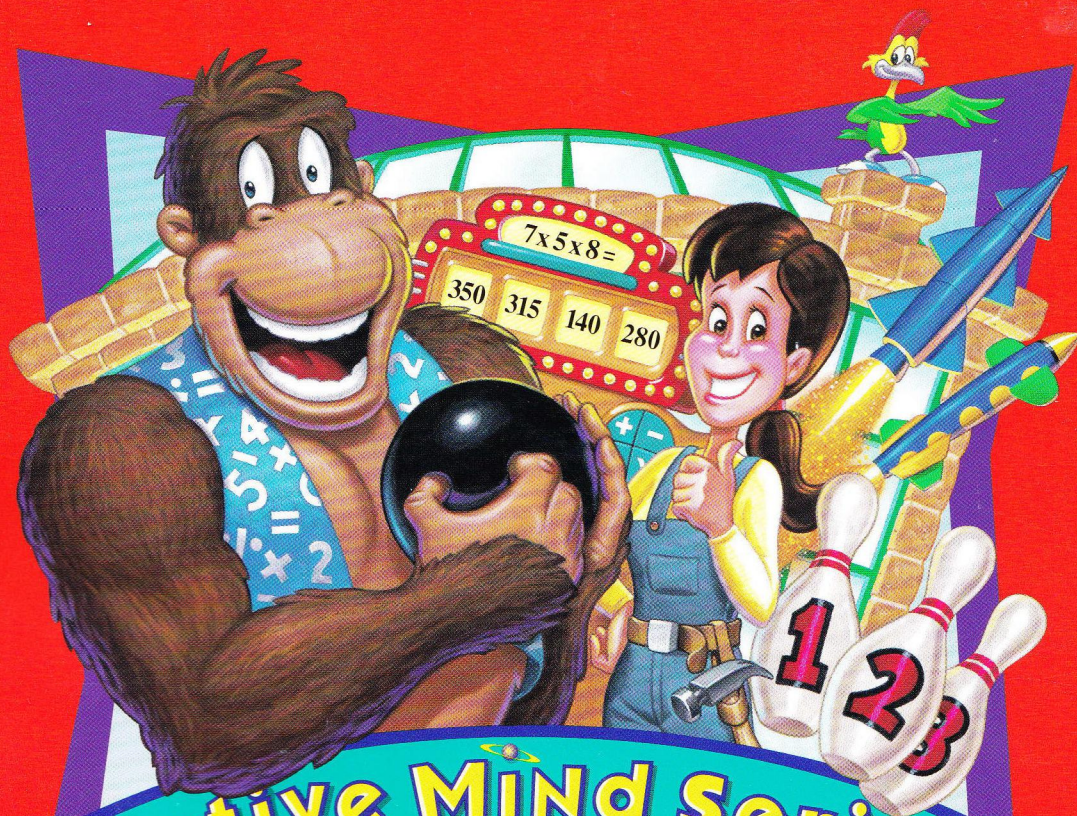




Active Mind Series™

MATH WORKSHOP™

DELUXE

USER'S GUIDE

20+
Skills

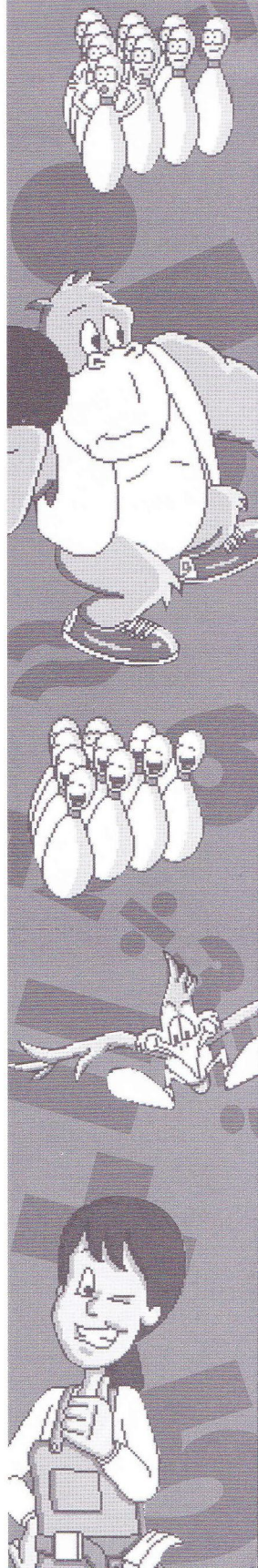
to Master Math and
Boost Math Confidence

MATH WORKSHOP™ DELUXE

USER'S MANUAL



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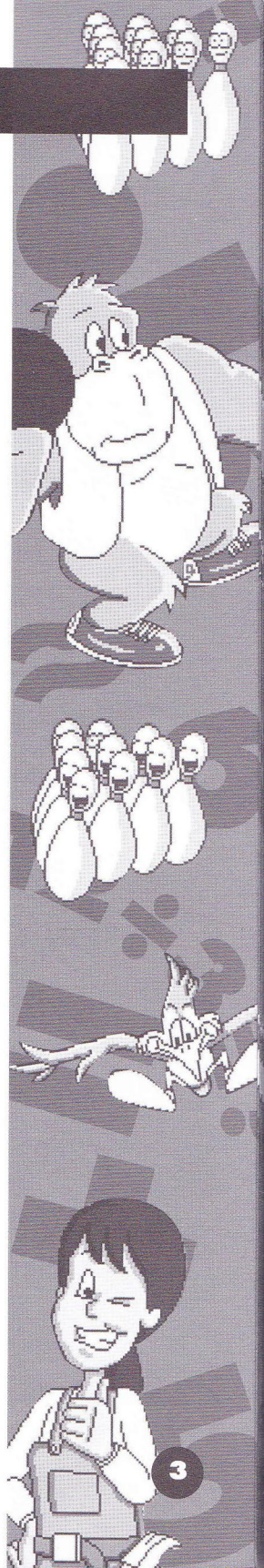
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Active Mind Series™

OUR LEARNING GUARANTEE

WE PUT MORE IN. KIDS GET MORE OUT.

Our promise to you and your family is an ongoing commitment to providing the highest quality educational software products available. Created with input from teachers, parents, and children, each product immerses kids in dynamic learning environments that offer innovative technology, cinema-quality animation, original music, and hands-on activities. It is these environments that encourage kids to develop a lifetime habit of associating fun with learning.



Parents' Video Guide

FOR
PARENTS

Parents' Corner

Included on this CD-ROM disc is, the *Parents' Video Guide for Math Workshop*. This application consists of QuickTime movies that present you with new teaching methods in primary-level math education, educational strategies of *Math Workshop*, and meaningful ways to get more involved in your child's math education.

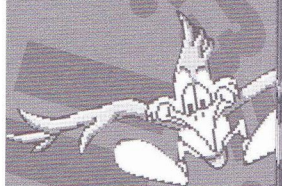
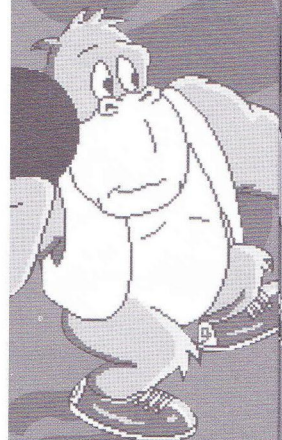
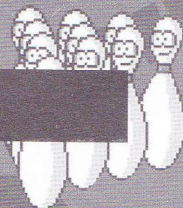
In the Activities and Resources section of this program, you can print instructions for math-oriented games and activities to play with your child. You can also print lists of the National Council of Teachers of Mathematics' curriculum standards for grades K-4 and 5-8, suggested math-oriented literature, helpful national organizations, businesses that distribute math learning materials, and Internet sites related to children's math education.

To begin this program, please double-click the *Parents' Video Guide* icon either in the *Math Workshop* folder on your Macintosh, in the **Brøderbund Software** program group in your Windows Program Manager, or on the **Start** menu under **Programs** and **Brøderbund Software** in Windows 95. To quit the program, press **⌘ + Q** on your Macintosh or **Ctrl + Q** in Windows.



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Welcome to Math Workshop

Welcome to Brøderbund's *Math Workshop*! Step inside to meet Poly Gonzales. She runs the place. In Poly's Control Room, choose from a number of fun games and activities: you can launch rockets through the roof, build three types of puzzles that leap to life, make fractions into funky music with Algebird, go bowling for numbers with Gus the Gorilla, and paint beautiful patterns in Pattern Windows!

While playing these great games and activities, you'll also be learning important math skills like problem solving, basic operations, computation, fractions, pattern recognition, estimation, spatial thinking, and logical reasoning.

So, come play inside *Math Workshop* and let the fun begin!



Getting Started

INSTALLATION INSTRUCTIONS FOR WINDOWS® AND MACINTOSH®

WINDOWS® CD-ROM*

Windows 3.1x or Windows 95

8MB RAM required

Requires 4MB hard disk space

2X CD-ROM drive or faster required

SVGA monitor/display card 640x480, 256 colors; thousands of colors supported

Windows compatible sound device

Printer support: works with most popular printers (monochrome and color) supported by Windows

*System Configuration: May require minor adjustments to the configuration of your operating system and/or updates to the hardware component drivers.

WINDOWS 95 TO INSTALL

- Begin at the Windows 95 desktop.
- Insert the CD-ROM disc into your CD-ROM drive.
- The **Math Workshop v2.0 Startup** window will appear.
- Click the **Install** button and follow the on-screen instructions to install the program.

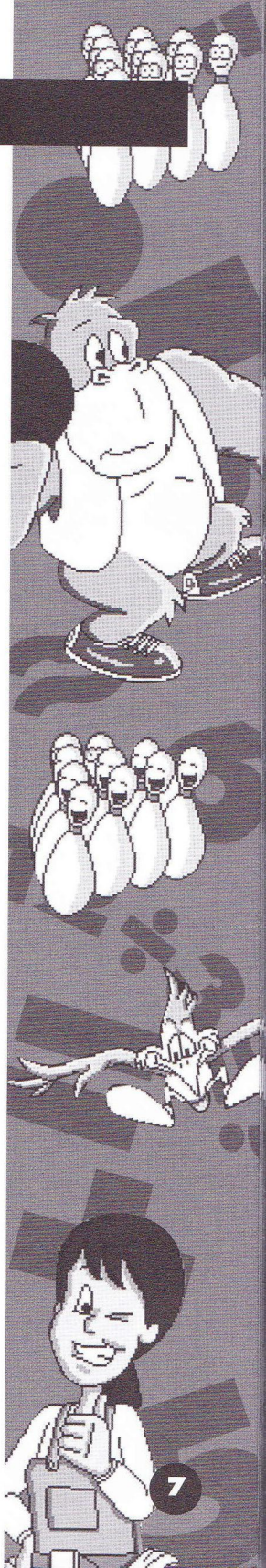
If the **Math Workshop v2.0 Startup** window does not appear automatically on screen, you can install the program manually:

- Click the **Start** button on the taskbar and choose **Run**.
- Type **D:\SETUP.EXE** in the line labeled Open. (If your CD-ROM drive uses a letter other than **D**, substitute that letter for **D**.)
- Click the **OK** button and follow the on-screen instructions to install the program.

TO RUN

After successfully installing the program, click the **Run** button at the **Startup** window to start the program. The **Startup** window will usually appear each time the CD-ROM disc is inserted into the CD-ROM drive.

If the **Math Workshop v2.0 Startup** window does not appear automatically on screen:



Getting Started

- Begin at the Windows 95 desktop.
- Click the **Start** button, point to **Programs**, and then **Brøderbund Software**.
- Click the **Math Workshop v2.0** menu item to start the program.

ABOUT THE AUTOPLAY DIALOG

The **Startup** window will appear each time the CD-ROM disc is inserted into the CD-ROM drive. If you prefer **Math Workshop v2.0** to launch automatically without seeing this screen, click the check box at the bottom of the **Startup** window marked "Show this window next time you insert the CD" so that the check mark is removed. The next time the CD is inserted into the CD-ROM drive, the program will automatically launch. (Note: This AutoPlay feature is not available if the **Math Workshop v2.0 Startup** window does not automatically appear the first time the CD is inserted.)

To reactivate the Startup window, insert the **Math Workshop v2.0** CD-ROM disc into your CD-ROM drive. When the program begins, immediately press **Alt+F4** to quit. Double-click the **My Computer** icon on the Windows 95 desktop. Click once with the right mouse button on the **Math Workshop v2.0** CD icon and select **AutoPlay Dialog**. Click on the check box at the bottom of the Startup window marked "Show this window next time you insert the CD" so a check mark is placed there. Click **Run** to start the program.

To Remove

If you need to remove **Math Workshop v2.0**, begin at the Windows 95 desktop. Click the **Start** button, point to **Settings**, and then **Control Panel**. Double-click the **Add/Remove Programs** icon. Click the **Install/Uninstall** tab and select **Math Workshop v2.0** from the list of programs. Click the **Add/Remove...** button and then click the **Yes** button to remove the program.

WINDOWS 3.1X TO INSTALL

- Begin at the Windows Program Manager.
- Insert the CD-ROM disc into your CD-ROM drive.
- Pull down the **File** menu and choose **Run**.
- Type **D:\SETUP.EXE** in the line labeled Command Line. (If your CD-ROM drive uses a letter other than **D**, substitute that letter for **D**.)
- Click the **OK** button and follow the on-screen instructions to install the program.

TO RUN

After successfully installing the program, a program group titled **Brøderbund**

Getting Started

Software will be created in the Windows Program Manager. It will contain an icon labeled **Math Workshop v2.0**. Double-click this icon to begin playing.

To Remove

If you need to uninstall **Math Workshop v2.0**, begin at the Windows Program Manager. Locate the **Broderbund Software** program group and double-click to open it. Double-click the **Uninstall Math Workshop v2.0** icon and then click **Yes** to uninstall the program.

POWER MACINTOSH® CD-ROM*

Power Macintosh required

System 7.1.2 or higher

12MB RAM; 5MB free

Requires 2.6MB hard disk space

2X CD-ROM drive or faster required

Monitor: 13 inch or larger color, 256 colors

Printer support: works with most popular Macintosh compatible printers (monochrome and color)

***System Configuration:** May require minor adjustments to the configuration of your operating system and/or updates to the hardware component drivers.

TO INSTALL

Insert the CD-ROM disc into your CD-ROM drive. Double-click the icon labeled **Installer** and follow the on-screen instructions to install the program.

