Change record selection rules	NA
Save	Apple-S	Save current file to disk	Save current file to disk	Save current file to disk
Tabs, Totals or Titles	Apple-T	Set tabs	Add or remove report category totals	Set titles
Edit cell	Apple-U	NA	NA	Edit cell
Value	Apple-V	NA	Set standard values	Set standard values
Window	Apple-W	NA	NA	Create windows
Clear	Apple-Y	Clears to end of line	Clears to end of entry	Clears to end of cell
Zoom	Apple-Z	Zoom in on format settings	Zoom to single- or multiple- record layout	Zoom to formulas
1-9	Apple-1 to Apple-9	Move within file	Move within file	Move within file
Help	Apple-?	Display help	Display help	Display help
Arrows	Apple-Up or Apple-Down	Scroll vertically one screen display	Scroll vertically one screen display	Scroll vertically one screen display
	Apple-Left or Apple-Right	Move cursor one word	Change category size right or left	Scroll horizontally one screen
Space	Apple-Space	Stick two words together on the same line	NA	NA
Boldface	Control-B	Boldface from here	NA	NA
Underline	Control-L	Underline from here	NA	NA
Clear	Control-Y	Clear to end of line	Clear to end of entry	Clear to end of cell
Cursor moves	Control-H	Move left	Move left	Move left
	Control-I	Tab	Tab	Tab
	Control-J	Move down a line	Move down a line	Move down a line
	Control-K	Move up a line	Move up a line	Move up a line
	Control-M	Return	Return	Return
	Control-U	Move right	Move right	Move right

Using files—in general

A file

You can have up to 12 files on the AppleWorks Desktop. Any one file can be as large as the free space on your disk. A long file takes you longer to search through, move around in, and edit.

You can have 50 named files on a disk, but some of those files can be subdirectories—essentially, lists of other files. If you create the subdirectory in AppleWorks, it can contain up to 51 files; if you use the *System Utilities* or *ProDOS User's Disk* to create the subdirectory, it can contain up to 130 files, if there is that much space on your disk.

A filename

Make filenames memorable. A few months from now, you won't remember what AA means, but you might recall ADAGENCY. A filename must begin with a letter. It may contain uppercase or lowercase letters, numbers, or periods. No spaces, no other punctuation. The maximum length is 15 characters.

Types of files

You can base an AppleWorks file on another type of file. AppleWorks can read an ASCII file (for the Word Processor); an ASCII, QuickFile, or DIF File (for the Data Base); and a DIF or VisiCalc file (for the Spreadsheet). To find out how to use these files as the basis for your document, turn to the tips for the particular application you are about to use. All files must have been made under the operating system AppleWorks relies on—ProDOS.

If you have files made under DOS 3.3 or SOS, you can convert them into ProDOS files using the *System Utilities Disk* or *ProDOS User's Disk*. In turn, AppleWorks can generate ASCII files, DIF files, and AppleWorks files.

AppleWorks creates slightly different kinds of files for each application; even if all three had the same title, AppleWorks could distinguish its Word Processor file from its Spreadsheet and Data Base files.

Setting a standard location for files

The standard location and the memory expansion card

When AppleWorks is loaded on the memory expansion card, using a program selector, your setting of the standard location is written onto the card, and when you turn off the power, the card forgets. AppleWorks can remember this location for your next session only if you start the program from disk.

A RamDisk as your current location

When you choose to change the current disk on a system with an Apple II Memory Expansion Card or an Apple IIe Extended 80-Column Text Card, you will see the option RamDisk, followed by the slot number. That means you can select the card as your current disk. But remember, these cards forget everything they knew when you turn off the power. So even if you save to the card, as your current disk, you must later save to a real disk if you expect to see your file again after powering off.

When AppleWorks starts up, it takes any available space on the card for a Desktop. As a result, the card no longer has any room for files you might want to save. In a way, that's good: It forces you to save them onto a real disk. You can make a little more room by deleting files from the card, and then save a new file into the spot.

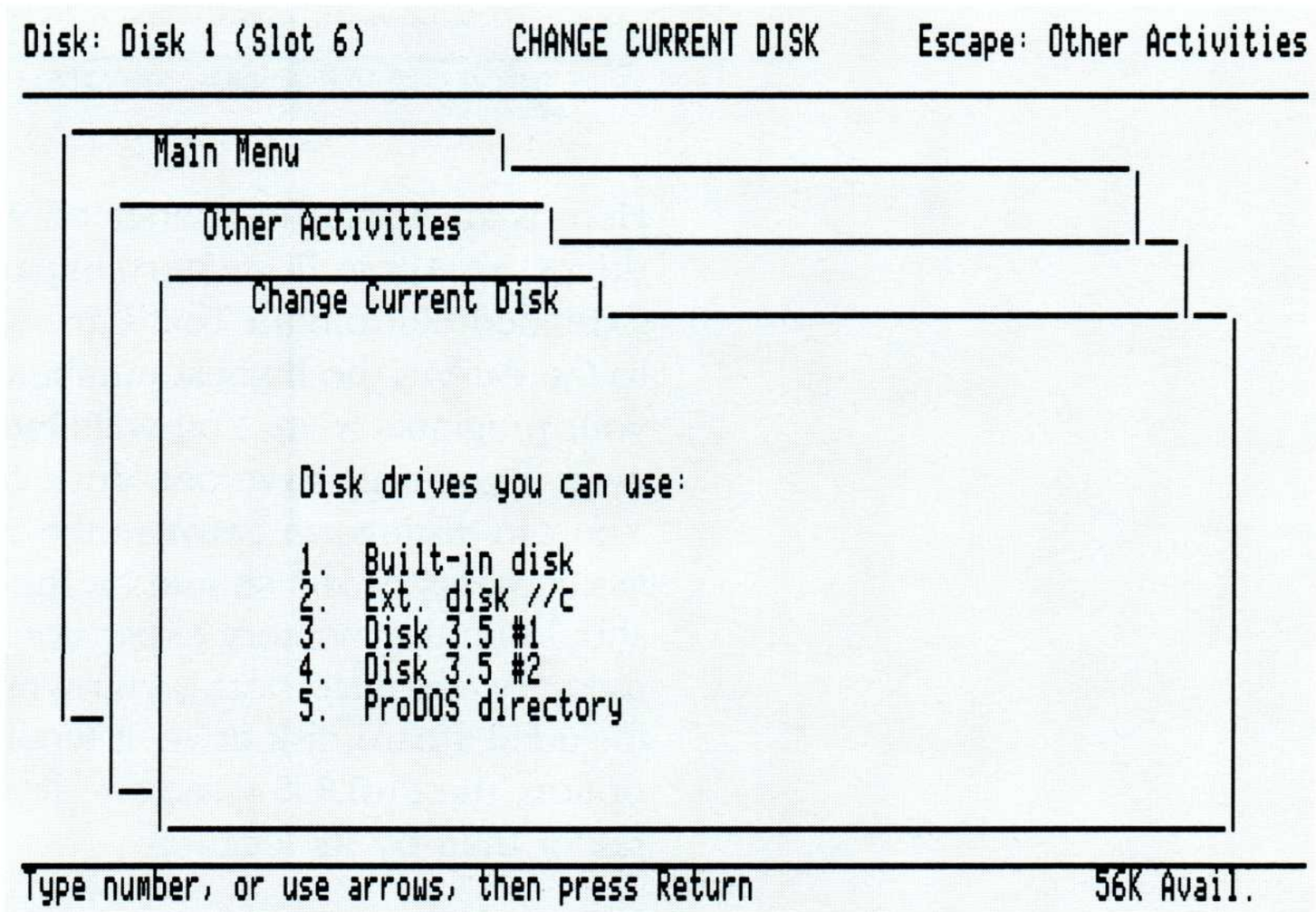
To see what files are in the current location

If you use subdirectories, you will see only the name of the subdirectory when you ask to see a list of the files in a particular disk drive. To see what files are in the subdirectory, you need to change the current location to show both the disk name and the subdirectory name. For instance, if your disk is HOUSING and your subdirectory is KITCHENS, your current location would be

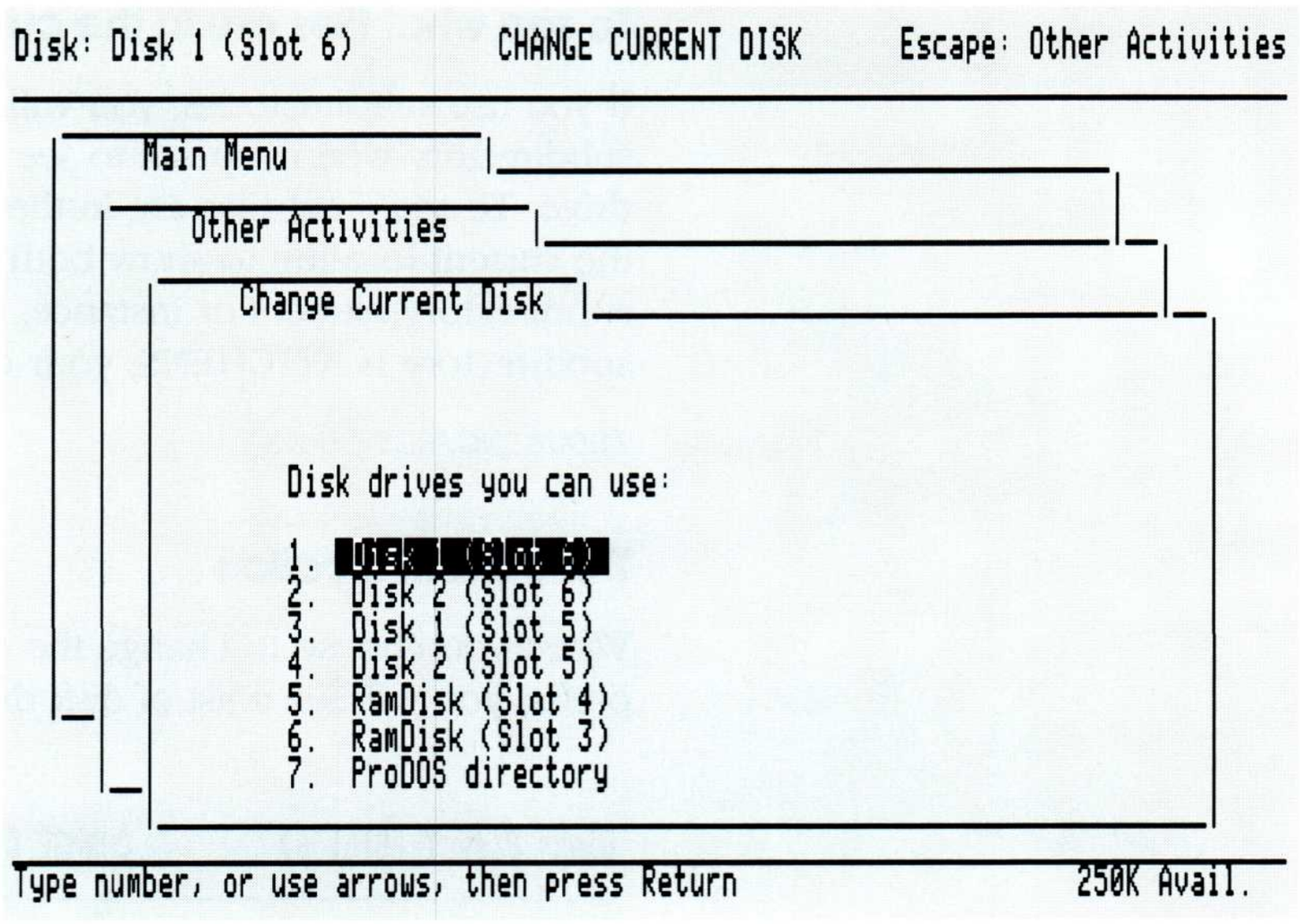
```
/HOUSING/KITCHENS
```

The current location

When you choose to change the current disk drive or ProDOS prefix, you will see a list of disk drives you can use.



Here there are two 3.5-inch disk drives attached to the Apple IIc. `Ext. disk //c` appears on the menu even though there is no such drive attached. The 3.5-inch drives are referred to as #1 and #2. Drive #1, which you can use as the startup drive, is nearer the cable to your computer. The ProDOS directory option lets you refer to the disk by its name, rather than by its location—in case you want to move it around a bit.



Here is an Apple IIe connected with 5.25-inch drives, 3.5-inch drives, an Apple II Memory Expansion Card, and an Apple IIe Extended 80-Column Text Card. Option 1, the disk drive connected to the card in the highest numbered slot, is the drive you can start your programs from. You will always see two disk drives per slot, even if you only have one drive out there; just ignore the phantom. You can distinguish between the two RamDisks by their slot assignments. Slot 3 should be the 80-column text card, and slot 4 should be the memory expansion card. If you do not have the memory expansion card, you won't see either listed. If this system included a hard disk drive, it would show up on this list. The last option, the ProDOS directory, lets you refer to the disk by its name, rather than by its location.

Occasionally, if you have a great many drives, AppleWorks runs out of room, trying to display them all. To refer to a drive that does not appear, use its ProDOS prefix.

Adding existing files to the Desktop

What if AppleWorks can't find your file?

Check the disk to make sure it has AppleWorks files on it and that the disk is in the current location (displayed in the top-left corner of the screen). Make sure the disk drive door is closed securely. If AppleWorks still can't find the file, go to the Other Activities menu and have AppleWorks list the files it finds on that disk. If it can't find the disk, check the connection to the drive and try putting the disk in another drive. If that doesn't work, try reading the disk's directory using ProDOS; if ProDOS cannot provide you with a list of files on the disk, then the disk itself is either non-ProDOS or damaged.

Moving data from file to file

The clipboard

The clipboard is part of the computer's memory. When you turn the power off, the clipboard goes blank. You can have only one item on the clipboard at a time; as soon as you copy or move another passage, it goes onto the clipboard, and the previous contents disappear.

Moving and copying help you move information between two files of the same application, or between parts of the same file. To bring data from the Data Base or Spreadsheet into a Word Processor document, you must "print" a report to the clipboard, so that the data is arranged in a way that the Word Processor can digest. (You cannot use the clipboard to move information back and forth from the Data Base to the Spreadsheet; for that, you must save the information to a DIF file and then add it to the Desktop as the other kind of file. Then you can copy to another file of the same kind.)

The size of the clipboard varies with what you put on it. You can have a maximum of 250 lines of a Word Processor document, 253 records from the Data Base, and 250 rows from the Spreadsheet.

Setting up a subdirectory

A subdirectory is a file

A subdirectory is just a file that contains a list of a group of other files. But it is a file, and its name must follow the rules for filenames: It must start with a letter; consist of uppercase or lowercase letters, numbers, and periods, but no spaces; and it cannot be longer than 15 characters.

Organizing files on disks

Devote one disk to one task

You may want to put all the files you need for a particular task on one disk—budgets, lists, reports. That way you can shift between them easily.

Saving files

Save! Save! Save!

Every ten minutes or so, save your file. Escape to the Main Menu and choose option 3, `Save Desktop files to disk`. That updates the file on disk, so you won't lose much work if the lights flicker and go out. Make saving a habit—any time you get up from your desk or turn to another task.

Also, when you finish working on a group of files, take the time to make a backup copy of that disk before you quit for the night.

To preserve your original

When you're ready to work on a file, if you know you're going to want both a copy of the original file and a copy with the changes, then as soon as you add the file to the Desktop, press ⍥-N to change the name of the version on the Desktop. That way, the next time you save, you'll be saving it under the new name, and you won't ruffle so much as a character in the original file.

If AppleWorks can't find your disk

Make sure that you've given AppleWorks the correct information about the current location of the disk. If so, use Other Activities to list the files on the disk. If AppleWorks can't read the disk, make sure the drive is attached securely, the disk is firmly in place, and the door is down. If you still get no reading, see if your *System Utilities* disk or *ProDOS User's Disk* can list the files; if not, it is not a ProDOS disk, and may need to be converted. If the files are there, and it is a ProDOS disk, try it in another drive.

When you save to a RamDisk

A RamDisk provides quick temporary storage—but it is not really a disk, because as soon as you turn off the power, it forgets your file. Always remember that before you close a session with AppleWorks, you need to add all those files to the Desktop and then save them to a new location—this time, to a real disk. Otherwise, all your work will disappear at the flick of a switch.

If you want to save one file to two places

Use option 3, `Save Desktop files to disk`, on the Main Menu, rather than pressing ⍥-S or choosing option 6. With option 3, you can save the file to the current location, save it to the current location with a new name, or save it to a different location. After you save, return to the Main Menu, choose option 3 all over again, and save the file to yet another spot.

If all you've done is print

The file will show up as changed when you choose Option 4, `Remove files from the Desktop`, and look at the list of your Desktop files. That's because your instructions for printing have been added to the file. But if you are in a hurry, and that file is substantial (more than 20K, for instance), you may not want to wait for the whole file to be saved; as long as the only thing you've done with the file is print, you can afford to throw the changes away.

Removing files from the Desktop

Deleting a file from a disk

To avoid accidents, AppleWorks will not let you delete an entire subdirectory if it contains any files. First you must delete all its files. Then you can delete the actual subdirectory.

Switching between files on the Desktop

Switching with ♉-Q

Whenever you have the Desktop Index displayed, you can return to the Main Menu by pressing Escape. If you're many layers away from the Main Menu and want to get back there without pressing Escape three or four times, press ♉-Q, then press Escape—and there you are!

The order of files on the Desktop Index is the order in which you added them to the Desktop. By contrast, the order of the files shown when you choose to list all the files on the current disk drive (option 2 on Other Activities) is alphabetical, by type. The types are, in order, Word Processor, Data Base, Spreadsheet, other ProDOS files, and subdirectories.

Watching memory

You can always find out how much room you have on the Desktop by pressing ⌘-Q then looking at the lower right of the display.

Using sample files

What you can do with sample files

Sample files demonstrate the usefulness of each AppleWorks application. Some can help you in business, some at home, some at school. If you do the exersises in the *AppleWorks Tutorial*, you will encounter a few of these sample files and modify them. But that's just a first encounter.

As you become more familiar with AppleWorks, you will find you can use these sample files to see how to develop your own budget or data base. Some files may serve you as a template, or model—an empty form for you to fill in; others you will want to adapt to your own purposes. And some you'll just want to play with and leave on the disk.

On the 5.25-inch disk, you will find sample files on both sides. Those on side 1 are for use in the first 7 chapters of the *AppleWorks Tutorial*. Some of those on side 2 are used in Chapter 8, "Additional Practice," in that book, and some are for your personal exploration.

Here's an outline of *all* the sample files, followed by a brief description of each.

Word Processor documents:

- Moms Bulletin: A crucial report on one of the nation's most exciting startups—Mom's Apple Pie Company. To be used with the *AppleWorks Tutorial*.
- User Group Memo: A memo designed for use in Chapter 8, "Additional Practice," in the *AppleWorks Tutorial*. An imaginary user's group.

