

# PLAYER'S GUIDE



## SPACE PROBE: MATH

CUSTOM DESIGNED FOR  
**Radio Shack**<sup>®</sup>  
TRS 80 COLOR COMPUTER

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# SPACE PROBE: MATH

## To the Parent:

Recommended for ages 7-14

A two-part learning adventure designed to present the formula for determining area and perimeter and to demonstrate the use of multiplication and division.

## Playing for Fun/Learning for Life

Walt Disney's adventures in learning will captivate your child's imagination while developing necessary basic skills. Your child's attention is engaged with stunning graphics, delightful characters and compelling and challenging activities.

Rewards for successful performance encourage your child to grasp the concepts involved with each adventure, while opportunities to correct errors make it easy to learn from mistakes. What's more, Disney adventures give your child the opportunity to explore the innovative ways a computer solves problems, while providing a friendly introduction to this important tool.

## Setting up for Action

Required Equipment:

- TRS-80 16K Standard Color Computer
- Video receiver or TV
- Radio Shack CCR-81 Cassette Recorder (or equivalent).

Set up and connect the Color Computer, color video receiver or TV, and cassette recorder according to the instructions in the TRS-80 Color Computer Operation Manual.



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1. Turn on the color video receiver or TV and set the volume at a normal listening level. Select channel 3 or 4 (whichever is weaker or not used in your area). Select the same channel on the "channel select" switch at the rear of your computer.
  2. Turn on the computer by pushing the power button on the back of the computer case. You'll see an "OK" prompt appear on the video screen.
  3. Place the Disney Adventure tape in the cassette recorder.
  4. Set the volume level of the cassette recorder at 5.
  5. Rewind the tape completely. After the tape is completely rewound, press the cassette recorder's "PLAY" button.
  6. Type **C L O A D M** on the keyboard and press **ENTER**. The computer will search and load the adventure. While the computer searches for the adventure, the letter "S" will be displayed in the upper left of the video screen. When the computer finds the adventure, "F DISNEYAP" or "F DISNEYMD" will appear. When the adventure has been loaded, the "OK" prompt will reappear.
  7. Once the "OK" prompt has reappeared, type **EXEC** on the keyboard and press **ENTER**. In a moment, the adventure will begin.
  8. As the adventure begins, use the volume control on the color video receiver or TV to adjust the volume of sound as necessary.

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**NOTE:** If you should get an error message while loading your adventure, the volume on the cassette recorder could be too low or too high. You should:

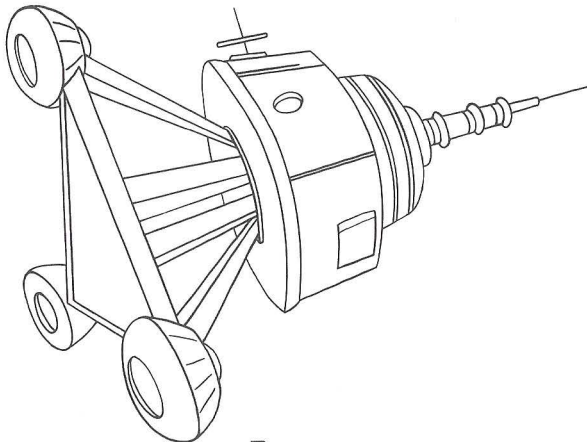
- Press the **"STOP"** button on the cassette recorder.
- Turn the volume a little higher or a little lower.
- Press the **"RESET"** button on the back of the computer.
- Repeat the instructions from Step 5.

## Score Report

When you complete the adventure, you will receive a score of the number of correct answers you made on the first try.

## To the Player:

SPACE PROBE: MATH is made up of two learning adventures: "Problem Solving: Area and Perimeter" and "Problem Solving: Multiplication and Division."



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## **PROBLEM SOLVING: AREA AND PERIMETER — ACTIVITY ONE**

In this first activity, the crew of the Spaceship Palomino must use algebraic formulas to save an alien tribal society from a volcanic eruption.