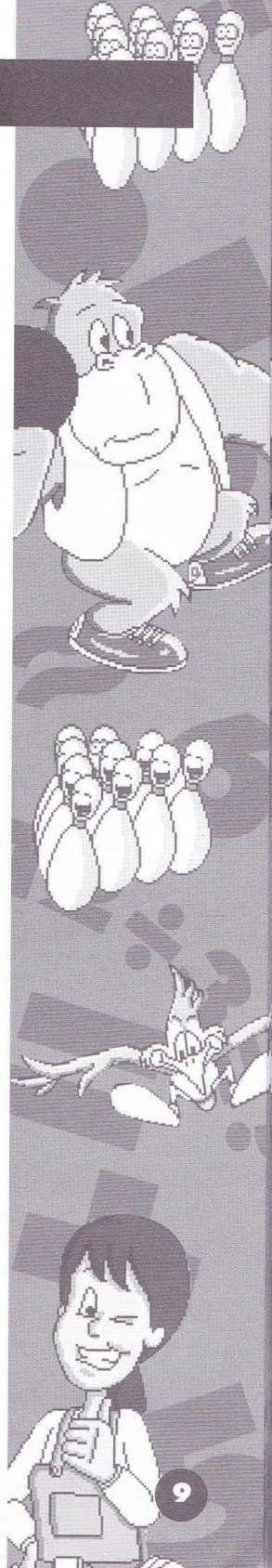
TO RUN

Open the **Math Workshop** folder on your hard drive and double-click the **Math Workshop v2.0** icon to begin playing.

ADDITIONAL PRODUCT INFORMATION

For **Math Workshop v2.0** to work properly, your system software must include these extensions:

- QuickTime v2.5
- QuickTime PowerPlug v2.5
- QuickTime Musical Instruments v2.5
- Sound Manager v3.2
- Thread Manager (for users of System 7.1.2 only)





Getting Started

Recent Macintosh System software may already include these extensions. Look in the **Extensions** folder found in the **System Folder** on your hard drive to see if these extensions are already installed in your system. If so, check the version number of **each** extension one at a time. To do this, click each extension icon once so it is highlighted. Then, pull down the **Apple** menu and select **Get Info** to check the version number.

If the version of any of these extensions is earlier than required, we suggest you upgrade to the more recent version included on the **Math Workshop** CD-ROM. If you need to update these extensions, double-click the hard drive icon on your desktop. In the hard drive window, double-click the **System Folder** icon. When the **System Folder** window opens, pull down the **File** menu and select **New Folder**. Name the new folder **Extensions(Old Versions)**. Double-click the **Extensions** folder to open it. Drag the older version of the extension you need to update from the Extensions folder onto the icon for the **Extensions(Old Versions)** folder. Repeat the last step as needed to move any other extensions you may need to update.

Next, double-click the **Math Workshop** CD-ROM icon to open the CD. In the window which appears, double-click the folder titled **Required Mac Extensions**. Drag the required extensions from the folder on the CD into the **Extensions** folder. Once the extensions have been moved to the **Extensions** folder, restart your Macintosh by pulling down the **Special** menu and selecting **Restart**.

To Remove

If you need to remove **Math Workshop v2.0**, just drag the **Math Workshop** folder from the hard drive into the Trash. Also, inside the **System Folder** under **Preferences**, you should find a **Brøderbund Software** folder. Inside that folder, locate the **Math Workshop v2.0** Preferences folder and drag it into the Trash. Empty the Trash.

PARENTS' VIDEO GUIDE

Before viewing the *Parents' Video Guide* for the first time, you must have *Quicktime 2.5*, *Quicktime Power Plug 2.5*, *Quicktime Musical Instruments 2.5* and *Sound Manager 3.2* installed in your system. To install these extensions, please follow the instructions above.

To view the *Parents' Video Guide*, double-click on the *Parents' Video Guide* icon in the **Math Workshop** window on your desktop.

Buttons You Should Know!

SIGN-IN



Lets you sign in to play. Sign in so that *Math Workshop* can keep track of all the great things you do!

MATH TRIVIA



Tells you about many interesting math facts.

HELP



Asks Poly to step out and help you. When Poly first comes out to help, she'll tell you how to play the game. After Poly finishes talking about the game, click on anything you want to know about, and she'll explain it. To stop her in the middle of an explanation, click on the screen. To exit Help at any time, just click on Poly.

UPSTAIRS, DOWNSTAIRS



Level 1 takes you downstairs to Super Sticklers, Hidden Pictures, Puzzle Patterns, and Pattern Windows. Level 2 takes you upstairs to Rockets, Rhythm Shop, and the Boiler Room. Bowling For Numbers can be played at either level.

PREFERENCES



Allows you to access the audio controls, mouse control, bowling timer control, and roster control.

TRACKING



Shows you how you are doing so far on math skills.

QUIT

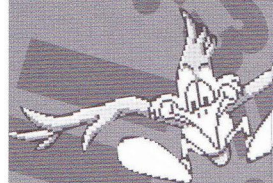
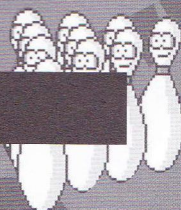


Lets you quit *Math Workshop*. Just click this button and the Quitting Time Whistle will appear. You can also quit by pressing **Ctrl+Q** in Windows systems, and **⌘+Q** in Macintosh systems.

LEVEL BROTHERS



Lets you choose the level you want to play. You may want to start with Green and work your way up to Orange and Red.



Buttons You Should Know!

RESET



Allows you to start over.

ROTATE



Turns puzzle pieces clockwise. Click this button to turn the last piece you picked up. You can also use your keyboard's spacebar to turn a piece while holding it with your mouse.

REPLAY

In Hidden Picture Puzzles, Puzzle Patterns, and Super Sticklers, click on the finished puzzle picture to see it animate again.

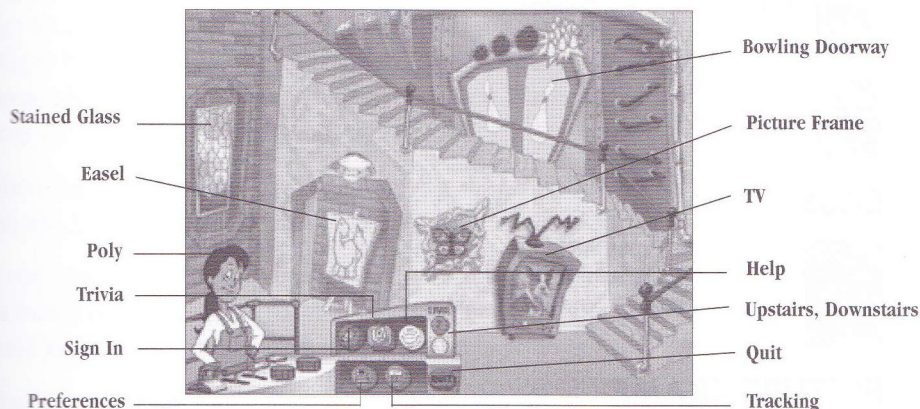
EXIT



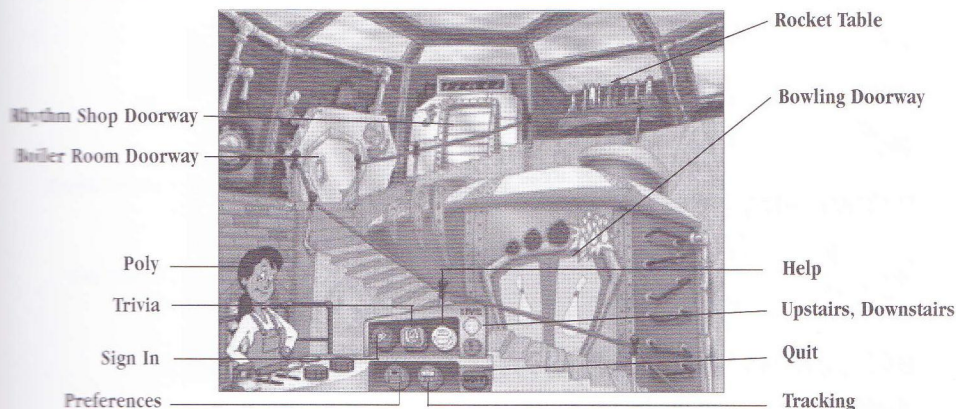
Lets you exit a game and get back to the middle of the Control Room.

Control Room

To begin playing, click on the front door of **Math Workshop**, and you will enter the Control Room and see this:



This is the first level of the **Math Workshop**. If you click on the **Level 2** button, you will see this:



POLY GONZALES



Is the only child of a rocket scientist and a calculus professor. She teathed on an abacus and spent hours watching the Fractal Mobile above her crib. By kindergarten Poly knew she loved math. As she grew, her love for math multiplied. She's the youngest person ever to manage the **Math Workshop**!

When she's not working, she's hanging out with her parents, her dog Vector, and her hamster Trig in their A-frame home at .3333 Dodecahedron Street in Ratio County, USA. Poly attends Solving-For-X Middle School where she recently won Student Council President on the slogan, "No one is greater than or less than ... everyone is equal to ... one another." Click **Help** to hear Poly talk about the Control Room.



Control Room

STAINED GLASS



Puts you in Pattern Windows.

EASEL



Puts you in Super Sticklers.

PICTURE FRAME



Puts you in Puzzle Patterns.

TV



Puts you in Hidden Picture Puzzles.

BOWLING DOORWAY



Puts you in Bowling for Numbers.

BOILER ROOM DOORWAY



Puts you in the Boiler Room.

ROCKET TABLE



Puts you in Rockets.

RHYTHM SHOP DOORWAY



Puts you in the Rhythm Shop.

Control Room

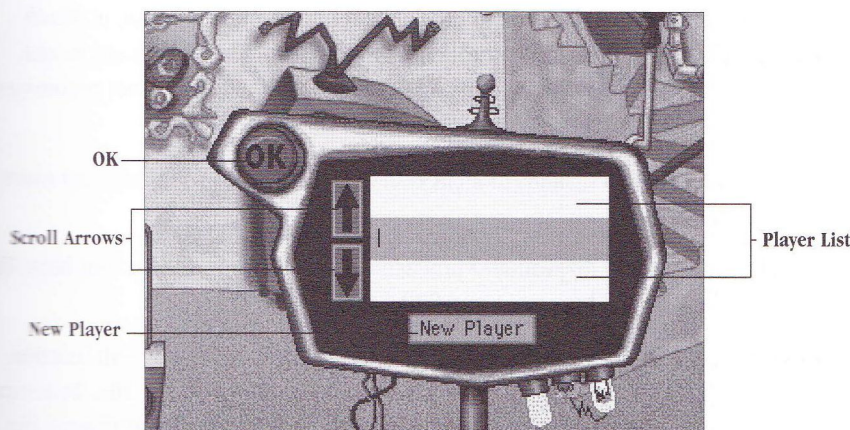
SIGNING IN

When you start *Math Workshop*, the Sign-In Monitor will rise in front of you. You will also hear Poly Gonzales asking you to sign in. If you are a new player, click the **New Player** button. A green space will appear. Type your name into the open space. If you would like to add more players' names, click **New Player** again. If not, click the **OK** button to enter the Control Room.

When you come back and play again later, use the arrows to look through the Player List and find your name. Double-click your name to sign in.

If you would like to sign in someone else after you have started playing, click the **Sign-In** button on Poly's control panel. If you accidentally click the **Sign-In** button, but don't want to sign in again, click the **OK** button to get back to the fun.

The Sign-In Monitor looks like this:



PLAYER LIST

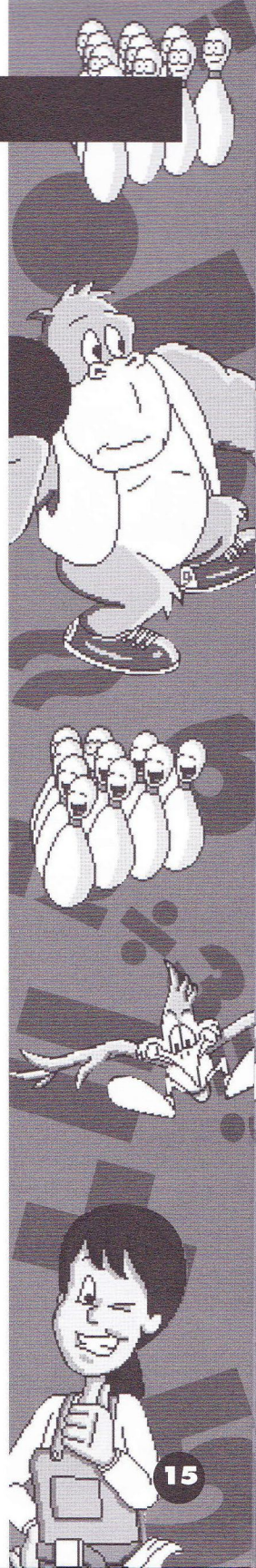


Lists everyone who has played with *Math Workshop* on this computer. If you are a new player, click the **New Player** button, then type your name in here, and click **OK**. If your name is already listed, double-click it.

NEW PLAYER



Tells *Math Workshop* that you would like to sign a player into the Player List.



Control Room

SCROLL ARROWS



Allows you to look through the Player List to find your name.

OK



Puts away the Sign-In Monitor, and lets you make choices in the Control Room. You can also use either the **Return** key on a Macintosh keyboard or **Enter** on the keyboard of a Windows-based computer.

PREFERENCES MONITOR



Clicking the **Preferences** button shows you the Preferences Monitor. The Preferences Monitor allows you to access the audio control, mouse control, bowling timer control, and roster control.

The audio control option allows you to turn on and off the ambient music in *Math Workshop*. All other sounds are controlled by your system. The Help function and some of the gameplay are dependent on all the other sounds, so we do not recommend that you turn them off.

The mouse control option defaults to a click-and-stick mode, so your child can move things more easily.

You can also set the timer for drill-and-practice questions in Bowling for Numbers. The time limit can be adjusted between 1 and 999 seconds.

The **Roster** button on the Preferences Monitor accesses the Roster File edit function. This function allows you to either add or delete players from the Roster File. To return to the Preferences Monitor from within the edit function, select the **Preferences** button.

ROSTER FILE

The Roster File is a file *Math Workshop* creates on your hard drive. It is called **MWRoster** and is located in the **Preferences** folder under **Brøderbund Software** on the Macintosh and in the program directory on a Windows system. The file maintains the Player List and information about each player. Each Roster File can maintain information about 40 players.

The Roster File can be modified with the **Roster** button. With this in mind, we suggest you make a backup of this file on a regular basis. You can create new Roster Files and freely interchange them. They only need to be named **MWRoster** for *Math Workshop*.

Control Room

to access them. Only one Roster File can be accessed at a time, however, so make sure to store others in a separate folder.