Data Base documents:

- Members Data Base: The members in the imaginary users group. Shows how you can keep names and addresses in a data base.
- Organic Pies Data Base: The complete story on every pie sold in the area, including restaurant names, addresses, and the owner's nickname.
- Personnel Data Base: A sample showing how a school might keep track of important information about its staff, such as salary, sick leave, and vacation time.
- Presidents Data Base: The first forty Presidents of the U.S. with key facts about each one. This is the kind of data base a student could use in history class. There's one report already created, showing all presidents whose party affiliation was Democratic.
- Rolodex Data Base: Putting names and addresses on your computer. A report has already been set up to do mailing labels.
- States Data Base: Key facts about every state in the United States—major crops, industries, the state tree, bird, the state flower, and, most essential, the state song. A study aid. One report shows the states in a table arranged by the year they joined the Union; another report is arranged by population per square mile.
- Valuables Data Base: If you ever lose an item to theft, fire, or natural disaster, you may find it helpful to present the insurance company with a detailed list, showing exactly what make and model it was, how much you paid for it, and where. Here's a start on that list. One report helps you figure the difference between what you paid for an item and what you would have to pay now to buy a replacement.

Spreadsheets:

- Balance Sheet Spreadsheet: A balance sheet showing assets and liabilities, as well as financial analysis statistics. Put in your own numbers, and see what totals come out. (Don't enter anything where the arrows are; those are the totals, which AppleWorks will calculate.)

- Grade Book 1 Spreadsheet: A very slender version of what could become a complete grade book, showing homework, exams, and totals.
- Grade Book 2 Spreadsheet: An expanded version of Grade Book 1.
- Home Budget 1 Spreadsheet: A way of figuring your monthly cash flow. Put in your own figures, and check the formulas to make sure they correspond to your situation, then watch AppleWorks add everything up.
- Home Budget 2 Spreadsheet: An expanded version of Home Budget 1.
- Loan Payments Spreadsheet: Shopping for a car or a house? Here's a quick way to figure out the monthly payments.
- Measure Kitchen Spreadsheet: These spreadsheets help you convert measurements from teaspoons to cups, or cups to gallons. At the top, type in the value you want converted, and AppleWorks gives you the result. For instance, go to the box that says `Enter value to be converted`, enter 2, and you'll find out how much 2 pints equals, below.
- Measure Temp Spreadsheet: How hot is that in Fahrenheit? Enter the temperature, and see how that translates into various other temperature systems.
- Organic Growth Spreadsheet: A rather optimistic view of future sales for some of Mom's pies.
- Our Budget: Another example of a home budget.
- Personal Worth Spreadsheet: A way of figuring out your net personal worth. Enter your own numbers, and check to make sure that all formulas reflect your own estimates and situation.

Quitting

Restart

To start over, make sure you have either the 5.25-inch *Startup* disk or the 3.5-inch *Startup/Program/Sample Files* disk in your main drive.

1. Press Control-Ö-Reset.
2. Follow the instructions given on the screen

Converting files to ProDOS

ASCII and DIF files

If you have ASCII and DIF files that were created in a ProDOS application, you do not need to convert them. You can turn them into AppleWorks documents. On the Main Menu, choose option 1, `Add files to the Desktop;` specify an application; choose ASCII or DIF as a source; give the exact pathname to your file; and AppleWorks creates a new AppleWorks document with that data.

Name changes

Your DOS file may have a name that is invalid in ProDOS. The conversion process substitutes a valid ProDOS name, following these rules:

- Names with more than 15 characters are cut off at 15. If this results in duplicate filenames, you will be asked whether you want to replace the existing file with your new one, using the same name.
- Characters that are invalid in ProDOS (control characters, spaces, punctuation other than periods) are replaced with periods.

A valid ProDOS filename begins with a letter; it may include uppercase and lowercase letters, numbers, and periods. No spaces allowed. Maximum length: 15 characters.

Chapter 8

Tips on the Word Processor

Creating a document

Maximum size

On a computer with 128K RAM, AppleWorks offers you 56K of space on the Desktop, and, if you have 65 characters per line, 1-inch margins all around, headers, and footers, your document may extend to about 18 single-spaced pages, or a little more than 850 lines (if you have no other document on your Desktop). Adding a memory expansion card to your computer allows AppleWorks to take advantage of extra memory; AppleWorks can handle documents up to 511 pages long.

A shortcut to your own settings

When you have certain settings you prefer to AppleWorks' standard ones, and you don't want to have to reset them every time you want to start a new document, create a document that contains nothing but the settings you like. Save that under a name such as *My Setup,* or *My Letter Paper.*

Then, when you're about to write, open that file and change its name using ♁-N. Now you're looking at the first page of a new document, with all your settings prepared.

Creating a document from a text (ASCII) file

You can bring in text from other programs and other computers and base a new Word Processor document on that text, as long as it is in the format known as ASCII, which stands for *American Standard Code for Information Interchange.*

In a way, ASCII files are the lowest common denominator of the microcomputer world; they contain nothing but text—no special codes for formatting. The American Standard Code for Information Interchange assigns a number from 0 to 127 to each number, uppercase and lowercase character, and mark of

punctuation. When a program creates an ASCII file, it usually drops any codes you entered to arrange the text on the page (margins, type styles, characters per inch); the only information that goes into the ASCII file is the codes for the characters. That's why these files are sometimes known as pure *text files.*

Because these files contain no codes that belong to any particular program, and because almost every program uses the ASCII method for coding characters, ASCII files can be passed from one word processor to another, or from one computer to another. You can start an AppleWorks document based on any ASCII file created under ProDOS and turn any AppleWorks Word Processor document into an ASCII file.

- You can use a telecommunications program to collect data from an information service such as the Dow Jones News/Retrieval®, CompuServe®, or the Source℠, bringing it in as an ASCII file, and then use that information in your report.
- If you have a friend who uses another word processor program such as Apple Writer, you can start a Word Processor document based on an ASCII file from your friend.
- A colleague could use the phone lines to send you an ASCII file full of notes on a meeting or convention, and you could create an AppleWorks document out of the file, then format it, print it, and distribute it so everyone has the latest news.

Here's how to create a Word Processor document based on an ASCII file.

1. On the Main Menu, choose `Add Files to the Desktop`.
2. On the Add Files menu, choose `Make a new file for the Word Processor` and `From a text (ASCII) file`.
3. Make sure the disk with the ASCII file is in the current drive. Type the file's name. (If you have the ASCII file in another drive, type the full pathname.) Press Return.
4. Name the AppleWorks file you are creating from the ASCII file. Press Return.

AppleWorks copies the text into a Word Processor document. You can now format it, or edit it, any way you want. The original ASCII file remains safe on disk.

There are a few things you should be aware of when working with ASCII files:

- There are additional steps for an ASCII file that has been created under an operating system other than ProDOS. If the file was created under DOS 3.2 or 3.3, you can convert the file to ProDOS; see "Converting Files to ProDOS" in Chapter 7, "Tips on Starting to Use AppleWorks." If the file was created under MS-DOS, TRSDOS, CP/M, or some other operating system, you should have it telecommunicated to you, receiving it with a ProDOS telecommunications program such as Access II. If you receive it with a DOS 3.3 telecommunications program, then you must convert the file you receive into ProDOS afterward.
- Once you have the ASCII file on a ProDOS disk, you need to know the pathname that leads AppleWorks to the disk and the file.
- You may have to fix odd formats. The other program might use longer lines than you like, or triple spacing. To fix these anomalies, change your margins or delete some unnecessary Returns and blank lines.
- There may be returns at the end of every line. A Return is an ASCII character, and some programs put them at the end of every line. To get rid of a Return, put the cursor on it, press ♁-D, and then Return.

To create an ASCII version of your Word Processor document, see "Printing," at the end of this chapter.

Entering text

Keeping two words together

Sometimes you want to make sure that two words stay together on the same line. For instance, you might not want one line to end with *Mr.,* leaving *Saperstein* to begin the next line. To join *Mr.* to *Saperstein* you need what is called a sticky space. After the first word, press ♁ at the same time you press the Space bar; that makes the sticky space that will glue the two words together. You see a

caret, which stands for the sticky space. Then type the second word. Now, no matter how you change your margins, those two words will always appear on the same line.

To make sure the sticky space is there, put the cursor on the caret, and you see the message `sticky space` at the bottom of the screen.

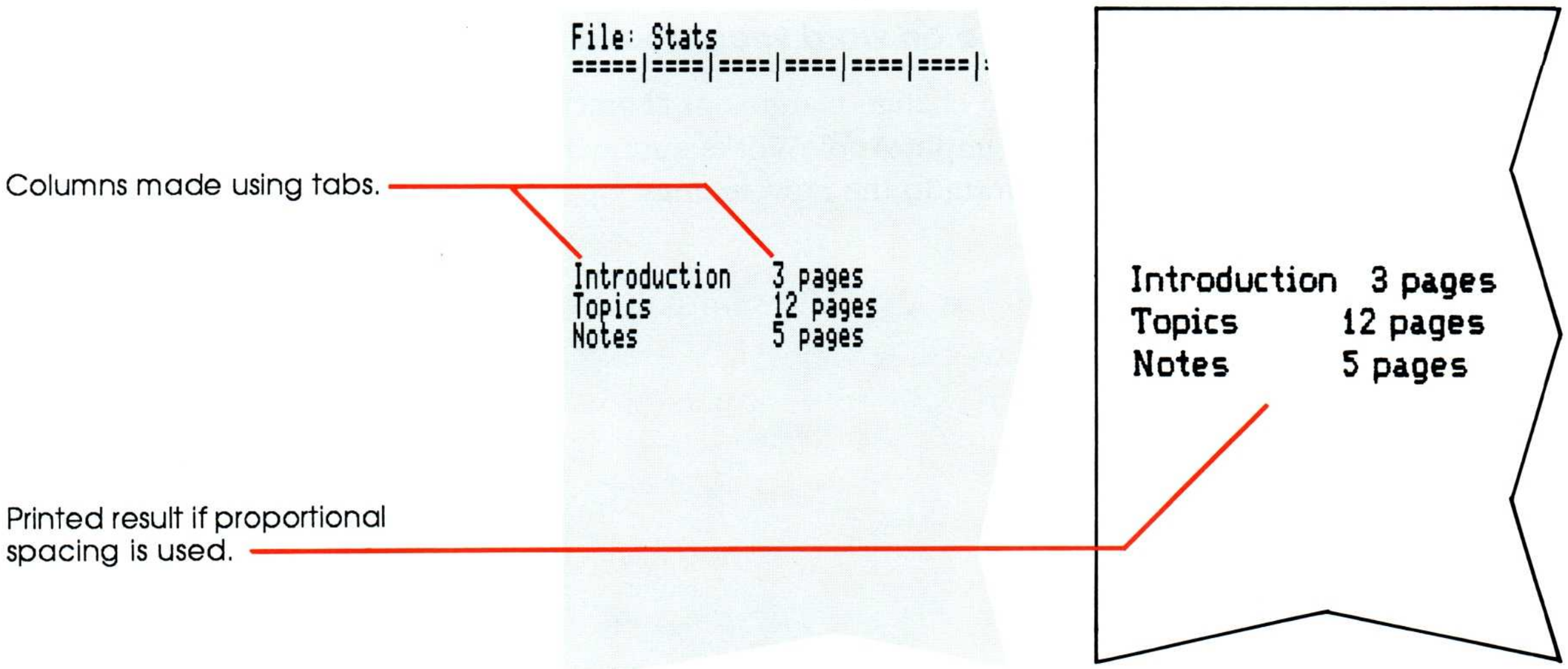
To get rid of a sticky space if you decide you don't want it, put the cursor on the caret, press ⌘-D for Delete, and press Return.

Using tabs

What to watch out for

When you use tabs to create a table with columns, make sure that you do not have proportional spacing or justifying turned on for that part of the document.

The characters on the screen all have the same width, and so do the spaces. In proportional spacing, though, each character has a different width when printed, so one line of text in one column may be longer or shorter than it was on the screen, and anything five spaces to its right will also be a little out of place, compared to its original screen position.



And when AppleWorks justifies text during printing, it adds extra spaces wherever spaces exist, to make sure that the last letters of every word on the right line up neatly. The number of extra spaces varies, depending on the number of characters in the line. So every line gets a different number of extra spaces, and that could result in a jagged or zigzag column.

Also, don't change your characters per inch when you reach a different line somewhere in the middle of a column—that, too, can make for an uneven edge.

Starting a new line

Unnecessary characters

Don't put any unnecessary characters in your documents—especially at the end of a paragraph. Any extra spaces or Returns will be counted when AppleWorks is calculating pages. In printing, the Return could end up on the next line, causing an extra line or a blank page where you didn't want one.

To check, press ⌘-Z to zoom in, and make sure that there are no extra spaces between the period that ends the last sentence and the Return that ends the paragraph.

A note on word wraparound

If you change margins or characters per inch after having typed a paragraph, AppleWorks automatically readjusts the words to conform to the new settings.

Moving around in your document

Using the Find command

Don't forget Find as a quick way to get to a printer option, marker, or key word. Often an important passage contains a particular word or combination of words that you're fairly sure you haven't used elsewhere in the document. Use ⌘-F to find it.

Deleting

Deleting Returns

Press ⌘-Z to zoom in to see the Return symbols. Move the cursor to the right of the Return symbol, and press Delete. Or put the cursor right on the Return symbol, press ⌘-D, and then press Return.

There are two Returns you cannot delete. You can't delete the last Return in a document. And you can't delete a Return that separates two paragraphs with different formats. Until you change the format of one of the paragraphs to match that of the other, the two paragraphs cannot be combined into one. If you want to merge the text of the two paragraphs, first make them have the same format, and then delete the Return.

What deleting does to page calculations

As soon as you delete something, AppleWorks erases all current page calculations, because you have changed the information it used to calculate them. If you want to preview pages again to see where your page breaks are going to occur, press ⌘-K. However, if you don't want to preview page breaks, there's no need to use ⌘-K.

Finding

Uppercase and lowercase

When you press ⌘-F for Find, you are offered the choice of searching for text or for case sensitive text, among other things. Choosing `Text` tells AppleWorks to find any text that matches what you type in, regardless of capitalization. If you ask AppleWorks to find the text *THE,* it will also find *The* and *the.* Choosing `Case Sensitive Text` tells AppleWorks to find any text that exactly matches what you type in, paying attention to capitalization. For instance, if you type in *Party,* AppleWorks would not settle on *party* or *PARTY.*

Replacing

Safety tips

Whenever you worry that you might replace something you don't want replaced, choose `One at a time` so you can check each highlighted word or phrase to ensure you really want to change it.

Also, make sure that the text to be replaced is unique. If you fear that the text you want to replace may show up within other words, type a space at the beginning and another at the end of the text you want replaced. That way AppleWorks will look for a word standing in isolation, not as part of another word. For instance, if you want to replace *the* with *a,* you need to press the Space bar, type `the` and press the Space bar again. Otherwise, the word *them* would become *am.*

To replace a word with a space

Sometimes you want to remove a word that appears many times in your document. You believe that you can take it out without upsetting the grammar or the meaning. Here's how to do it. When

typing the text to be removed, put a space before and after the word; when typing the replacement, just press the Space bar once and then press Return. AppleWorks replaces the word with a single space.

For those words you hate to type

Sometimes you have to use a word or phrase that you can never get right. You come to hate typing it. With AppleWorks, you can avoid this anxiety. Just type something like *xxx* each time you want the words to appear. When you're through, go back to the beginning of your document and replace all instances of *xxx* with that horrible phrase.

Moving or copying within a document

Where does the passage go?

When you move or copy a passage within a document, AppleWorks saves it on the clipboard, while waiting to find out where you want to put it. You can do other work before bringing the passage back in—as long as you don't put something else on the clipboard by cutting or copying. When you copy one passage, then another, the second replaces the first on the clipboard. The clipboard can only hold one passage at a time. The maximum number of lines you can move or copy is 250.

Using the clipboard for repetitive formatting

When you have written a long document and decide that you want to format several different parts of it in the same way, set up your printer options for that format at the first location. Then copy those printer options onto the clipboard and paste them back in front of every other section you want to look the same way.

Moving information between documents

From a data base or spreadsheet to your Word Processor document

There are several points you should be aware of when transferring information from the Data Base or Spreadsheet to the Word Processor.

As you print from your Data Base report or Spreadsheet report to the clipboard, your selection must have fewer characters per line than you set up using printer options for that report. If you have more characters in a line, AppleWorks will use only the line length you set up with the options, discarding any information on the right. The result: You lose data. The solution: Delete what you just copied, go back to the data base or spreadsheet, press ⌘-O for Options, and shrink your margins or increase the characters per inch. Then print to clipboard again.

If your report has more characters per line than the Word Processor document is set up for, some data will be wrapped around onto the next line, making a mess of your report. The solution: Go back to the data base or spreadsheet and shrink the length of the lines by increasing the characters per inch or shortening the margins. Then print to clipboard again.

The maximum amount you can move using the clipboard is 250 Data Base records or Spreadsheet rows.

Formatting for printing

What you see, and what you get

In general, you can look at the text on the screen and see what it will look like when printed. There are some formatting options, however, where there is not an exact one-to-one correspondence between what you see on screen and what you get printed out.

- Characters printed in proportional spacing will look different when printed—closer together and more neatly fitted than the characters on the screen, which all take up the same amount of space.
- Some printer options such as boldface and underline are indicated by carets on the line; the carets are not printed, but they make the screen line look longer than it will be when printed.
- Boldfacing, underlining, subscript, and superscript are indicated by carets, but AppleWorks cannot display text in those styles on the screen.
- Other printer options (such as characters per inch) are indicated by a dashed-line message; these messages are not counted when AppleWorks figures pages and prints, but they do take up room on the screen when you are zoomed in, making some pages look longer than they really are.
- You can indicate that you want a passage printed double spaced or triple spaced, but the screen continues to show the text single spaced for your convenience when working.
- When you create a header or footer, you see it only once on the screen—at the place you created it—but during printing AppleWorks puts it on every page.
- When you choose more than 10 characters per inch or 77 characters per line for printing, AppleWorks can't show this accurately on the screen.

Using printer options

Standard settings

Whenever you create a new document, AppleWorks assumes you want the following standard settings. You can change any of them by pressing ⌘-O for Options and then typing the proper code and a new value.

- platen width: 8.0 inches
- left margin: 1.0 inches
- right margin: 1.0 inches
- top margin: 0.0 inches
- bottom margin: 2.0 inches
- characters per inch: 10
- text: unjustified
- paper length: 11 inches
- lines per inch: 6
- spacing: single

When you zoom in to see printer options, you see only the ones that differ from these standard settings. You do not see all of these settings announced at the beginning.

How long a printer option stays in effect

Some printer options stay in effect to the end of the document, some to the end of a paragraph or phrase.

- Most options stay in effect until you change or end them.
- Two options stay in effect until you stop them or the paragraph ends: Boldface and Underlining.
- Two options stay in effect until you stop them or the line ends at the right margin: Subscript and Superscript.
- A few options apply only at the spot where you place the command: Enter from Keyboard, New Page, Page Number, Pause Here, Print Page Number, Set a Marker, Skip Lines.

On the following page is an alphabetical list of the printer options, so you can look one up, and find out how long it stays in effect.

	Until you change or end it	Until you end it or the paragraph ends	Until you end it or the line ends	Only at the spot you place the option	To the end of the document
Boldface		√			
Centered	√				
Characters per inch	√				
Enter from keyboard				√	
Footer	√				
Grouping	√				
Header	√				
Indent	√				
Justified	√				
Lines per inch	√				
Margins	√				
New page				√	
Page number				√	
Pause each page					√
Pause here				√	
Paper length	√				
Platen width	√				
Print page number	√				
Proportional spacing	√				
Set a marker				√	
Skip lines				√	
Spacing of lines	√				
Subscript			√		
Superscript			√		
Underline		√			
Unjustified	√				

Remember: A paragraph ends wherever you type a Return.

