

APF

MODEL NO. 1500

**MATHEMAGICIAN
MATHEMAGICIAN
MATHEMAGICIAN**™

**ADVANCED
EDUCATIONAL
TEACHING
MACHINE**

WITH

6 EXCITING GAMES!

A FEW WORDS FOR MOM & DAD

Your child's MATHEMAGICIAN will provide hours of enjoyment and learning over a wide range of ages and skills. You can help by guiding the selection of games. Have your child start with the less difficult games so that he or she can learn to easily operate the MATHEMAGICIAN. You will note that the level of difficulty has been coded for each game in this book by the number of magic wands that appear beside the game. As your child learns, suggest trying timed games and more difficult games. It is normal for your child to be at different difficulty levels for each of the arithmetic operations at the same point in time. In most cases it will take many years before a child can master all the games in this book. To help each child keep track of where he or she is, a magician's hat has been drawn by many of the games. Each child then places his or her own special checkmark (J, W, H, V, ✓, .., □, etc.) by the hat when a perfect score of ten has been made in that game.

MOM & DAD CAN HELP BY

- Helping select games
- Playing with and prompting younger children.

LEVELS OF DIFFICULTY

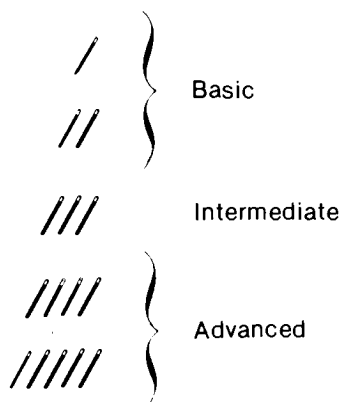


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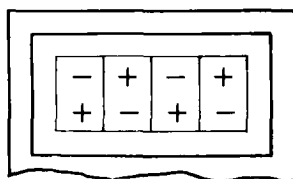
Care of your Mathemagician and Overlays

For best care and long use, the following points should be noted:

- * As with all fine equipment, protect your Mathemagician from shock, dirt, dampness and abrasion. Never clean the unit or overlays with solvents such as paint thinner; use only a water dampened soft cloth.
- * Store your unused overlays in the storage compartment of your Mathemagician.
- * Never use any other battery eliminator (optional) other than the one specifically designed for your model.
- * Avoid leaving batteries in the unit for long periods of time when not in use.
- * Never attempt to take any part of your Mathemagician apart; this should be done only by qualified APF Service Personnel.

A.C. and Battery Operation

- * Your Mathemagician operates on 4 'C' cell batteries. Under normal operating conditions new batteries will provide 7 to 9 hours of use. To obtain the most use from your batteries be sure to turn unit off when not in use.
- * To install or replace the 4 'C' cell batteries, place the unit on a soft surface with the underside facing up toward you. Gently take the battery cover off and install the batteries in the correct manner as shown in the battery compartment and in figure 1.