### **Player's Instructions**

The Spaceship Palomino lands on an Earth-like planet inhabited by people who have abandoned their large cities for tribal villages where they practice primitive farming techniques. Ishtar, one of the inhabitants, greets the Palomino crew, explaining that a nearby volcano is about to erupt, threatening to destroy the land which her people depend upon for survival.

On board the Palomino is a lava-proof substance. Using the formulas for area and perimeter, the crew must figure out how much of the substance they will need in order to save the crops and animals, and preserve Ishtar's way of life.

Throughout this adventure, you will be asked questions. Sometimes you will be asked to use something a crew member has taught to Ishtar, and sometimes you will be asked to solve a measurement problem using the formula for either area or perimeter.

Be sure to pay close attention to what happens in this adventure so you will be able to answer each question correctly on your first try. Whenever you give the right answer, you will receive a special message, and the adventure will continue. If the answer you choose is wrong, you will be given a chance to try again.

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## **PROBLEM SOLVING: MULTIPLICATION AND DIVISION — ACTIVITY TWO**

In this second activity, the crew of the Spaceship Palomino relies on basic math operations to rescue the victims of a strange, lethal disease.

### **Player's Instructions**

The crew is settling into its daily routine when the ship receives a distress signal from one of Earth's remote colonies. When they land, the crew members are astonished to find that all 1,000 inhabitants have vanished, killed off by a strange disease. A search reveals a number of unconscious survivors, just as symptoms of the disease begin to affect some of the crew members.

Quickly, the crew of the Palomino must figure out what math to use and how to use it in order to save themselves and rescue the survivors.

Throughout this adventure, you will be asked questions. Sometimes you will be asked whether multiplication, division, addition, or subtraction should be used in the rescue mission. At other times, you will be asked to solve a problem involving multiplication or division.

Pay close attention to what happens in this adventure so you will be able to answer each question correctly on your first try.

Whenever you give the right answer, you will receive a special message, and the adventure will continue. If the answer you choose is wrong, you will be given a chance to try again.



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## WHAT NEXT?

### Note to Parents:

Here are some at-home adventures you and your child can do together to extend the skills just introduced in "Space Probe: Math." Many things in your home can provide a fun way to a better understanding of multiplication, division, and measurement.



#### 1. "Who's Wright?"

Which paper airplane flies the best: the biggest, the smallest, or one in between? Do an experiment to find out!

Measure and cut rectangles with different areas out of old newspapers. Fold each rectangle into the same style airplane.

Predict which airplane will have the highest, longest, or shortest flight, then run tests for each. Talk about your results. What effect did the different areas have on each airplane's performance?



## 2. "Array of Hope"

An array is a set of things arranged in rows and columns. To find the total area of an array, multiply a column (length) by a row (width).

Design your own array and calculate the area. Set up the array using peanuts, dry beans, sunflower seeds, bottlecaps, gumdrops, jellybeans, or even popcorn! Use anything that's small.

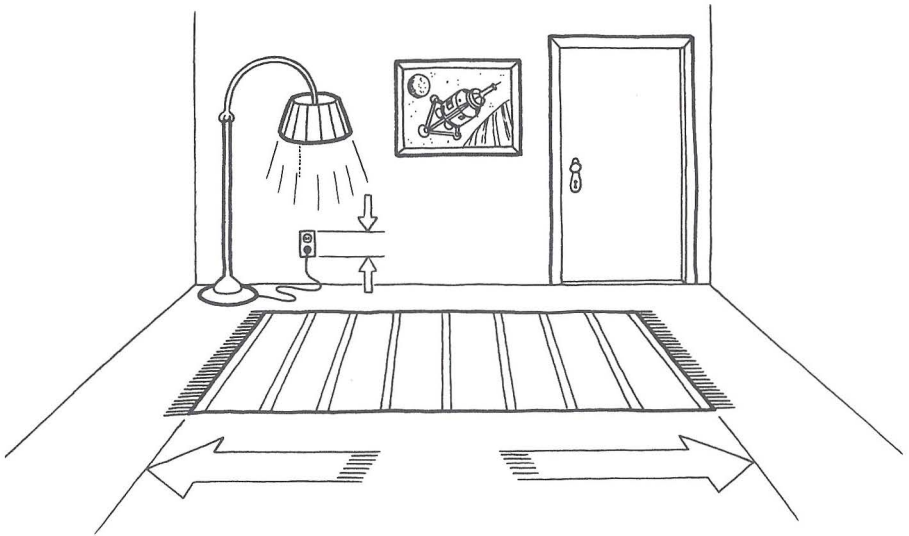
First, lay out a small array such as 2 rows of 3 (area = 6) or 3 rows of 4 (area = 12).