Recognizing those little symbols

Here is a chart of the symbols AppleWorks uses in your Word Processor documents, with explanations. The fast way to find out what a caret (^) represents: Put your cursor on it and look in the bottom line on your screen.

⌘	Return symbol
^	Caret, indicating a printer option that applies to a phrase, line, or the rest of the paragraph
---	Dashed line indicating a printer option has been inserted here
==	Equal signs separate most of your screen from the top line, which tells you what file you are in, what you're currently doing, and where pressing Escape will take you.
⌘-?	Reminder that to get help, you just press ⌘-?
<m>	Mail Merge category
[mm]	Mail Merge category that will delete line if category is blank and there is nothing else on the line

Controlling horizontal spacing

Figuring the width of your text

The width of your text depends on the platen width (the distance your printer's printhead can travel across the paper); that's usually about 8 inches, a little narrower than ordinary typing paper. From the platen width, subtract your left and right margins. For instance, with the 8-inch platen width, and 1-inch margins on the right and left, the arithmetic looks like this:

Platen width	8.0 inches
–Margins	–2.0 inches total
Text Width	6.0 inches

Remember that the platen width you set using PW on the Printer Options display should be the same as the one you specify in the Other Activities menu option `Specify information about your printer(s).`

If you change margins or characters per inch after having typed a paragraph, AppleWorks automatically readjusts the words to fit the new settings. If you set up a line longer than 77 columns for printing, AppleWorks still has only 77 columns on the screen and must wrap text around to the next line; it will print correctly.

Characters per inch

AppleWorks displays text on the screen at 10 characters per inch. When you choose any other setting for characters per inch, you will not see the letters on the screen suddenly get smaller or larger, but AppleWorks will show accurate page breaks, using the new number of characters per inch as part of its calculations.

At the beginning of each line, AppleWorks tells the printer how many characters per inch to use for that line. So you can have only one CI setting per line. One line cannot contain both 10 and 12 characters per inch.

Here are the different settings for characters per inch available on various printers:

Printer	Available characters-per-inch settings
Apple Dot Matrix	4-10, 12, 15, 17
Apple Daisy Wheel	4-13, 15, 17, 20, 24
Apple ImageWriter	4-10, 12, 15, 17
Apple ImageWriter II	4-10, 12, 15, 17
Apple Silentype	10
Epson MX Series	5, 8, 10, 17
Epson MX/Graftrax	5, 8, 10, 17
Epson RX Series	5, 6, 8, 10, 12, 17
Epson FX series	5, 6, 8, 10, 12, 17
Qume Sprint 5	4-13, 15, 17, 20, 24
Qume Sprint 11	4-13, 15, 17, 20, 24

Proportional fonts

Proportional fonts use a different width for each character—proportional to the character's shape. An *i* or an *l* takes up a narrow space; a *w* or an *m* a wider space. Proportional spacing, then, means that one five-letter word may take up more space than another. What you see on the screen, however, is a monospaced font—every character takes up the same width. So columns that line up neatly on the screen may not come out that way when you print in a proportional font. In general, then, do not use proportional fonts for tables or indentations.

Some printers offer no proportional fonts and some offer one or two. Check your printer manual to see what proportional fonts your printer supports before using P1 or P2. Here are printers, with the number of proportional-spacing fonts supported by AppleWorks.

Printer	Number of proportional fonts
Apple Dot Matrix	2
Apple ImageWriter	2
Apple ImageWriter II	2
Apple Daisy Wheel	1
Apple Scribe	0
Apple Silentype	0
Epson MX series	0
Epson MX/Graftrax+	0
Epson RX series	0
Epson FX series	2
Qume Sprint 5	2
Qume Sprint 11	2

To indent, center, and justify

What justifying does

When you choose to justify text, AppleWorks inserts full spaces and fractions of spaces between words, to make the right margin line up as neatly as the left one ordinarily does. The more characters you use per inch, the smoother justification goes; with only a few words on a line, justification has to insert large, unsightly gaps. Rule of thumb: Use justification only if you have more than 12 characters per inch.

Do not use justification in passages in which you have indented some text or set up columns and tables. The process of justification can leave your alignment a little uneven. (You can still justify the rest of your document.)

When to indent, when to tab

Use indentation when you want the second and following lines of a paragraph to be indented. For instance, if you have a short opening sentence followed by a bulleted list, you would use IN before the paragraph so that the bullets (or asterisks) would be indented.

If you want to set up information in columns, set up tab stops, and don't use a proportional font or justify your text. (Both of these create jagged columns.)

How to turn off indentation

Press ⌘-O, type IN, press Return, and type 0 (zero), and then press Return again. To leave the Printer Options display, press Escape.

Controlling vertical spacing

Top and bottom margins

If you use separate sheets of paper on a sheet-feed printer, you can use the standard settings for top margin (0.0 inches) and bottom margin (2.0 inches). But if you are using continuous pin-feed paper, you will probably want to change both margins to 1 inch.

The length of your text

To figure out how much space your text will take up vertically, take your paper length and subtract the top and bottom margins. On an average page of 11 inches, with 1-inch margins, here's how the arithmetic would go:

Paper length	11.0 inches
–Margins	–2.0 inches total
Text Length	9.0 inches

If you use shorter paper or tractor-fed labels

If you are printing mailing labels, envelopes, or postcards, you need a paper length of less than 11 inches. When you press ⌘-O and set Paper Length to less than 11.0 inches, you must be sure that the printer won't go on assuming every sheet is 11 inches long. Here's how.

1. On the Main Menu, choose `Other Activities`.
2. Choose `Specify information about your printer(s)`.
3. On the Printer Information menu, choose `Change printer specifications`.
4. On the Change a Printer menu, respond to option 2, `Accepts top-of-page commands`, with `No`, so that the printer will not accept commands ordering it to move the paper down to the top of the next (11-inch) page.

That way, the printer will not print a single mailing label and then scroll down 10 inches to start the next. Instead, it will send blank lines to make up the space until it reaches the top of your next (shorter) page.

Handling pagination

How AppleWorks breaks pages

When you ask AppleWorks to calculate pages or print a document, AppleWorks divides the text into pages, following these rules:

- AppleWorks will not break a paragraph so that one line of the paragraph is split off from the rest of the paragraph. The beginning of a paragraph on the bottom of one page must have at least two lines, or that text goes to the top of the next page. Similarly, at least two lines of a paragraph must be at the top of the following page.
- AppleWorks will not overrule you when you have said you want a new page to begin.
- If you have grouped some information together and it does not take more than a page, it will all appear together on one page.

Keeping information on the same page

A paragraph, for AppleWorks, is any text that ends in a Return. If you have set up a section title, then pressed Return, and started writing the section, AppleWorks considers the title a very short paragraph and could leave it at the bottom of one page. To avoid this, you could put a New Page printer option just before the title; or you could use the Group Begin option before it, and the Group End option after the first paragraph, to keep them together.

Leaving wide-open spaces

If you want to be sure that a certain number of lines are left empty for a drawing you intend to paste in, use the SK printer option to skip lines. You will not see the lines skipped on the screen, but the printer will leave the correct space. You could get the same effect by pressing Return the same number of times, but that leaves a large blank space on the screen and uses up more memory.

Counting lines

If you're counting lines carefully to get just the right number on a page, you'll notice that the line count at the bottom of your display tallies every line on the screen, including printer options. But in figuring the number of lines that will fit on a printed page, AppleWorks does not count the printer option lines, because those are not printed. Use ⌘-K to see how your pages are shaping up.

Using the Page Number option

Use the Page Number option this way:

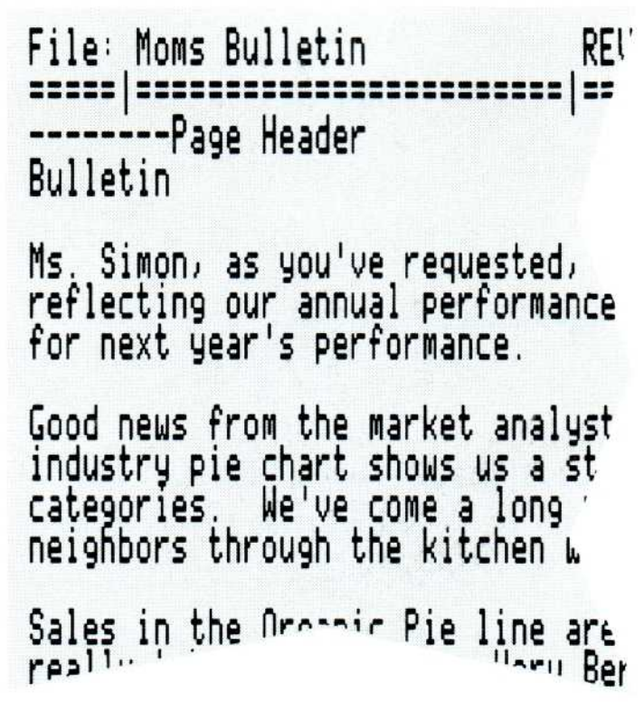
1. Press ⌘-O for Options.
2. If you want page numbers at the top of your pages, type `HE` for Header; if you want page numbers at the bottom of your pages, type `FO` for Footer. Press Return and then Escape.
3. Type the rest of your header or footer, and then type `Page`. If you want to number your pages within chapters so that the pages of Chapter 5, say, are numbered 5-1, 5-2, 5-3, and so on, type `Page 5-`.
4. Press ⌘-O again, and type `PP` to have AppleWorks insert the actual page numbers after the hyphen. Press Return and then Escape.
5. Press Return to complete the Header or Footer line.

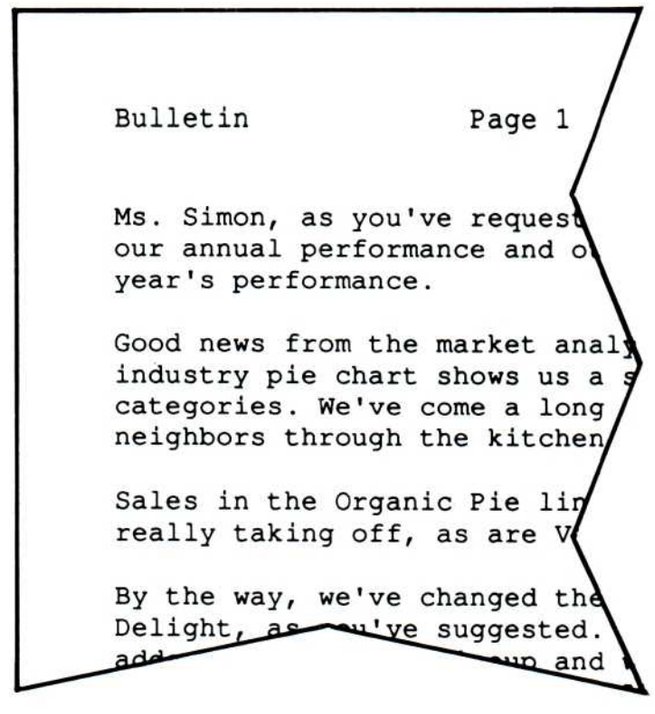
In this example, the `Page` or `Page 5-` is just part of your header or footer; the actual page numbers, beginning with 1 and continuing in the normal way, are appended to that stock beginning throughout your chapter.

Setting up headers and footers

How they look on the page

Even though you can type only one line of text for a header or footer, AppleWorks leaves two lines of space to set the text off, so your header really takes up three lines, and your footer three more. If they contain only short phrases, they'll provide plenty of white space. If you want to have fewer blank lines, shorten your top and bottom margins.





To avoid a header or footer on the first page

Insert the Header option anywhere in the middle of the first page. Press ⌘-K to calculate pages, and place the Footer option anywhere after the bottom of the first page.

Changing the style of type

The quick way to boldface and underline

Use Control-B to begin boldface and Control-B to end it. Use Control-L to start underlining and again to end it. This saves going to the Printer Options display.

To boldface your whole document

The boldface printer option applies until you end it or until the paragraph ends, whichever comes first. In a one-page memo, you could go through the whole document, inserting the option in front of every paragraph. But there's another way for longer documents.

1. On the Main Menu, choose option 5, `Other Activities`.
2. On the Other Activities Menu, choose option 7, `Specify information about your printer(s)`.
3. Choose `Add a printer`.

4. Choose `Custom Printer` from the list of printers available for AppleWorks. (You can have only one custom printer at a time.)
5. Type a name for this special printer. Press Return.
6. Choose `Printer codes`.
7. Choose option 3, `Boldface, Subscript and Superscript`.
8. On the Enhancements menu, choose option 1, `Boldface begin`. Enter the code for beginning boldface with your printer. Press ^ once to return to the Enhancements menu. (Don't choose option 2, `Boldface End`.)
9. Enter the codes for all other functions, such as characters per inch, lines per inch, and sub- and superscripts.
10. Press Escape to return to the Printer Codes menu; press Escape three more times to return to the Main Menu.

In your document, place the Boldface Begin option in front of your first text. At the end of the paragraph, AppleWorks will send your printer the code you've set up as "End Boldface"—nothing at all. Your printer never gets the message to turn off boldface, so it continues boldfacing to the end of the document.

Printing

Printing the information on your screen

Press ⌘-H for Hard copy to get a printed copy of what's currently on your screen.

Printing from this page on

When you press ⌘-P to Print, you are asked if you want to print from the beginning, from this page, or from the cursor position. When you choose `This page`, AppleWorks prints out the page your cursor is on and then prints out the rest of the document. Don't forget that `This page` means *from this page on.*

Creating an ASCII file with formatting

AppleWorks allows you to create an ASCII file from your Word Processor document. Most ASCII files are pure text, and, as such, have no formatting; but AppleWorks allows you to maintain some of your formatting—margins, spacing, Returns, indentations, and headers and footers. In effect, you "print" your document to disk. Here's how.

First you set up an imaginary printer as the "disk printer."

1. On the Main Menu, choose `Other Activities`.
2. On the Other Activities menu, choose `Specify information about your printer(s)`.
3. On the Printer Information menu, choose `Add a printer`. You may have to delete a printer to make room.
4. Choose `Silentype`. You don't have to have this printer; you're using this option because it produces the correct ASCII format.
5. Invent a name, such as Disco (up to 15 characters). Press Return.
6. Choose the option `Print onto disk or on another Apple`. Do not assign a slot or port number.
7. Press Escape a few more times to return to the Main Menu.

Your AppleWorks program disk is now set up to send formatted ASCII files to a disk whenever you choose this printer from the Print menu.

Then, using your imaginary "disk printer," you print to the disk:

1. Press ⌘-P for Print
2. Choose to print from the beginning
3. Choose to use the printer you just set up.
4. Give your new file a complete pathname, and press Return.

AppleWorks prints your file as a formatted ASCII file on the disk named in the pathname.

The resulting file keeps your text formatted so someone else can read it easily on another word processor, or at the other end of a telecommunications link—without any reformatting.

On pausing

If you want to print the first five pages of your document, use ⌘-K to calculate pages, put a PH at the beginning of page 6, then print from the beginning of the document. When the printer pauses, press Escape, and the printer will not resume printing.

Why the printer doesn't stop right away

Some printers have a storage area for incoming data (a print buffer), so even when you press Escape to stop sending data to the printer, the printer still has some data to print, and it will continue printing until its buffer is empty.

Connecting one document to another

If you are writing something in chapters, or sections, and want to print them in order, you'll want the pagination to be continuous. You can get continuously flowing text and page numbers up to 511. Here's how.

1. Open the first file. Press ⌘-K to calculate pages.
2. Press ⌘-9 to move to the last page. Make a note of the page number.
3. If the last page is not a full page of text, and does not constitute a real ending to a chapter, or section, and if you want the text to continue directly into the next document, use ⌘-M to move the text from that page onto the clipboard.
4. Use ⌘-Q to switch to the next document, and use PN to assign the next page number to the first page.
5. Make sure the cursor is where you want the text to begin (at the top of the first page, probably), and then use ⌘-M to move the text from the clipboard onto the first page.
6. Repeat steps 1 through 5 on the rest of your documents.
7. Print all documents.

Chapter 9

Tips on the Data Base

Anatomy of a data base

Two areas of endeavor

In creating and using your data base, you'll find that your work falls into two main areas:

1. Creating and revising a data base.
2. Selecting information from that data base and presenting it as a report.

In the first phase, the work centers around the Review/Add/Change display, which shows your data base and helps you expand and update it. In the second phase, your work centers on the Report Format display, which helps you arrange your material for a particular report.

Records

The number of records you can have in a data base depends on the amount of memory in your computer. In a 128K computer, you could have about 750 records if each contained about 75 characters.

You can have a maximum of 30 categories in each record, assuming a one- or two-character name for each category. The maximum length of an entry: 76 characters. You can move or copy up to 253 records at a time.

To get to the Main Menu—fast

Press ⌘-Q, and then press Escape.

Creating a data base

From a DOS file

Be sure to convert any DOS file to a ProDOS file before trying to bring it into AppleWorks. See "Converting Files to ProDOS," in Chapter 1 of this book.

From an ASCII file

Sometimes you want to base your data base on material developed using another program. For these purposes, you can make a copy of the values (but not the formulas) in your original document in a format known as ASCII, which stands for *American Standard Code for Information Interchange.* AppleWorks will take those values and put them into a new data base. You can then manipulate the data in AppleWorks.

ASCII files contain only characters and Returns. They do *not* tell you where an entry was in the previous data base, word processor document, or spreadsheet. You just have a long list of entries, each followed by a Return. Every entry—even an empty entry—in a data base gets its own line, followed by a Return, when printed to an ASCII file. So when reading any entry in this file, the question is: Where does it go?

You must know how many categories there were in the original data base, so that each entry in the long list can be fitted under its proper category. Your new data base must have the same number of categories per record. Then AppleWorks can mechanically sort these entries. Here's how:

1. Choose `Add files to the Desktop` on the Main Menu.
2. Choose `Make a new file for the Data Base` on the Add Files menu.
3. Choose `From a text (ASCII) file.`
4. Enter the number of categories per record. (The maximum is 30.) Press Return.
5. Type the pathname of the ASCII file. Press Return.

6. Give a new name to the data base. Press Return. AppleWorks now brings the data into a new data base, with as many categories as you specified. The categories are named category 01, category 02, category 03, and so on.
7. When the file has been brought into AppleWorks, press ⌘-N to change the names of categories to something more meaningful.

Making a data base out of a DIF file

You can bring data over from another program in another format known as DIF. That stands for *Data Interchange Format.* DIF files contain more formatting information than ASCII files. They retain some knowledge of the organization of the original data base or spreadsheet. In your original program, make sure that you save by columns in DIF—not by rows. (DIF can do either, but AppleWorks is set up to work with columns.)

Here's how to bring the DIF file into AppleWorks.

1. Choose `Add files to the Desktop` on the Main Menu.
2. Choose `Make a new file for the Data Base` on the Add Files menu.
3. Choose `From a DIF File`.
4. Enter the pathname of the DIF File. Press Return.
5. Give the data base a new name. Press Return. AppleWorks now brings the data into a new data base, with category names category 1, category 2, category 3, and so on.
6. Press ⌘-N to rename category names, if you wish.

You can make a DIF file out of an AppleWorks spreadsheet and then use the values as entries in a new data base. Press ⌘-P for Print, and then choose to print to a DIF file. Once you have created the DIF file, use it to make a new Data Base file as outlined here.