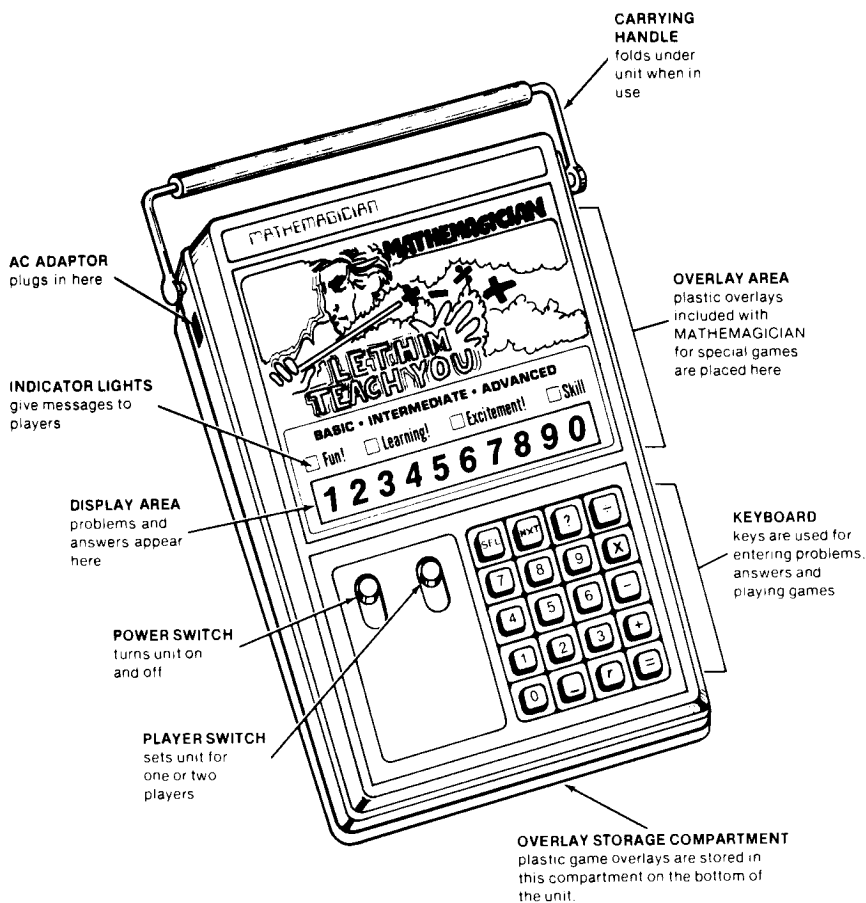
Battery Compartment

Holds 4

'C' Cell Batteries

Figure # 1

An optional A.C. adaptor may be purchased for use with your Mathemagician. This allows you to operate on household A.C. current, instead of batteries. To use the A.C. adaptor, turn the Mathemagician's power off, plug the A.C. adaptor into your household A.C. socket, then plug the end of the wire into the A.C. adaptor socket on the side of the unit. Note: When the A.C. adaptor is plugged into the unit, the batteries are automatically disconnected. To obtain the correct optional A.C. adaptor, either see your dealer or use the enclosed APF Accessory Purchase Card. Permanent damage or malfunctions can occur by using the incorrect A.C. adaptor.



SEL for selecting a new game

[] blank-used in setting up teaching games

NXT for the next turn when playing

[r] enters remainder for division answers and response time for timed games

[?] to check your answers

AS A CALCULATOR

The MATHEMAGICIAN can be used as a calculator by simply keying in the problem.

First:

Touch **[SEL]** The word **go** (go) will now be showing.

Then enter the **PROBLEM**.

Then touch **[= ?]**

Example:

Suppose you want the answer to $95 + 26$. To get it you would

Touch **[SEL]** then **[9][5][+][2][6]** then **[= ?]**
the display would read

$$95 + 26 = 121$$

IS THIS RIGHT

Lets you check answers to problems you have already worked. It is very handy for checking homework.

First:

Touch **[SEL]** The word **go** (go) will now be showing.

Then enter **NUMBER SENTENCE**

Then Touch **[?]** to check.

■ **THAT'S RIGHT**

Your answer was right.

■ **MY ANSWER**

Your answer was not right.

The number sentence is corrected.

Example:

Suppose you multiplied 37×4 and got an answer of 148. To check, you would

Touch **[SEL]** then **[3][7][X][4][=][1][4][8]** then **[?]**
the display would read

$$37 \times 4 = 148$$

and ■ **THAT'S RIGHT** would light.





GAMES FOR TWO

All games (except Lunar Lander) can be played by two players with each taking turns during the play of game. The MATHEMAGICIAN keeps score for each player.

- 1  Be sure the player switch is set to TWO when telling the MATHEMAGICIAN what game you want to play.
- 2 At the END of the **1st** players TURN, the **2nd** player touches **[NXT]** and takes his or her turn.
- 3 AFTER both players have had a TURN, the **1st** player touches **[NXT]**

The MATHEMAGICIAN will display both scores before starting the next ROUND.

1st → 0 1 ← 2nd

- 4 The players CONTINUE taking TURNS and the SCORES will be displayed for about one second at the end of each round.
- 5 At the END of the GAME, both SCORES will be displayed until another game is started.