Take turns setting up arrays, and figuring out the

areas. Gradually make your arrays larger: 4 rows of 7 (area = 28), 5 rows of 5 (area = 25), etc.

After a few more plays, throw in a "twist" by constructing an incomplete array. Only one full row and one full column are needed to figure out the area inside the array. Simply multiply the row and the column. Fill in and count to check your calculation.





### 3. "The Superlative Search"

A superlative is a word which describes the "most" in a comparison: fastest, slowest, smoothest, lumpiest, tallest, shortest, and in the case of area, largest and smallest.

Be a detective with your child. Solve the mystery of hidden superlatives. Use a tape measure and go through every room in your house to find the square or rectangle with the largest and smallest area. Use a pad and pencil to record your findings. Happy hunting!

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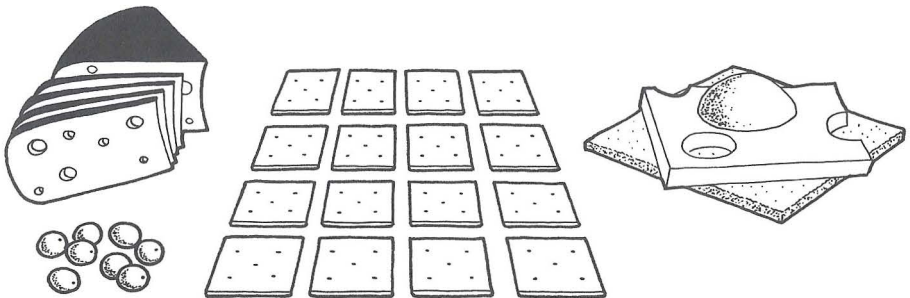
#### 4. "Hor d'oeuvres, Anyone?"

Make math an appetizing approach to snacks! Lay out 16 crackers on a cutting board.

Give your child 4 slices of cheese and 4 slices of cold cuts on a plate. Figure out how many parts each slice should be divided into so there is a piece of cheese and cold cut for each cracker. You might ask, "How many times can 4 go into 16?"

To top each cracker with half an olive ask, "How many whole olives are needed?"

Serve with a favorite juice.



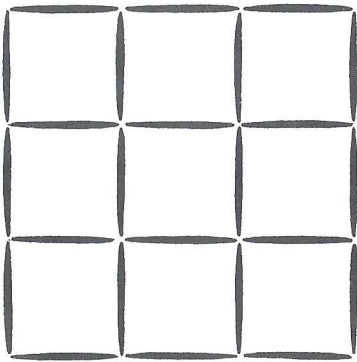
#### 5. "Periscoping Perimeters"

For this activity, use 26 toothpicks, coffee stirrers, or popsicle sticks.

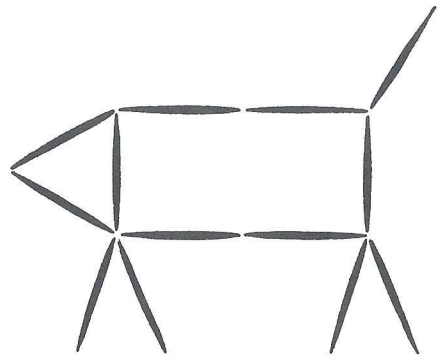
To begin, lay out different sizes of squares or rectangles and ask your child to give you the perimeter of each (1 unit = 1 stick). Now try these 3 puzzles (solutions on last page).

