Waxman, B., Robinson, N. M., & Mukhopadhyay, S. (1996). *Parents nurturing math-talented young children* (RM96230). University of Connecticut, The National Research Center on the Gifted and Talented. https://nrcgt.uconn.edu/wp-content/uploads/sites/953/2015/04/rm96230.pdf

Math Games

LOTS OF BOXES

Object of the game: This is a game for two people. The idea is to make a bigger rectangle than your partner.

Directions:

1. Each partner takes a piece of grid paper and a pencil.

2. One person takes the die and throws it. The number on the die tells you how *long* your rectangle will be. Now draw it. Then you throw the die again, and that will tell you how *high* your rectangle will be. Now draw it, and finish your rectangle. How many little boxes are in your rectangle? That's your score. Write it down.

3. Now it's your partner's turn to do the same.

4. Whoever has the bigger score, wins.

Play as many times as you like!

Questions to ask:

1. How did you figure out how many little boxes were in your rectangle?
2. Could you find an easier way to figure it out?
3. Could you write a number sentence to show how many little boxes there are altogether?
4. What's the smallest rectangle you could make by throwing the die twice?
5. What's the biggest rectangle you could make?

Challenges:

1. Use two dice each time you throw!
2. Devise two ways to figure out how many squares there are in your box.
3. Write number sentences or equations for each way.
4. Write a formula for finding out how many squares there are no matter what you roll.

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WRITE A STORY FOR . . .

1. Write a story for this number sentence:

   0 - 3 = -3

2. Now draw a picture to go with your story!

WHAT IS YOUR NAME WORTH?

If A = one penny, B = two pennies, etc., what is your first name worth?

What is your last name worth?

How did you figure it out?

What is the most expensive name you can think of?

Think of a name that costs exactly forty-three cents!

Can you think of any variations on this?

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SWITCHING PLACES BOAT PROBLEM

First, draw three circles big enough to fit color tiles on to:

O O O

Take 1 blue and 1 yellow tile and place them on the two outside circles. Imagine that the paper is a boat with three places, and the blue person wants to switch places with the yellow person. They can only switch by moving one position at a time, and in one direction. They can also jump over one person, but only one of an opposite color.

After you have figured this out, draw 5 circles and use two blue and two yellow tiles, leaving the middle circle blank.

Record how many moves it takes to switch sides.

Try this game with 7, 9, and 11 circles.

Record the following information in a table: Places in the boat. How many moves it took to switch places. Do you notice any patterns?

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Chip-Trading Game*

Materials: Poker chips in four different colors (e.g., yellow, blue, green, and red). Playing sheets divided into four columns with headings in the same colors as the chips, from right to left: Yellow, blue, green, and red. One or two dice (depending on the base used). 2-5 people may play at a time.

1. Choose a "Land" to play in, e.g., the "Land of Threes" (In this game, "land" is a metaphor for the base in which the game is played).

2. The object of the game is to acquire a red chip. In the Land of Threes, wherever three or more of any color are accumulated, they must be traded in for the next color, as that next color represents the next place value. For example, if the number 4 was rolled, the player would take four yellows and would then need to trade three of those yellows in for a blue, so that the player would have one yellow and one blue on the color-coded playing board.

3. Each player takes turns throwing the die until someone acquires a red chip.

4. This game may also be played with a "banker." The banker presides over trades by asking the player what she wants traded and why. In this way, the banker elicits the other player's reasoning.

5. The game may also be played in reverse: Each player starts with a red and subtracts the number thrown on the die for each play, until there are no chips left on the playing board.

* Davidson, P., Galton, G. K., & Fair, A. W. (1975). *Chip-trading activity.* Fort Collins, CO: Scott Resources.

(Featured in school catalogues such as Dale Seymour and Cuisenaire.)