PROGRESS TRACKING

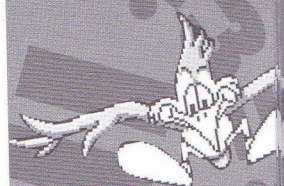
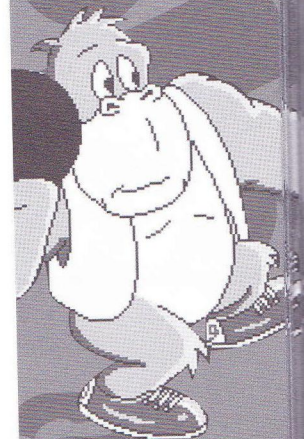
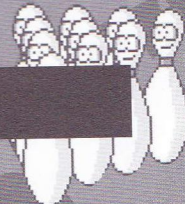
Progress Tracking is accessed by pressing the **Tracking** button on Poly's control panel. Progress Tracking keeps track of the percentage of correct answers when playing in Bowling for Numbers or the Boiler Room. In Bowling for Numbers, Addition, Subtraction, Multiplication, and Division are tracked. In Boiler Room, progress is tracked by Decimals & Percents or Fractions.

If you would like to output the information to a data file, press the **Export File** button. This will export the information into a tab delimited text file to be used with any spreadsheet program. If you open this file in a text editor or word processing program, the information will not be aligned properly for viewing. It should be used with a spreadsheet program.

PROGRESS		BOWLING FOR NUMBERS				BOILER ROOM	
PLAYER	Level	Addition	Subtraction	Multiplication	Division	Decimals Percents	Fractions
Kathleen	1	100%	87%	75%	50%	75%	55%
	2	no data	no data	no data	no data	no data	no data
	3	no data	no data	no data	no data	no data	no data
	4	no data	no data	no data	no data	NA	NA

EXPORT FILE

EXIT



Pattern Windows

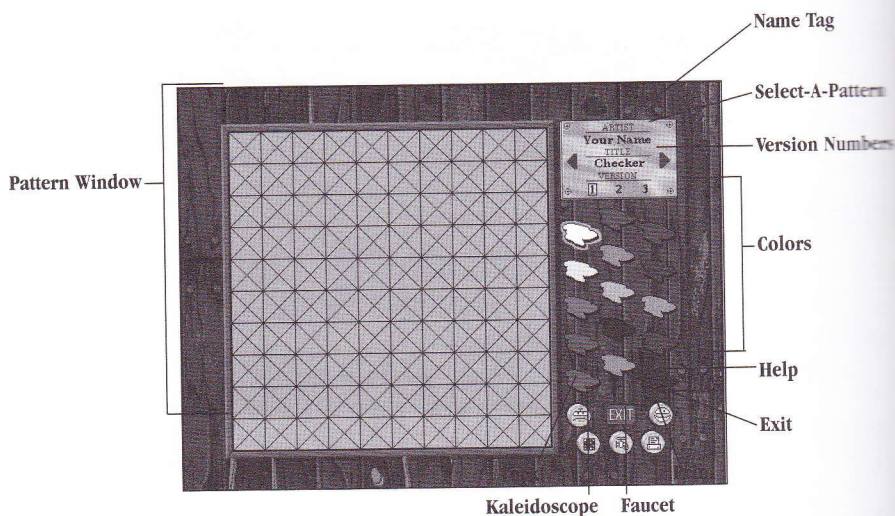
Math Workshop has a stained glass window with ten jazzy geometric patterns. To paint, click one of the Colors, then click where you want to paint. If you'd like to paint a different pattern, choose another one with the Select-A-Pattern arrows on the gold plate.

You can paint the Pattern Window all one color, such as red. Just click the red Color, then click the **Faucet** button. If you want to undo what you just did, click **Yuck!** If you paint a piece of the pattern and want to undo it, simply click that piece again.

Use the Version Numbers to save up to three paintings of each pattern. They save themselves automatically. If you'd like to print your masterpiece, just click the **Print** button.

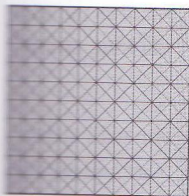
The **Math Workshop** Pattern Windows can also do something REALLY cool. Click the **Kaleidoscope** button and watch flashing colors spin through the window!

To go to Pattern Windows, click the stained glass on Level 1 in the Control Room. When you start playing with Pattern Windows, you will see:



Pattern Windows

PATTERN WINDOW



Is where you color the pictures.

COLORS



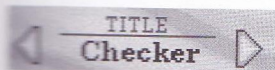
Gives you the color for painting.

NAME TAG



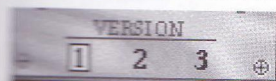
Displays the current player's name.

SELECT-A-PATTERN



Lets you choose from ten patterns.

VERSION NUMBERS



Let you choose to paint and save one of three windows with the same pattern.

FAUCET



Paints the whole window with the Color you've picked. To erase a painting from a window, click the white Color, then click this button.

YUCK!



Erases the last pieces you painted with a particular color. To un-erase them, click Yuck! again.

KALEIDOSCOPE

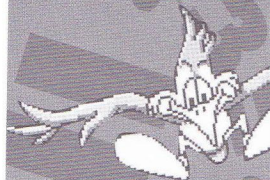
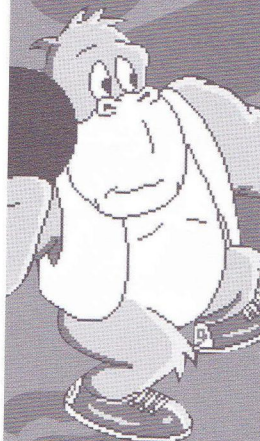
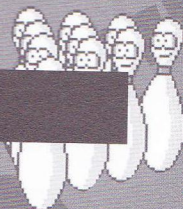


Lights up the picture with flashing colors.

PRINT



Prints the pattern showing on the screen.

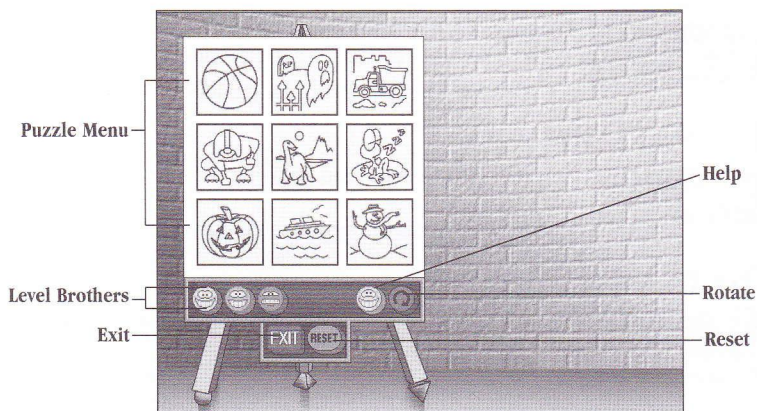


Super Sticklers

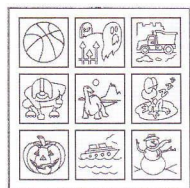
The Sticky Easel makes some wild art! It takes pictures, cuts them into Sticky Lines, and leaves them for you to piece together. When you do, the Super Stickler pictures come to life! To start, use the Puzzle Menu to pick a picture. Solve the puzzle by clicking pieces and dragging them into place on the Sticky Easel.

If you need to turn a piece, first click the piece, then either use your keyboard's spacebar or drop the piece and click the **Rotate** button. If you don't like the way a piece fits, click it and pull it to another spot. Whatever you do, you'll figure out each puzzle if you just stick to it!

To play with Super Sticklers, click the easel on Level 1 in the Control Room. When you begin to play with Super Sticklers, you will see:



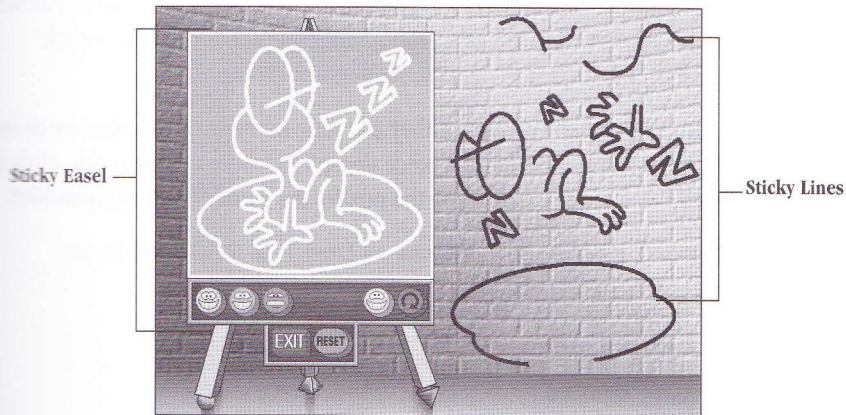
PUZZLE MENU



Shows you the puzzles you can do. Click a picture to select it.

Super Sticklers

After you choose a puzzle, you will see:



STICKY EASEL

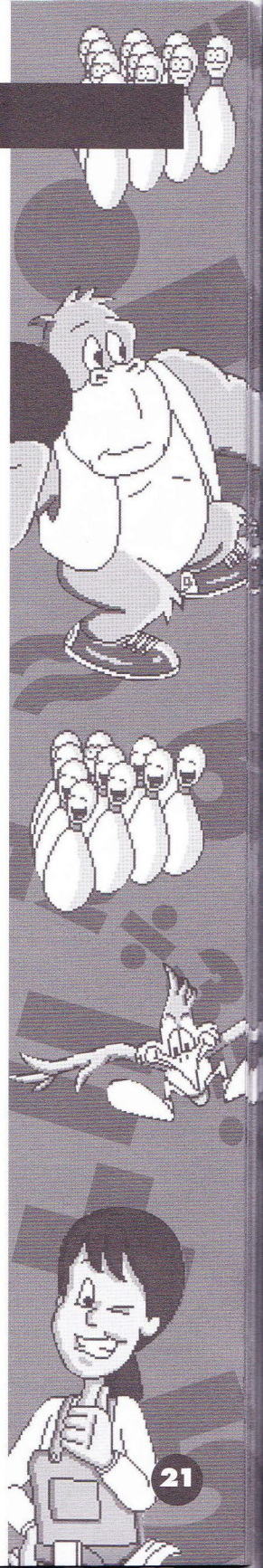


Is the part of the Sticky Easel where you place the puzzle pieces.

STICKY LINES



Are pieces you use to rebuild the picture.

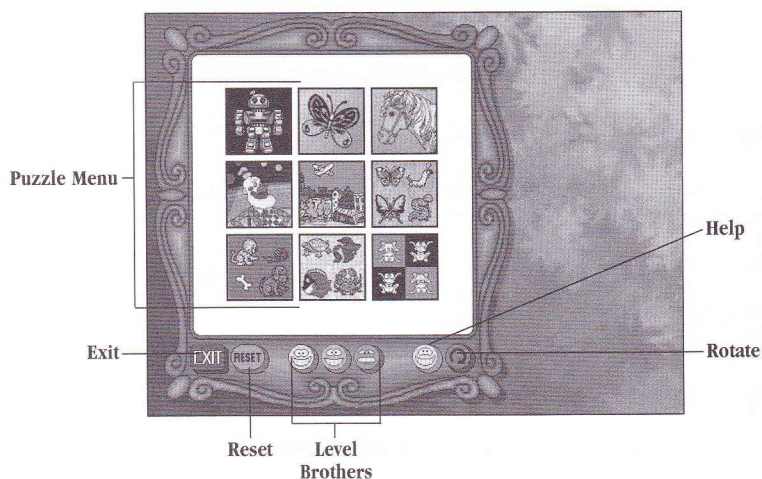


Puzzle Patterns

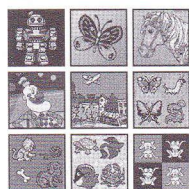
Master the pieces of these masterpieces! The strange and magical picture frame **Math Workshop** always slices paintings into eight rectangular pieces. To piece these puzzles together, first pick a puzzle from the Puzzle Menu. After the frame slices the puzzle apart, drag the pieces into place in the Puzzle Frame.

To turn a piece, first click the piece, then either use your keyboard's spacebar or drop the piece and click the **Rotate** button. If a piece doesn't fit where you placed it, click **Exit** and pull it somewhere else. When you solve the puzzle, the painting will come to life!

To start Puzzle Patterns, click the picture frame on Level 1 in the Control Room. When you start Puzzle Patterns, you will see:



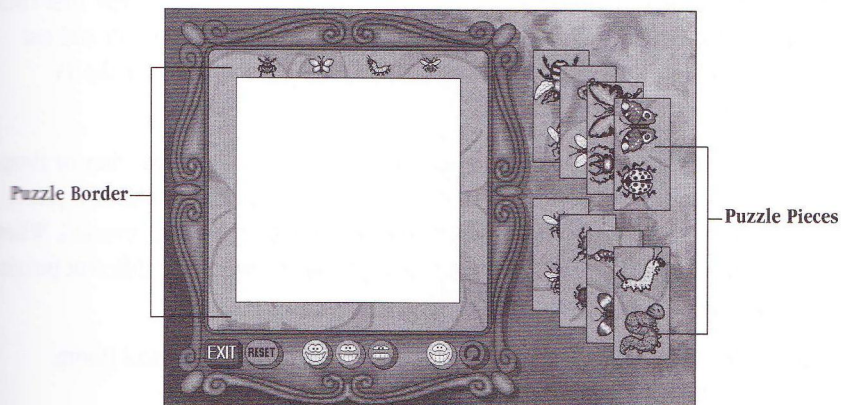
PUZZLE MENU



Shows you the puzzles you can do. Click a picture to select it.

Puzzle Patterns

When you pick a puzzle, you will see:



BORDER

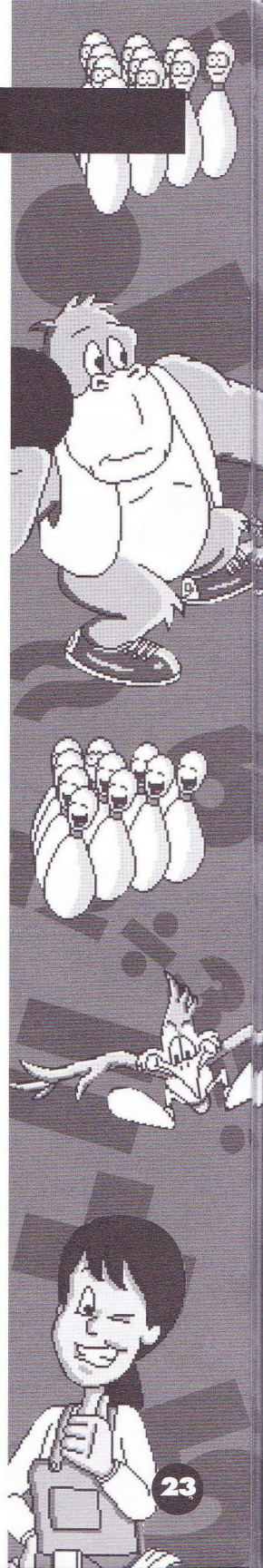


Is what you fill in with the puzzle pieces. The puzzle's border gives you clues to solving it.

PUZZLE PIECES



Are what you place in the border to solve the puzzle. To grab a piece, click it.