TIMED GAMES

Many of the games can be played as a timed game. These games have the stopwatch figure somewhere on the page that describes them. When playing a timed game, you must key in your answer before time runs out. If time runs out, the MATHEMAGICIAN gives the answer and you get no points for your score.

To set up time games, do the following.

First:

Touch **[SEL]** The word **go** will now be showing.

Then touch **[SEL]** **[5]** **[r]** for a 5 second response time.

Response times may be set to 3, 5, 7 or 9 seconds only.

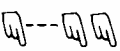


Be sure I am turned ON



- 1 Touch **SEL**

go

 The word go will now show.
- 2  Set the player switch to ONE  OR TWO 
- 3 Choose **1** of the following.
 Touch **+** **NXT** for ADDING GAME 
 Touch **x** **NXT** for MULTIPLYING GAME 
 Touch **-** **NXT** for SUBTRACTING GAME 
 Touch **÷** **NXT** for DIVIDING GAME 
- 4 Enter YOUR ANSWER when the **?** (question-mark) flashes.
- 5 Touch **?** to check your answer.
 - **THAT'S RIGHT**  Good! You're right. One point will be added to your score..
 - **MY ANSWER**  Sorry! I will show you the right answer. No points will be added to your score.
- 6 Touch **NXT** for another turn.
 Continue playing for 10 rounds until
 ■ **SCORE** Shows your final score.

What
Next

Choose a new game and
go to **1** for that game.



This game may be timed
See page 5.

Turn me OFF
when done



Be sure I am turned ON



This league helps you practice with numbers that give you trouble.

1 Touch **SEL**



2 Set the player switch to ONE  or TWO 

3 Enter the number you want to practice with where **#** is shown. **#** May be **0**, **1**, **2**, **3**, ..., **9**

Touch **#** **+** **=** **NXT** for ADDING GAME

Touch **#** **x** **=** **NXT** for MULTIPLYING GAME

Touch **=** **-** **#** **=** **NXT** for SUBTRACTING GAME

Touch **=** **÷** **#** **=** **NXT** for DIVIDING GAME

not allowed to be **0** for DIVIDING GAME

4 Enter YOUR ANSWER when the **?** (question mark) flashes.

Use **=** (blue key) for negative answers. Enter remainders in division by pressing **r** followed by the remainder.

5 Touch **?** to check your answer.

■ THAT'S RIGHT  Good! You're right. One point will be added to your score.

■ MY ANSWER  Sorry! I will show you the right answer. No points will be added to your score.

6 Touch **NXT** for another turn and continue playing until

■ SCORE Shows your final score.



Keep trying until you get a perfect score of 10. Then try a timed game. See page 5.



Turn me OFF
when done



Touch **[SEL]**



Set the player switch to ONE or TWO

Enter the keys below for the game you want to play.

// **LITTLE LEAGUE**

Touch **[][+][]=[] [NXT]**

Touch **[][+][?]=[] [NXT]**

/// **MINOR LEAGUE**

Touch **[][][+][]=[] [NXT]**

Touch **[][][+][?]=[] [NXT]**

//// **MAJOR LEAGUE**

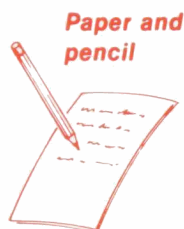
Touch **[][][+][][]=[] [NXT]**

Touch **[][][+][?][?]=[] [NXT]**

///// **SUPER STAR LEAGUE**

Touch **[][?][+][?][]=[] [NXT]**

Touch **[?][][+][][?]=[] [NXT]**



*Paper and pencil
maybe
needed for
some of
these games*

Enter **YOUR ANSWER** when the **?** (question mark) flashes.

Touch **[?]** to check your answer.

■ **THAT'S RIGHT** Good! You're right. One point will be added to your score.

■ **MY ANSWER** Sorry! I will show you the right answer. No points will be added to your score.

Touch **[NXT]** for another round and continue playing until

■ **SCORE** Shows your final score. When you have made a score of 10, put your checkmark by the Magician's Hat for that game.

