

Discovery Software



from World Book™

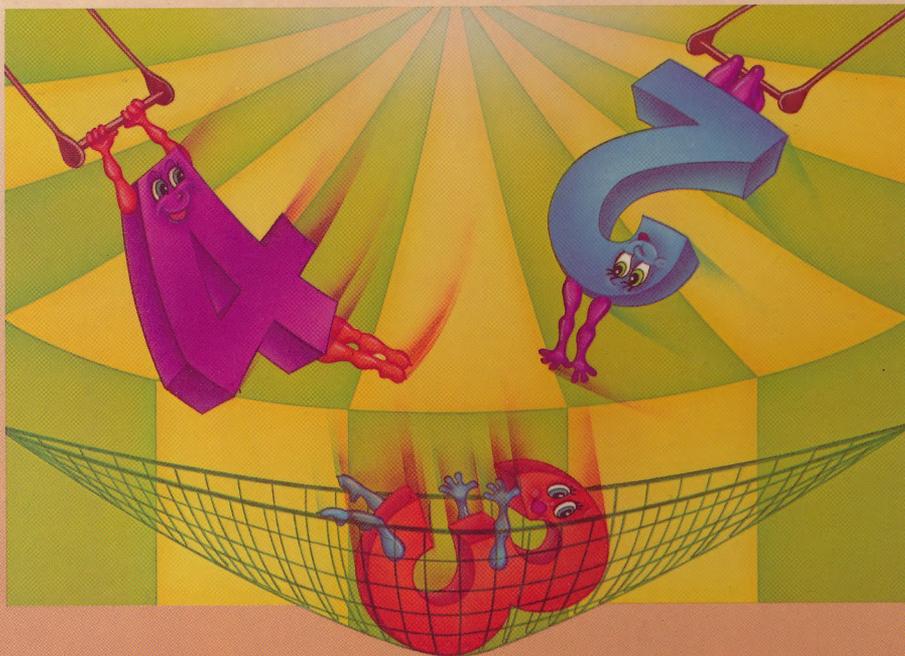
Suggested for children
ages 6 years to 10 years
PRIMARY LEVEL

Mighty Math

Apple® IIe or Apple® IIc
64K diskette

ISBN 0-7166-8350-4

AP-8540-1



Mighty Math™

Program Features

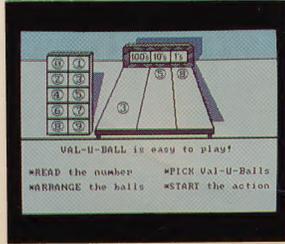
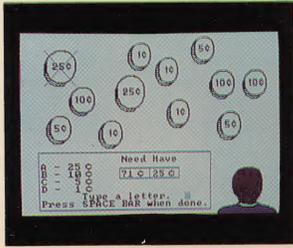
- Six challenging activities
- Three difficulty levels per activity
- Varying speed levels controlled by player

Educational Benefits

- Offers review and challenge in adding, subtracting, and multiplying
- Provides practice in making sets
- Gives help in understanding place values
- Offers practice in number sequencing

All Primary Level programs of *Discovery Software from World Book* are controlled by pressing the same selected keys and key combinations. This special feature means that if you can operate one of the programs, you can operate all of them.

Mighty Math™



This carton contains:

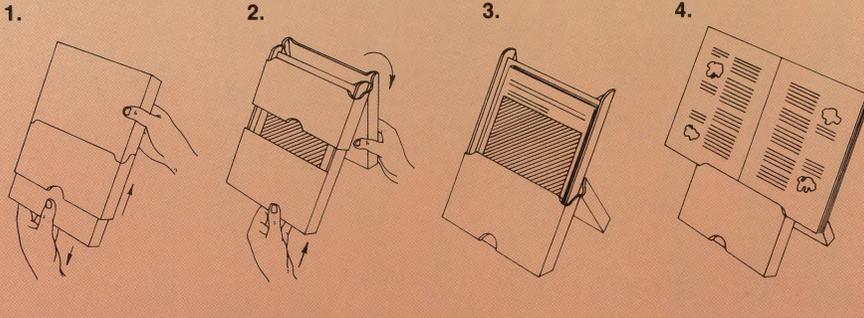
- one program diskette
- one User's Information and Activity Guide
- one Help card

Discovery Software from World Book™ features sound, color, and graphics to hold user interest.

Discovery Software from World Book offers seven programs at the Primary Level.

- A-Mazing Words** (spelling review)
- How Things Work** (science simulation)
- Mighty Math** (arithmetic help and challenge)
- Plot-a-Point** (number line practice)
- Space Port** (visual memory enrichment)
- Take Me North** (map skills review)
- Word-Player** (vocabulary reinforcement)

Opening your easel carton is easy!



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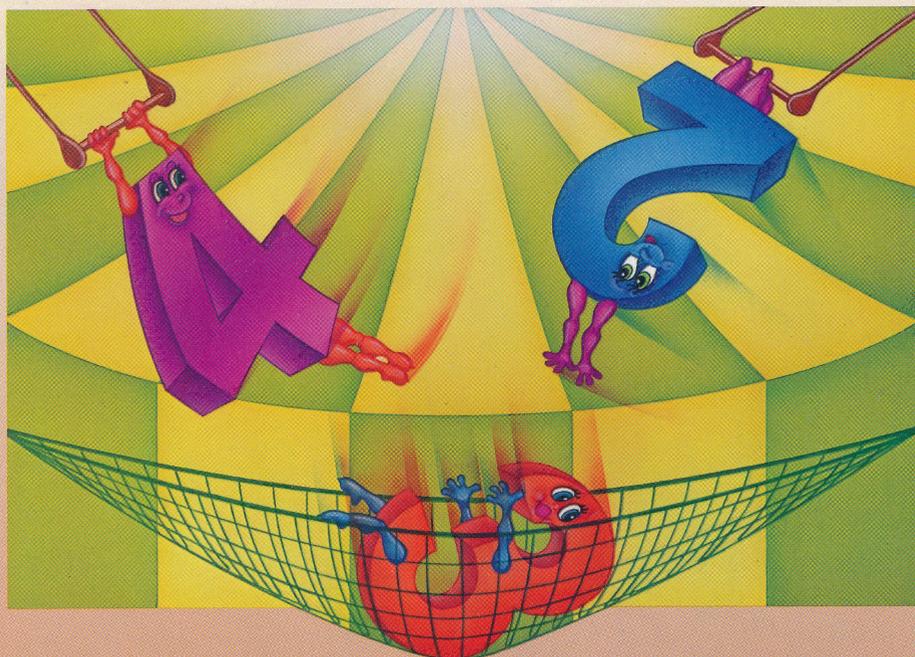
Printed in the U.S.A.