Bringing a QuickFile file into AppleWorks

It's easy to bring QuickFile files into AppleWorks. You will get your original category names and all entries in their right positions. Here's how:

1. Choose `Add files to the Desktop` on the Main Menu.
2. Choose `Make a new file for the Data Base` on the Add Files menu.
3. Choose `From a QuickFile File`. AppleWorks goes to the current disk and displays a list of any QuickFile files. (If you need to, change the current disk.) Highlight the file you want and press Return.
4. Give the data base a new name. Press Return.

Thinking up some categories

If you think you may want to sort your records by last name, then you should make a separate category for last names. If you ever want to sort by state, then state should be in a separate category from city. Similarly, Zip codes often belong in their own category.

The way to figure out what should be a category is to think what use you want to make of all this information. What do you want reports on? Any such topic is likely to be a category.

Entering some category names

In general, use short but meaningful names. That way, you will be able to see what is in each column, even when you make the column so narrow that a longer name would be truncated.

AppleWorks normally presents five categories the first time you go to multiple-record layout. When you start narrowing columns, short names help to make room for more categories.

You *can* enter your names with uppercase and lowercase characters. But many people like to have their category names all uppercase so the eye can immediately spot the difference between the category name and the entry in single-record layout.

You can begin a category name with a number, symbol, or blank space, if you want. Your category name can be a maximum of 20 characters long.

If you are going to have a category of dates or times, be sure to use the word *date* or *time* in the category name; AppleWorks will then convert all entries in the category to standard time or date format. The month is reduced to an alphabetic abbreviation (February becomes Feb); the day of the month is shown numerically (the sixth appears as 6); the year ends up in two digits, the twentieth century being assumed (1977 becomes 77). If you don't mention a year, AppleWorks treats the year as 00.

Correcting your category names

If you take a lot of information from forms, you may want to make your category names the same as those on the form so you don't have to think so often when you're transferring data. You see immediately where the information belongs.

In Review/Add/Change, press ⌘-N for Name. Accept or revise the filename, press Return and then use arrow keys to move to the category names you want to change.

Entering and editing information

An entry

When your cursor is an underline (the insert cursor), and you are in single-record layout, you can make an entry up to 76 characters long. That's almost the width of the screen. Unless you devote the whole screen to one category, though, you will not be able to read the whole entry when you are in multiple-record layout. The information survives and can be worked on in single-record layout and printed out. In multiple-record layout, you cannot type an entry that is longer than the column width, and AppleWorks only displays only the part of an entry that fits; if the entry is actually longer, you can imagine that the rest of it has slipped under the next category. When in doubt, press ⌘-Z and zoom back into single-record layout to see the full text of each entry.

Confirming what you have typed

Press Return to confirm that you like what you've just typed. Your cursor will usually move down to the next entry. If there is no entry below in multiple-record layout, then the cursor returns to the first character of the entry you just made; in single-record layout, AppleWorks asks if you want to create a new record, and, if you say `Yes`, offers you a blank record to fill in.

You can make the Return send the cursor to the right if you have more than one entry. In Review/Add/Change, press ⌘-L for Layout, press Escape, and then choose the direction you prefer.

Restoring your original entry

When you type a new entry and then decide that the original was better, press Escape before you press Return. That restores the former entry.

Do not mistake Escape for Return, which confirms your decision to place the new entry into the data base.

To put a standard value in each new record

A standard value is one you create and make into a standard so that every new record created has that value in that particular category. For instance, you could make 1988 the standard value for YEAR, on the assumption that most of your transactions will apply to that year. That way you save time retyping the same information in a category over and over—and you're sure it will be typed in the same way every time.

For example, when most of the people in your file NAME AND ADDRESS live in the same city, such as Monongahela, you may not feel like typing that over and over. So use ⌘-V to decree that Monongahela is a standard value for this entry, and let AppleWorks type it in on all future records you create. Then, if someone happens to be from Gary, you can just use ⌘-Y when the cursor is at the beginning of the entry you want to change, to get rid of the standard value for that person, and type in *Gary*. Or if you then encounter another group of people who come from Centralia, you can set that as a standard value while you fill out their new records.

Correcting one mistake in a lot of records

Imagine you misspelled an important company's name in a few dozen records, strewn throughout your data base. You might just scroll through, looking in the Company category for each record. But you can miss a lot of records that way. Instead, use the Find function (⌘-F) or record selection rules (⌘-R) if you need greater precision to collect all the relevant records. Then, while they are listed together in multiple-record layout, put the correction into the first record, and use the ditto function (⌘-") to repeat that entry in all the other records. (Don't press Shift.)

To enter a time or date in standard format

When you put the word *time* or *date* into the category name (for instance, *Due Date* or *Class Time*), AppleWorks will convert what you type into a standard format—if it can guess what you meant. Here's a table showing how the conversion works.

When you enter	AppleWorks converts that to
May 3	May 3
5.3.71	May 3 71
3 83	Mar 83
6April83	Apr 6 83
May 1983	May 83
May 7, 1983	May 7 83
5-10-87	May 10 87
5/12/88	May 12 88
June 1983	Jun 83
700	7:00 AM
1	1:00 PM
12	12:00 PM
3	3:00 PM
659	6:59 PM

If you want to have AM or PM after your times, type an *A* or *a* to indicate AM; type a *P* or *p* for PM.

When you enter	AppleWorks converts that to
7 p	7:00 PM
12 a	12:00 AM
3 a	3:00 AM
659 a	6:59 AM

When you do not enter the day, month, or year, AppleWorks considers the entry as 00 and leaves that part of the entry blank. So if you enter May 3, AppleWorks considers that May 3 00. And if you type Mar 83, AppleWorks considers that Mar 00 83. Since the year 00 is earlier than 83, if you choose to sort your records chronologically, Mar 00 83 will appear after May 3 00. Where possible, then, include as much of the date as you can.

AppleWorks also converts 24-hour time to 12-hour time. If you enter 1300, AppleWorks converts it to 1:00 PM.

If you don't want dates or times converted, don't put *date* or *time* in the category name.

If you're going to enter information in a multiple-record layout

You may find it more convenient to have Return move the cursor to the next category on the right, rather than down to the same category in the next record, when you are entering a whole series of individual records. Press ⌘-L for Layout, press Escape, and then choose `Right`. Now, when you've finished an entry, press Return to confirm it, and you move to the next category in that record.

Deleting

Finding the records you want to get rid of

Sometimes you want to delete a particular record or set of records. Use the Find feature (Apple-F) or create a Record Selection Rule (Apple-R) to locate the records. Then use Apple-D to delete them in multiple-record layout.

Saving the structure of a data base, without the data

If you like the way you've set up your data base and want to use the structure again for new data, you can create a new file with a blank form ready for use.

1. Change the name of your data base, using Apple-N, so you don't accidentally save it over data you want to keep.
2. Use Apple-I to insert a new record at the beginning of the file; leave the record empty.
3. Go to multiple record layout, if you're not already there, and place your cursor in the second record.
4. Press Apple-D for Delete, and then use Apple-9 to highlight to the end of the data base. Press Return. Result: You delete all but that first, empty record.

AppleWorks won't let you delete *every* record in a file. If you're determined to get rid of the file itself, use Escape to go back to the Main Menu, choose `Other Activities`, and then choose option 4, `Delete files from disk`. That way you get rid of it on the disk. When you quit, don't save the changes to this file; choose option 3, `Throw out the changes to the file.`

Moving around in your data base

Don't forget to confirm that entry

When you've just changed an entry, you may forget to confirm it with a Return. If you try to move to the next entry, AppleWorks beeps at you, to remind you that you first need to confirm the new entry with a Return. If you dislike what you've done, you can press Escape to restore the original, and then press Return to confirm that. Then you can move on.

Finding or selecting certain records

Finding and selecting can help other functions

If you want to delete a group of records that have something in common, but that are widely dispersed throughout your data base, use ⌘-F to find records or ⌘-R to create record selection rules. That way you get all the records you want and can delete them at a single blow, rather than scrolling through every record looking for the next one to delete.

So think of finding or selecting before you make any massive change to your data base, such as deleting entries, changing entries, arranging, copying, or moving. Finding is most useful when you don't know what category some information is in. Once you know, you'll probably want to use the record selection rules.

Using Find

Remember that the Find command locates any records that contain the value you type in, regardless of where that value is. If you ask AppleWorks to find all the records that contain *ace,* it will display these two records:

Last Name	First Name	Office Phone	Street Address
Ace	Goody	(415) 778-9088	112 Tuscorora Avenue
Buttons	Bill	(918) 665-9056	83-876 Scituate Terrace

AppleWorks found the *ace* in *terrace.*

To avoid this, ask AppleWorks to find *Ace,* and put a space before and after the text.

Using >

The > (greater than) operator is usually used to compare two numbers. However, one word can be greater than another. Essentially, a is less than b, so if you choose this function in a category full of text, you'll be selecting records where the entry is alphabetically *after* the text you now type in.

Contains

Contains means anywhere within an entry. If you ask for all the records in which the Name entry contains *son,* you get Sonderson, Johnson, and Upsonheim. Make the match as long as you can, to rule out others you don't want. For instance, here you might ask for all records in which the Name entry contains Upsonheim. There would be only one.

Record selection rules using And

When you combine your first selection rule with another, using And, then a record must meet *both* criteria to be selected. This, in effect, winnows out a lot of records. For instance, if you just use the selection rule `SHIP DATE = May`, you might get a dozen records, each showing a product to be shipped in May. But when you make up a rule that says `SHIP DATE = May and VALUE > 100`, you might end up with only two records—those of two May products whose value exceeds $100 each.

Record selection rules using Or

When you combine your first selection rule with another, using Or, a record has to satisfy only one of the criteria—although it can satisfy both—to be selected. This is an inclusive Or.

Selecting in Review/Add/Change and selecting in Report Format

The record selection rules you create in Review/Add/Change can be different from those you use in formatting a report. In fact, you can have many different record selection rules for a single data base by creating different rules to go with different reports.

Arranging records in order

The order of arrangement

AppleWorks does not distinguish between uppercase and lowercase letters when arranging whole words, but it does pay attention to the difference when dealing with individual letters. Here is the order in which AppleWorks arranges values in a category. (Read down one column and then go to the top of the next.)

SPACE	+	@
!	,	Aa...Zz
"	.	[
#	/	\
$	0-9	]
%	:	^
&	;	_
'	<	`
(	=	{
)	>	|
*	?	}

For example, imagine asking AppleWorks to arrange these addresses in alphabetical order.

650 Banyan Street

Periwinkle Drive

#5 Downing Street

650-A Banyan Street

The result:

#5 Downing Street

650 Banyan Street

650-A Banyan Street

Periwinkle Drive

If you have some numerical entries and some text entries, and you choose to arrange the category from A to Z or from 0 to 9, you will see symbols such as # come before numbers, and numbers before text.

If you try to arrange numbers alphabetically, you will find that 1236 falls before 124 because that is alphabetical—but not numeric—order. Arranging text in numerical order, though, turns out to be the same as alphabetical order.

Arranging sorts every record

If you select a handful of records and then arrange them, ⌘-A applies to all the records and arranges them behind the scenes. You continue to see only the selected records in the new order. But when you press ⌘-R and say that yes, you want to select all records, you'll find them all arranged in the new order.

To arrange records by several categories

If, for example, you want to find out who the biggest spenders are, by Zip code, your most important criterion is money. So start out

by arranging all your records in Zip code order. Then move to the Amount Spent category and arrange from 9 to 0, from biggest account to smallest. You end up with something like this:

Amount spent	Zip code
$1,000.00	94707
$1,000.00	94708
$950.00	93567
$900.00	98909
$900.00	98911
$900.00	98911
$900.00	98912

The rule: Always arrange the least important category before the others.

Adding or deleting a category

To save your report formats

When you press ⌘-N and insert or delete a category, you lose any record layouts or report formats that you set up before based on earlier categories. If you want to keep a record of them, start by using ⌘-H to make a hard copy of the display; then you can reconstruct the layout or format from the page.

Changing the name

What a name change doesn't do

Unlike inserting or deleting a whole category, changing a filename or a category name does not mean that you have to give up your record layout or report format. Just press ⌘-N, type in a new filename, press Return, and change the category names.

Copying and moving between documents

Where and what can you paste?

You can transfer only complete records, not parts of records, when copying or moving within a file or between two Data Base files. But when you prepare a Data Base report and print it to the clipboard for use in a Word Processor document, you can leave out some categories.

What's on the clipboard now?

Moving removes the passage from its original location; copying leaves it there and makes a copy. When you put something on the clipboard by copying (Apple-C) or moving (Apple-M), it stays there undisturbed while you continue working on different files on the Desktop. You can *copy* information *from* the clipboard over and over, and the information remains on the clipboard—until you perform one of these actions, each of which changes the contents of the clipboard:

- *Moving* new information *to* the clipboard replaces what was there before.
- *Copying* new information *to* the clipboard replaces what was there before.
- *Moving* information *from* the clipboard (pasting) empties the clipboard.
- Quitting AppleWorks or turning off the power also erases the clipboard.

How to move part or all of your data base into the spreadsheet

1. From the Report Format display, press Apple-P to print the report.
2. Choose `A DIF (TM) file on disk`. Press Return.
3. Start a new spreadsheet, using the DIF file as the basis.

Once you have the figures in that spreadsheet, you can cut and paste information into other spreadsheets, if you want.

Anatomy of Data Base reports

Which report format to pick

Choose a table when

- You have a lot of information and need to compare records quickly.
- You need reports that include totals, subtotals, and other calculations.
- You want to show many categories, even if you cannot display all the information in each, rather than showing everything about each topic, one topic at a time.

Choose labels when

- You are preparing mailing labels or identification labels.
- You want all the information about each topic.
- Comparisons are not as important as depth about each subject.

How many reports?

You can create up to eight different report formats for each data base. These can include any combination of label- or table-style reports.

Customizing a table report

Hiding a category—and restoring it

To hide a category for the current report only, go to the Report Format display, put your cursor on the category, and press ⌘-D. The category can be brought back at any time in Report Format with ⌘-I. Here, you are not deleting the category from the data base; you are just choosing not to show it in your report.

Remember: If you really want to get rid of a category and all the information in that category, forever, use ⌘-N, press Return to leave the filename as is, put your cursor on the category, and press ⌘-D for Delete. You'll be warned that you are about to lose your layouts and report formats, both of which are based on, and include, that category. When you answer `Yes`, you can delete the category for good.

Arranging your records

Remember that if your arrangement is crucial to a report and different from that in Review/Add/Change, you have to arrange the records afresh, each time you prepare a report format for printing. The arrangement is not saved with the report format.

Right justifying a category

You don't need to set right justification with ⌘-J if you plan to have AppleWorks total up the numbers in a certain column. When you create a calculated category with ⌘-K, the numbers are automatically right-justified, so the decimal points line up.

Breaking out subtotals

You get subtotals only in columns that have totals. You get the subtotals whenever the entries in the controlling category (such as Customer Name) change. You should arrange the records in your report alphabetically or numerically based on the entries in the controlling category. The first few records, then, might look like this:

```
Addison
Addison
                    $4,599.98
Burt
                    $1,234.00
Candace
Candace
Candace
                    $8,976.56
```

But if you had not arranged the names alphabetically, you might see something like this:

Burt

$1,234.00

Candace

$5,090.00

Addison

Addison

$4,223.00

Candace

Candace

$3886.56

Addison

$376.98

You get a new subtotal every time the name entry changes.

Creating a calculated category

AppleWorks performs calculations from left to right. Successive calculated categories, then, can refer back to earlier calculated categories on their left. They can refer to noncalculated categories on either side, since the entries are already there and there's no waiting for a calculation. If you happen to make a calculated category depend on information from another calculated category on its right, AppleWorks gives you a zero, as an indication that it was lacking that information when it performed the calculation. You would therefore need to move this new calculated category to the right of the one it depends on.

If you want to see the calculations without printing, press ⌘-P, and print to the screen.

When you see the results on screen, watch for number signs (###). They indicate that your column was not wide enough to hold the whole entry. You need to readjust the width.

You can use ⌘-T to total up a calculated category, and you can have subtotals created in that category. But the calculated category cannot itself be the basis for subtotals elsewhere.

Customizing a labels report

Moving categories around

AppleWorks protects the first letter of a category name or entry so that you can still see it if you move another category on top of it.

Blank lines

Use blank lines for aesthetic effect—for instance, to set off key terms or crucial sections of the label.

Selecting some records

Record selection rules that you create in Review/Add/Change are not automatically in effect in Report Format. If you want a Record Selection Rule in a report, you need to create it there.

Arranging your records

Remember that you have to arrange the records afresh each time you prepare a report format for printing. The arrangement is not saved with the report format.

Printing a category name with the entry

If you want both the category name and the entry to print, use ⌘-V. The cursor must be on the first character of the entry when you press ⌘-V. If you have already left justified the category, the cursor must be on the < symbol that precedes the category name. You then get the category name, a colon, and the entry printed out. The category name always shows on the screen, but only gets printed out if you insist.

Putting one category right after another

When you use ⌘-J to left justify a category, you do not see the result on the Report Format display, but you can quickly see the effect of left justifying by printing to the screen. Press ⌘-P, and choose to print to the screen. The data on the right should start one character after the last character of the entry on the left.

Preparing to print a report

Setting platen width and paper length

The platen width you set in the Printer Options display should be no greater than the platen width you (or AppleWorks) specified in the Other Activities menu option, `Specify information about your printer(s)`. Otherwise, you're expecting the printing width to be wider than it is, and you will lose some data during printing. If you have any doubts, use Escape to return to the Main Menu, and then choose `Other Activities`.

Setting margins

The standard setting for the top margin is 0.0 inches. That assumes you have a sheet-feed printer—one with no tractor feed. You put the paper in so that the print head is right on the first line you want printed; you do not want AppleWorks to advance the paper at all. But if you are using a tractor-feed printer, you will probably want to set the top margin to 1.0 inch.

How AppleWorks calculates characters and line width

AppleWorks recalculates line width and characters per inch, and shows you the new results every time you change the platen width, right or left margin, or characters per inch. Here are the formulas used:

platen width	–left margin	–right margin	= line width
8.0 inches	–1.5 inches	–1.0 inch	= 5.5 inches

line width	x characters per inch		= characters per line
5.5 inches	x 12 characters per inch		= 66 characters per line

How AppleWorks calculates printing length and lines per page

AppleWorks recalculates these every time you change the paper length, top or bottom margins, or lines per inch. Here are the formulas used:

paper length – top margin – bottom margin = printing length
11.0 inches – 2.0 inches – 1.5 inches = 7.5 inches

printing length x lines per inch = lines per page
7.5 inches x 6 lines per inch = 45.0 lines per page

Sending special codes to the printer

Any key you type becomes a special code except ^. If you press a Return or an Escape before the ^, AppleWorks will send Return or Escape as another code to the printer.

If you make a mistake, type ^, then type SC, and do it all again.