3, 5, 7 or 9
seconds see
page 5



1 Touch **SEL**

2  Set the player switch to ONE  or TWO 

3 Enter the keys below for the game you want to play.

// **LITTLE LEAGUE**

Touch **1**     **NXT** 

Touch     **NXT** 

Touch     **NXT** 

/// **MINOR LEAGUE**

Touch      **NXT** 

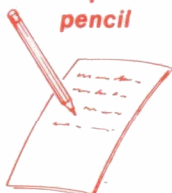
Touch      **NXT** 

//// **MAJOR LEAGUE**

Touch       **NXT** 

Touch        **NXT** 

*Paper and
pencil*



*maybe
needed for
some of
these games*

4 Enter YOUR ANSWER when the **?** (question mark) flashes.

Answers to subtractions like **3 - 5 = ?**
are keyed in as   **2** (minus 2)

5 Touch  to check your answer.

■ **THAT'S RIGHT**  Good! You're right. One point will be added to your score.

■ **MY ANSWER**  Sorry! I will show you the right answer. No points will be added to your score.

6 Touch **NXT** for another turn and continue playing until

■ **SCORE** Shows your final score. When you have made a score of 10, put your checkmark by the Magician's Hat for that game.

 3, 5, 7 or 9
seconds see
page 5

Turn me OFF
when done 
ON
OFF

① Touch **SEL**

②  Set the player switch to ONE  or TWO 

③ Enter the keys below for the game you want to play.

// **LITTLE LEAGUE**

Touch **X** **=** **NXT** 

Touch **X** **?** **=** **NXT** 

/// **MINOR LEAGUE**

Touch **X** **=** **NXT** 

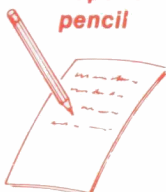
Touch **X** **?** **=** **NXT** 

Touch **?** **?** **X** **=** **NXT** 

//// **MAJOR LEAGUE**

Touch **X** **=** **NXT** 

Paper and pencil



maybe needed for some of these games

④ Enter **YOUR ANSWER** when the **?** (question mark) flashes.

⑤ Touch **?** to check your answer.

■ **THAT'S RIGHT**  Good! You're right. One point will be added to your score.

■ **MY ANSWER**  Sorry! I will show you the right answer. No points will be added to your score.

⑥ Touch **NXT** for another round and continue playing until

■ **SCORE** Shows your final score. When you have made a score of 10, put your checkmark by the Magician's Hat for that game.

 3, 5, 7 or 9 seconds see page 5

Turn me OFF when done 

1 Touch **[SEL]**

2  Set the player switch to ONE  or TWO 

3 Enter the keys below for the game you want to play.

// **LITTLE LEAGUE**

Touch $\square \div \square =$ **[NXT]** 

Touch $\square \div ? =$ **[NXT]** 

/// **MINOR LEAGUE**

Touch $\square \square \div \square =$ **[NXT]** 

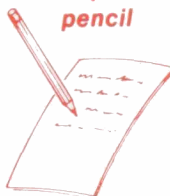
Touch $\square \square \div ? =$ **[NXT]** 

//// **MAJOR LEAGUE**

Touch $\square \square \div \square \square =$ **[NXT]** 

Touch $\square \square \div ? ? =$ **[NXT]** 

Paper and pencil



*maybe
needed for
some of
these games*

4 Enter YOUR ANSWER when the ? (question mark) flashes.

Answers to divisions that do not work out evenly like $9 \div 2 = ?$ are keyed in as $\square 4 \square 1$ where 1 was the remainder.

5 Touch **[?]** to check your answer.

■ **THAT'S RIGHT**  Good! You're right. One point will be added to your score.

■ **MY ANSWER**  Sorry! I will show you the right answer. No points will be added to your score.

6 Touch **[NXT]** for another round and continue playing until

■ **SCORE** Shows your final score. When you have made a score of 10, put your checkmark by the Magician's Hat for that game.



 3, 5, 7 or 9 seconds see page 5

NUMBER MACHINE

Game 1 /

This game will help younger players develop number recognition skills. The object of the game is to key in the same number that is displayed at the beginning of the round.