Discovery Software



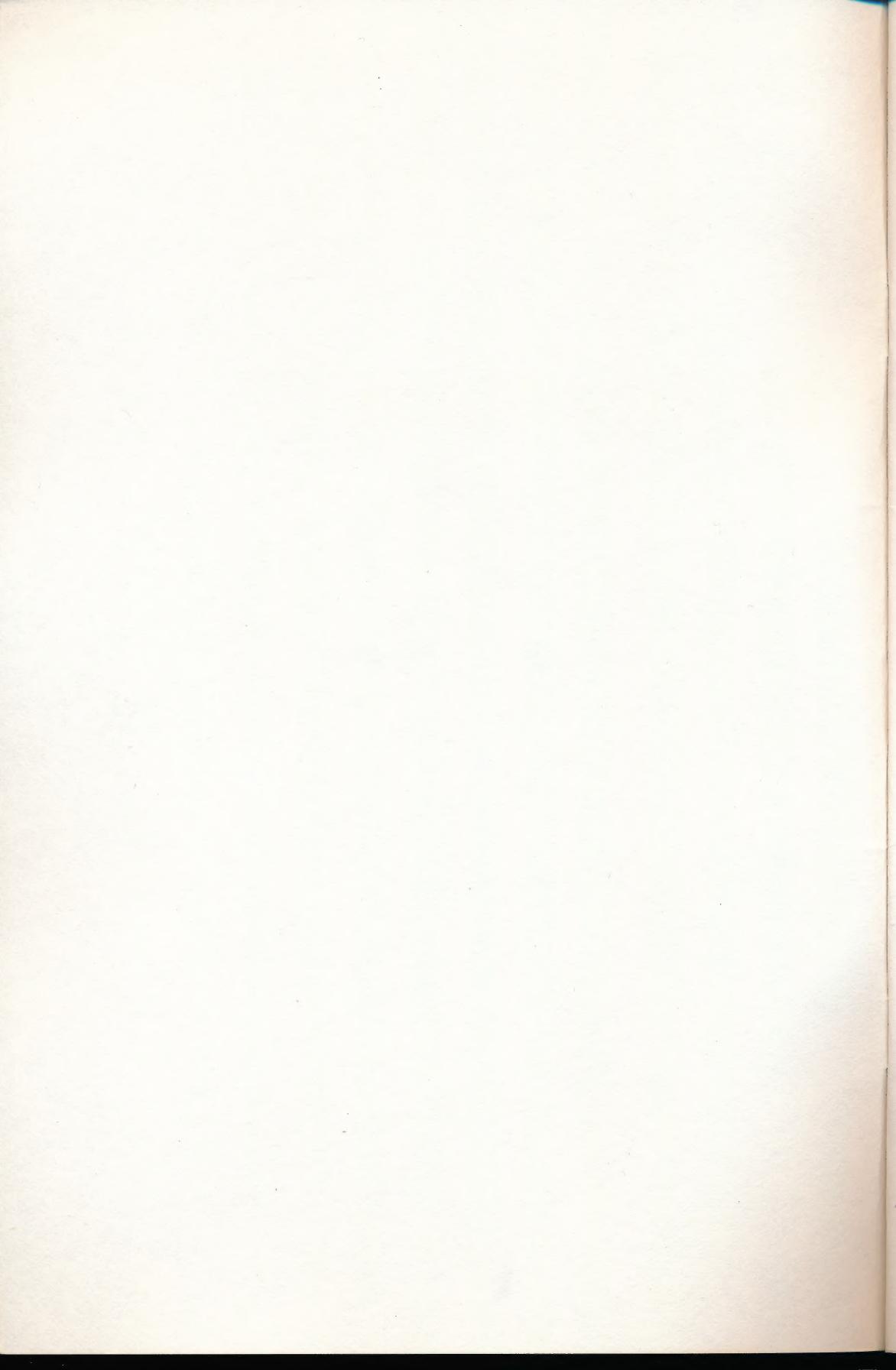
from World Book™

Suggested for children
ages 6 years to 10 years
PRIMARY LEVEL



Mighty Math™

User's information and activity guide
features review of basic arithmetic skills at
varying levels of difficulty



Mighty Math™

Things to know and do

Published by
World Book, Inc.
a Scott Fetzer company
Chicago

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B/HF

Mighty Math™

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No suit, litigation, or action shall be brought based on the alleged breach of this warranty or any implied warranties more than one year after the date of purchase in those jurisdictions allowing such a limitation; otherwise, no such action shall be brought more than one year after the expiration of this warranty.

A Word to Parents

Mighty Math™ is a software and print program for primary school-age children. It is designed to give practice in adding, subtracting, and multiplying; in determining place values of numbers; and in sequencing of numbers. This guide contains instructions on how to use the software program. It also contains a variety of games and activities that will enhance and enrich the contents of the software program.

Many of the games and activities in this guide are intended to supplement a child's knowledge of basic arithmetic operations in a fun and memorable way. It is easier and more enjoyable for a child to practice adding, subtracting, and multiplying while making and using a clock, buying and selling items in a make-believe general store, or measuring his or her own broad jumps.

Other activities encourage a child to carefully think through a variety of problems. For example, the section on ordering gives practice in finding out "What comes next?" in a logical sequence, such as in ordering numbers from lowest to highest. Or, a child is asked to match cards that have the same number but different arrangement of X's on them. The section on place values helps a child identify the value of a given number. Finally, the section on estimating helps develop a child's speed of response while he or she makes thoughtful, careful estimates.

Other attractive features of the games and activities include using easily accessible household items in play, such as egg cartons for cash registers and beans for counting. Also, many of the activities can be played either alone or with others.

This combination of utilizing the software program on the computer and doing the activities in this guide presents an interesting and interactive way to help a child strengthen his or her skills at performing basic arithmetic operations.

General Information

Please consult your computer owner's manual to make sure your computer is cabled together properly and the system is operational.

Handling the Diskette

There are several "do's" and "do not's" to keep in mind when handling *Discovery Software from World Book*.