What to do if an entry is blank in a label

Here's how the Omit Line (OL) and KS (Keep the Same number of lines per label) options work. Suppose you have the following report format:

Name:
Company:
City <State <Zipcode
(spacing line)
(spacing line)

When you zoom in to see data in the report, the first record looks like this:

Randy Ryan
-
Central City, TX 77047

Randy has no company name. If you tell AppleWorks not to omit a blank line, the record will look like this:

Randy Ryan
-
Central City, TX 77047
(spacing line)
(spacing line)

If you want to tighten things up, though, you could tell AppleWorks to omit the blank line, like this:

Randy Ryan
Central City, TX 77047
(spacing line)
(spacing line)

If you print that, though, you'll find that after this label some addresses are no longer hitting the gummed labels. They're off by a line. To keep each address the same length, so they all hit the physical labels, use KS. Then the label will print like this:

Randy Ryan
Central City, TX 77047
(spacing line)
(spacing line)
(spacing line)

In this way, you make sure every address finds its label.

Making mailing labels

What kind of labels to use

AppleWorks prints one column of labels, not two or three. So get the mailing labels that are one label across.

Most physical labels are 1 inch high and 3.5 inches wide. If you can, keep your labels to four lines so there is no chance of a line hitting the top or bottom edge and ending up illegible.

Chapter 10

Tips on Mail Merge

To send out form letters

The punctuation

When you put a Mail Merge option in your Word Processor document, it looks something like this:

^<CategoryName>

^[AnotherCategoryName]

The caret (^) signals that what follows is a Mail Merge category. The parentheses < > mean that AppleWorks will print a spacing line if this entry is blank (and there is no other text on the line). The brackets [ ] mean that AppleWorks will close up the gap without inserting a spacing line, when there is no entry in this category and no other text on the line. Do not delete any of these punctuation marks.

The categories

Make sure that you do not have two categories with the same name in your data base. For example, if you have two categories for phone numbers (one for home phone number and one for work phone number), don't call them both *PHONE*.

Print, don't copy, to the clipboard

Be sure you print, not copy, your data base information to the clipboard. If you copy to the clipboard, your documents will print, but the placement of the data will not be correct.

If AppleWorks stops during printing

If you forgot to print your Data Base report to the clipboard, or you inadvertently cleared it off the clipboard, AppleWorks will tell you so when you try to print the Word Processor document you hoped to merge with that data. Press Escape and return to the data base, set up that table, and then print it to the clipboard and begin again.

If during printing AppleWorks finds a category name in the Word Processor document, but cannot find that category on the clipboard, AppleWorks tells you that the Mail Merge category is in this file but is not on the clipboard. Check the category names in your document, and compare them to the categories displayed when you select ⌘-O and press MM for Mail Merge. You may have used the wrong data base or accidentally removed a few characters from the category name before printing.

Chapter 11

Tips on the Spreadsheet

Anatomy of a spreadsheet

Getting the most out of your cell indicator

When a cell is highlighted, you will see its coordinates down at the bottom left of the screen. Unless the cell is blank, the coordinates are followed by a word in parentheses, telling you whether the contents of that cell is a label or a value. (That's not always clear at first glance, since 1987 could be a label or a value.) The cell indicator then shows the contents of the cell—the full label if a label, the number if a simple value, or the formula or functions used to calculate the number.

AppleWorks provides more information about the entry if formatting has been applied to that particular cell using ⌘-L for Layout. For instance, if a cell is protected, you'll see the word *Protect,* followed by a letter indicating that you set the protection to allow only labels (L) or values (V) to be entered. If the value or label has been formatted, you will see the word *Layout* followed by codes indicating that the label is left justified (L), right justified (R), or centered (C), or that the value is formatted in fixed decimal point (F), dollars (D), commas (C), percent (P), or appropriate (A) style, with 0 to 7 decimal places. For example, cell E11 has a value $27,500 in it. The cell indicator says

```
E11:  (Value, Layout-D0) 27500
```

That means the value has been formatted in dollars style, with 0 decimal places.

Guidelines

At most, Spreadsheet files can contain 127 columns and 999 rows, for a maximum total of 126,873 empty cells. But as soon as you begin filling those cells, you eat up the computer's memory. A filled spreadsheet can only be as large as your computer's memory allows. With 128K, you can probably fill about 6000 cells.

AppleWorks numbers the rows from 1 to 999 and characterizes the columns as A through Z, AA through AZ, BA through BZ, CA through CZ, and DA through DW.

A label or a formula can be up to 71 characters long.

You can copy up to 250 rows at a time, or 127 columns (up to 255 characters across, all told), onto the clipboard.

AppleWorks' calculations are accurate to 14 places.

When a spreadsheet is more than a spreadsheet

Some people use the Spreadsheet for non-numeric tasks. You can use the columns as a convenient way to line up the varying levels of indentation in an outline and then copy the whole outline into the Word Processor when you're ready to print. In a similar vein, you can use the ability to create varying column widths to produce a table and then bring it into your Word Processor report.

And any data base in which you want to do complex calculations may work better in the Spreadsheet, which allows multiple formulas with much more cross-referencing than you can do in the Data Base itself. Also, if you have more than the 30 categories allowed in the Data Base, you could use the columns in the Spreadsheet for all your categories—as long as you have no more than 999 records.

How to create a spreadsheet

Basing your spreadsheet on a DIF file

You can use a DIF file—a file created by AppleWorks' Data Base, VisiCalc, or other programs—as the source of a Spreadsheet file. A DIF file is a variation on an ASCII file; it uses the ASCII code but gives each entry its own line. That's why the order it reads those entries in is important—by row or by column. When you create the DIF File, be sure to use the C, or column, option. Then the information will be stored cell by cell, going down one column, then the next—that's the way AppleWorks expects to receive it.

When a spreadsheet is turned into a DIF file, the formulas are lost; you have only the data. Also, because AppleWorks does not have room for an entry longer than 71 characters, you will lose the tail end of any entry longer than that.

If your DIF file was produced by a program using DOS, you must convert the file to the operating system known as ProDOS, which is what AppleWorks relies on. Use the *ProDOS User's Disk* or the *System Utilities* disk. If you think you'll be regularly creating spreadsheets with another system and using the files as the basis for AppleWorks documents, see if you can get the ProDOS version of the other program so you don't need to convert your files every time.

If you created your DIF file on an Apple III with SOS, you do not have to make any changes to it; AppleWorks can read it as the basis for a new AppleWorks document.

If the other program does not run under DOS or ProDOS, you can still turn the file into a DOS 3.3 or ProDOS file. The trick: Telecommunicate the DIF file to your Apple using a DOS 3.3 or ProDOS telecommunications program at your end.

Before you add the DIF file to the Desktop as a new spreadsheet, make a note of its complete pathname: the volume or disk name, subdirectory if any, and file name. You'll need that information later.

To add a DIF file to the Desktop as an AppleWorks spreadsheet, follow these steps:

1. Choose option 1, `Add a file to the Desktop`, on the Main Menu.
2. Choose option 5 to make a new file for the Spreadsheet.
3. Choose option 2, `From a DIF (TM) file.`
4. Type the pathname for the DIF file.
5. Give your new spreadsheet a name.

The DIF file remains on your disk, but its contents are copied into a new AppleWorks spreadsheet. You can now work with the values by adding formulas and formatting.

Beginning a spreadsheet with a VisiCalc file

When you base your spreadsheet on a VisiCalc file, you get more than just values: You get labels and formulas as well.

VisiCalc comes in two versions: DOS 3.3 and ProDOS. If your version relies on ProDOS, you can use the files immediately. If your version relies on DOS 3.3, you must convert the file to ProDOS, using the *ProDOS User's Disk* or the *System Utilities* disk.

AppleWorks can handle entries up to 71 characters long. If your VisiCalc file has an entry longer than that, it will lose its tail end. Some VisiCalc formatting commands mean nothing to AppleWorks and are ignored. Also, VisiCalc has a few functions AppleWorks does not have, so AppleWorks cannot reproduce those formulas; if this happens, AppleWorks will explain why it couldn't reproduce that entry or row.

Before you add the VisiCalc file to the Desktop as a new spreadsheet, make a note of its complete pathname: the volume or disk name, subdirectory if any, and filename. You'll need that information later.

To add a VisiCalc file to the Desktop as an AppleWorks spreadsheet, follow these steps:

1. Choose option 1, `Add a file to the Desktop`, on the Main Menu.
2. Choose option 5 to make a new file for the Spreadsheet.
3. Choose option 3, `From a VisiCalc (R) file`.
4. Type the pathname for the VisiCalc file.
5. Give your new spreadsheet a name.

The VisiCalc file remains on your disk, but its contents are copied into a new AppleWorks spreadsheet. You can now work with it. If AppleWorks had trouble with an extra-long entry or an unfamiliar function in a formula, the highlighting will be locked on the first cell this happened in, and you will see a message at the bottom of the display alerting you to the problem. Also, any formula with an unrecognized function is replaced with the message, ERROR, and any references to it will show the same bad news. (You may want to return to VisiCalc and redo the formulas and shorten the entries, instead of reconstructing them here.)

Bringing information from the Data Base into the Spreadsheet

Sometimes you want to do a little more calculating than the Data Base can handle. You can move the data into a DIF file and use that to create a new AppleWorks spreadsheet.

Start in your data base.

1. Press ⌘-P to indicate you want to print a report.
2. Choose `Create a new "tables" format`, and name it; or choose `Get a report format`, and pick one that is a table. (You may use a label format, but in most cases the table is closer to the spreadsheet in layout and makes the data easier to use there.)
3. Use ⌘-D to delete any categories you are not going to use in the spreadsheet.
4. Use ⌘-> and ⌘-< to switch categories around so that you have some labels on the left, and numbers on the right, as in a conventional spreadsheet.
5. Press ⌘-P to print.
6. Choose `A DIF (TM) file on disk.`
7. Provide a pathname for your new file. (Do not give it the same name as your data base, to avoid future confusion.)

Your data is now in a DIF file. You can add it to the Desktop as a spreadsheet by following the steps in the previous section. Then you can change column widths and add titles, formulas, and formatting.

Beginning with some blank rows

Make it a practice to leave the top two or three rows blank. Later you may want to add some spanning titles there. You may want to leave the first column empty for similar reasons.

Leave plenty of room between your labels and your values. You have lots of space, so you do not need to cram everything into a tight little knot.

Say more than you need to in labels

Make your labels evocative, expressive, detailed. A few months from now you will not remember what your shorthand DPD means. Take the time to spell out "Days Past Due." If you cannot fit the label in the column, make the column wider. The next time you use the spreadsheet, you'll be glad you did.

Moving through your spreadsheet

Going home

Home is the first cell, A1, in the top left corner of your spreadsheet. You can get there fast from anywhere in the spreadsheet. Press ⌘-F, and choose `Coordinates;` then type A1. That takes you home. The next time you want to go home, all you have to do is press ⌘-F, followed by a quick Return, telling AppleWorks you want it to find the same coordinates you typed in before. (Except if you've used ⌘-F for something else in the meantime; then you'll have to give the coordinates again.)

Arrow keys

The Left Arrow and Right Arrow confirm an entry and move the highlighting to the next cell. This is different from the Data Base. There, the arrow keys take you forward and back inside an entry, without ruffling the characters, but they do not take you from one entry to another.

Sometimes you may want to edit an existing entry by using the arrow keys the way you do in the Data Base. Press ⌘-U to edit. That makes the entry available to you; the arrow keys now move you forward and back through the entry, to the point you want to make corrections. To confirm the revised entry, press Return. After that, the arrow keys will again move your highlighting to another cell.

Entering information in an empty cell

If you have a label in the middle of the spreadsheet

Sometimes you have a column of labels right after a column of numbers. Normally, you align labels against the left margin of the cell—and values are often lined up against the right margin of their cells. The result can be numbers too close to labels to be easily read. There are two ways to clear things up: 1) Always put a space before your label, or 2) insert a column that is two characters wide between the numbers and the labels, and leave that column blank.

Editing an existing entry

To get rid of the whole entry

Highlight the cell. Press ⌘-B for Blank. Press Return.

A repeating entry

If you created a label by holding down a key until its character filled up the cell—and did not overflow—that label is a repeating label and will expand or contract with the column. Editing, however, would ruin the repeating, so you can delete such a label, but you cannot edit it. If you try to edit it, you lose the repeat.

Creating labels

Layouts

If you have previously formatted a cell, or if you have set the standard for labels throughout the spreadsheet to something other than left-justified, you may be surprised to find a new label jump to the right or to the center of the cell. Whenever you are typing a new label where there was another before, be sure to look at the cell indicator for some message such as (`Label, Layout-R`), which means that the format for any label going into this cell will be right-justified.

When is a number better off being a label?

You can use ⌘-F to find a label or a cell, but not a number. If your main reason for including a unique number is to be able to locate a particular record quickly, then that number should be entered with a quotation mark in front of it to indicate it is a label, so you can later use ⌘-F to find it fast. For instance, you are not likely to be doing many calculations with people's Zip codes or area codes, but you may want to arrange your records by them or quickly find the records that have a particular Zip code or area code. To use ⌘-F for that search, enter the numbers as labels.

Some numbers, such as serial numbers and inventory codes, include letters and hyphens. These types of numbers should also be entered by starting with a quotation mark so they will be accepted as labels. If you don't, and put a hyphen in a value, it is interpreted as a minus sign. If you try to put a letter in the middle of a value, AppleWorks will not let you.

Where should you repeat yourself?

Repeating labels, such as -------- and =======, make fine borders; they can separate the name of a column from the numbers below and the totals row from all the data above. They make your spreadsheet easier to read.

Make up one complete row of repeating characters and then copy it to the clipboard, using ⌘-C; now move your highlighting to the next row you want to contain a border, and paste from the clipboard, again using ⌘-C.

Putting in values

Acceptable values

The Spreadsheet accepts numbers that begin with the digits 0 to 9, a plus sign (+), a minus sign (-), or a decimal point (.).

Values, though, are more than simple numbers. A value can result from a function or a formula—anything that yields a number as a result. And a value can be a pointer, a reference to the value in another cell; +A3 tells AppleWorks to take the value in A3 and put it into this cell, as a positive number.

Pointers about pointers

A pointer is a cell reference that tells AppleWorks to go to the cell and bring that value back, to be displayed in this cell or to be used in this formula.

A pointer must begin with a plus sign (+) or a minus sign (-), followed by the coordinates of the cell. Examples are +AA10, -B4, -BB6.

Formatting your values—throughout

The effect of standards

When you set up some standard formats for values, using ♁-V, you are telling AppleWorks how you want the values displayed. AppleWorks keeps the original number in memory, in case you change your mind about how you want values displayed, and in order to make accurate calculations.

The standard format applies to every cell that has not been previously formatted using ♁-L.

You type this in	When the standard is	AppleWorks displays
1.2344	Fixed decimal, 2 places	1.23
1	Fixed decimal, 3 places	1.000
35.678	Dollars, 2 places	$35.68
-32	Dollars, 2 places	($32.00)
3000	Commas, 2 places	3,000.00
.0425	Percent, 2 places	4.25%
1	Percent, 0 places	100%
0002.100	Appropriate	2.1
32.45	Appropriate	32.45

Preceding and trailing zeros are dropped.

Column widths

If a number is too wide to be displayed in the column, it is stored the way you type it, but AppleWorks displays a row of ####. To see the whole number, increase the column width, using ⌘-V (this affects all columns) or ⌘-L (for one or several adjacent columns).

The standard column is 9 characters wide. The maximum width is 71 characters.

Formatting one or more cells

The ⌘-L command—a local layout

This command applies formatting to a limited set of cells—one entry, a block, a few rows or columns. It is local, whereas the ⌘-V command sets standards for every current and future entry, other than those you have already formatted using ⌘-L. (Using the ⌘-L command, you can set the format for labels and values, the width of columns, and the type of protection for these cells.)

To make label and value formats match those that are the standard (those set using ⌘-V), just press ⌘-L and choose the standard setting. From then on, these cells will appear in whatever format you establish using ⌘-V.

When a format applies to future entries

Because rows and columns could potentially go on for a very long way, AppleWorks does not apply the ⌘-L formatting to blank cells in them. But if you are formatting just one entry, AppleWorks applies the format to the cell, even if it is blank; later, when you do enter something, the format will govern its display. Similarly, a block of cells is presumed to be smaller than a column—which stretches from Row 1 to Row 999—so AppleWorks applies the format to blank cells in the block, too; and anything you enter into those cells from now on will be in that format.

If you want the format commands to apply to future entries, highlight a cell or block of cells.

Checking a cell's layout

The cell indicator gives you the coordinates of the cell you have highlighted and provides information about the entry. First it tells you whether this is a label or a value; then it tells you how you've formatted the cell, using ⌘-L. For instance, you might find the message (`Value, Layout-F1`), which means that you chose to have a fixed number of places after the decimal point—one. These messages point out any variation from the standard format, which can be set using ⌘-V.

Here are the codes for values:

F	Fixed	Contains a fixed number of decimal places, 0 to 7
D	Dollars	Puts commas between thousands, puts negative amounts in parentheses, contains a fixed number of decimal places, 0-7, adds a dollar sign at the beginning
C	Commas	Puts commas between thousands, puts negative amounts in parentheses, contains a fixed number of decimal places, 0-7
P	Percent	Multiplies the number by 100, adds a percent sign afterward, contains a fixed number of decimal places (0 to 7)
A	Appropriate	Drops trailing zeros but otherwise displays numbers as you typed them in, or, if the result of calculations, to as many places as needed for accuracy

The number after the letter indicates the number of places allowed after a decimal point.

Here are the codes for labels:

L Left justified within the cell

R Right justified within the cell

C Centered in the cell

If you protected the cell, you'll see the word `Protect,` followed by a code that indicates what changes you allow in this cell:

L	labels	You can enter labels, but nothing else
V	values	You can enter values, but nothing else
N	nothing	You can't enter anything at all.

Using functions

What is a function?

A function is a code telling AppleWorks to perform a calculation of some kind. The calculation may be arithmetic (adding, for instance), comparative (finding the largest number in a list), logical (determining the truth of a statement), financial (calculating the net present value of an investment), or advisory (announcing that somehow an error has crept into your calculations).

A formula puts a function to work. A formula may include several functions, plus numbers, and pointers, all working together. A function, then, is just one of the working parts of a formula.

The simplest formulas just add necessary information to a particular function. For instance, @SUM is a function. @SUM(A3...A9) is a formula meaning that AppleWorks should add the values in cells A3 through A9, and put the result here.

The information in parentheses, the data AppleWorks needs to begin applying the function, is sometimes known as an *argument*. Before AppleWorks can do anything with the function, you need to provide the argument, in parentheses.

There are three kinds of information you can put in an argument:

- A value. A number or a pointer referring to the value in another cell. For example, @ABS(+A3).
- A range. A series of adjacent cells, starting with one cell's coordinates, followed by three dots, and ending in another cell's coordinates. For example, @SUM(A3...A8).
- A list. A series of single values or ranges, separated by commas. For example, @AVG(A3,B8,N9).

Where possible, use ranges instead of typing in every cell coordinate; you'll find it's more accurate and easier to read—and it uses less memory.

You do not have to type in every cell coordinate. For example, to create the formula @SUM(V13...V16), you could type @SUM(, then use the arrow keys to move the highlighting to V13, press Return (that puts V13 into your formula and sends you back to your original cell), type one period, then use the arrow key to go to V16, press Return (that puts V16 into your formula), and type the closing parenthesis. To confirm your whole entry, press Return.

If AppleWorks cannot find any data in a cell you refer to, the result of your formula is a message, "NA," meaning that some data was not available. Or if by chance your formula ends up having to divide by zero, or some other mathematical impossibility, you get the message "ERROR." Check back through each cell, make sure the contents make sense, and then check your formula again.