- I. Lay out 24 sticks to make the pattern seen in the diagram. Your child is to remove eight sticks to leave only 2 perimeters, each a different size.
- II. Use sticks to outline the shape of the pig. Now make the pig look the other way by moving only 2 sticks. The perimeter must be left alone.
- III. Create the stick fish.  
Have your child make the fish "swim" the opposite way by moving the perimeter of the fish's body using only 3 sticks.

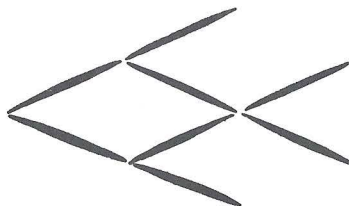
PROBLEM I



PROBLEM II



PROBLEM III



(Solutions on last page)

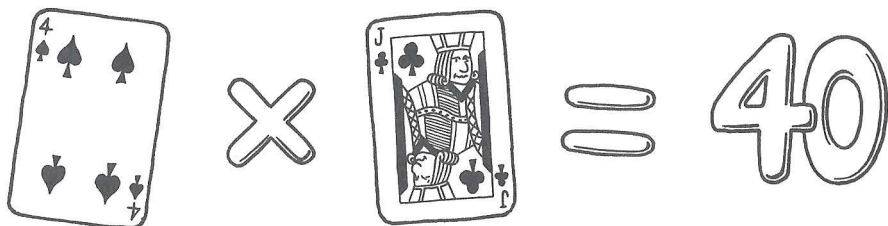


## 6. "Draw, Partner!"

Have a multiplication showdown with your child. Take a deck of cards, deal them face down until they are divided evenly between you. Take your "ammunition" pile and flip the top card over. Both players do this at the same time. The ace is equal to 1. The face cards are equal to 10. The first person to multiply the 2 numbers showing, wins the cards.

Keep your winnings in a separate pile. The player with the most cards is the winner.

Good luck!



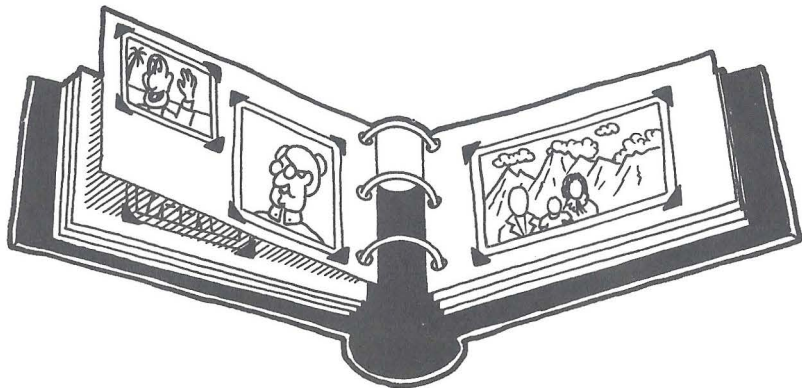
## 7. "Our Family Album"

Do you have photographs that need to be mounted? Practice multiplication through a family album project.

Gather all the pictures and get an album to put them in. If you don't have one handy, be sure to take your child to the store when you buy one. Bring a photo along as a sample unit. Have your child estimate the number of photos that will fit on one page. Divide that number into the total number

of photos that you want mounted. This will tell your child how many pages are needed.

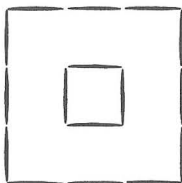
Happy memories!



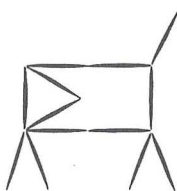
### Answers to "What Next?" "Periscoping Perimeters"

- I. The 2 perimeters left are the outside square and the center square.
- II. Change the two sticks of the face from the outside of the perimeter to the inside of the perimeter!
- III. Move the sticks located under the mouth, the lower tail, and the fin.

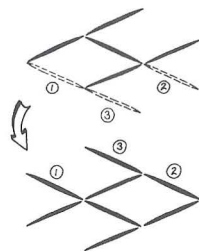
SOLUTION I



SOLUTION II



SOLUTION III





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