DO'S

- Do handle the diskette carefully by its plastic sleeve or its label.
- Do keep the diskette in its paper envelope and easel carton when you finish using the program.

DO NOT'S

- Do not touch the diskette except by its sleeve or label.
- Do not fold the diskette or attach paper clips to it.
- Do not write on the diskette with a ball point pen or pencil.
- Do not put the diskette near a magnet.
- Do not store the diskette in places that are moist, directly sunny, very hot, or extremely cold.

Starting the Program

In general, you can start *Discovery Software from World Book* in the following way. See your Help Card, however, for start-up information for a specific computer.

1. Turn on your monitor.
2. Keeping the label faceup, insert your program diskette into the drive and close the drive's latch.
3. Turn on your computer. The program will start automatically.

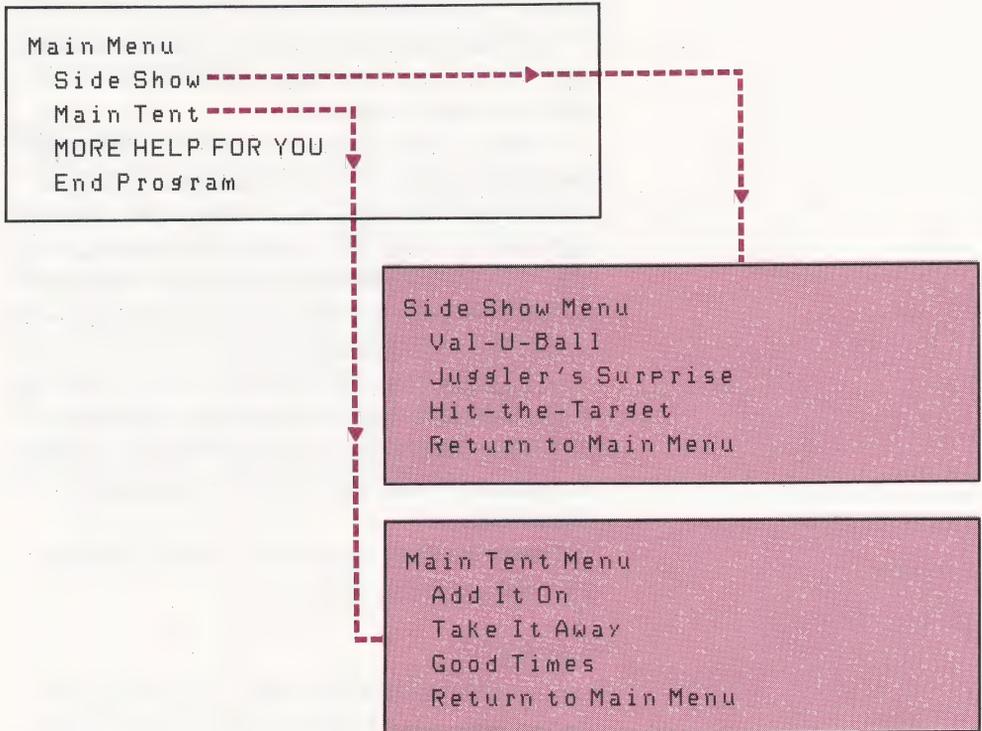
Ending the Program

When you want to stop playing your program, you can select "End Program" from the Main Menu. Wait until the light on the disk drive goes off be-

fore taking out the diskette, slipping it into its protective sleeve, and putting it away in its easel carton. Then turn off your computer and monitor.

Choosing from the Menus

The Main Menu for *Mighty Math*, shown below, displays four program options. Additional options are presented on the program's submenus, also shown below.



Program Instructions

The first time the child plays *Mighty Math*, he or she must buy a password. This is done by combining the appropriate coins displayed on the screen in the requested amount. For subsequent plays, the child enters his or her password to go directly to the Main Menu.

The Main Menu for *Mighty Math* offers four options: Main Tent, Side Show, MORE HELP FOR YOU, and End Program.

A child should select Main Tent or Side Show to play the program's arithmetic activities. Each of the activities features a menu from which the child can select a range of numbers with which to work. Also, a scoreboard keeps track of the number of correct and incorrect answers given or the number of tries attempted in each activity.

A child can select MORE HELP FOR YOU if he or she wishes to see a menu that explains the program's special functions. End Program should be selected if the child wishes to stop playing *Mighty Math*.

A more detailed explanation of the program's arithmetic activities follows.

Side Show

If the child selects Side Show, he or she can choose from three different math games: Val-U-Ball, Juggler's Surprise, or Hit-the-Target. Val-U-Ball gives practice in arranging numbers in their proper place value. A number spelled out in letters and a rack of numbered balls will appear on the screen. The child selects numerals for the spelled out number from the rack of numbered balls. The ball for each correct numeral that is selected will appear next to an alley. Using the right and left arrow keys, the child then must order the numerals in their proper place value.

Juggler's Surprise gives practice in building sets. The sets are made up of mathematical symbols and numbers. The symbols and numbers appear on balls that two jugglers toss back and forth to each other. *Mighty Math* lets the child pick the

speed at which the jugglers juggle. The child must then "capture" certain balls when they reach a juggler's hands and stack them in sets in designated areas on the screen.

Hit-the-Target gives practice in finding the missing number in a logical sequence. Numbered targets travel across the screen. The child must watch for and knock over the desired target when it reaches the middle of the screen. Then the child must type the number on the target before it comes back up. *Mighty Math* lets the child know if his or her response is too high or too low and then supplies the answer.

Main Tent

If the child selects Main Tent, he or she can choose to play Add It On, Take It Away, or Good Times. In each of these activities, the child must determine and type the missing number in a series of given arithmetic problems. Feedback is given for correct or incorrect answers. If the answer is correct, *Mighty Math* shows a new arithmetic problem. If the answer is incorrect, the program tells the child if the response was too high or too low and then supplies the answer.

Ordering

Purpose: To compare numerals to the amounts they stand for and to practice putting numbers in numerical order

What you need: Nine index cards, pencil

X cards

Number each index card with a number from one through nine. On each card, print as many X's as the number on the card says. That means you will put nine X's on the card with the number "9" on it, eight X's on the card with the number "8" on it, and so on. See the illustration for how to put the X's on the cards.