The arithmetic functions

These allow you to add, subtract, multiply, and divide values—and to multiply a value by itself in a process known as exponentiation.

+ Use this to indicate that the value is positive, as in +12. Use it to indicate that the cell coordinates that follow should be treated as a pointer, so that the value in the other cell will be brought back and put in this cell as in +A3. To add two values, put the plus sign (+) between them as in 12+14.

- Use this in front of a number to indicate it is negative, as in -12. Use it to indicate that the cell coordinates that follow should be treated as a pointer, so that the value in the other cell will be brought back and put in this cell with a minus sign in front. To subtract the value in B4 from the value in BA2, put the minus sign in between, like this: +BA2-B4.

* To multiply one value by another, put the multiplication sign (*) between them, like this: +A4*B2

/ To divide one value by another, put the division sign (/) in between, like this: +B3/B51. AppleWorks would divide the value in B3 by the value in B51.

^ To multiply a number by itself a certain number of times, place the exponentiation sign (^) after the number and follow that with the number of times you want to have the number multiplied by itself. For instance, to have 8 multiplied by itself three times (8*8*8), you would write 8^3.

AppleWorks performs calculations from left to right. For example, 2^2 equals 4. 2^2+3 works out to 7. 2^2+3*2 equals 14. In other words, instead of doing exponentiation and multiplication first, and then adding, as you might expect, AppleWorks just works from left to right, getting 4, then 7, and multiplying that by 2. It's as if the formula read: (2^2+3)*2.

You may find it easier to include parentheses to indicate what operations must be done first. 2*2+3*2 works out to 14, because AppleWorks multiplies 2 times 2, gets 4, adds 3 to that, gets 7, and multiplies that by 2. If you want this formula to work the way you would expect, algebraically, you must group the things you want done first: (2*2)+(3*2). That equals 10, because AppleWorks performs the operations inside the parentheses first, getting 4+6, or 10.

A general rule: Test any formula in isolation before putting it in the actual spreadsheet. See if AppleWorks' answer matches yours; if not, use parentheses to force AppleWorks to do things in the order you desire.

Other mathematical functions follow, with the abbreviation, argument (if any), an example, and brief description of the effect. These functions are slightly more complex than the arithmetic operations. After the table, you'll find notes on some functions.

Name	Function	Argument	Example	Effect
Absolute	@ABS	(Value)	@ABS(-34.23)	Displays absolute value of the number, stripping away any minus sign. Result: 34.23.
And	@AND	(logical comparisons)	@IF(@AND(A4>B5,H7<P9),5,60)	Yields True (5) if both statements are true; False (60) if either is false.
Average	@AVG	(range or list)	@AVG(B1...B5) @AVG(B1,B3)	Adds up all the values in the cells in the range, divides that total by the number of cells that actually contain values; or, with a list, by the number of cells, blank or not.

(Table continues on the following page.)

Name	Function	Argument	Example	Effect
Choose	@CHOOSE	(position,value, value, and so on)	@CHOOSE(B3,20,30,40)	Figures out a value for the first argument; if that is 1, it displays the first value that follows; if 2, the second, and so on.
Count	@COUNT	(range or list)	@COUNT(B3...B8)	Looks at the cells in the range, counts how many cells contain values; or it looks at a list, and counts how many cells it includes, blank or not.
Error	@ERROR	none	@IF(A3>25, @ERROR,2)	Tests the statement, A3>25; if it is true, AppleWorks will display the message, "ERROR." If it is not true, 2.
If	@IF	(logical comparison, value1, value2)	@IF(A23>B6,33,44)	Tests the comparison; if true, displays first value (33); if not, second (44).
Integer	@INT	(value)	@INT(A3)	Looks up the value, strips away all fractions, and displays the resulting integer. No rounding takes place.
Lookup	@LOOKUP	(value, range)	@LOOKUP(A3,H6...H9)	Finds the first table value referred to and looks in the range for the largest number equal to or less than that, then displays the value found in the adjacent cell.
Maximum	@MAX	(list or range)	@MAX(B3...B9)	Looks at the entries in the cells referred to, and displays the largest entry.
Minimum	@MIN	(list or range)	@MIN(B3,B4,B5)	Looks at the entries in the cells referred to, and displays the lowest number.
Or	@OR	(Logical comparisons)	@IF(@OR(A5>B6,H8<K9)3,2)	Evaluates as True (3) if either of the logical comparisons is true; otherwise, False (2).

(Table continues on the following page.)

Name	Function	Argument	Example	Effect
Net	@NPV	(rate,range of annual payments)	@NPV(.08,B6...B11)	AppleWorks uses the cells containing the present rate to "discount" the future flow of cash.
Round	@ROUND	(value,number of decimal places)	@ROUND(H67)	Rounds number off to specified number of decimal places.
Square root	@SQRT	(value)	@SQRT(64)	Displays the square root of the specified value
Sum	@SUM	(list or range)	@SUM(B1...B9) @SUM(B1,B2,B6) @SUM(B1+B3/2)	Adds up the values in the range or list, performing any other arithmetic calculations (+, -, *, /, ^) along the way, and puts the result in this cell.

@AVG (average)

AppleWorks ignores blank cells and labels in a *range* rather than evaluating them as zero. You can think of this average as the average of any numbers that actually appear in the cells. But if you specifically name a cell in a *list*, as in @AVG(B3,B9,N8), AppleWorks figures you really want it to use whatever is there and treats a blank as a zero.

By the way: Don't add up all the values in the argument, like this: @AVG(B3+B22). AppleWorks will total them all up and treat the total as a single number. The average of a single number is the number itself. As a result, what you expect to be an average turns out to be a sum. Correct punctuation: @AVG (B3,B22)

@COUNT

Counting a *range* ignores entries that are labels; they are treated just like blanks. Counting a *list* gives you the number of all cells in the list, including cells that are blank or have a label.

Here's an example. You want to find out how much each month's profits vary from your estimate, which you've already entered. You enter the formula @CHOOSE(@COUNT(B5...G5), B5, C5, D5, E5, F5, G5), to count how many months you have actual data for, and to pick the last figure. You use a similar formula to find the estimates for that month, and then subtract one from the other to get the variance.

@IF

The only logical function in the Spreadsheet is @IF. The @IF function tests a condition to see if it is true; if so, it displays the first value in the cell; if not, the second.

With the IF function, you can tell AppleWorks things like, "If A is greater than B, then display the first value; if not, the second." In this instance, *greater than* is known as a logical operator: It calls on AppleWorks to make a comparison between two numbers. And the rest of the statement tells AppleWorks what to do if the comparison is true or false.

Here is a list of the statements AppleWorks can evaluate to see if they are true or false. (A and B stand for any values.)

Statement	Logical meaning	Truth	Operator
A<B	<	A is less than B.	True if the first value is less than the second. Otherwise, false.
A<=B	<=	A is less than or equal to B.	True if the first value is less than or equal to the second. Otherwise, false.
A>B	>	A is greater than B.	True if the first value is greater than the second. Otherwise, false.
A>=B	>=	A is greater than or equal to B.	True if the first value is greater than or equal to the second. Otherwise, false
A=B	=	A equals B.	True if the first value equals the second. Otherwise, false.
A<>B	<>	A does not equal B.	True if the first value does not equal the second. Otherwise, false.

To use the IF function you need to supply AppleWorks with a statement to be evaluated, a value to be displayed if that statement turns out to be true, and a value to display if that statement turns out to be false. For example, @IF (A3>B2, 12, 34) means that if A3

really is larger than B2, then display 12 in this cell; if not, 34. The formula could be diagrammed like this:

Function	Argument		
@IF	(A3>B2, Statement to be tested for truth	12, Number to be displayed if statement is true	34) Number to be displayed if statement is false

If A3 or B2 happens to hold a label, AppleWorks will be unable to determine the truth of the proposition and will evaluate the expression as false. You can connect two propositions with @AND (in which case they both must be true for the first value to be displayed), or @OR (in which case you set a result of true if *either* proposition is true).

@LOOKUP

With @LOOKUP, you can begin with almost any number and look in a table for the largest number that is equal to or less than it. When AppleWorks finds that number, it looks in an adjacent cell for the number you want entered in the cell.

Here's an example. You sell cardboard cartons. You give a 5-percent discount to any wholesaler who orders more than 12 dozen. You give an 8-percent discount to anyone ordering more than 30 dozen. And you give your best discount, 11 percent, to anyone ordering more than 50 dozen. In cells W1...Z1, and W2...Z2, you set up a table like this:

Column:	W	X	Y	Z
Row 1:	11	12	30	50
Row 2:	0	.05	.08	.11

Your customers can only order by the dozen. You have assigned the number of dozen cartons ordered to column H. The discount rate, whatever it is, is in column I. From this you will calculate the final charge.

In row 8, cell H8 shows that this customer has ordered 21 dozen cartons. Moving over to column I, you find the formula @LOOKUP(H8, W1...Z1). AppleWorks takes the value in H8, looks in cells W1...Z1 for the largest number that is equal to or less than 21, and spots 12 in cell X1. It then drops down to the adjacent cell, X2, picks up the discount rate, 5 percent, and brings that back to cell I8. The customer is given a 5-percent discount on the order.

Clearly, the way you set up the table is important. The series of parallel numbers can be along two rows or two columns. The one you refer to in the formula comes first; then, in the row below, or the column to the right, you give the corresponding values. The values in the first table must be in ascending order.

If the value you started the search with turns out to be greater than any value on the first table, AppleWorks displays the last value in the second table. If smaller than any value on the first table, AppleWorks displays the message NA.

For instance, if the cells H6...H9 and I6...I9 contain the following entries, and A3 is 65, then AppleWorks would display 15.

Column:	H	I
Row 6:	10	5
Row 7:	25	10
Row 8:	60	15
Row 9:	98	20

@MAX and @MIN

Use those functions to find the largest or smallest value in a range or list.

In a range, a blank is ignored; if you specifically named the cell as part of a list, the blank is treated as a zero. A negative number is less than zero in this scheme.

@NA (not available)

Sometimes you know you need a particular value, but you haven't learned what it is yet. You could type in a 0, but then any formula referring to this cell would include the 0; that would throw off the calculations. What you need is a warning (to yourself).

You can type @NA into that cell, and AppleWorks will display NA in this cell and in any other cell that contains a formula referring to this cell. In this way, you can see how widespread the effect is.

@NA does not require any extra information, or argument.

@NPV (net present value)

This function calculates the current value of a future flow of cash, represented in a range of cells. When you're contemplating various investments, you may wonder how much each one would be worth in today's dollars. In other words, if you could jump into the future, collect all your money from one investment, and return with it, how much would it be worth in today's terms, compared to another investment? You need to know the net present value of each investment.

For example, if you loan your brother $2,000, and he agrees to pay you back in five annual payments of $500 each, you will get back $2500. But if inflation continues through that period at 5%, the $500 bill you get in the fifth year won't be worth anywhere near what it would be today. To find out how much that $2500 would be worth in today's dollars, you could put $500 in each cell from A1 through A5, then enter the formula, @NPV (.05, A1...A5), and AppleWorks would reply that you'll be getting back the equivalent of $2164.74 in today's money.

The rate is sometimes known as a discount rate.

@SQRT (square root)

This function provides you with the number that, multiplied by itself, would equal the value you specify. This helps carpenters. Imagine you're working with a right-angled triangle with sides A, B, and C. You know how long A and B are, but you wonder how long the side C, opposite the 90-degree angle, is. To find out, you need to be able to find the square root of (A^2+B^2). You could find out by writing the formula @SQRT(H3^2+H4^2).

The square root of a negative value yields ERROR. The square root of a non-numeric item is zero.

Calculating

When to turn it off

At first, the fact that you can have the Spreadsheet automatically recalculate all formulas every time you put in a value seems like a miracle. But the excitement soon wears off if you are entering a lot of data. That's when you need to turn off the automatic recalculation. Press ⌘-V, and choose `Recalculate`, choose `Frequency`, and choose `Manual`. Then, when you really want to see everything recalculated, press ⌘-K.

The order of calculation

In deciding the order in which you want cells calculated (by rows or by columns), press ⌘-Z to see every formula. Look at each one, and check the cells referred to. If your formulas refer to cells that are below and to the left, you'll want AppleWorks to go down one column before going on to the next, so the data will be ready for the formulas. But if you have formulas that refer to cells above and to their right, you need to calculate by rows. If you have both kinds of formulas, you have a problem.

The solutions: Move or rewrite some of the formulas, move the entries they refer to, or choose one order of calculation, and then manually recalculate in order to incorporate the data from the cells that hadn't been calculated yet.

Arranging rows

Stay within borders

When you use the @SUM function to add up a range of cells in a *column,* you could run into problems if you rearrange the rows involved. If what was originally the last cell in a row of cells becomes the third cell, you will have a different range for @SUM. To avoid this problem, put a visual border of dashed lines (===) above and below the cells you want to add up and have the cells with the border

be the top and bottom of the range in @SUM. In order not to change your @SUM calculation when you are going to rearrange rows, you must highlight the rows within (not including) your border.

For example, If you want to add up the numbers in cells F4 to F15, put a border in cells F3 and F16 and write the formula as @SUM(F3...F16). When you rearrange rows, do not extend the highlighting above row 4 or below row 15.

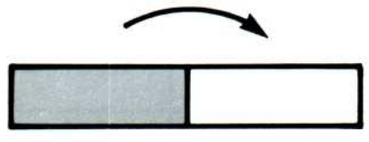
The order of arrangement

AppleWorks sorts entries in ASCII order. See page 263 for the order in which AppleWorks will sort entries.

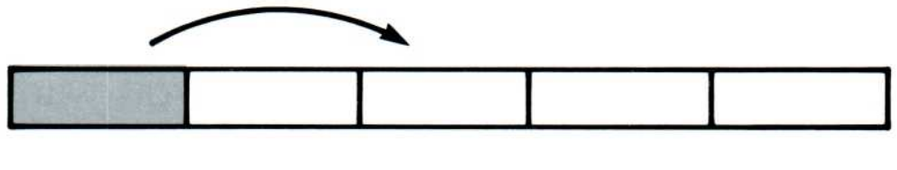
Copying information

Ways you can copy

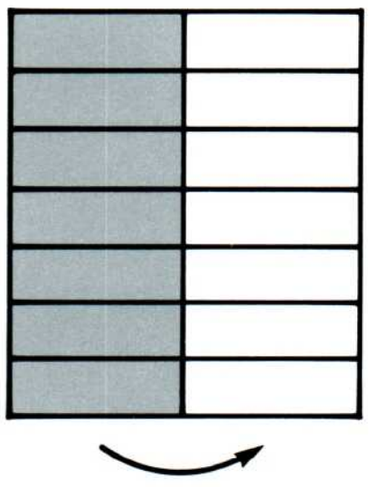
You can copy the contents of one cell into one other cell.



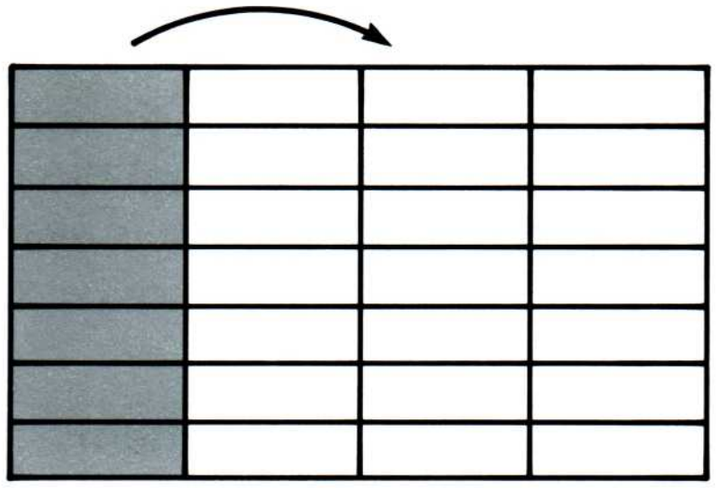
You can copy the contents of one cell into cell after cell if they are all adjacent to one another.



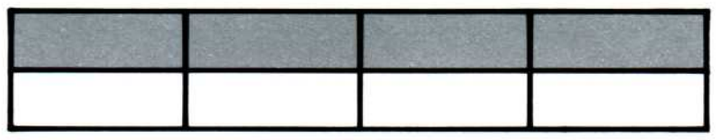
You can copy a stack of cells to another stack of the same size.



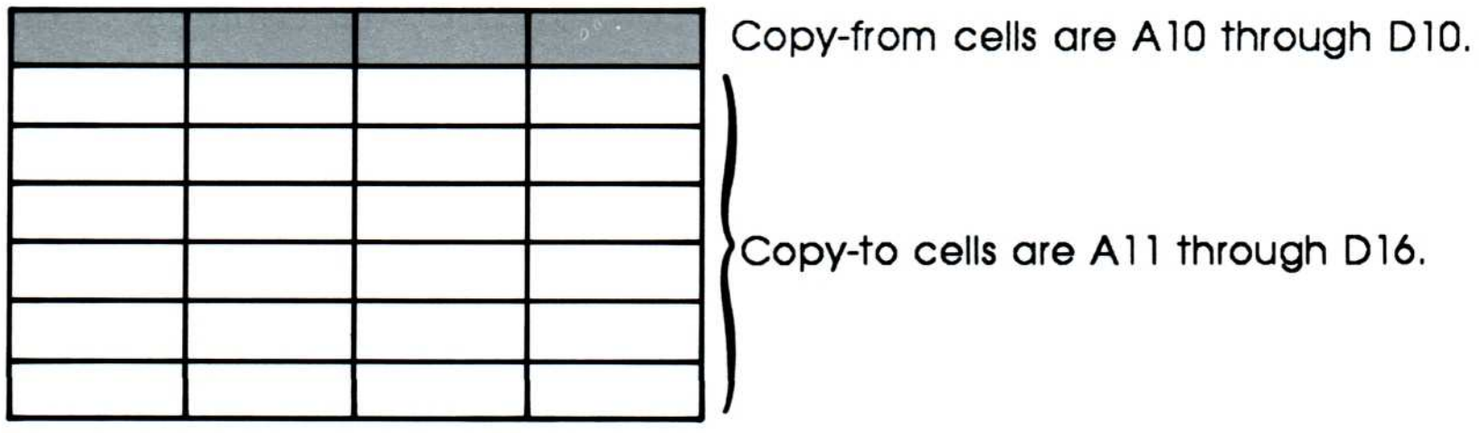
Or you can copy a stack of cells to several adjacent stacks, all of the same size.