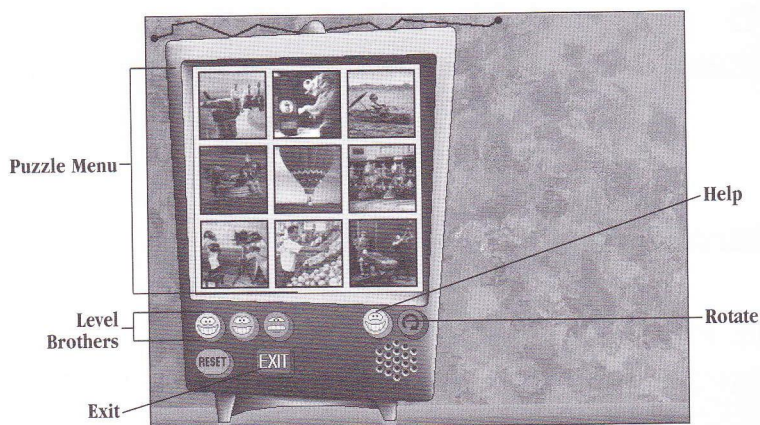


Hidden Picture Puzzles

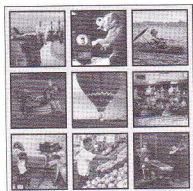
This is no normal television set! The *Math Workshop* TV cuts its screen into puzzles. Put the screen together to tune in a picture and watch it come to life! To play, first **click** one of the Level Brothers, then pick a picture from the Puzzle Menu. The TV will cut puzzle pieces and pile them next to the screen. Solve the puzzle by piecing the TV screen together.

To turn a piece, first click the piece, then either use your keyboard's spacebar or **drop** the piece and click the **Rotate** button. If you don't like the way you've placed a piece, pull it out and try again. As you place pieces, the hidden picture will be revealed. When you like a picture, pick it again as often as you want. The TV will make different puzzles for you every time!

To begin Hidden Picture Puzzles, click the TV set on Level 1 in the Control Room. When you start Hidden Picture Puzzles, you will see:



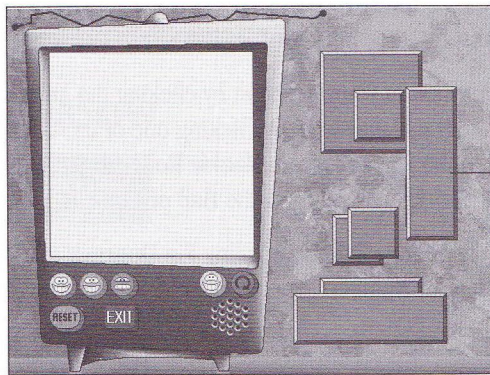
PUZZLE MENU



Shows you the puzzles you can do. Click a picture to pick it.

Hidden Picture Puzzles

After you choose a puzzle, you will see:

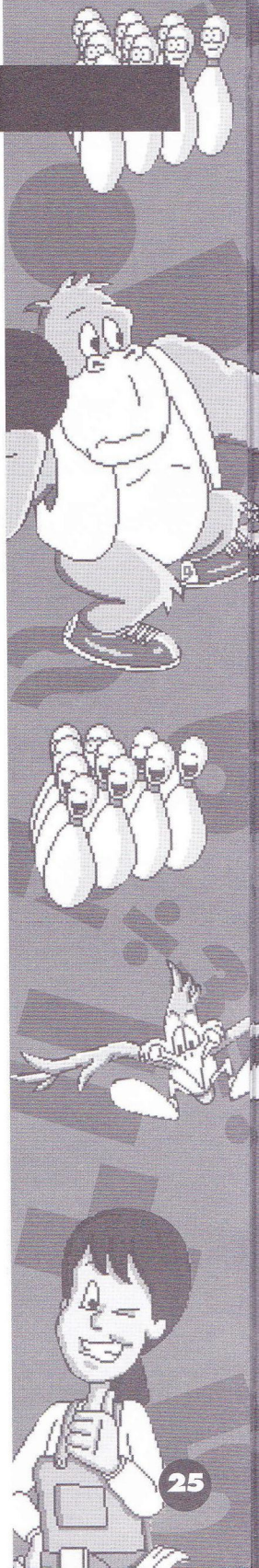


Puzzle Pieces

PUZZLE PIECES



Are the pieces of the puzzle. To grab a piece, click it.

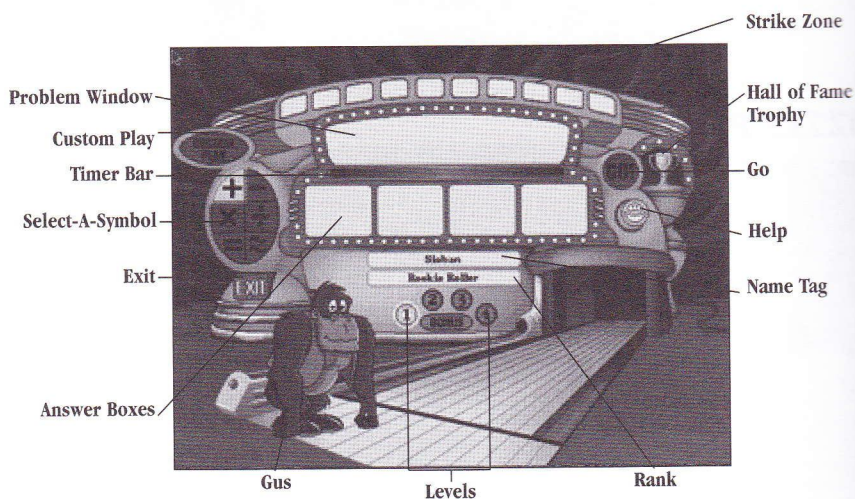


Bowling for Numbers

In the **Math Workshop** bowling alley, you answer math questions so Gus the Gorilla can bowl his pin-pling strikes! To play, first use the Select-A-Symbol to pick the **type** of math questions you want, then click **Go!**

Answer each question rolled in your direction by clicking the Answer Boxes. If the questions are too easy, try a higher level by clicking one of the **Level** buttons. As you make your way through the 25 ranks from Rookie Roller to Strike Master, be sure to print your Certificates of Achievement from the Hall of Fame Trophy!

To enter Bowling for Numbers, click the Bowling Pin Doorway in the Control Room. When you enter Bowling for Numbers, you will see:



GUS



Is the world's only bowling gorilla. A Foreign Exchange Gorilla, Gus attends Googol High where his favorite subject is Basic Math. Gus loves his hosts, the Gonzales family. Before meeting Poly Gonzales, Gus studied with Bowling Champion Sammy Subtraction, whose motto was, "One pin standing is one pin too many." The probability of Gus returning to the USA after graduation is high. He has the right angle on a career as a pro bowler! Gus bowls a strike each time you give him ten right answers.

GO!



Starts the game. This button will then become,

Bowling for Numbers



which you can click to stop a game.

PROBLEM WINDOW



Shows the question.

ANSWER BOXES



Show answers. Click the one which is correct.

TIMER BAR



Shows approximately how much time you have left to give ten correct answers.

SELECT-A-SYMBOL



Lets you play with addition, subtraction, multiplication, or division questions.



Lets you play with fraction equivalency questions.



Lets you play with estimation questions.

LEVELS



Lets you pick the difficulty level you want to play. You can play the Bonus Round only after you finish all four levels.

NAME TAG

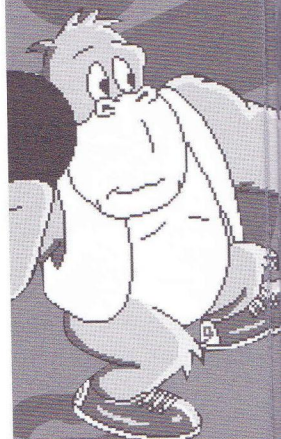
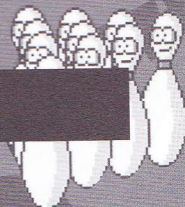


Shows your name.

RANK



Shows your rank. Your rank increases each time you complete a level.



Bowling for Numbers

STRIKE ZONE



Shows how many strikes you've made. You need ten to finish each level.

HALL OF FAME TROPHY

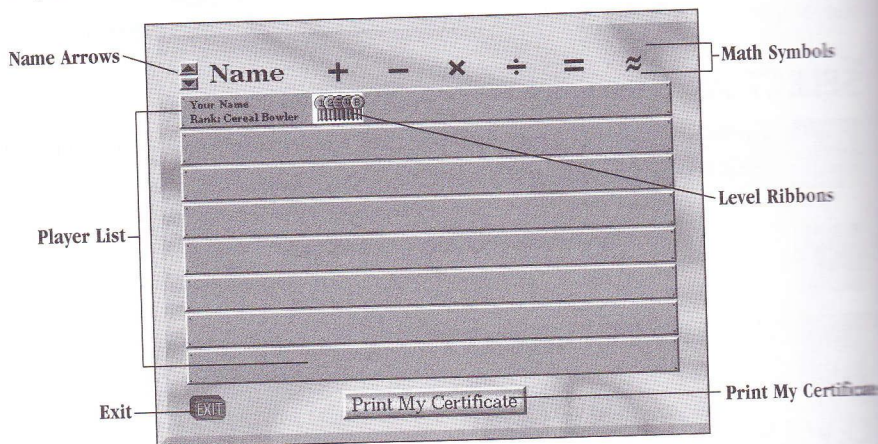


Shows you the Hall of Fame, which keeps track of the levels you finish and the rank you earn. You can also print your Certificates of Achievement from the Hall of Fame.

HALL OF FAME

The Hall of Fame keeps track of the levels you finish. Each time you finish a level, you earn a Certificate of Achievement. Ribbons on the certificate show you which levels you have passed. To print your certificates, find your name with the Name Arrows, click the **Level Ribbons** of the certificate you want to print, then click **Print My Certificate**.

When you click the Hall of Fame Trophy you will see:



PLAYER LIST

George	Rank: Ball Polisher
Maya	Rank: Ball Polisher
Sinners	Rank: Ball Polisher
Hector	Rank: Ball Polisher
Stacy	Rank: Ball Polisher
Nirasha	Rank: Ball Polisher
Eddie	Rank: Ball Polisher

Shows you players' names and ranks.

Bowling for Numbers

NAME ARROWS



Lets you find your name on the Player List.

MATH SYMBOLS



Mark the columns that show you the levels you've finished.

LEVEL RIBBONS



Tells you how many levels each player has finished and how many certificate ribbons they earned for each of the six types of math questions.

PRINT MY CERTIFICATE



Prints the Certificates of Achievement. Before you print, be sure to select horizontal/landscape orientation, color/grayscale mode, and no font substitution in the **Print** dialog boxes.

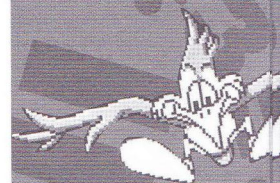
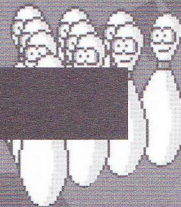
BOWLING RANKS

1	Rookie Roller	10	Pin Pal	19	King Pin
2	Ball Polisher	11	Spare Splitter	20	Strikenator
3	Twinkle Toes	12	Alley Cat	21	Super Bowler
4	Gutter Nut	13	Bowl Fighter	22	Pin Crusher
5	Cereal Bowler	14	Slammin' Slider	23	Star Shooter
6	Lane Brain	15	Bowlmeister	24	Pin Wizard
7	Alley Duster	16	Side Splitter	25	Strike Master
8	Toe Jammer	17	Steam Roller		
9	Spare Ribber	18	Alley Rapper		

EQUIVALENT UNITS OF MEASUREMENT FOR ESTIMATION LENGTH

1 inch = 2.54 centimeters

1 foot = 12 inches = 30.48 centimeters



Bowling for Numbers

1 yard = 3 feet = 0.9144 meter

1 meter = 100 centimeters = 1.0936 yards

TIME

1 minute = 60 seconds

1 hour = 60 minutes = 3,600 seconds

1 day = 24 hours = 86,400 seconds

1 month = about 30.42 days, on average = 2,628,000 seconds

1 year = about 365.25 days = 31,557,600 seconds

WEIGHT

1 ounce = 28.35 grams

1 gram = 0.035 ounce

1 pound = 16 ounces

1 kilogram = 1,000 grams = 35 ounces = 2.2046 pounds

CUSTOMIZED BOWLING PRACTICE

CUSTOM PLAY



Lets you choose what kind of problems you want to play in Bowling For Numbers. This button is only active if the Select-A-Symbol is set to Addition, Subtraction, Multiplication, or Division.

When you click the **Custom Play** button, you will see:

+

-

×

÷

Addition Custom Menu

A + B = C

Range of A = 1 to 50

Range of B = 1 to 50

Range of C = 1 to 100

Build Sample

CANCEL OK

Bowling for Numbers

SYMBOL TABS



Lets you customize your practice of addition, subtraction, multiplication, and division.

CUSTOM RANGES

A + B = C		
Range of A =	1	to 10
Range of B =	1	to 10
Range of C =	2	to 10000

Lets you choose the number ranges you would like to practice. If you don't change the numbers in the Custom Ranges, you will play with the default values.

BUILD SAMPLE



Lets you see a sample of the types of problems you will be practicing.

OK



Sends you into Bowling for Numbers in practice mode. If you have not changed any of the values in the Custom Ranges, it will accept the defaults and allow you to practice with those values.

CANCEL

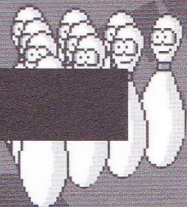


Returns you to Bowling for Numbers in regular play mode.

PRACTICE SIGN



Tells you that you are in practice mode. Click **End Practice** when you want to return to regular game play.

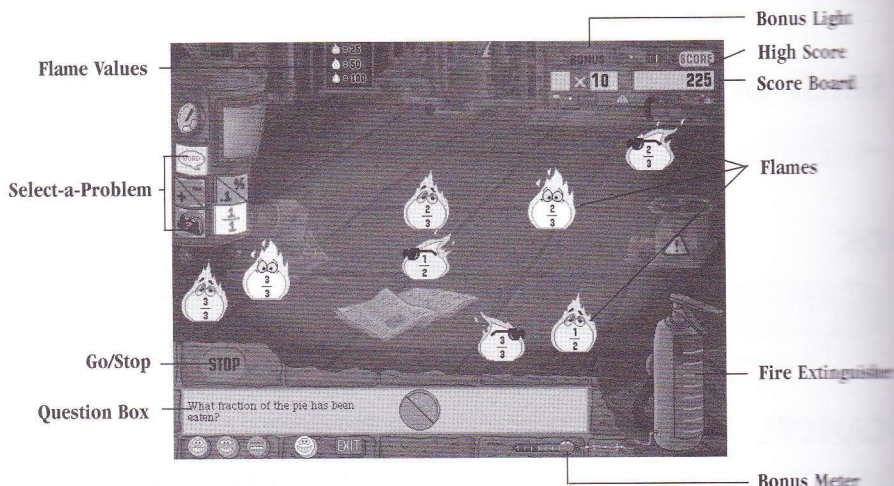


Boiler Room

In the **Math Workshop** Boiler Room, you answer math questions in order to extinguish the flames threatening to burn the place down! To play, first use the Select-A-Problem on the Boiler to pick the type of math questions you want, then click **Go!**

Answer each problem in the Question Box by clicking the flame which holds the correct answer. If the questions are too easy, try a higher level by clicking one of the **Level** buttons.