Mix up the cards so that they are in jumbled order. Look for the card with one X on it. Then look for the card that shows two X's. Put the card with two X's to the right of the card with one X. Look for the card that shows three X's on it. Put that card to the right of the card with two X's. Continue until you have all nine cards in order from one through nine.

What you need: X cards (see "X cards" above for instructions on making X cards)

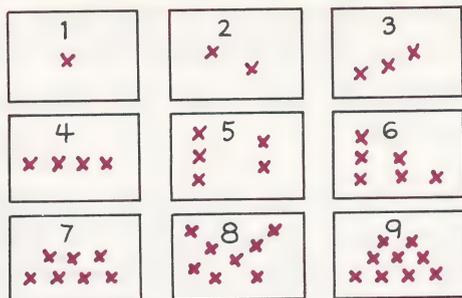
X detective

Mix up your X cards. Put them with the X side down on a table. Pick one card and put it away facedown. How are you going to tell which card is missing from the pile?

What you need: X cards (see "X cards" above for instructions on making X cards)

Alike, but different

Make a second set of X cards. This time, write the numbers one through nine on the long sides of the cards. See the illustration on page 11 for how to arrange the X's.

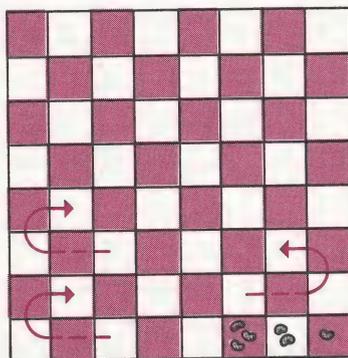


Compare the cards from the two sets that have the same number. Look closely at the cards. How are they alike? How are they different? Put both sets of cards together to make one set. Mix up the cards. Now match the cards that have the same number of X's on them. Then put each set of cards back in order from one through nine.

Add one on

If you don't have a checkerboard, draw lines up and down and across on a piece of paper (see illustration). Put one bean in a corner square of the checkerboard. On one square next to it, put two beans. On the next square, put three beans. For each new square that you come to, add one bean to the number of beans you have on the square before it. When you get to the end of one row, move into the row next to it. How many beans do you have at the end of the first row? The second row? Can you find another way to tell how many beans there are on any square *without* counting the beans? Check your answer with the answer key on page 23.

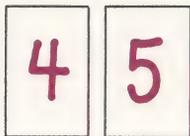
What you need: Checkerboard, uncooked beans



Number cards

On each index card, write a number from one to nine. Now take out cards "4" and "5." By arranging these cards in different

What you need: Nine index cards, paper, pencil



orders, you make different numbers. When “4” is first, the number you made is “45.” When “5” is first, the number you made is “54.”

Take two new cards. Put them together to make a number. Then change the order of the cards to make a new number. Write those numbers on your paper from lowest to highest.

Here is a list of number pairs. Arrange and rearrange each pair to make two different numbers. Then write the numbers in order from lowest to highest. Check your answers with the answer key on page 23.

- | | |
|---------|---------|
| a. 1, 5 | d. 3, 6 |
| b. 2, 4 | e. 5, 2 |
| c. 4, 3 | f. 8, 2 |

Now that you can order numbers using two cards, try to order numbers using three cards. You can make six different combinations of numbers with three cards. For example, if you use the cards numbered “1,” “2,” and “3,” these are the combinations you would make:

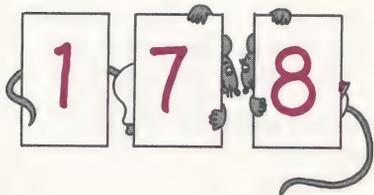
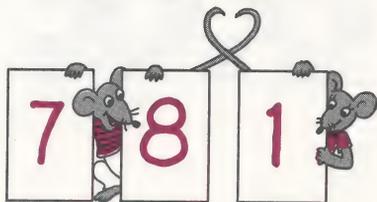
123 321 231
213 312 132

On your paper, you would order these numbers like this:

123, 132, 213, 231, 312, 321

Here is a list of number trios. Arrange and rearrange the trios to make six different numbers. Then write the numbers in order from lowest to highest. Check your answers with the answer key on page 23.

- | | |
|------------|------------|
| a. 7, 8, 1 | d. 3, 6, 5 |
| b. 1, 9, 6 | e. 2, 4, 9 |
| c. 5, 8, 2 | f. 3, 7, 9 |



Number values

Purpose: To review the concept of place value of numbers

Finding place values

Put each digit in the following numbers in its proper place in the place value chart below. The first one is done for you.

What you need: Pencil

Check your answers with the answer key on page 23.

- | | | |
|--------|-----------|-----------|
| a. 89 | e. 4,692 | i. 83,341 |
| b. 56 | f. 251 | j. 9,042 |
| c. 788 | g. 8,111 | |
| d. 38 | h. 11,762 | |