TO PLAY

- 1  Place plastic overlay for Game 1 over display area.
- 2 Touch **[SEL]** The word **go** (go) will now show.
- 3  Set the player switch to ONE  or TWO 
- 4 Touch **[1]** **[NXT]**

- 5

0 1 2 3 4 5 6 7 8 9  ☐

One of the above numbers will be shown in the window for a second.

Enter THE NUMBER when the ? (question mark) flashes.

- 6 To check.
Touch **[?]**

■ GOT IT

■ IT WAS

Good!  The number was the same. You get one point for your score.

Sorry!  You did not get it. I will show you what it was. You get no points for your score.
- 7 Touch **[NXT]** for another turn.
Continue playing until

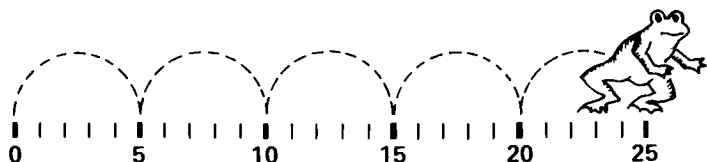
■ SCORE

Shows your final score.

KEEP PLAYING and try to get a score of 10.



COUNTIN' ON Game 2 / to //



This is a counting game. The MATHEMAGICIAN will count by 1's or skip count by 2's, 3's, 4's, etc. You count along and then key in the number where the counting stopped. You get a point each time you are right.

TO PLAY

- 1  Place plastic overlay for Game 2 over display area.
- 2 Touch **[SEL]**
- 3  Set the player switch to ONE  or TWO 
- 4 Touch **[2]** **[NXT]**
- 5 COUNT BY **[?]** When the **?** (question mark) flashes in this window.
Enter NUMBER you want to count by.
- 6 COUNT ☐ The counting will start right away in this window. The number will flash each time the MATHEMAGICIAN counts. You count along.
- 7 When the **?** (question mark) flashes again
Enter YOUR COUNT
- 8 To Check. ☒ RIGHT ON  Good! You're right.
Touch **[?]** ☒ I GET  Sorry! I will show you what I got.
- 9 Touch **[NXT]** for another turn and continue until
☒ SCORE Shows your final score.



WALK THE PLANK

Game 3 /

This is a guessing game. You get three tries to guess the secret number before you go 'byby'.

TO PLAY

- 1  Place plastic overlay for Game 3 over display area.
- 2 Touch **[SEL]**
- 3  Set the player switch to ONE  or TWO 
- 4 Touch **[3]** **[NXT]**

The MATHEMAGICIAN picks a secret number from 1 to 9.

- 5 Enter YOUR GUESS When the ? (question mark) flashes.

You have 3 tries to guess the secret number. On each wrong guess you will take one step on the plank.
Your last guess will be shown in the window on the left.

You will be given clues by the lights.

it's larger ■ it's smaller ■

- 6 The word **Yes** (yes) will show if your guess is right. If you do not guess the number on the third try **byby** (byby) will show as you go into 'the drink'.
- 7 Touch **[NXT]** for another turn and continue until
■ SCORE Shows your final score. You get one point for each correct guess.



GOOEY

GUMDROP

Game 4 ////

In this game you must locate a Gumdrop before it blows up. The Gumdrop is hidden in a 9 block by 9 block area of Gotham City.

TO PLAY

- 1  Place plastic overlay for Game 4 over display area.
- 2 Touch **SEL**
- 3  Set the player switch to ONE  or TWO 
- 4 Touch **4** **NXT**
- 5 Enter NUMBER OF TRIES When the **?** (question mark) flashes in the box labeled 'NUMBER OF TRIES TO GO'.

In this game, a low score is best. If you don't find the Gumdrop, the number of tries you entered is added to your score. If you find it, only the number of tries remaining is added. Give some thought to the above entry. It will influence your score.

- 6 Enter YOUR MOVE When the **?** (question mark) flashes in the box labeled 'NEXT LOCATION'.

It takes two numbers to guess where the Gumdrop is. The first is in the North-South direction and the second is in the East-West direction. Look on the overlay and you will see these labeled.

Your current location is shown in the window on the left. You will be given clues by the lights relative to this position.