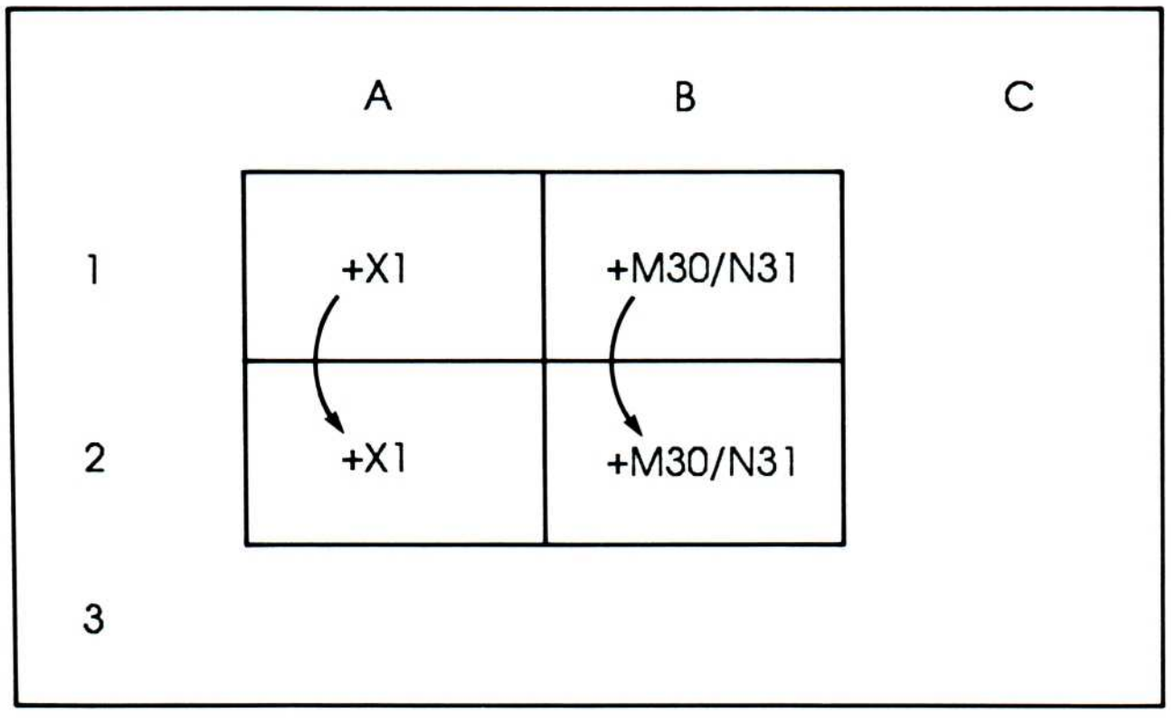
You can copy several cells in a row and paste them into an equal number of cells in a row.



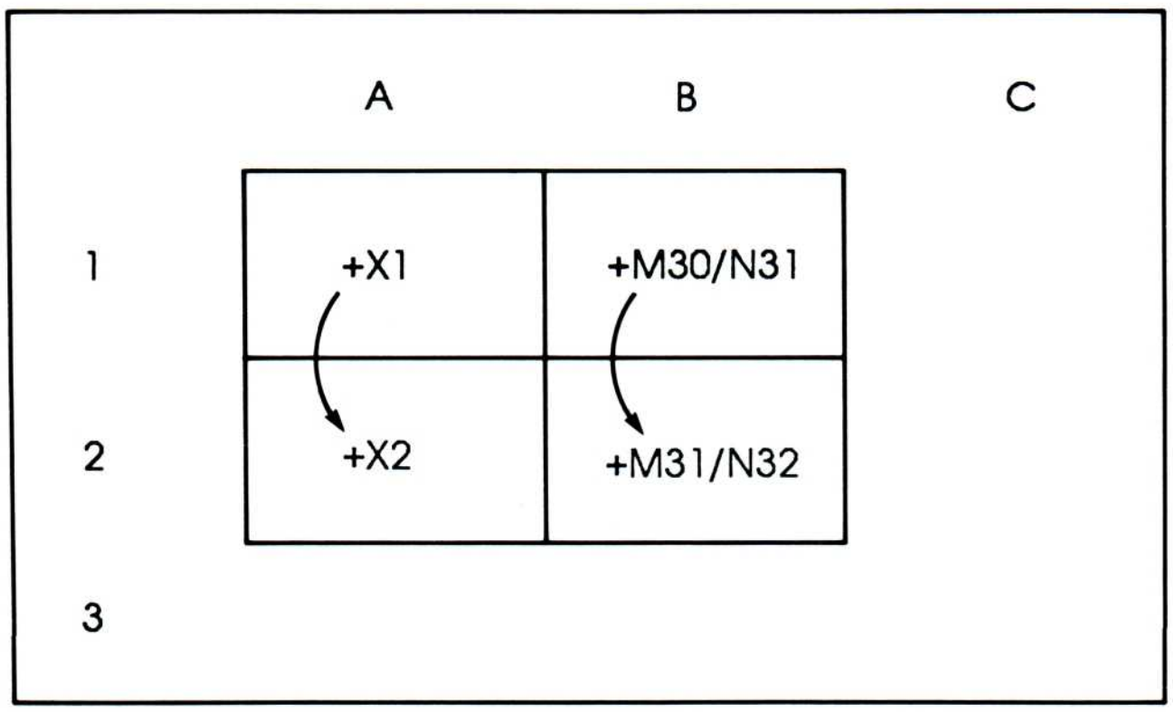
You can copy several cells in a row and paste them into a stack of partial rows of the same length.



If something you are copying contains a reference to another cell, AppleWorks asks you if you want the reference to remain exactly as it is, or if you want it to be changed to reflect the new position. The illustration at the top of the next page is an example of copying with no change.



And here is an example of changing the references to reflect the new position.



To get rid of formulas

One way to copy values without bringing along formulas is to print the cells to a DIF file and use that as the basis for a new spreadsheet. Then copy the values (only) from that spreadsheet to this one. See the beginning of this chapter for tips on making and using DIF files. The other way is to copy or move all the material—the formulas and every cell they refer to—to the clipboard, then change to the other spreadsheet, and copy or move the material from the clipboard, specifying that you want values only.

Inserting or deleting areas

Limits on insertions

You cannot insert rows or columns that would push existing information past the spreadsheet limits. For example, you can't insert ten rows anywhere unless rows 990 through 999 are empty.

And you cannot insert rows or columns after the cursor has moved past existing information. For example, if the last row with information in it is row 125, then you can't insert rows below that.

How wide are columns normally?

The standard width of columns is 9 characters. The maximum width is 71 characters.

Opening another window

Why open windows?

Sometimes you want to see the effect of what you type in immediately, but the result shows up off screen. Making two windows allows you to bring the result in view.

Protecting your cells

First you define it, then you turn it on

Remember that protection takes place in two steps. In the first, you press ⌘-L for Layout and tell AppleWorks exactly what you will allow to be entered into these cells—values only, labels only, nothing at all, or anything. If you specify one of the first three, you may be surprised to find that you can happily override the protection. That means you haven't turned the protection on. Use ⌘-V to turn protection on in every cell in which you've defined it.

Preparing to print a report

Tight fit?

If the number of characters in your data is more than your printer options allow for, go back to the Printer Options display and reduce the left margin to about 0.5 inch and the right margin to 0.0. Make sure that your paper is moving through the printer against the left side of the platen. With paper that is 8.5 inches wide, and a platen width of 8 inches, this leaves about 0.5 inch on the right.

Or, if your printer permits, start increasing the characters per inch. Watch the total number of characters per line: When it exceeds the characters in your data, you can stop.

Controlling horizontal spacing

The width of your printed text depends on the platen width (the distance your printer's print head can travel across the paper); that's usually about 8 inches, 0.5 inch less than the width of ordinary typing paper. From that, subtract your left and right margins. For instance, with the 8-inch platen width, and 1-inch margins on the right and left, the arithmetic looks like this:

Platen width	8.0 inches
–Margins	–2.0 inches total
Text width	6.0 inches

Controlling vertical spacing

To figure out how much space your spreadsheet will take vertically, take your paper length and subtract the top and bottom margins. On an average page of 11 inches, with 1-inch margins, here's how the subtraction would go:

Paper length	11.0 inches
–Margins	–2.0 inches
Text length	9.0 inches

If you want to know how many lines will show up on the page, divide the total length by the number of lines per inch (6 or 8). That gives you the total number of lines. If you use single spacing, that's how many lines will be printed. If you use double spacing, you'll end up with half that many; with triple spacing, a third.

Printing a report on paper

Want to study your formulas?

Press ⌘-Z to zoom in and see all the formulas. Then press ⌘-P to print them out.

Printing—but not on paper

Printing to the clipboard for the Word Processor

When you are about to print to the clipboard, make sure that the width of your data is less than the width of the line you created with printer options. If not, some data will not fit into that line.

Printing to an ASCII or DIF file

In this printing operation, AppleWorks ignores your printer options. To create the ASCII file, AppleWorks makes a long list, putting a Return after every entry; you end up with a single column of entries. Usually you will want to save your file in DIF format, which makes it easier to reconstruct, since it notes whether it went through the material row by row or column by column. Usually, you should choose the columnar approach, because that is the way another AppleWorks program will expect the DIF file to be saved.

Chapter 12

Tips on Printers

Which printer do you have?

You can use almost any printer with AppleWorks. The program is already set up to use some of the most popular printers. If you have one of these printers, you just need to tell AppleWorks which one, and it can start communicating. If you have a different printer, you will need to tell AppleWorks which codes to send to accomplish what functions. That's more difficult, so you'll need to consult your printer's manual.

If you happen to have an ImageWriter printer, you are all set up to print when the program arrives. The ImageWriter is the standard, or default, printer.

If you don't have an Apple ImageWriter, you may have one of the following printers, all of which AppleWorks can communicate with once you give the word:

Apple Daisy Wheel Printer (DWP)

Apple Scribe

Apple Silentype

Apple ImageWriter

Apple ImageWriter II

Epson MX Series

Epson MX Graftrax+

Epson RX Series

Epson FX Series

Qume Sprint 5

Qume Sprint 11

If your printer is on this list, you will need to remove the ImageWriter as your standard printer and replace it with the printer you have. And you will want to name your printer as the one to use whenever you want to print the contents of a display.

Here are the features available from these printers:

Printer	Bold	Superscript	Subscript	Underlining	6, 8 lines per inch	Proportional	Characters per inch
Apple Dot Matrix	Y	Y	Y	Y	Y	Y	4,5,6,7,8,9,10,12,15,17
Apple ImageWriter	Y	Y	Y	Y	Y	Y	4,5,6,7,8,9,10,12,15,17
Apple Daisy Wheel	Y	Y	Y	Y	Y	Y	4-13,15,17,20,24
Apple Silentype	N	N	N	N	N	N	10
Epson MX series	Y	N	N	Y*	Y	N	5,8,10,17
Epson MX/Graftrax+	Y	Y	Y	Y	Y	N	5,8,10,17
Epson RX series	Y	Y	Y	Y	Y	N	5,6,8,10,12,17
Epson FX series	Y	Y	Y	Y	Y	Y	5,6,8,10,12,17
Qume Sprint 5	N	Y	Y	Y	Y	Y	4-13,15,17,20,24
Qume Sprint 11	Y	Y	Y	Y	Y	Y	4-13,15,17,20,24
Scribe Printer	N	Y	Y	Y	Y	N	5,8,10,17

*Underlining with the Epson MX printer requires turning off "automatic line feed after carriage return." See your interface card manual to find out how.

If you have an Apple Dot Matrix Printer (DMP) and another printer on AppleWorks' list, you need to add the other one as your second printer. (AppleWorks can remember details about three printers at any one time.)

AppleWorks has a file about each printer on this list. When you add one of these printers, AppleWorks gets the information from that file; when you delete one of these printers, AppleWorks drops the information, but leaves a copy in that file so you can always add that printer again, without having to reconstruct all the codes.

If your printer is not on AppleWorks' list, you will need to add it and provide AppleWorks with all the codes it needs for the functions you want to use, such as boldfacing or underlining.

Line feeds

A line feed feeds the printer a line. When you get to the end of a line, the line feed character tells the printer to roll the paper up one line. Otherwise, it might just go on printing on that line forever.

Some printers automatically generate a line feed after every Return; these printers do not need another line feed from AppleWorks. Other printers depend on the program to send those line feeds.

If your printer is not spacing after each line, or if it is double spacing when it shouldn't, try changing this specification.

Top-of-page commands

These codes tell the printer to stop what it is doing and go to the top of the next piece of paper. The assumption is that you have paper that is 11 inches long.

If you have paper that has some other length, then you need to make sure that AppleWorks does not send, and the printer does not accept, top-of-page commands, or else your printing will end up in the wrong location. For instance, if you are printing mailing labels, you may need to specify a page length of 1 inch. If you were sending top-of-page commands, you would print one label, then roll up 10 or so inches, to the presumed top of the next page, missing half a dozen labels on the first sheet.

A few printers, such as the Apple Silentype, do not accept the top-of-page command and need a signal from AppleWorks to print a number of blank lines in order to get to the top of the next page.

End-of-page

If you are printing on letterhead stationery or regular sheets of paper (not fanfold, or computer, paper), you may need the printer to stop after each sheet so you can insert the next one. If so, make this specification a *Yes*. Otherwise, *No*.

Platen width

This is the distance your printhead travels, from left to right. It is usually shorter than the width of the whole platen; for many printers, it is 8 inches, even though the platen may be 9 or 10 inches wide, all told.

This width is very important. If you happen to send a line of data to the printer that exceeds this width, the information may be wrapped around partially onto the next line, making a mess out of your report; in some cases, the extra data may actually be lost. When you are setting printer options, then, check the width of your line, and make sure it is no longer than the platen width.

Removing a printer

If you are no longer using a printer, or if you aren't going to use it for a while, you can remove the printer (and the information about it) from AppleWorks' active memory. Choose option 5, `Other Activities`, on the Main Menu; then choose option 7.

Changing the display printer

This should be the printer you use most often, because you usually want to print out a screen display at a moment's notice. Choose option 5, `Other Activities`, on the Main Menu; then choose option 7 to specify information about your printers; type 1, and press Return. Then choose the printer you want to use most of the time.

Specifying codes for your custom printer

Characters per inch

AppleWorks sends this information to the printer before every line. If you don't specify any number, AppleWorks will display and print your text in 10 characters per inch.

If your printer can manage fractional values, such as 16.5 characters per inch, give the codes for that under the next lower whole number; with 16.5, that would be 16.

If you set up a certain number of characters per inch, and your printer cannot actually print that way, AppleWorks reverts to whatever characters per inch you last used in printing, on the assumption that at least that setting worked.

Boldface, subscript, and superscript

Don't bother with these if you don't plan to use them.

There are at least two ways, physically, to produce characters above or below the standard line of characters. In one, you send a subscript or superscript code, and the printer adjusts the height automatically; in the other, you send a code telling the printer to do a fraction of a line feed—upward—to get the superscript started, and the another code for downward, to end it. See your printer manual for superscript and subscript codes, if any, and, if there are none, look for codes for fractional line feeds—forward and reverse.

Underlining

If your printer accepts commands telling it to start and stop underlining, choose option 2, `Printer has start/stop underline commands`, on the Underlining menu. Enter the codes for beginning underlining and then the code for ending it.

If your printer does not have commands for underlining, but can backspace, choose option 3, `Print character, backspace, underline`. That describes the technique. You are going to tell the printer to print the first character, backspace, and print an underline character underneath it; then continue this process throughout whatever text you have asked to be underlined.

If your printer does not have underlining codes and cannot backspace, choose the option 4, `Print line, carriage return, underline`. The printer will print the entire line, send the printhead back to the left margin—without moving the paper up a line—and print the underline in its proper place.

If you don't know which method to choose, try them all, working from option 2 down, until you find one that works. If none works, it may be too difficult for AppleWorks to understand how your printer underlines. In that case, choose option 1, `Don't attempt underlining`.

If you have a super serial or parallel interface card

If you have a super serial or parallel interface card and your text keeps coming out double spaced when you wanted single spacing, change the switches so that the card does not add line feeds.

Apple IIc serial interface settings

With the Apple IIc, you will need to specify these settings:

- Baud rate. This is the rate of transmission from your computer to your printer, measured in bits per second.
- Data format. The number of bits the printer expects will be used to code a single character and the number of bits it expects will be used to signal that this character has ended (stop bits).
- Parity. A way of checking for accuracy.

If your printer spews out nonsense, check all of these in the printer manual.

Boldfacing an entire Spreadsheet or Data Base report

At the time you print a Spreadsheet or Data base Report, you get the chance to enter special codes for your printer. At that time, you can type in the code that tells the printer to begin boldface. Since you never turn off boldface, it continues for the rest of the document.

Glossary

ABS (absolute value): A function that yields the value of a number without a minus sign.
Example: @ABS(-3.75)= 3.75.

Apple IIe Extended 80-Column Text Card: A peripheral card that plugs into the Apple IIe's auxiliary slot and allows the computer to display either 40 or 80 characters per line while extending the computer's memory capacity by 64 kilobytes (64K). AppleWorks 2.0 needs 128K and 80 columns.

Apple command: A command you use by pressing the key with the ♁ symbol (to the left of the Space bar) at the same time as another character. That other character is often the first letter of the name of the command. For instance, ♁-C lets you Copy.

appropriate format: The way you actually entered the data in a spreadsheet, with exactly the number of decimal places you typed in, or as many places as are needed to represent that value accurately. For instance, if your formula asked AppleWorks to divide 2 into 1, the result would be .5; but if you divided 4 into 1, it would be .25. Allows the number of places after the decimal point to vary, or float. You set this format for all cells using ♁-V or for a small group using ♁-L.

argument: The values on which a Spreadsheet function operates. For example, in the function @SUM (A1...C1), the argument is the values in cells A1 through C1. The function @SUM operates on those values and provides you with the total.

Arrange: A command (♁-A) that sorts records in a data base or rows in a spreadsheet. In the Data Base, the sorting is done on the basis of one category. In the Spreadsheet, it's done on the basis of one column.

ASCII: A way of coding characters; the American Standard Code for Information Interchange. AppleWorks can read an ASCII file and use it as the basis for your AppleWorks document; and AppleWorks can save your file in ASCII, which means all formatting codes are thrown away, and there is a Return after every line in a Word Processor document, every entry in a data base, and every cell in a spreadsheet.

AVG (average): A function that finds the average of all the numbers in a range or list by adding up the numbers and then dividing by the number of nonblank cells (if the argument is a range) or by the total number of cells (if the argument is a list).
Example: @AVG(A1,G3,H7) = (A1+G3+H7)/3.

back up: To make a duplicate copy of a disk or file. You should make back-up copies of AppleWorks, giving the disks the same names as the originals. For safety's sake, store the originals and work with a copy.

baud: Bits per second. A way of measuring the speed at which data can be transmitted. (Not all the bits are data—some indicate the beginning or end of data, and others are inserted to verify the accuracy of the transmission.)

boldface: An option to print the text in extra heavy type, **like this**. In the Word Processor you can use the BB and BE printer options to turn boldface on and off.

calculated category: In the Data Base, a category that performs some calculation on the data in other categories to its left.

Calculate: A command (Ö-K) telling AppleWorks to recalculate all the values in the spreadsheet—now. Used when you have previously set the standard (using Ö-V) to recalculate manually, or when forward references in a spreadsheet require that it be calculated more than once.

category: In the Data Base, a type of information, such as Names or Addresses. When you start a new data base, AppleWorks allows you to name your categories and then create records with information under each category. You can add, change, or delete categories. In multiple-record layout, a category's name appears at the top of the column.

cell: In the Spreadsheet, the space at the intersection of a row and a column.

cell indicator: In the Spreadsheet, a message at the bottom left of your screen, indicating the coordinates of the cell you have highlighted, the contents, and any special layouts.

cell layout: The way you format text or values within the cell. You can set standard formats for cells throughout the spreadsheet, using Ö-V, or local formats for individual cells or groups of cells, using Ö-L.

Center: (1) In the Word Processor, a printer option that aligns all text exactly half way between the left and right margins. (2) In the Spreadsheet, a layout format that aligns the text of a label in the center of a cell.