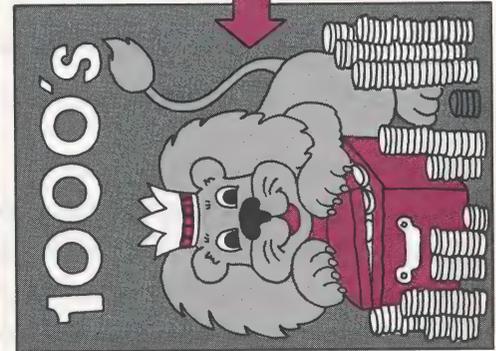
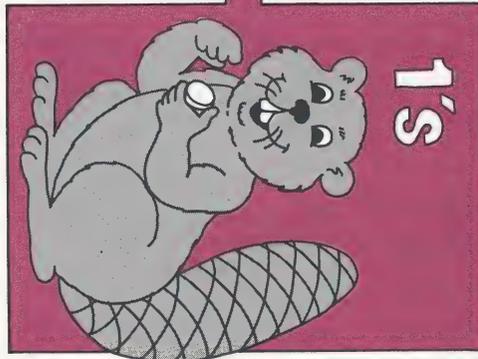
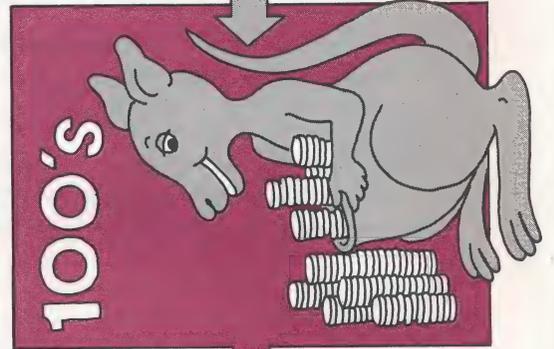
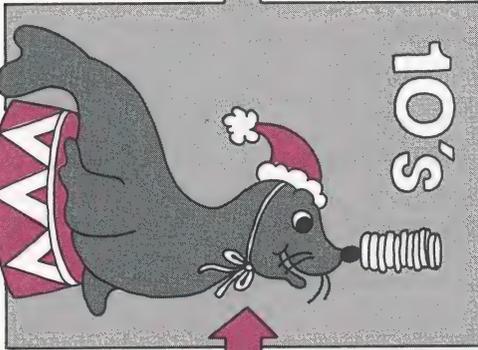
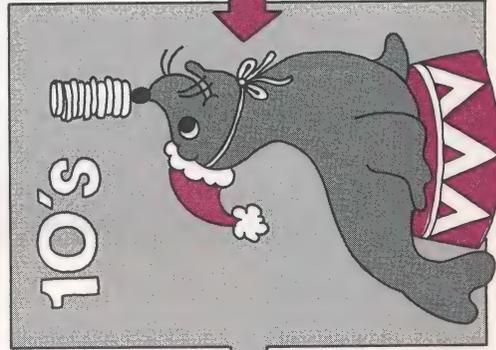
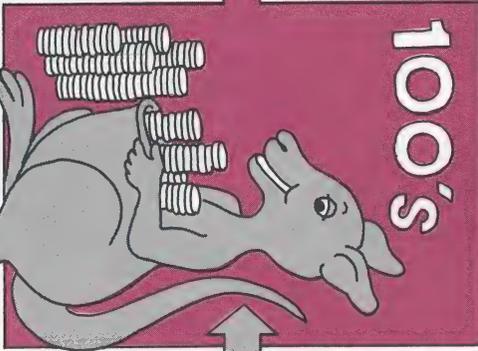
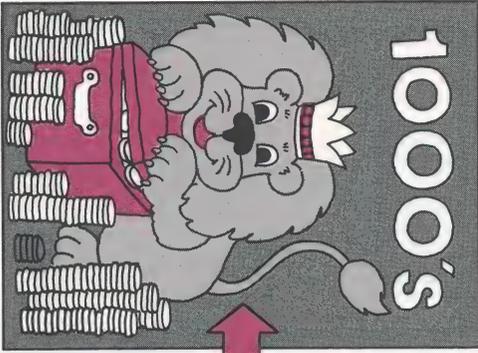


	TEN THOUSANDS	THOUSANDS	HUNDREDS	TENS	ONES
a				8	9
b					
c					
d					
e					
f					
g					
h					
i					
j					

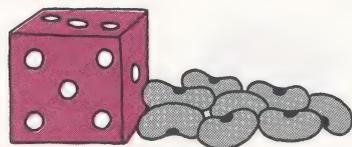
All beans in place

This is a game for two players. Use the game board on the following page. Place three beans in each of the eight squares. Each player takes one side of the game board. Each game is five rounds. Players take turns rolling the die. They move as

What you need: Twenty-four dry beans, die, paper, pencil



many beans as the die shows. However, players may move beans in a clockwise direction to the *next* square only. A player can move a bean or beans from any square. For example, if a player rolls four on the die, he or she can move two beans from the tens place to the hundreds place and two beans from the hundreds place to the thousands place. Or, he or she may choose to move four beans from the ones place to the tens place. Many moves are possible. The object of the game is to get as many beans as possible in the thousands and hundreds places.



At the end of five rounds, players count the beans in each of their squares. For example, six beans in the thousands place stands for 6,000. Three beans in the hundreds place stands for 300. Two beans in the tens place stands for 20. One bean in the ones place stands for 1. The number these beans represent is 6,321. The player with the highest number at the end of five rounds wins.

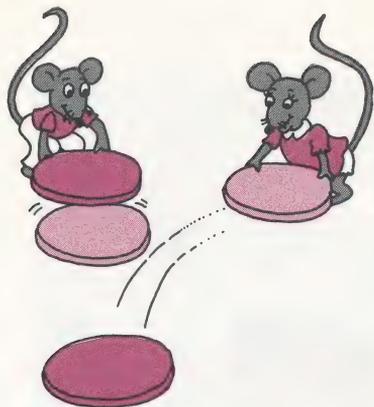
Measuring

Purpose: *To review and compare basic measuring units*

Winks by the yard

Make a starting line on the floor by taping down a piece of yarn by its ends. Take turns flipping the tiddly winks, or coins. The tiddly wink you flip must land within twelve inches, or a foot, from where it landed on your last turn. Use a ruler to make sure. If it lands more than twelve inches away, you miss your turn and go back to the starting line.

What you need: Three feet of yarn; tape; two different colored tiddly winks (or two different kinds of coins); twenty-four pieces of paper cut into one-inch squares; six strips of paper, each strip twelve inches long; ruler; yardstick



What you need: Masking tape, felt-tip pen (or chalk if you are playing outside on the sidewalk), yardstick, ruler, paper, pencil

Measure the distance your tiddly wink travels by laying down the small one-inch paper squares from where it landed on your last turn to where it landed on your current turn. As soon as your tiddly wink has traveled twelve inches, trade in the twelve one-inch squares for the twelve-inch strip. Keep playing until a player has laid down three of the twelve-inch strips. Three feet are one yard. The first player to move a yard wins.

Broad jump

Put down a strip of masking tape on the floor for a starting line. Measure one yard from the starting line. Put down another strip of tape. Mark the tape "1 yard" with the felt-tip pen. Using a ruler to measure, put down and mark strips of tape at "1 yard and 1 foot," "1 yard and 2 feet," and "2 yards." Now you are ready to play.

Begin with your toes on the starting line. Jump as far as you can. Put a small piece of masking tape where you land. Use the yardstick to measure your jumps and the jumps of your friends. (Be sure you measure to where your toes landed.) On the paper, record the distance everyone jumps in feet. Who holds the record as the farthest jumper? You can jump farther with practice.

Outdoors, play the same game on the sidewalk. Just use chalk to mark the distance you jump.