To enter the Boiler Room, click the Boiler on Level 2 in the Control Room. When you enter the Boiler Room, you will see:



GO!



Starts the game.

STOP!



Stops the game.

QUESTION BOX



Displays the current question.

Boiler Room

FLAMES



Shows you the answers. You need to pick the correct answer!

SELECT-A-PROBLEM



Lets you choose which kind of problem to play with.

FRACTIONS



Lets you play with fraction questions.

DECIMALS/PERCENTS



Lets you play with decimal and percent questions.

WORD PROBLEMS



Lets you play with word problems.

COMPUTATION



Lets you play with computation questions.

GRAB BAG

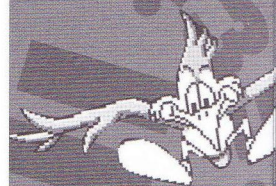
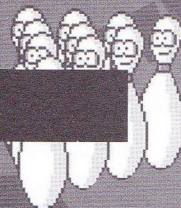


Lets you play with different kinds of questions involving patterns, greater than/less than, equivalencies, and place value.

FIRE EXTINGUISHER



Puts out the flame when you click the correct answer. The fire extinguisher begins with enough water to shoot out eight flames. If you hit the correct answer, you don't lose any water. However, if you hit the incorrect answer, or you miss a flame altogether, the water decreases by one shot. When you run out of water, the game is over.



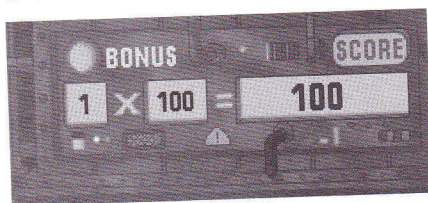
Boiler Room

BONUS METER



Shows how many correct answers you have made in a row. When it reaches the top, you get a bonus shot.

SCOREBOARD



Shows you the bonus multiplier, value for the target you hit, and the accumulated score. It also shows the Bonus Light and High Score button.

BONUS LIGHT



This lights up when the Bonus Meter is at the top. When this is lit, you will receive bonus points if you hit the correct answer.

HIGH SCORE



Takes you to the score screen, which shows the highest score you've achieved on each level of game play.

FLAME VALUES



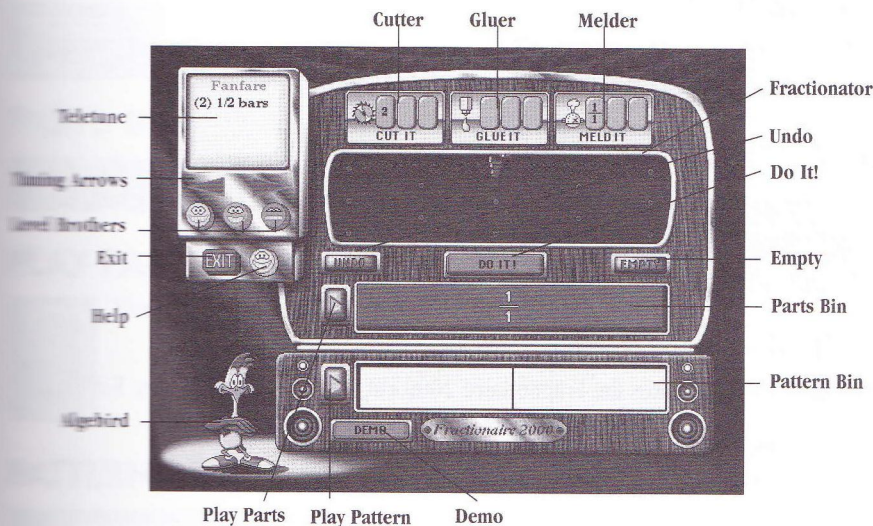
Shows how many points you get for hitting each type of correct flame target or how many points you will lose if you select the wrong flame target.

Rhythm Shop

Have you ever seen a bird boogie? Make rhythms with Poly's music machine, the Fractionaire 2000. When you use it to cut, glue, and meld beats, Algebird will boogie to the beat! First, use the Level Brothers and the arrows on the Teletune to pick a beat you want to build. The Teletune will list a rhythm recipe of fraction beats that make that tune. Take the Whole Bar out of the Parts Bin and put it into the open space known as the Fractionator. Above the Fractionator, you'll find the **Cutter**, **Gluer**, and **Melder** buttons. Use these buttons to pick a tool, then click **Do It!** to cut, glue, and meld that Whole Bar into the different fraction pieces of the rhythm you picked.

In the Pattern Bin below the Parts Bin, you'll find a colored pattern for the rhythm you picked. This pattern is also where you place the fraction pieces as you build the beat. When you put the right pieces in the right order in the Pattern Bin, the Fractionaire 2000 will play the song and Algebird will shake, rattle, and roll!

To enter the Rhythm Shop, click the Rhythm Shop doorway on Level 2 in the Control Room. When you enter the Rhythm Shop, you will see:



ALGEBIRD



Does a crazy dance to the rhythms you make, and lets you know if the Fractionaire can't make something. While promoting her new Fractionaire 2000 machine on Math Tour USA, Poly discovered Algebird outside the Slide Rule Cafe in Protractor, West Virginia. He was dancing and singing before a crowd of people in town for the Arithmetic Convention.

Remembered by his moves, Poly immediately hired him to work at **Math Workshop**.



Rhythm Shop

DEMO



Shows you how to make fractions and melodies in the Rhythm Shop.

TELETUNE



Will tune you in to Algebird's favorite songs.

TUNING ARROWS



Lets you look for a song.

WHOLE BAR



Is what you put into the Fractionator and then cut, glue, and meld into rhythms.

FRACTIONATOR



Is where you put pieces to be cut, glued, or melded.

CUTTER



Makes the Fractionaire 2000 cut stuff into equal pieces. For example, the 2 Cutter cuts stuff into two equal pieces.

GLUER



Makes the Fractionaire 2000 glue together pieces that are the same size. For example, if the Gluer were set to $\frac{1}{2}$, then you could glue together only $\frac{1}{2}$ pieces.

Rhythm Shop

MELDER



Makes the Fractionaire 2000 meld together all kinds of pieces into a larger, set size. For example, if the melder were set to $\frac{3}{4}$ you could meld together a $\frac{1}{4}$ piece and a $\frac{1}{2}$ piece to create a $\frac{3}{4}$ piece.

DO IT!



Starts the cutting, gluing, or melding. If the button is flashing, everything is ready to go. Algebird will let you know if the

Fractionaire 2000 can't do something you want it to do.

UNDO



Erases the last thing you did as long as your pieces are still in the Fractionator.

EMPTY



Takes out all the pieces from the Fractionator and puts them in the Parts Bin. You can also use your mouse to pull out pieces one-by-one.

PARTS BIN



Is where the Whole Bar and your rhythm pieces wait.

PLAY PARTS



Shows the rhythm of any pieces in the Parts Bin.

PATTERN BIN

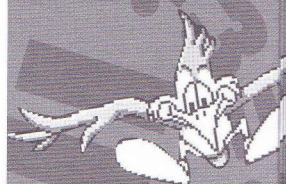
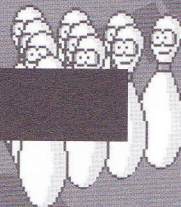


Shows you the order and size of the pieces in the rhythm. Fit your pieces here.

PLAY PATTERN



Plays the rhythm of any pieces in the Pattern Bin. If you have built a rhythm and want to see Algebird dance to it again, click on this.



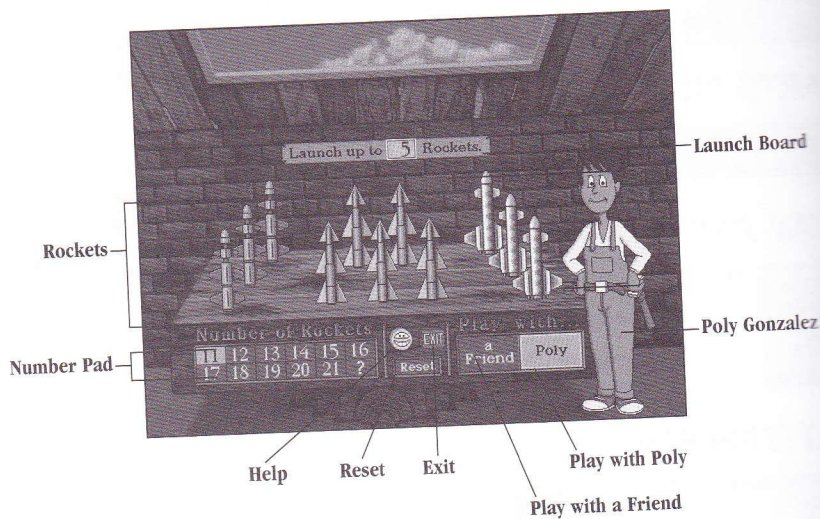
Rockets

From the **Math Workshop** Nim Space Center, launch these model rockets straight through the roof! The object of this game is to launch the last rocket. Use the Number Pad to choose the number of rockets in the game. When you're playing with Poly, take turns launching. She will tell you the most number of rockets you can launch during each turn (2, 3, 4, or 5). If you finish your turn, and have not launched the most rockets allowed, click on Poly to tell her to take her turn.

To launch rockets, just click them. If you want Poly to start, click on her first. You can also choose Play with a Friend. When you do this, either use the rules you used against Poly or make your own: decide who goes first, how many rockets to use, how many you can launch at each turn (up to ten), and whether the person who launches the last rocket wins or loses.

See Poly's Tricks and Tips on page 44 for some other fun rules.

To enter Rockets, click the Rocket Table on Level 2 in the Control Room. When you enter Rockets, you will see:



Rockets

POLY GONZALES



Will play against you. If you click on her first, she will start. If you launch the most rockets you can in a turn, Poly will automatically begin her turn. If you don't launch that many, click on Poly when you'd like her to take her turn.

PLAY WITH POLY

Poly

Lets you play against Poly.

PLAY WITH A FRIEND

a
Friend

Lets you play against a friend.

NUMBER PAD

12	13	14	15	16
17	18	19	20	21 ?

Lets you pick the number of rockets, 11 through 21. The ? button will pick the number of rockets for you.

ROCKETS

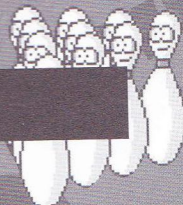


Launch when you click them.

LAUNCH BOARD

Launch up to **5** Rockets.

Tells you the most number of rockets that you can launch in each turn. Poly sets this number when you play with her. To change the number, just click it. When playing with Poly you can set the number from 2 to 5. When playing with a friend, you can set the number from 2 to 10.



Poly's Tricks and Tips

PATTERN WINDOWS

How many different shapes can you find in each window? If you combine shapes, what other shapes can you make?

How few colors does it take to fill a Pattern Window without letting two spaces with the same color touch?

Paint a pattern that repeats over and over, and click on the Kaleidoscope button – it'll make your pattern roll across the sky! The order of the changing colors is white, yellow, orange, red, purple, blue, green, light blue, black, gray, brown, dark red, pink, dark green, dark blue.

Fill a Pattern Window with white and print it out. Color it with crayons or ink pens. Better yet, share it with a friend!

PUZZLE PATTERNS

General Clue: Always study the puzzle's border to find its pattern!

GREEN PUZZLE CLUES FROGS

There is a checkerboard pattern of frogs on different colored squares. Sort your puzzle pieces by color, then place them in the puzzle. Make sure you follow the checkerboard pattern. The frogs go right-side up, then upside-down.

BUTTERFLIES

There are four butterflies, each of a different color. First make sure to separate the pieces by color.

PONIES

There are four ponies, two on the left and two on the right. One tan pony and one brown pony are on each side. Sort your pieces both by color and by the direction a pony is facing.

CLOWNS

There are two clowns facing each other. Each is drawn with a different set of colors. First decide which pieces belong to which clown.

Poly's Tricks and Tips

CITYSCAPE

This picture contains both a little city and its reflection in a park's pond. Sort your pieces so the city pieces are right-side up and the reflection pieces are upside-down.

BUGS

There are four kinds of bugs: beetles, butterflies, caterpillars, and bees. Sort your pieces by both the kind of bug and its size.

PUPPIES AND KITTIES

Turn all your pieces so the puppies and kitties are right-side up. The puppies always have bones. The kitties always have balls of yarn. The way each animal is facing in the puzzle's border tells you how to make things fit.

FISH

Turn your puzzle pieces so that all the creatures are right-side up. The background at the top of the picture is light green. The bottom is dark green. Make sure the background color of your puzzle piece matches the puzzle's border.

ROBOT

Build the robot. Sort the pieces into those that go on its left and those that go on its right.

ORANGE PUZZLE CLUES

DOTS

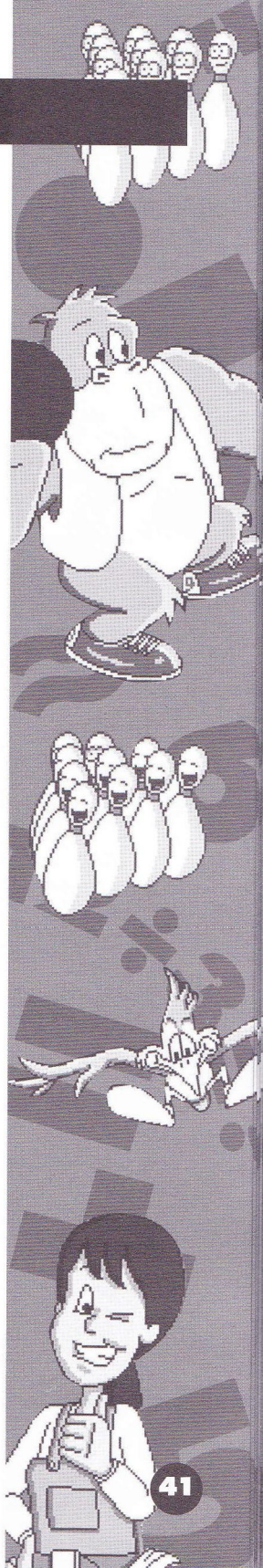
Match the dots on the puzzle pieces with the dots on the puzzle's border. Start with the corners.