☒ GO NORTH ☐ GO SOUTH ☐ GO EAST ☐ GO WEST

The above would indicate that I must go further NORTH but have found it in the EAST-WEST direction.

- 7 You will get a **yes** or **byby** in the display depending on whether or not you find the Gumdrop in the number of tries you said.
- 8 Touch **NXT** for another turn and continue until



■ SCORE

Shows your final score.
Remember, lower is better!

FOOTBALL

Game 5

This is a game of mathematical practice. When you call a play the MATHEMAGICIAN will give you a problem. If you answered correctly, the play you called will move the ball toward the goal line. If your answer is wrong, no gain. Make enough good plays and you will score a touchdown. The rules are like regular football. You must make 10 yards (a First down) in four plays or you lose the ball.

TO PLAY

- 1  Place the plastic overlay for Game 5 over display area.
- 2 Touch **[SEL]**
- 3  Set the player switch to ONE  or TWO 

These instructions are written for two players. If one player is playing, then simply keep playing until the game ends and see how high a score you can get.

- 4 Touch **[5]** **[NXT]**
■ SCOREBOARD will light and a score of 0 will show.
- 5 Decide who will go first.
Touch **[NXT]**
■ POSITION will light and show 'YARDS TO GOAL', 'DOWN' and 'YARDS FOR FIRST' in display for about four seconds.
- 6 Touch PLAY (**[+]**, **[-]**, **[x]** or **[÷]**) When the ★ flashes.
- 7 Enter YOUR ANSWER When the ? (question mark) flashes.
- 8 Enter **[?]** TO CHECK If your answer is right, the yards gained is the answer's digit that is closest to the equal sign.
- 9 Your POSITION will now be displayed for about four seconds and then you will be asked for a new play. KEEP PLAYING until ■ SCOREBOARD This tells you to CHANGE PLAYERS
Touch **[NXT]** and the new player is off and running.
- 10 IF pressing **[NXT]** does NOTHING then the GAME IS OVER



LUNAR LANDER

Game 6 ////

In this game you will attempt to land your rocketship on the moon safely. You start out at an altitude of 300 (feet) and are dropping toward the moon's surface with a speed of 20 (feet per second). You have 99 units of fuel. The rockets on the lander will burn the amount of fuel you key in. If you come down too fast, you'll crash. If you slow the lander too soon, you'll run out of fuel and crash. The trick is to select the right amount of fuel for each 'burn' to land safely.

TO PLAY

- 1  Place the plastic overlay for Game 6 over display area.
- 2 Touch **SEL**
- 3 Touch **6** **NXT**

The Lunar Lander's control panel will now read

99	20	300
FUEL	SPEED	ALTITUDE

- 4 Touch 'BURN'

The rockets on the Lander will burn the amount of fuel you key in (from 0 to 9 units for each burn). The more you burn (6, 7, 8 or 9), the more you slow the Lander. If you burn less (4, 3, 2, 1 or 0), the Lander will drop faster. A 'burn' of 5 will not change the Lander's speed.

Keep your eyes on the control panel. The readings will change with each 'burn'.

- 5 The game ends when you land (or crash).
Touch **SEL** **6** **NXT** to play another game.



- See if you can land with a speed of zero.
- See how much fuel you can have left after a safe landing.

TO THE CONSUMER

FULL 6 MONTHS WARRANTY

For 6 months from date of purchase APF will repair defects in material or workmanship, free of charge, which appear in the operation of this electronic calculator, unless caused by damage resulting from corrosive leakage of batteries or from the unreasonable use of this product.

To obtain service under this warranty, return this calculator to your Dealer with evidence of date of purchase, or return it directly to APF Service, prepaid, with proof of purchase date.

The above warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

OUT OF WARRANTY SERVICE. State the nature of your difficulty. As with any fine equipment, pack carefully and forward via insured, prepaid parcel post to:

APF SERVICE CENTER.
43-17 Queens St.
Long Island City, N.Y. 11101

APF SERVICES LTD.
47 Valley Brook Dr.
Don Mills, Ont. Canada

APF ELECTRONICS, INCORPORATED
New York, N.Y. 10022