Telling time

Purpose: To practice reading the face of a clock and to compare the time on a clock with time written in numerals

Clock time/number time

Match the time shown on the clock face to the time written in numerals.

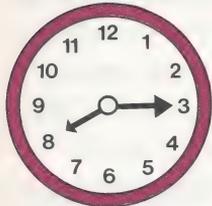
What you need: Pencil



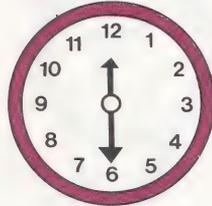
12:30



8:15



3:00



11:45



4:20



9:30

1:45



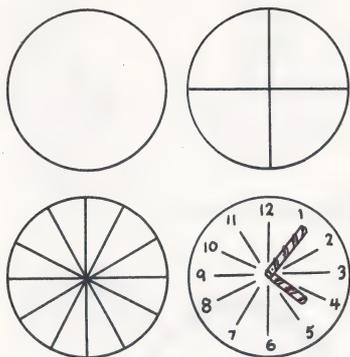
7:10



Make a clock

Turn the bowl over onto the drawing paper. Then trace the outside of the bowl to make a circle. First, divide the circle into four equal parts. Then divide each of these parts into three equal sections (see illustration). Begin with the line at the top of the circle. Label that line "12" as close to the outside edge of the circle as you

What you need: Sheet of unlined white paper, large mixing bowl, scissors, pencil, glue, long straw, short straw, thumbtack, piece of corrugated cardboard twelve inches square



can. Move to the next line on the right. Label that line "1." Go on to the next line. Label that line "2." Do the same for "3," "4," "5," and so on until you have gone all the way around the circle and are back at "12." Cut out the paper clock face and glue it to a square of corrugated cardboard. Stick the thumbtack through the ends of the straws. Then push the thumbtack through the middle of the clock into the cardboard.

Now you are ready to make time fly! With a friend, take turns setting the clock. A good rule to follow when setting the clock is to use the short straw to show the hour, and the long straw to show the minutes. Also, keep in mind that you must multiply every number on the clock by five to find out how many minutes the long hand shows. For example, if you want to show 3:10, you would put the long straw on the "2" ($2 \times 5 = 10$ minutes) and the short straw on the "3." See if your friend can tell the time you have set. Then have your friend set a time for you to tell.

Money

Purpose: To review the amounts that money represents and to practice counting money

Play money

You are going to make paper coins. Give each size of coin its own color of construction paper. Trace each coin as many times as you can on the color of paper you have chosen for it. When you are done tracing, with a felt-tip pen write the amount that coin stands for in each

What you need: One half-dollar, one quarter, one dime, one nickel, one penny; five different colors of construction paper; pencil

circle. For example, on the color of construction paper you have chosen for a quarter, you will write "25¢" in each of the circles. Do this for all the coins: 50¢, 10¢, 5¢, and 1¢, with each coin being a different color. Cut out all your coins.

Use the record sheet to figure out how much money you have. First, count how many of each coin you have. Write this amount on the record sheet. Then, next to each amount, figure out how much money the coins represent. For example, if you have seven half dollars, that means you have 3 dollars and 50 cents. Add up all the coins to see how much money you have.

COIN	NUMBER	AMOUNT
half dollar		
quarter		
dime		
nickel		
penny		

Save the "coins" you have made. They may come in handy for use in other games and activities.

General store

Use the empty egg carton as your cash drawer. Set prices for items in your store. Take turns with a friend buying and selling and making change in your store.



What you need: Paper coins (see "Play money" above for instructions on making paper coins); construction paper for dollars; objects for your general store, such as balls, blocks, toys, and so on to stand for milk, bread, fruit, eggs, and other foods; empty egg carton

Estimating

Purpose: To practice estimating

What you need: Paper, pencil, ruler, unmarked straightedge

Estimating how long

This is a game to test your estimating skills. To *estimate* means to make an educated guess.

Draw a line on a piece of paper. At first, keep each line you draw short. Try to estimate about how many inches long the line is. Then measure the line with a ruler to see how close your estimate is. Practice estimating the length of short lines (less than twelve inches) for a while. Then as your estimating skills sharpen, draw longer lines (up to a yard long) and see how close your estimates come.