SHADOW PEOPLE

These are little people and their shadows. First turn all the pieces so each character is right-side up, then match each of the characters with a shadow.

TIE DYE

Sort your pieces into yellow, orange, and neither-yellow-nor-orange groups. Match the edges of the yellow pieces to the yellow on the puzzle's border, then do the same with the orange ones.



Poly's Tricks and Tips

JUNGLE

This puzzle contains monkeys and parrots. Match the line of the tree trunks in the puzzle's border with the trunks on the puzzle pieces. Notice the pattern of birds and monkeys across the rows.

TRUCKS AND SIGNS

Turn the puzzle pieces so that all of the trucks and signs are right-side up. Fit the signs' pieces vertically and horizontally with the same signs in the puzzle's border.

DINOSAURS

Rotate the pieces so that all the dinosaurs are right-side up. The key to this puzzle is properly arranging the big dinosaurs.

PIPES

Match the colored rings along the edges of the puzzle pieces. Start by matching the rings in the corners of the frame.

FREEWAY

There are four curved freeway sections in the picture. Separate the pieces with curved sections from the ones that don't have them. Put the curved pieces in first. Pay close attention to the shadows on both the freeway and the grass.

DIAMOND

Match the edges. Start in the upper-left corner of the frame. Find the piece with the dark purple corner. Turn it so it fits into the dark purple part of the frame.

RED PUZZLE CLUES

FIELD OF FLOWERS

Match the flowers on one puzzle piece both to the flowers on other pieces and to those in the puzzle's border.

FLYING BOXES

Notice which sides of the boxes are blue, orange, yellow, and green, and notice which direction they appear to be flying. Turn all your pieces so they have these colors on the same sides of the boxes. Working from the outside in, place your pieces so they seem to be flying in the same direction as the pieces in the puzzle's border.

Poly's Tricks and Tips

PLAID

Notice the two thin light blue stripes and the two thin orange stripes in the border. Pieces with only light blue stripes fit where they won't cross orange ones. Pieces with only orange stripes fit where they won't cross light blue ones. Pieces with stripes of both colors fit where the orange and blue stripes cross.

FIREMEN

A fireman in red always faces a fireman in yellow. Each is attached to a hydrant of the other color.

CARDS

Notice the pattern of colors in the border: yellow, green, white. Keep all the card suits right-side up. Each puzzle piece always has one red and one black suit. As you start placing pieces, you will notice a resulting diagonal pattern.

TESSELLATION

The key to this puzzle is matching colors. The background color changes from salmon to pink and the blocks' tops change from bright blue to light blue.

BARS AND BALLS

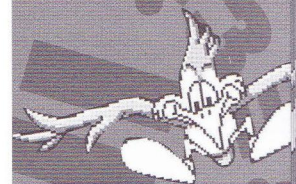
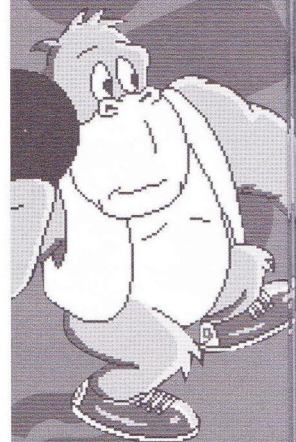
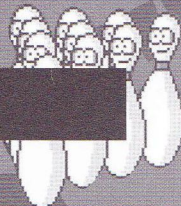
Look at the balls to find the spot from which the light is shining. Turn the pieces so that the light falls on the balls from the same direction as in the puzzle's border. Match the border's colored bars to those on your puzzle pieces.

DOMINOES

Link all four dominoes on the puzzle's border. Match the number of dots in adjoining pieces. Start by finding the puzzle piece with only one domino on it.

RINGS

There are green rings in the upper-left corner, orange rings in the upper-right, purple rings in the lower-left, and light blue rings in the lower-right.





Poly's Tricks and Tips

HIDDEN PICTURE PUZZLES

With a friend, take turns fitting puzzle pieces to solve a puzzle. Continue to take turns placing and removing pieces until all of them are in place. The person who fits the **last** piece wins!

ROCKETS

When playing Poly . . . To beat Poly, figure out how many rockets should remain for Poly's last turn.

Here are some other rules for playing with a friend:

- Use the ? button to let the computer choose a random number of rockets.
- Flip a coin to see who goes first.
- Each time you play, choose a different number for the most launches per turn.
What happens when you use a number larger than 5?
- Decide that the player who launches the last rocket loses.
- Decide that each player can launch only rockets that look the same.
- Even better, make up your own set of rules!

Parents' Corner

Parents' Corner is designed to explain the educational benefits of each **Math Workshop** activity. This section also suggests methods to help your child play and learn within the program and contains lists of additional activities and resources to help you enrich your child's math education.

EDUCATIONAL BENEFITS

Math Workshop games and activities seek to develop the following math skills:

PATTERN WINDOWS

Patterns and Relationships: Painting tessellating patterns within the various windows strengthens your child's pattern recognition skills. It enhances your child's appreciation for the beauty of mathematical patterns and provides an environment in which to create personal mathematical designs.

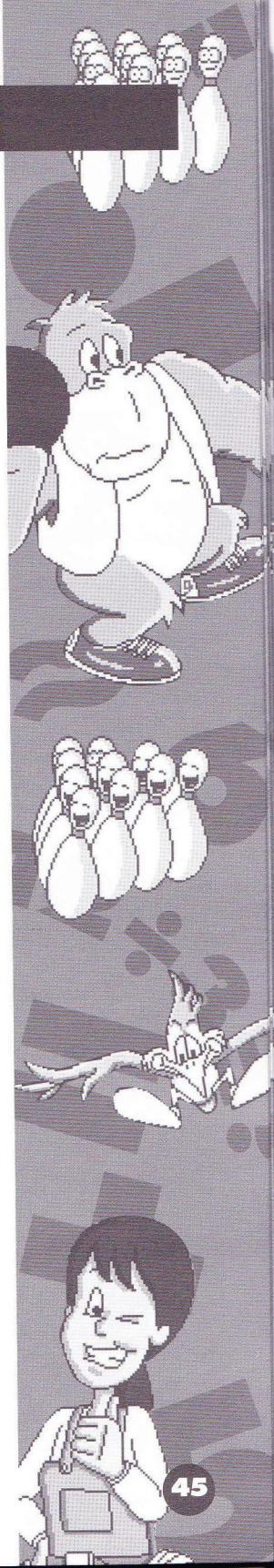
Geometry and Spatial Sense: Painting the pattern windows encourages your child to both identify and draw two-dimensional shapes, to investigate the results of combining or subdividing these shapes, and to explore spatial relationships.

SUPER STICKLERS

Geometry and Spatial Sense: Rotating these linear puzzle pieces strengthens your child's understanding of transformational geometry. Investigating the results of fitting them together helps your child develop spatial-visualization skills and gain an understanding of line and shape recognition.

Each level of Super Sticklers emphasizes a different facet of geometry and spatial sense. The Green level contains puzzles that develop your child's ability to recognize and match geometric shapes and line segments. In the Orange level, creating mirror images to solve puzzles develops your child's understanding of symmetry. In the Red level, replicating linear images based on miniature "hint" pictures deepens your child's understanding of scale and proportional representation.

Problem Solving: As with Hidden Picture Puzzles and Puzzle Patterns, the Super Sticklers gameplay encourages your child to explore problem solving approaches in order to develop personal strategies for solving the puzzles.





Parents' Corner

PUZZLE PATTERNS

Geometry and Spatial Sense: Rotating these pieces strengthens your child's understanding of transformational geometry. Investigating the results of fitting together the puzzles helps your child develop spatial-visualization skills. Using the images on the pieces in order to find their proper positions strengthens your child's visual discrimination of three-dimensional orientation and perspective.

Patterns and Relationships: Using the puzzle's border and its pieces to discover the overarching pattern of the puzzle before building it strengthens your child's ability to both recognize patterns and understand their relationships.

Logical Reasoning: Determining the position of a piece based on its attributes develops your child's ability to use higher-order thinking skills to discover patterns and relationships in mathematical situations.

Problem Solving: The Puzzle Patterns gameplay encourages your child to take time both to explore problem solving approaches and to develop personal strategies for solving the puzzles.

HIDDEN PICTURE PUZZLES

Geometry and Spatial Sense: Rotating these polyomino pieces strengthens your child's understanding of transformational geometry. Investigating the results of fitting together the puzzles helps your child develop spatial-visualization skills and gain an understanding of spatial relationships.

Problem Solving: Each of these puzzles has multiple solutions which encourage your child to use a variety of problem solving approaches to develop personal strategies for piecing them together.

BOWLING FOR NUMBERS

Number Operations: The drilling of math facts in addition, subtraction, multiplication, and division strengthens your child's ability to perform these operations.

Whole Number Computation: Performing mental math computations and estimations in order to answer these questions strengthens your child's computational skills.

Estimation: Estimation questions develop your child's skills for making reasonable estimations with quantities, measurement, and computation. Answering multiple-choice questions also encourages your child to recognize an appropriate estimate.

Parents' Corner

Fractions: The equivalency questions develop your child's understanding of the concept of fractions, and they familiarize your child with using models to find equivalent fractions.

Number Sense and Numeration: The drilling of these math operations strengthens your child's number sense for both whole numbers and fractions, and it improves your child's ability to recognize fraction notation.

BOILER ROOM

Number Operations: The drilling of math facts in decimals, percents, and fractions strengthens your child's ability to perform these operations.

Number Computations: Performing mental math computations and estimations in order to answer these questions strengthens your child's computational skills.

RHYTHM SHOP

Fractions: Building fractions with the Rhythm Shop's Fractionaire 2000 machine provides your child with models for exploring and understanding fractions.

Patterns and Relationships: Building rhythms using both visual models and auditory clues develops your child's skills at recognizing and creating a wide variety of patterns.

Number Sense and Numeration: Using the Fractionaire 2000 machine to explore fractions helps your child construct fractional number relationships through the use of visual models.

Math Operations: The Fractionaire 2000's Melder mode provides a model for the addition of fractions, the Cutter mode provides a model for division of fractions, and the Guier mode provides a model for both addition and multiplication concepts.

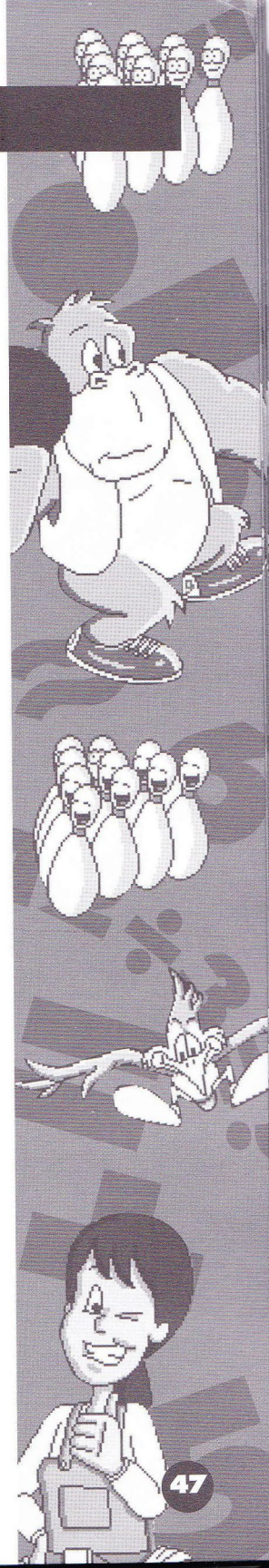
Problem Solving: Your child can explore, develop, and apply many problem solving strategies to create selected rhythms.

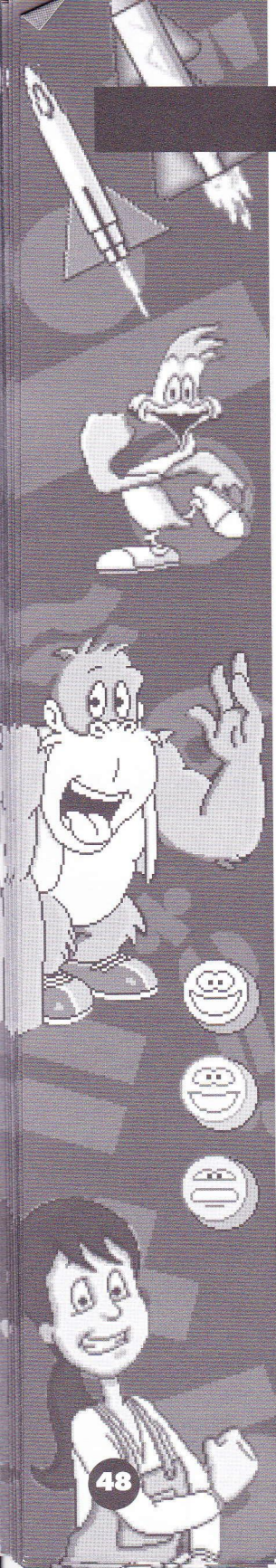
ROCKETS

Problem Solving: Nim games encourage your child to use problem solving approaches to investigate, develop, and apply strategies.

Logical Reasoning: Nim strategies center around finding patterns and relationships within the gameplay. This process develops higher-order thinking skills.

Number Sense and Numeration: Exploring the quantitative results of launching rockets one-by-one familiarizes your child with the characteristics of discrete numbers. Discrete numbers are finite units generally used to answer the question, "How many?"





Parents' Corner

Whole Number Operations: Creating a strategy for gameplay develops your child's sense for using subtraction.

Whole Number Computation: Playing Nim games strengthens your child's mental math computation and estimation skills.

ENRICH THE LEARNING EXPERIENCE

Our educational consultants have made the following suggestions for enriching your child's learning experience with *Math Workshop*.

PATTERN WINDOWS

Observing your child create patterns and play in this environment will give you an understanding of her ability to create mathematical patterns and designs. Notice whether your child creates symmetrical or asymmetrical patterns and whether the patterns are simple or complex. Ask your child both to create specific shapes and to describe the patterns she creates. Discuss the geometric shapes that Poly mentions when you click on her in the Control Room. Ask your child to create these shapes in the Pattern Windows.

SUPER STICKLERS

Observing your child play with Super Sticklers can give you insight into her problem solving strategies. Note the order in which she places pieces in the puzzle. See how comfortable she is with the Rotate function. Ask her if she rotates a piece in her mind before she does it on the screen. Find out what other strategies she uses to solve the puzzle. Take turns placing pieces and stating why you think a particular piece will fit. Try these puzzles and be aware of the strategies you use to solve them. Discuss these strategies with your child.

HIDDEN PICTURE PUZZLES

Observing your child doing Hidden Picture Puzzles will give you insight into how comfortable she is with spatial activities. If your child finds that the last piece doesn't fit, she must rely on spatial-visualization skills to rearrange the puzzle pieces into a solution. Observe how she uses the Rotate function, and ask her whether she first rotates the pieces in her mind or on the screen. Reinforce the idea that she can focus on how the pieces fit together rather than on how the background picture appears.