Characters Per Inch: A printer option that controls the number of characters to be printed in each inch. Can be anywhere from 4 (widely spaced) to 24 (very dense)—depending on what your printer is capable of.

CHOOSE: A function that picks one value from a list, depending on its position in the list (first, second, third, or whatever); the position is indicated by the first value after the opening parenthesis; the list of values follows. Example: @CHOOSE(F7,50,100,150) would evaluate to 50 if F7 yields 1, to 100 if F7 yields 2, or to 150 if F7 yields 3.

clipboard: An area in the computer's memory in which AppleWorks saves whatever material you have just moved or copied and from which you may take that material and paste it into a document. The clipboard can take a passage of up to 250 rows of Spreadsheet data, or 253 Data Base records, or 250 lines of a Word Processor document—but it only contains one passage at a time.

code: A combination of keystrokes, such as those transmitted to a printer to turn on a particular style or turn it off.

column: (1) In the Data Base in multiple-record layout, each column represents a category; the category name appears at the top. (2) In a Word Processor document, each column is one character wide; your cursor position is recorded at the bottom of the screen, by row and column. (3) In the Spreadsheet, columns are lettered from A to DW; the standard width is nine characters.

commas format: In the Spreadsheet, a value format that inserts punctuation marking off thousands; set using Ö-V or Ö-L.

control character: A nonprinting character that controls or modifies the way information is printed or displayed.

coordinates: In the Spreadsheet, the column letter and row number that give the location of a cell. For instance, A2 is the cell in the first column in the second row. You see these coordinates at the bottom of the screen, as the first item in the

cell indicator. And you use the coordinates as pointers in formulas.

copy: A command (⌘-C) that makes a copy of the highlighted section of your document. You can then paste this section in somewhere else in the same document or in another document.

copy protect: To prevent someone from duplicating the contents of a disk. Compare **write protect.**

COUNT: A function that counts the number of cells containing values in a range or the number of cells in a list. (A value is a number—or a formula that results in a number.)

current drive: The disk drive, disk, or subdirectory AppleWorks will go to first to find a file or to save one. You can change the current disk by selecting option 5, `Other Activities`, on the Main Menu.

cursor: The blinking underline (the insert cursor) or solid rectangle (the replace cursor) that indicates where what you type will appear. When you type with the insert cursor, your character appears at the cursor location, and all text to the right moves over to make room. When you type with the replace cursor, the character takes the place of the character lit up by the cursor, and the cursor moves one character to the right. You can exchange cursors by pressing ⌘-E.

custom printer: A printer that is not on AppleWorks' original list of printers. If you want to add such a printer to your list, you have to provide AppleWorks with information about how it works.

Data Base: The part of the AppleWorks program you use to work with information you might otherwise keep in lists or on file cards

data format: The way data is encoded for transmission from your computer to the printer. If you add a custom printer, you need to tell AppleWorks which data format your printer expects.

Delete key: A key that backs over and erases the previously typed character. (Labeled Backspace on some computers.)

Desktop: Part of the computer's memory; specifically, that area available for your AppleWorks files and the clipboard. AppleWorks can handle up to 12 documents on the Desktop at any one time. The total size of the Desktop varies depending on how many desk accessory programs you have attached to AppleWorks, how much memory the computer has, and whether or not you have added a RAM card to the computer or not. To check the remaining space in your Desktop, press ⌘-Q and look at the bottom right of the screen.

Desktop Index: The list of files on the Desktop. Press ⌘-Q to get the Desktop Index.

destination volume: The disk to which you are sending a file, or onto which you are copying information from a source disk.

DIF: A way of formatting a Data Base or Spreadsheet file; the Data Interchange Format. AppleWorks can read a DIF file as the basis for a new Data Base or Spreadsheet file; and AppleWorks can save a Data Base or Spreadsheet document as a DIF file for some other program to use.

directory: A list of all the files on a disk. You can use the Other Activities menu in AppleWorks or the file commands in your System Utilities to list the files on a disk.

disk controller card: A peripheral card that connects one or two disk drives to the computer and controls the operation of the drives.

display: The information that appears on your screen.

document: A file that has been brought onto the Desktop to be used in the Data Base, Word Processor, or Spreadsheet.

dollar format: In the Spreadsheet, a value format that displays the dollar sign in front of any number you enter; set using ⌘-V or ⌘-L.

drive: A disk drive.

edit: To change or modify. For example, to insert, remove, replace, or move text in a Word Processor document.

embedded: Contained within. For example, printer options are embedded in Word Processor text.

entry: In one Data Base record, the information that belongs to a particular category. In the Spreadsheet, the information in a cell.

ERROR: A function used with the IF function. For instance, you'd use @ERROR when you know that a particular calculation should not exceed a certain value, and you want to be warned when it does. If it does, all formulas that refer to that cell will display ERROR after calculation.

fanfold paper: Computer paper: one continuous sheet of paper, perforated and folded like the letter *Z* so that it lies in a stack.

file: The electronic form of a document storecd on a disk.

filename: The name you give your document; it appears on the disk directory or in a subdirectory when you save the file. Must begin with a letter; may contain uppercase or lowercase letters, numbers, and periods. Maximum length: 15 characters. The filename is the last segment of a **pathname.**

Find: A command (⌘-F) that looks for information you specify. In the Word Processor and Data Base, AppleWorks can find any combination of characters up to 30 characters. In the Spreadsheet, AppleWorks can find a specific label or a cell for which you provide coordinates, but not a number.

fixed decimal format: In the Spreadsheet, a value format that displays all values with a fixed number of places after the decimal point. You set the format using ⌘-V or ⌘-L.

footer: In the Word Processor, an identifying line you can have AppleWorks put at the bottom of each page when it prints the document. A footer might include the name of the document and the page number. You specify a footer from the Printer Options display.

format a disk: To prepare a disk to receive data; you must format a disk before you can save files on it.

form letters: A series of standard letters, personalized with data from a different record in your data base, such as names and addresses.

formula: A statement of mathematical relationship between values in various cells, using functions. The result of the formula is displayed in the cell. Values result from formulas.

forward reference: In a Spreadsheet formula, a reference to a cell that is below and to the right of the cell with the formula. If the forward reference also contains a formula, this formula will not be calculated until *after* the formula in the original cell. So, to accurately calculate a formula containing forward references, you need to make a second pass at calculating, by pressing ⌘-K again.

function: An arithmetic or logical operation that can be used to make up formulas combining the values in different cells. For most functions, you have to supply an argument—a value or values on which the function operates. @SUM is a function. (B4...B8) is the argument it needs. @SUM(B4...B8) is a formula.

group: In the Word Processor, to designate information that you want to be kept all on one page in printing. Use the GB printer option to mark the begining of the information you want kept together, GE to mark the end.

group totals: Totals for small groups of entries in any column for which you have asked for a column total; the group total appears whenever the entry

in a catagory that you specify changes. For instance, every time you have a new customer name, you might ask for a group total in the category Amount Due. (Group totals are also called subtotals.)

headers: An identifying line you can have at the top of each printed page of your document. You set it from the Printer Options display in each application.

highlight: To mark a section of your document by pressing arrow keys to move the lit-up background over a section of your document. You can then apply a particular command or setting to that section.

IF: A function that tests a condition to see if it is true. If it is, AppleWorks displays the first value after the condition; if not it displays the second value. The condition can be a statement of equality (A1=B1), or inequality (A1 is larger than, smaller than, larger than or equal to, smaller than or equal to, or just plain not equal to B1). Example: @IF(A1>B1,21,31) means that if A1 is larger than B1, then the value 21 will be displayed; if the statement that A1 is larger than B1 turns out to be false, then AppleWorks will display 31.

indent: In the Word Processor, a printer option, IN, that moves the second and following lines of a paragraph in from the left margin.

insert cursor: A blinking underline that shows you where what you type will appear. Every time you type a character, the text on the right will move one character to the right, to make room.

INT (integer): A function that translates any value into a whole number, with no fractions. Type @INT, then put a value in parentheses; AppleWorks will put the integer version of that number in the cell. For instance, @INT (3.45) would display 3.

integration: The ability to pass data from one application to another, and to move from one application to another without leaving the program. AppleWorks is an integrated program.

justify: In the Word Processor, to align text along left and right margins; in a labels-style report in the Data Base, to align one category so that its entry follows the one on its left, with only one space between; in the Spreadsheet to align information on the left or right side of a cell.

K (kilobyte): 1024 bytes, or characters. A byte is 8 bits; a bit is, essentially one change of state, one off or one on signal. It usually takes a byte to code a single character, such as the letter *m*. A thousand characters is about 200 words—an average paragraph. You can find out how long a document is, or how much room you still have on your Desktop, whenever you save a document.

label: Non-numeric information in the Spreadsheet that identifies what the numbers stand for; a title.

labels-style report: A type of Data Base report arranged vertically as a series of labels, or index cards.

layout: (1) The way the records in your data base are displayed. In single-record layout you see one record with full details of each entry. In multiple-record layout, you may not see as much information in each entry, but you can compare many records at once. (2) In the Spreadsheet, a command (Ó-L) that formats the values or labels in an entry, a block of entries, or particular rows or columns. Distinguished from Ó-V, which sets standard values for the format of all current entries that have not been previously formatted with Ó-L.

line feed: A code telling the printer to move to the next line to go on printing.

load: To transfer information or a program from a peripheral storage medium, such as a disk, into the computer's main memory for use.

Mail Merge: A printer option in the Word Processor, allowing you to merge information from the Data Base (such as names and addresses) with a form letter.

MAX (maximum): A function that finds the largest number in a list or range.

memory: The computer's random-access memory. Whatever memory is free is devoted to the Desktop, which includes any documents you are working on, plus the material you are storing on the clipboard.

menu: A list of choices presented by the program; you can select one by typing its number or by using an arrow key to move the highlighting onto the option and then pressing Return.

MIN (minimum): A function that finds the lowest number in a list or range.

Move: A command (Apple-M) that removes the highlighted section of your document. You can then paste this section in somewhere else in the same document or in another document

multi-level sort: Arranging your records in several passes, sorting them based on the least important category, then a more important category, then the most important.

multiple-record layout: A way of laying out your Data Base records in columns so that you can see several records at once.

NA (not available): A function announcing that some data needed for a calculation is not currently available. You put the function into a cell for which you have no data, or you can have it put into a cell based on the results of an If test. If you enter this in one cell, and a formula refers to that cell, the result of the fomula will be NA.

NPV (net present value): A function that calculates the current value of a future flow of cash, represented in a range of cells, discounted at a given interest rate. Example: @NPV(.09,B2...B6), where the annual interest rate is 9% and the yearly returns are in cells B2, B3, B4, B5,and B6.

no change copy: In the Spreadsheet, a copy of a cell in which the references to other cells are kept the same. Compare **relative copy**.

page: (1) When printing, the physical piece of paper. (2) In the Word Processor, an indication of where the text will fall on the physical pieces of paper. To see pagination, press Apple-K.

page break: An indication of where one page will stop and the next begin. You can have AppleWorks display these by pressing Apple-K.

parity: A way of verifying that data has been accurately transmited. You need to make sure that AppleWorks is using the method your printer expects.

paste: To take whatever is on the clipboard and put it into a document, beginning at the cursor location. You can copy or move a passage from the clipboard, pasting it into the document, by pressing Apple-C or Apple-M.

pathname: A description of the location of a file; it provides AppleWorks with a path straight to the file. A complete pathname consists of the name of the disk, the name of the subdirectory the file is in, if any, and the name of the file. A slash precedes each part of a pathname. For instance, a memo named Bob in the subdirectory Memos on the disk June would have this pathname: /June/Memos/Bob

platen width: The distance the print head on your printer can travel from left to right; hence, the greatest width you can print.

pointer: A type of value in a spreadsheet; it begins with a plus or minus sign, and points to, or refers to, the contents of another cell. For example, the pointer +C3 typed in the cell E3 means "Take whatever value you find in cell C3 and put it here in E3."

port: A connector that works like an electrical outlet, transmitting data from your computer to your printer; usually, you plug a cable into a port.

prefix: See **ProDos prefix.**

printer codes: Instructions telling your printer to perform a function such as boldfacing. You can

have AppleWorks send special codes to the printer before printing your data base or spreadsheet.

printer options: Formatting and style choices you can make that affect how your document is printed. Printer options are available in each part of the program; in the Word Processor, and Spreadsheet, press ♁-O from Review/Add/Change; in the Data Base, press ♁-O from the Report Format display.

print to disk: To insert all printer codes into a document, as if it were being sent to a printer, but, instead, to store that version of the document as a file on disk for future printing.

print to screen: To preview a document before printing, you may print it to the screen; lines and page breaks will be exactly as they will be during printing, but some effects, such as superscript, will not be seen on screen; they must wait for your printer.

ProDOS: The operating system under which AppleWorks runs; stands for *Professional Disk Operating System.* ProDOS is an enhancement of the earlier DOS 3.3. Using the *ProDOS User's Disk* or the *System Utilities* disk, you can convert DOS 3.3 files so they can be used in the ProDOS environment by AppleWorks.

ProDOS prefix: The first part of a pathname; it leads AppleWorks to a particular disk and, if needed, subdirectory. It does not include the name of a particular file. You can set a ProDOS prefix as the current location for AppleWorks to find files or save them.

program disk: A disk that contains an application such as AppleWorks. In some cases, you need to put in a start up disk first.

prompt: A line at the bottom of the screen which asks you for some information or a decision.

proportional spacing: A way of placing characters so that the spacing depends on the width of each individual character. Instead of each character being centered in an allotted space that is always the same size, no matter what the character, each character is centered in a space that varies in size—narrower for narrow characters such as *i*, wider for wide characters such as *m*. This book uses proportional spacing; the Apple II display does not.

protection setting: A setting that specifies exactly how you want to protect an entry in a spreadsheet, allowing someone to enter only a label, only a value, or neither. Use ♁-L to set the protection. Specifying a setting does not actually turn the protection on. To turn it on, use ♁-V.

RAM (random access memory): The part of the computer's memory which is volatile; when you turn off the computer, whatever you had in RAM is lost.

record: In the Data Base, all the information about a particular person or item.

record layout: In the Data Base, the way the information in records will be displayed.

relative copy: In the Spreadsheet, a copy of a cell in which references to other cells are changed to reflect the new position. Compare **no change copy.**

replace cursor: A blinking rectangle that indicates where what you type will appear. When you are using the replace cursor, the character you type replaces what was there before.

report: A document displaying some or all of the information in your data base or spreadsheet. A report may be displayed on the screen, stored on the clipboard for use in another document or in a form letter, or printed out.

report header: The title and page number, and, if you want, the date; it appears at the top of each page of your Data Base or Spreadsheet report.

report layout: The way you arrange the information in your Data Base report. You can have up to eight different layouts—or types of report—for a single data base. First you choose a report style (table or labels), then you fine tune the layout. When you save the data base, the layout is saved with it, but not the contents, which change as you enter new data. So the next time you select the same report layout, you may find new information in it.

report style: One of two basic ways information can be displayed in a Data Base report. One style is a table; the other is a series of labels.

Review/Add/Change: The name of the display where you can browse through the information in a file, change it, add to it, or delete it.

Ruler: A device in AppleWorks that divides a document into eighths. The ⌘-1 through 9 commands let you move the cursor through the file by eighths.

save: To preserve a copy of a document as a file on a disk.

scroll: To move information up or down, or left and right, as if you were unrolling a scroll of paper behind the screen.

selection rules: The rules by which you choose which records you want displayed in your data base. Set your record selection rules with ⌘-R.

single-record layout: A way of laying out your data base records that dedicates the screen to one record at a time. You can switch from multiple-record layout to single-record layout by pressing ⌘-Z .

source: In the Spreadsheet, the cells you are copying from.

space character: The character entered in your document when you press the Space bar.

Spreadsheet: The application that allows you to work with numbers and formulas usually in rows and columns.

SQRT (square root): A function that finds the square root of a value—that is, the number that, multiplied by itself, equals the value you specify. For example, @SQRT(64) would yield the result 8.

standard location: The first place AppleWorks looks for a file or saves a file—unless you have specified a different location as the current location.

standard values: (1) In the Data Base, information you want AppleWorks to enter into all new records from now on. (2) In the Spreadsheet, a standard way you want all information displayed.

start up: To get the computer going. If you have 5.25-inch drives, you put in the startup disk first and then turn on the computer; after a moment, AppleWorks asks you to replace that with the program disk and press Return. If you have a 3.5-inch drive, you have just one disk—the start up information and program are on the same disk.

subdirectory: A file that holds the names of other files, in much the way that a folder holds a series of memos. A disk has a directory—a list of its files. Some of those files are called subdirectories because they too are a list of files; in a way, a subdirectory is a directory within a directory.You can specify a subdirectory as a location from which AppleWorks should read files and to which it should save files.

subscript: Characters that are printed slightly below the normal line.

subtotals: Totals for small groups of entries in any column for which you have asked for a column total; the subtotal appears whenever the entry in a category that you specify changes. For example, every time you have a new customer name, you might ask for a subtotal in the category Amount Due. (Subtotals are also called group totals.)

SUM: A function that performs the arithmatic operations that are specified in the argument. When the argument is a range of cells, SUM adds up the values of all the cells in the range. For

instance, @SUM(B1....B4) = 100 when the value of each cell is 25. @SUM(B1*3+B2/5) = 20, in the same circumstances.

superscript: Characters that appear slightly above the line.

table-style report: A type of Data Base report arranged in rows and columns.

text file: A file consisting of nothing but text (no formatting) in ASCII codes.

Titles: A command (⌘-T) that allows you to freeze certain rows at the top, or columns on the left, of your spreadsheet so they remain as labels on the screen, even if you move to other parts of the spreadsheet.

top-of-page: A command telling the printer to move from the bottom of one page to the top of the next. The printer usually assumes that means each page is 11 inches tall.

underline: A line put under a character during printing.

value: A number in a cell in a Spreadsheet. May be entered as a number, or a pointer (referring to the value in another cell), or a formula (in which case, the result of the calculation will appear in the cell). Distinguished from a **label**.

volume: A general term for a storage device, such as a flexible disk. If you have a hard disk drive, it may allow you to carve up the space into a series of volumes, or storage areas.

volume name: The name for your flexible disk, hard disk drive, or storage area within a hard disk. It begins a pathname. For example, if your flexible disk is named Blank 16, then your pathname would begin /Blank 16. And if your hard disk drive, named Hard, has an area, or volume, on it called Memos, your pathname would begin /Hard/Memos.

window: A view into your spreadsheet; the window command (⌘-W) allows you to view two sections of your spreadsheet at the same time.

Word Processor: The part of the AppleWorks program you use to write text—letters, reports, poems, memos, and so forth.

wraparound: In the Word Processor, the automatic continuation of text from the end of one line to the beginning of the next line. This means you do not have to press Return at the end of each line. The text wraps around by itself.

write protect: To prevent someone from writing on a disk. Your original of the AppleWorks program disk is write protected; that means you cannot write to it. Solution: Make a copy that is not write protected, and use the copy.

Zoom: A command that moves you back and forth between ways of displaying your document. In the Word Processor, ⌘-Z displays or hides printer options. In Review/Add/Change of the Data Base, ⌘-Z moves you back and forth between single-record layout and multiple-record layout. In a labels-style report, ⌘-Z shows just the category names or the actual records. In the Spreadsheet, ⌘-Z shows or hides the formulas behind values.

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