What you need: Construction paper, scissors, tape, paper, pencil

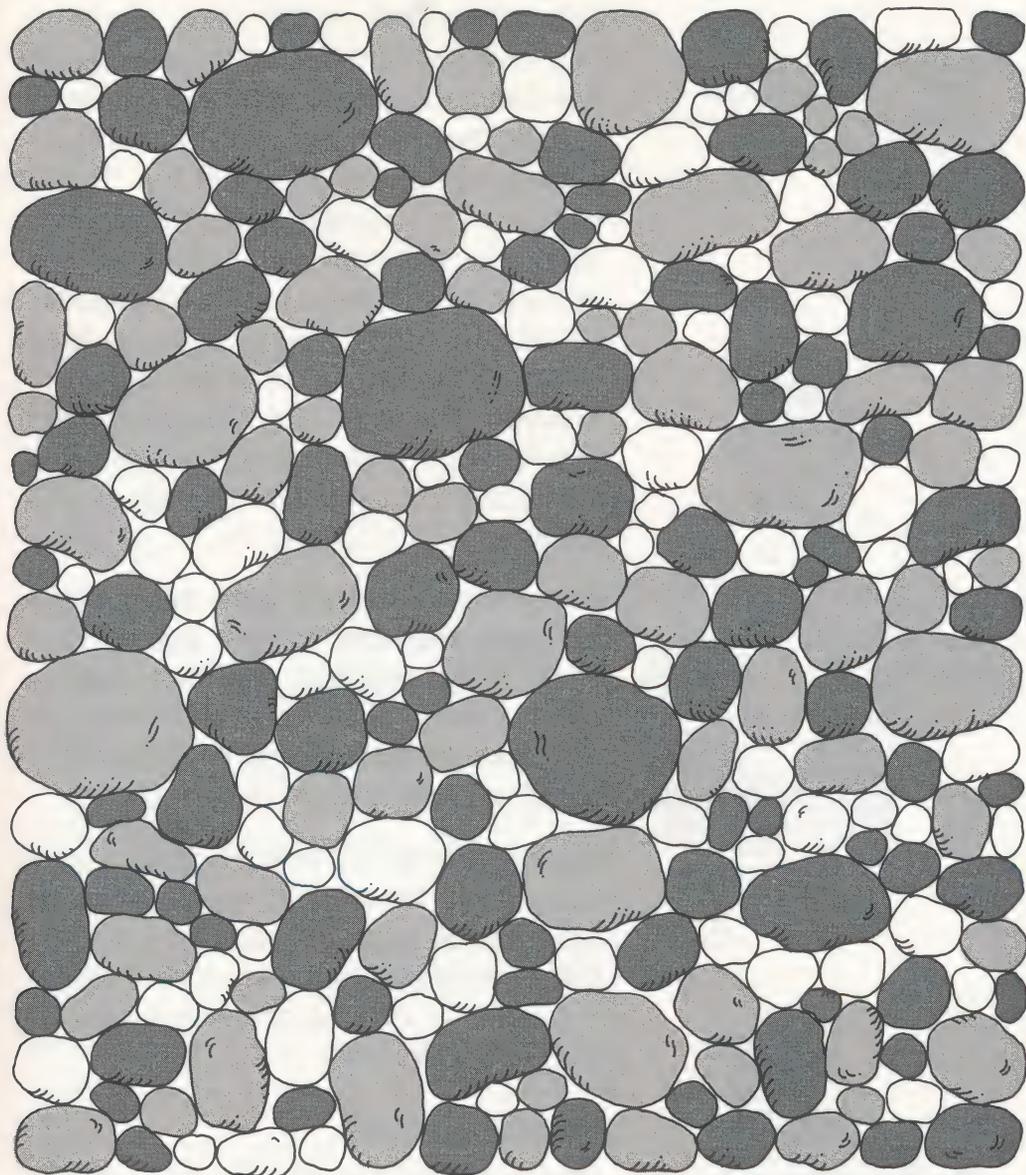
Stones on the beach

Use the scissors to cut out a strip of construction paper one-half inch wide and nine inches long. Now tape the ends of the strip together to make a ring.

Use the illustration of stones on the beach on page 21 to learn how to estimate numbers of things. Do not take the time to count.

Toss the paper ring gently onto the surface of the page. Look quickly and estimate the number of "stones" there are within the ring. Leave the ring on the page while you write down your estimate. Now count the stones within the ring. How close was your estimate? To find out, subtract the actual number of stones in the ring from your estimate. Or, subtract your estimate from the number of stones





in the ring. In other words, subtract the smaller number from the larger number.

Take turns estimating with a friend. Keep score by adding up the difference between the actual number of stones in the ring and your estimate for every round you play. Play ten rounds. The player with the *lowest* score at the end of ten rounds wins. With practice, you will get better at estimating.

What you need: Nine-by-twelve-inch piece of construction paper; scissors; tape; large puffed cereal; measuring cup



Tall, skinny/short, round

You may need the help of a grown-up for this activity. First, carefully fold the paper in half. Then, with the scissors, cut the piece of paper along the fold line. The two pieces must each be exactly the same size. Now, using the tape, make two different-sized tubes. The first tube should be tall and skinny. You can get this shape by taping the long sides of the paper together. The other tube should be short and round. You can get this shape by taping the short sides of the paper together.

The pieces of paper are the same size. However, the tubes are not shaped the same. Estimate about how many cups or parts of a cup of cereal each tube will hold. Do you think that both tubes will hold the same amount of cereal?

To test your estimate, pour cereal into the tubes. Hold the tubes firmly on top of the table as you pour. Fill each tube to the top. Then measure the amount of cereal in each tube with the measuring cup. Was your estimate right?

What you need: Facial tissue box, paper clip box, shoebox, toothpaste box, toothpick box, cereal (preferably a large puffed cereal), measuring cup, paper, pencil



Boxes and boxes

How many cups or parts of a cup of cereal will each of the boxes hold? Write down your estimates for every box on a piece of paper.

Here's how to find out how close your estimates are. Pour cereal into each of the boxes. Be careful not to crush the cereal. Then measure how many cups or parts of a cup of cereal each box holds. Write the amounts for each box on the paper next to your estimates. Compare

these measurements with your estimates. How close are your estimates? Now finish the game by enjoying a bowl of cereal!

Answer key

“Add one on” from page 11.

Just count the squares.

“Number cards” from page 12.

a. 15, 51 d. 36, 63

b. 24, 42 e. 25, 52

c. 34, 43 f. 28, 82

a. 178, 187, 718, 781, 817, 871 d. 356, 365, 536, 563, 635, 653

b. 169, 196, 619, 691, 916, 961 e. 249, 294, 429, 492, 924, 942

c. 258, 285, 528, 582, 825, 852 f. 379, 397, 739, 793, 937, 973

“Finding place values” from page 13.

	TEN THOUSANDS	THOUSANDS	HUNDREDS	TENS	ONES
a				8	9
b				5	6
c			7	8	8
d				3	8
e		4	6	9	2
f			2	5	1
g		8	1	1	1
h	1	1	7	6	2
i	8	3	3	4	1
j		9	0	4	2



Watch these words

Count. To find out how many of something there are. To add up.

Cup. A unit of measure that equals eight ounces.

Difference. The amount left after one quantity is subtracted from another.

Estimate. To make an educated guess on the amount, length, cost, value, and so on, of something.

Foot. A measure of length equal to twelve inches.

Inch. A measure of length equal to one-twelfth of a foot.

Measure. To find or show the size, weight, or amount of something.

Money. The coins and paper currency of a country. Half dollars, quarters, dimes, nickels, pennies, and dollar bills are money.

Number. A symbol or word that tells how many or which one.

Numeral. A figure or group of figures that stand for a number.

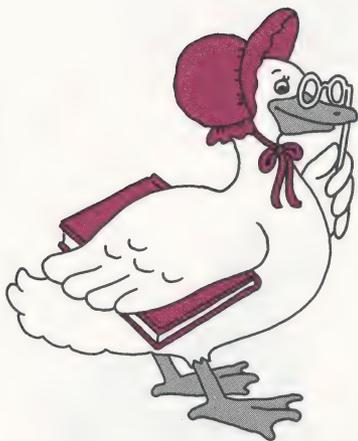
Order. To put into order. For example, numbers put into numerical order would start with the lowest number and go up.

Pair. Two persons or things that go together.

Place. The number of figures in a number. For example, the number "20" has two places.

Trio. Three things or persons that go together.