BOWLING FOR NUMBERS

Observing your child playing this game will bring you insight into her level of skill with

Parents' Corner

basic math facts. Note your child's comfort level as she works toward harder levels of play. Talk with your child about how she chooses the answers to the arithmetic questions. Provide coins, chips, or beans that your child can use as counters, or allow your child to count using her fingers. If your child seems to feel intimidated by a difficult-looking question, ask her to try one of the following strategies: approximation (e.g., for 8+29, she can approximate 29 as 30, then add 8, and subtract 1), equivalent expressions (e.g., for 7+25, she can break 7 into 2+5, add the 5 to 25, then add the 2), and reordering (e.g., for 26+8+2, first add 8+2, then add 26).

Ask your child how she chooses answers to the equivalency and estimation questions, and discuss what makes these answers reasonable. Ask her to describe the equivalency models, both in terms of the pieces that have been removed and in terms of the pieces that remain. At more challenging levels of equivalencies, encourage your child to use estimation skills to choose the correct answer. Discuss whether this approach works in every instance or whether there are times when counting is more appropriate. With the estimation problems, make sure to encourage estimating rather than guessing.

BOILER ROOM

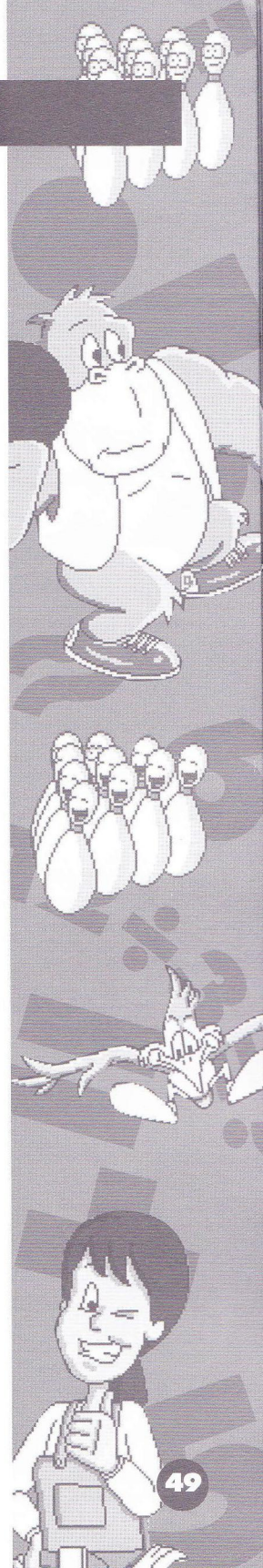
Observing your child playing in the Boiler Room will bring you insight into her level of skill with basic math factors. Observe your child's comfort level in shooting the targets and answering the problems on higher levels. Does she seem more comfortable with decimals and percents over fractions? Also, notice whether your child aims at the same color targets or if she shoots random colors. Is she motivated by the high score? Allow your child to use paper and pencil to solve the problems before hitting a target on screen, or let her use her fingers.

RHYTHM SHOP

Observing your child play with the Rhythm Shop will give you insight into her understanding of fractional numbers. A child who does not understand fractions can explore them with the Fractionaire 2000 machine and create a strategy for building rhythms. This exploration provides valuable experience for a child who is beginning to create a model for the meaning of fractions. Play with your child to create interesting patterns. See if you and your child can predict the rhythm pattern before you hear it.

ROCKETS

Observing your child play Nim against the computer will give you insight into her approach to strategy games. Observe whether she changes her strategy each time she plays. Note whether she recognizes if she is going to win or lose prior to the game's completion. Talk with her about how she decides which rockets to launch. Encourage



Parents' Corner

her to discuss possible winning strategies, and test them with her. Play a simple variation of the game with her (e.g., use 11 rockets and launch up to only two each time). By playing one simple version several times, your child will eventually recognize an overall strategy. Poly will adjust to your child's ability: she plays at six different internal levels of difficulty. She starts playing at Level 3, then drops a level for every two consecutive games she wins, and increases a level for every two games she loses.

BEYOND THE COMPUTER

These activities build upon skills your child has begun to develop while playing with *Math Workshop*. More of these games and activities are printable from the *Parents' Video Guide* on the *Math Workshop* CD-ROM disc.

HALVE SOME FUDGE!

Make fudge to illustrate fractions.

EDUCATIONAL BENEFITS

Fractions: Measuring ingredients and preparing food portions gives your child concrete examples of fractions used in everyday life.

Problem solving: Preparing equal portions of fudge cultivates your child's ability to develop and apply strategies for solving math problems.

WHAT TO DO

- Ask your child to articulate her process as she measures and pours the ingredients into the bowl. Discuss the fractional measurements.
- When the fudge is ready, ask your child to make cuts that divide the fudge evenly between the two of you. Ask your child to articulate her strategy. Discuss the idea that these two equal portions are halves of the whole fudge pan. Write $\frac{1}{2}$, and explain that this number represents one of the pieces of a whole unit (the pan of fudge) that has been divided into two equal pieces.
- Ask your child to divide the pan into four equal portions, and to discuss her method. Write $\frac{1}{4}$, and explain the concept of fourths or quarters.
- Continue to ask your child to divide the pieces into equal portions. Use any number up to 12. Discuss your child's strategy each time, and explain how these portions are represented by fractional numbers.

EXTRAS & TIPS

There are many ways to make equal portions. Let your child explain her strategy before you try to help her. You may receive some surprising, yet correct, answers!

Parents' Corner

WATER CHIMES

Fill drinking glasses to different levels. Play music by tapping them lightly.

EDUCATIONAL BENEFITS

Fractions: This activity provides your child with a visual model for fractions and their relationships to each other.

Estimation: Your child develops estimation skills as she explores the relationship between volume of water in a glass and the sound this glass makes.

Measurement and relationships: This activity develops your child's understanding of volume and measurement.

WHAT TO DO

- Fill a pitcher with about five cups of water.
- Place the empty glasses in a row.
- Ask your child to pour water into four glasses and to fill each glass until you say, "Stop." Have your child pour the glasses full, half-full, one-third full, and one-fourth full. Leave one glass empty.
- As your child finishes pouring each glass, comment on the fraction of the glass that is filled. For example, "That glass looks like it's two-thirds full of water."
- Use tape and markers to label each glass with a fraction. Place labels on the table.
- If your child is familiar with fractions, simply ask her to fill the glasses to these fractional amounts and to label them.
- Ask your child to tap each glass with a spoon to create sounds.
- Discuss the relationship between the fractions, the volumes, and the sounds.
- Ask your child to adjust the water levels and to predict the sounds made.
- Pour water into other containers and listen to the effects.

IMAGINARY FEAST

Use a restaurant menu to plan a feast within a given budget.

EDUCATIONAL BENEFITS

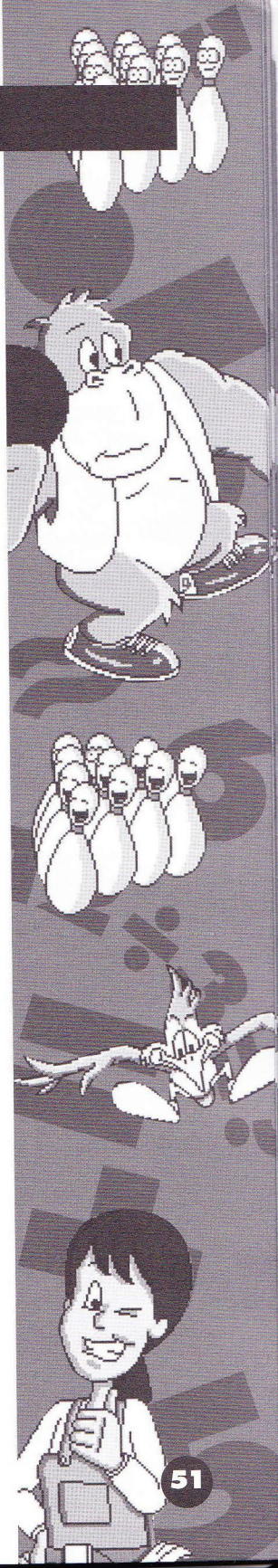
Number Sense: Your child explores numbers through a real world experience.

Computation: Your child is prompted to calculate all available options.

Operations: Your child learns how math operations apply to real-world situations.

Estimation: Budgeting teaches your child to explore estimation strategies and to recognize when an estimate is appropriate.

Decimals: Working with money exposes your child to the decimal system.



Parents' Corner

WHAT TO DO

- Tell your child that she will prepare an imaginary feast. She should create a guest list for this feast, then choose a favorite restaurant from which to order the food. Obtain a copy of that restaurant's menu.
- Ask your child to use the menu to estimate both the cost of a single meal and a budget for the feast that will feed all the guests. Ask her to write down this amount.
- Ask your child to select the different courses for the feast. Your child should write down the items and prices and calculate the total. Ask your child to compare the total for the feast with the budgeted amount. Let your child adjust the feast, if necessary, to fit the budget. Discuss any changes, then let your child recalculate.

EXTRAS & TIPS

- Do this activity using funny menus that you and your child invent.
- Create the most expensive meal on the menu, as well as the least expensive meal. Meals should include an appetizer, an entree, a drink, and dessert.
- Invent criteria for the courses in your feast (for example, all dishes must be made of either chocolate or vegetables).

PLAY WITH YOUR FOOD!

While eating french fries, play this strategy game based on the ancient game Nim.

EDUCATIONAL BENEFITS

Logical Reasoning: Evaluating an opponent's gameplay and deducing strategy are techniques your child uses continually in this game.

Number Sense and Numeration: Discovering the results of concretely reducing a group by one, two, or three members familiarizes your child with the characteristics of discrete numbers, finite units generally used to answer the question, "How many?"

WHAT TO DO

- Lay out at least 11 french fries, but use as many as you like. Take turns removing either one, two, or three fries at a time. The person who takes the last french fry wins. Take turns going first. Ask your child to articulate a strategy as you play.
- Add a different twist to the game . . . play with "good manners": the person who takes the last fry loses. Note: You can use other foods like chopped fruits and vegetables . . . or use objects like coins, marbles, or playing cards.

Parents' Corner

EDUCATIONAL RESOURCES FOR PARENTS

These resources can help your child's math education become both more enjoyable and more fulfilling. Six extensive resource lists, including the national math curriculum standards, are printable from the *Parents' Video Guide* on the *Math Workshop* CD-ROM disc.

LITERATURE

These titles explain current approaches to teaching math, as well as ways that parents can get involved in their children's education:

Benjamin, Arthur, Ph. D. & Michael Brant Sherman, Ph.D. *Teach Your Child Math: Making Math Fun for the Both of You*. RGA Publishing Group, Inc., 1991.

Downie, Slesnick, and Stenmark. *Math for Girls and Other Problem Solvers*. Berkeley, CA: University of CA at Berkeley/Lawrence Hall of Science, 1981. (510) 642-1016

Stenmark, Jean Kerr, Virginia Thompson, and Ruth Cossey. *Family Math*. Berkeley, CA: University of CA at Berkeley/Lawrence Hall of Science. (510) 642-1016

These books contain engaging math activities, puzzles, and games for young children:

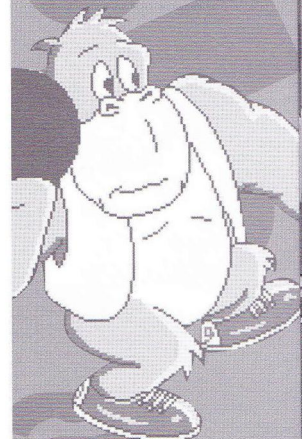
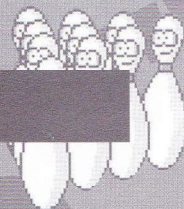
Anno, Mitsumasa. *Math Games*. New York: The Putnam and Grossset Group/ Kuso Kobo, 1982.

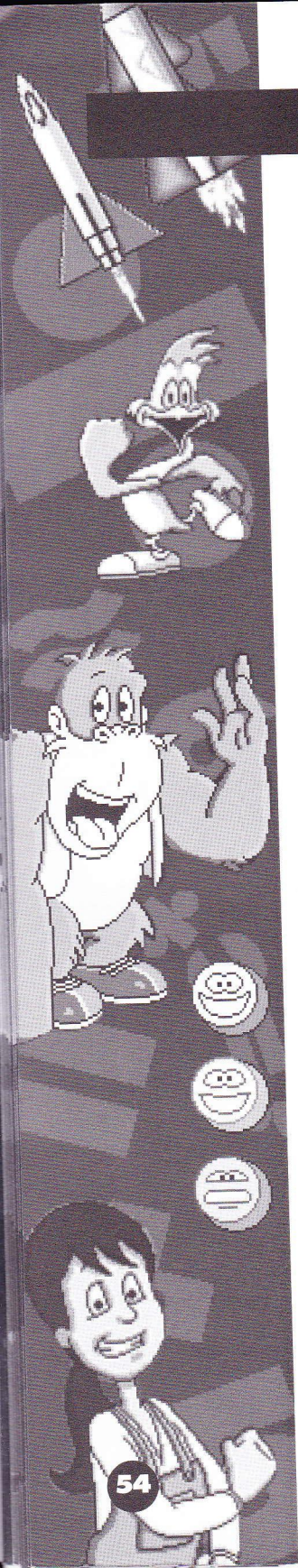
Blum, Raymond. *Mathemagic*. New York: Sterling Publishing Company, Inc., 1991.

Burns, Marilyn. *Math and Literature, grades K-3*. Math Solutions Publications, 1992.

Ege, Peggy. *Games for Math: Playful ways to help your child learn math; for grades K-3*. New York: Pantheon Books, 1987.

Tampert, Ann. *Grandfather Tang's Story*. New York: Crown Publishers, 1990.





Parents' Corner

THE INTERNET

The Internet contains resources related to early learning and mathematics. Use the following World Wide Web (WWW) sites and other Internet addresses to get started.

FAMILY MATH WEB PAGE: <http://theory.lcs.mit.edu/~emjordan/famMath.html>

MATHEMATICS RELATED INTERNET RESOURCES:
<http://www.math.uic.edu:80/~cpmp/resources.html>

MATHMAGIC: <http://forum.swarthmore.edu/mathmagic/>

Additionally, if you have access to commercial online services such as America Online, CompuServe, Microsoft Network, or Prodigy, check for resources and bulletin boards under keywords such as "education" and "kids only."

Note: We at Brøderbund Software attempt to provide useful and appropriate resources for you and your family. Although certain content published on these sites may have been previously viewed by Brøderbund Software, Inc., no warranty, expressed or implied, is made by Brøderbund Software, Inc. as to the accuracy of the data and related materials nor the nature of the content. Brøderbund Software, Inc. does not monitor and does not take responsibility for the content or accuracy of the information that is presented on these sites. You may wish to visit these sites first before sharing them with your children.