Yard. A measure of length equal to three feet.





Starting the Program

Your *Discovery Software from World Book* was designed for the Apple® IIe and the Apple® IIc. You can start the program in one of the two following ways.

When Your Apple Is Turned Off

1. Turn on your TV or monitor.
2. Keeping the label faceup, insert your program diskette into the diskette drive and close the drive's latch.
3. Turn on your computer. The program will start automatically.

When Your Apple Is Turned On

1. Keeping the label faceup, insert your program diskette into the diskette drive and close the drive's latch.
2. Hold down the Control key [CONTROL] and the Open-Apple key [⌘] and press the Reset key [RESET]. Your program will start automatically.

Ending the Program

When you want to stop playing your program, you can select "End Program" from the Main Menu. Wait until the light on the disk drive goes off before taking out the diskette, slipping it into its protective sleeve, and putting it away in its easel carton. Then turn off your computer and TV or monitor.

Understanding the Error Messages

Occasionally, you may try to load a program and get no results except noise. This can mean that you inserted the diskette improperly, that the drive latch is not closed, or that your diskette is not formatted. On occasion you may also see an error message on your screen. Please note the following error messages and what they mean:

I/O ERROR

If the drive latch is left open or if the diskette is not inserted properly in the drive, you will see this message. You will also see it if you inserted the diskette in the wrong drive of a two-drive system. Reinsert the diskette correctly, close the latch, and try again.

WRITE PROTECT

The program must be able to write on the diskette. Please remove the write-protect tab and try the program again.

If you see this error when you attempt to save a spreadsheet, your second diskette may not be formatted.

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Using the Special Keys

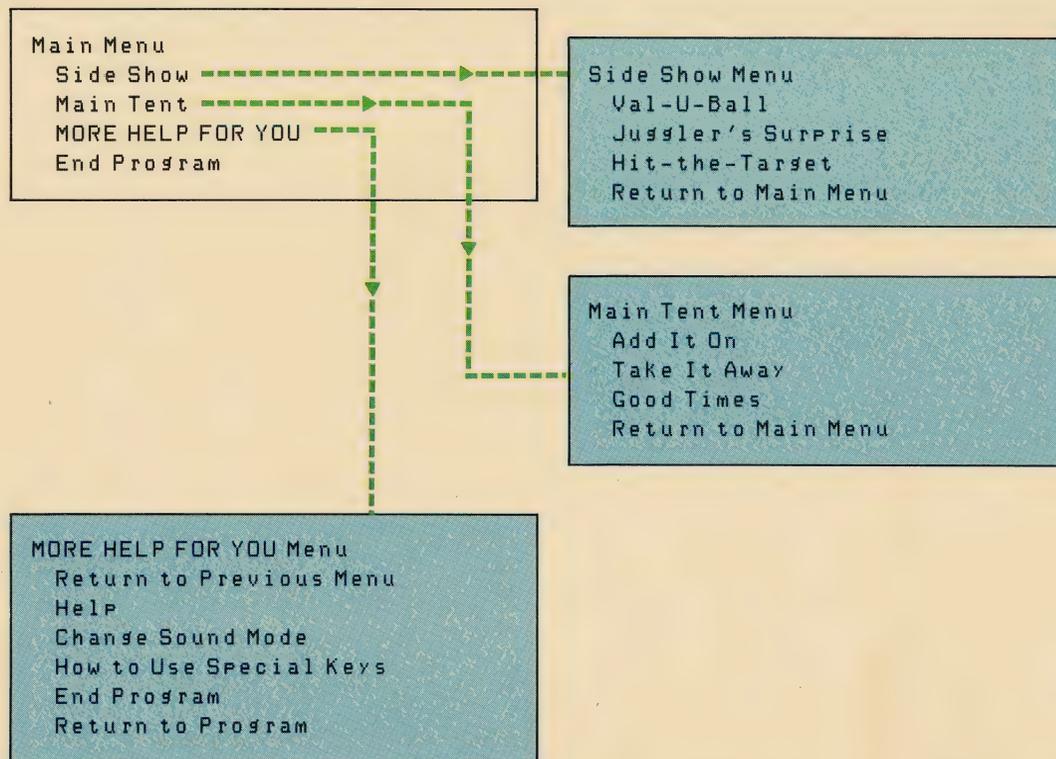
Pressing special key combinations while your program is running will help you make use of *Discovery Software from World Book's* special features. These features can also be reached through the MORE HELP FOR YOU Menu, which you can always access by pressing the Escape key [Esc].

Each special key combination is formed by holding down the Open-Apple key [⌘] while pressing the appropriate letter key. A list of special key combinations and the features that they activate follows.

- [⌘] - [E] **End** program. Press this key combination to end the program.
- [⌘] - [H] **Help** call. Press this key combination to view "How to Use" instructions.
- [⌘] - [M] **Menu** call. Press this key combination to return to the previous menu.
- [⌘] - [S] **Sound** control. Press this key combination to turn the sound on or off.
- [Esc] Press this key to call the MORE HELP FOR YOU Menu.

Choosing from the Menus

The Main Menu for *Mighty Math*, shown below, displays four program options. Additional options are presented on the program's sub-menus, also shown below.





Discovery Software
from World Book™

Primary Level
For the Apple® IIe or Apple® IIc
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Mighty Math™

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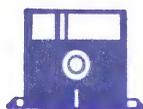
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here's how to take care of your flexible disk**



**Protect
Protéger
Protéger
Schützen
保護**



**Never
Nunca
Jamais
Nie
絶対禁止**



**Insert Carefully
Insérer
Insérer avec soin
Sorgfältig Einsetzen
挿入注意**



**Never
Nunca
Jamais
Nie
絶対禁止**



**10°C—52°C
50°F—125°F
R.H. 8%—80%**



**Never
Nunca
Jamais
Nie
絶対禁止**

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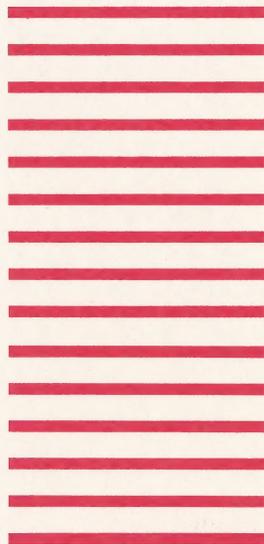
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