Troubleshooting

OK, so you've followed the instructions in Getting Started and you're still having problems installing or running *Math Workshop*. Don't despair. This section has additional information on how to get the program up and running. If the information here doesn't solve your problem, please refer to the Troubleshooting Guide included in the box, or the ReadMe file contained on the CD-ROM disc. If you're *STILL* having problems, see "How to Contact Technical Support," page 57, to learn how to contact the folks at Brøderbund's Technical Support Department.

GENERAL TROUBLESHOOTING

We recommend not running other applications while running *Math Workshop*. Running other programs simultaneously, including screen savers, may affect the program's performance or the amount of computer memory available to run *Math Workshop*.

WINDOWS 95 TROUBLESHOOTING

SOUND PROBLEMS

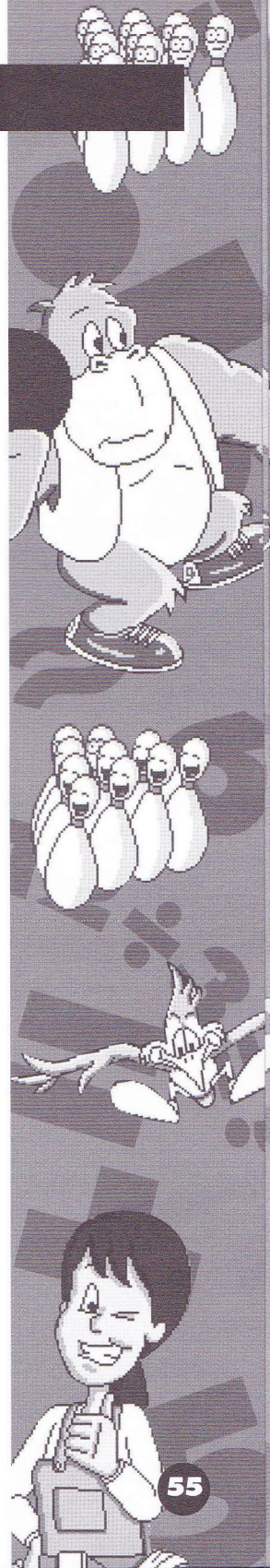
If you notice that the sound crackles and breaks up on loud sounds or that the audio is characterized by high-frequency distortion, you may need to turn down the wave volume on your computer system. To do this:

1. From the Windows 95 **Start** menu, select **Programs, Accessories, Multimedia**, and then **Volume Control**.
2. Set the Wave volume slider to about half-way or below, until the distortion disappears. If the volume is too low now to be audible, please adjust the volume on your computer speakers.

VIDEO DISPLAY PROBLEMS IN PARENTS' VIDEO GUIDE

If you experience distorted video display or the image being shifted off-center on the screen while viewing the *Parents' Video Guide*, you may need to adjust the settings in the QuickTime control panel. To do this:

1. From the Windows 95 **Start** button, select **Settings**, and then **Control Panel**.
2. Double-click to open the QuickTime control panel.
3. Click the **More** button at the bottom.
4. Select the **Video** tab, and under **Optimization** set the Draw Method to Video Driver. If the Draw Method is already set to Video Driver, try setting it to BMP.
5. Click **Apply**, and then **Close**.



Troubleshooting

6. Return to the program and try running it again.

If you continue to have problems launching or running the program, try reinstalling the application. We recommend you use the Add/Remove Programs feature in Windows 95 to ensure completely removing the program. To access this feature:

1. From the Windows 95 **Start** button, select **Settings**, and then **Control Panel**.
2. Double-click to open the Add/Remove Programs control panel.
3. Click the **Install/Uninstall** tab.
4. Click **Math Workshop v2.0** once to select it from the list of programs.
5. Click the **Add/Remove...** button and then click **OK** to remove the program.

SLOW CURSOR PERFORMANCE IN BOILER ROOM

If you experience slow cursor performance when in the Boiler Room, you can toggle between the target cursor and the system cursor. To switch cursors, enter the Boiler Room and click **Go**. Once the flames come on screen, press the **F2** key on the keyboard. This will switch you from the target cursor to a smaller system cursor, which will move around the screen faster. To return to the target cursor, press the **F2** key again.

WINDOWS 3.1X TROUBLESHOOTING VIDEO DISPLAY PROBLEMS IN PARENTS' VIDEO GUIDE

If you experience distorted video display or the image being shifted off-center on the screen while viewing the *Parents' Video Guide*, you may need to adjust the settings in the QuickTime control panel. To do this:

1. From the Windows Program Manager, locate and open the **Main** program group.
2. Double-click to open Control Panels.
3. Double-click to open the QuickTime control panel.
4. Click the **More** button at the bottom.
5. Select the **Video** tab, and under **Optimization** set the Draw Method to Video Driver. If the Draw Method is already set to Video Driver, try setting it to BMP.
6. Click **Apply** and then **Close**.
7. Return to the program and try running it again.

If you continue to have problems launching or running the program, try reinstalling the application. We recommend you use the Uninstall feature included with this program to ensure completely removing the program. To access this feature:

Troubleshooting

1. Begin at the Windows Program Manager.
2. Locate the **Brøderbund Software** program group and double-click to open it.
3. Double-click the **Uninstall Math Workshop v2.0** icon, and then click **Yes** to remove the program.

SLOW CURSOR PERFORMANCE IN BOILER ROOM

If you experience slow cursor performance when in the Boiler Room, you can toggle between the target cursor and the system cursor. To switch cursors, enter the Boiler Room and click **Go**. Once the flames come on screen, press the **F2** key on the keyboard. This will switch you from the target cursor to a smaller system cursor, which will move around the screen faster. To return to the target cursor, press the **F2** key again.

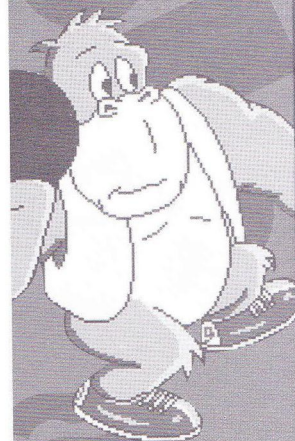
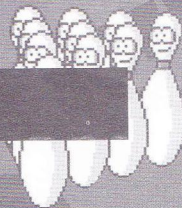
MACINTOSH TROUBLESHOOTING

NOT ENOUGH MEMORY

If *Math Workshop* does not launch, you may not have enough memory available. To check the amount of memory available:

1. Begin at the desktop.
2. Go to the **Apple** menu and select **About This Macintosh**, **About This Computer**, or **About the Finder**.
3. Check the amount displayed next to Largest Unused Block.

You can free up additional memory by quitting other applications that are running, or by disabling unnecessary System Extensions and Control Panels. For additional information about disabling System Extensions and Control Panels, please refer to your Macintosh manual or see the Troubleshooting Guide included with this program.



Troubleshooting

HOW TO CONTACT TECHNICAL SUPPORT

If you have worked through these troubleshooting suggestions and still need assistance, you can contact Brøderbund Technical Support by using the options listed below. It will be very helpful if you can tell us your computer make and model, and the brand names of both the video card and sound card you are using. If possible, have the computer both positioned near your phone and turned on. Please also be prepared to give us a detailed description of what happens when you try to run the program.

You can contact us in any of the following ways:

- Internet - Online support is available through our World Wide Web site at <http://www.broderbund.com>
- Phone - Call us at (415) 382-4740 from Monday through Friday between the hours of 6:00 a.m. and 5:00 p.m., Pacific Time.
- CompuServe - Type GO BB at any prompt to access Brøderbund's area in CompuServe, or send your questions to support@broderbund.com
- America Online - Use the Keyword: BRODERBUND to find our Product Support Boards, or address your questions to BBund Tec1 or BBund Tec2 using AOL's electronic mail.
- Mail - Send your questions to Brøderbund Technical Correspondence, P.O. Box 6125, Novato, CA 94948-6125.

Credits

The *Math Workshop* Team Would Like to Send a Special THANK YOU to the Schoolteachers Who Inspired Us to Think About Things!

Alan Agol of Sir Francis Drake High School (San Anselmo, CA)

Cheri Tomei of Lark View School (Huntington Beach, CA)

Betty Duncan of Reed School (Tiburon, CA)

Mark Hendricks of Highland High School (Bakersfield, CA)

Jen Litherland of Seafar Primary School (Cumbernauld, Scotland)

All the Teachers at Willa Cather Elementary (Omaha, NE)

Steve Smith of Edison School (Alameda, CA)

Dr. Wallace Dunnbelt of Brentwood School (Los Angeles, CA)

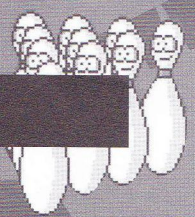
Janis Hawkins of Terrace Elementary School (San Antonio, TX)

Mr. Lecel of Santa Venetia Middle School (San Rafael, CA)

Dr. William Hanf of University of Hawaii (Manoa, HI)

Archimedes of the City Marketplace (Alexandria, Egypt)

Ms. Fledderman of Montclair Elementary (Omaha, NE)



Credits

Original Product Concept:

Mark Schlichting

Lead Designer:

Amanda Crispel

Design Team:

Bo Everson

Hilary Nation

Tom Rettig

Senior Producer:

Hilary Nation

Product Manager:

Sioban Scanlon

Assistant Product Manager:

Seth Jacobson

Kathleen McKinley

Programming Project Lead:

Lance Groody

Frankie Ford

Programmers:

Bob Arient

Michael G. Rivard

Diane Cerreta

Rod Nelson

Additional Programming:

Grace Kim

Ben Ceschi

Samir Ramji

Guy Nicholas

Jeff Charvat

Bob Gulian

Glenn Axworthy

Michael Zacks

Art Director:

Bo Everson

Michelle Bushneff

Character Designer,**Lead Animator:**

David Magliocco

Lead Artist, Animator:

Brad Pollard

Michelle Graham

Art & Animation:

Avril Harrison

Stephen Peterson

Cheryl Middleman

Phillip Bossant

Bob King

Kevin Dooley

Additional Art & Animation:

Julie Glavin

Caitlin Mitchell-Dayton

Peter Mitchell-Dayton

Peter Babakitis

Computer Graphics**Technician:**

Martha Embry

Sound Director:

Tom Rettig

Jonelle Adkisson

Lead Sound Designer:

Michael Barrett

Chris Clanin

Additional Sound:

Joey Edelman

Tom Hays

John Loose

Gary Schwantes

Brian Woodbury

Jane Scolieri

Tim Larkin

Voices:

Miriam Carr

Tom Rettig

Mark Schlichting

Michael Barrett

Carl Albert

Dialogue Writers:

Suze Allen

Jana Goerlitz

Additional Writing:

Valorie Singer

Sioban Scanlon

Package Design:

Willardson & Associates

Manual Design:

Jennifer Cherk

Lynn Ross

Manual Editor:

Seth Jacobson

Sioban Scanlon

Quality Assurance Leads:

John Crowell

Warren Yamashita

Margaret Coholan

Quality Assurance Testers:

Chris Krotky

Elizabeth Rippe

Ed Daranciang

Senior Marketing Manager:

Linda Dalton

Marketing Manager:

Aline Yu

Assistant Marketing Manager:

Jennifer Apy

Credits

Marketing Coordinator:

Veronica Bowers

Executive Publisher:

John Baker

Laurie Strand

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Special Thanks:

Harry Wilker

Mickey Mantle

Tom Marcus

David Kessler

Nancy Bulette

Joyce Anderson

Jeanne Brandon

Lisa Kirkpatrick

Tomoko Harada

Laura Leininger

Caitlin Bini-Johnson

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Joe Lawrence

Janet Tumpich

The Mohawk Gang

The Brøderbund QA

Department

Jean-Fabrice Vernet

Garlynn Peterson

Miryam Acevedo-Bouchard

The Last Word

Anne Seward

Jenean Estigoy

Elsa Kendall

Tony Marino

Lynn Brantley

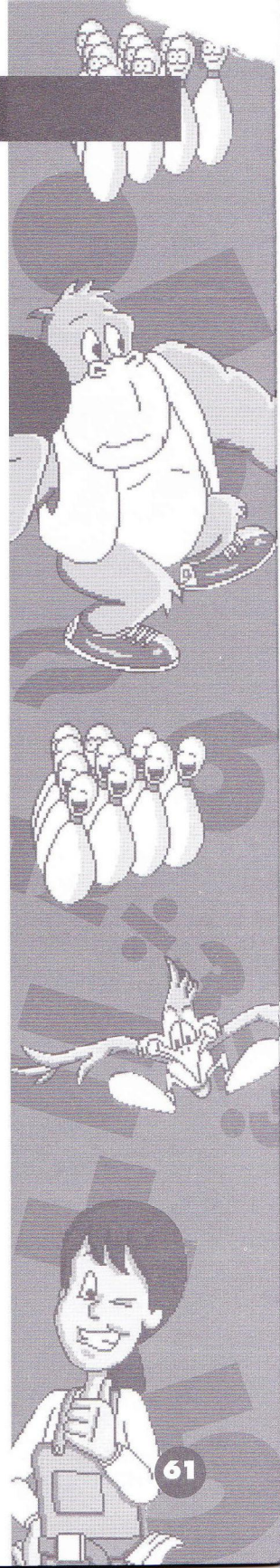
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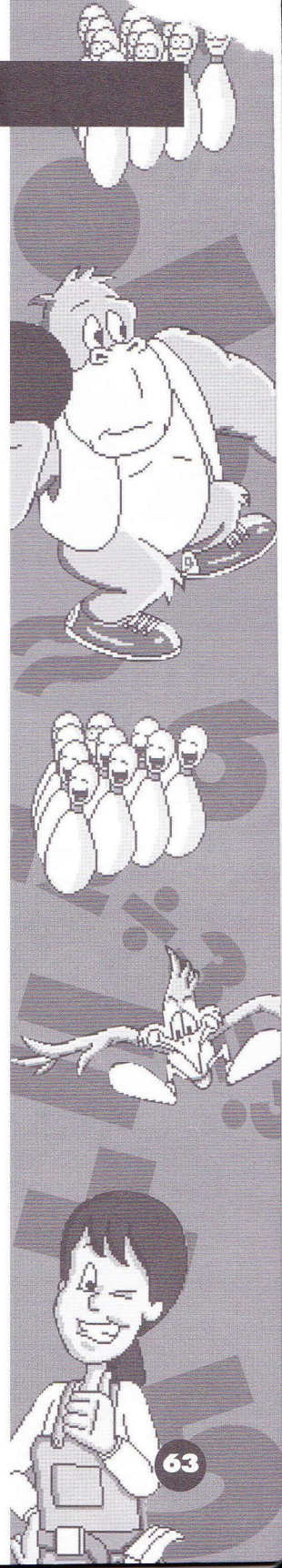
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