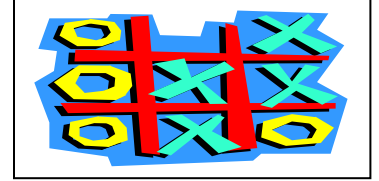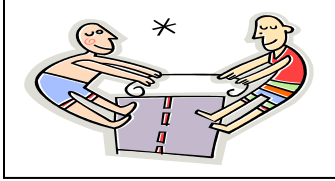# Summer Math Games

What Are My Chances?   Grades K-5

You'll need: Two Coins, Paper, and Pencil to Keep Score.

Play these games with your child:

1. Flip one coin. Every time it comes up heads, your child gets 1 point. Every time it comes up tails, you get 1 point. Flip it 50 times. Tally by 5's to make it easier to keep track of scores. The person with the most points wins. If one person has 10 points more than the other person does, score an extra 10 points. Does this happen very often? Why not?
2. Flip two coins. If the coins come up two tails or two heads, your child scores 1 point. If it comes up heads and tails, you get 1 point. After 50 flips, see who has more points. Do you think the game is fair? What if one person received 2 points for every double heads and the other person received 1 point for everything else. Is this fair?
3. Flip one coin. Then flip the other. If the second coin matches the first coin, your child scores 1 point. If the second coin doesn't match the first coin, you receive 1 point. Try this 50 times. Is the result the same as in the previous game?

Parent Pointer: Understanding probability is essential in many areas of mathematics. Playing games that involve chance is one way to explore the laws of probability.

More or Less   Grades K-2

You'll need: One Coin, Number Cards that your child has made, Scratch Paper, Pen and Pencil

Two players will play a card game where each will draw a card. The players will compare cards to see who wins that round. Before you begin, flip the coin and call "heads" or "tails" to see if the winner of each round will be the person with a greater value card (heads) or a smaller value card (tails).

1. To begin the game, divide the cards evenly between the two players.
2. Place the cards face down. Each player turns over one card at a time and compares: Is mine more or less? How many more? How many less? The player with the greater or smaller value card (depending on whether heads or tails was tossed) takes both cards.

3. The winner of the game is the player with more cards when all the cards are gone from the stack.
4. Now try the same activity with each player pulling two cards and adding them. Which sum is more? How many more? How much less?

Parent Pointer: Playing with numeral cards helps children learn to compare quantities of numbers. Children can also learn addition and subtraction.

Guess If You Can   Grades K-5

1. Let your child think of a number between a stated range of numbers while you try to guess the number by asking questions. Here is a sample conversation:

   Child: I am thinking of a number between 1 and 100.
   Parent: Is it more than 50?
   Child: No
   Parent: Is it an even number?
   Child: No
   Parent: Is it more than 20 but less than 40?
   Child: Yes
   Parent: Can you reach it by starting at zero and counting by 3's?
   Child: Yes
   (At this stage, your child could be thinking of 21, 27, 33 or 39.)
2. Figure out the answers to your own questions.
3. After you have guessed your child's number, let your child guess a number from you by asking similar questions.

Parent Pointer: It is important to help children develop an understanding of the characteristics and meanings of numbers.

Money Match   Grades K-2

You'll need: One number cube to roll, 10 of each coin (penny, nickel, dime and quarter).

1. For young players (5 and 6 year olds) use only two different coins (pennies and nickels or nickels and dimes only). Older children can use all types of coins.
2. Explain that the object of the game is to be the first player to earn a set amount (10 or 20 cents is a good amount).
3. The first player rolls the number cube and gets the number of pennies shown on the cube. Keep all like coins in batches or stacks of 5 or 10.
4. As each player accumulates 5 pennies or more, the 5 pennies are traded for a a nickel. Players take turns rolling the cube to collect additional coins.
5. The first player to reach the set amount wins.

6. Add the quarter to the game when the children are ready. As each player accumulates 5 nickels, they are traded for quarters.

Parent Pointer: Counting money and batching in groups of 2's, 5's, or 10's teaches children matching skills and helps in the beginning stages of addition and multiplication. Children also learn how to identify coins and understand their values.

Problem Solvers   Grades 1-3

You'll need: Enough sets of cards so that each player has a set of cards numbered 1 through 6.

1. **Super Sums.** Each player write numbers 1-12 on a piece of paper. The object of The game is to be the first one to cross off all the numbers on this list. Use only the cards 1-6. Each player picks two cards and adds up the numbers on them. The players can choose to mark off the numbers on the list by using the total value or crossing off two or three numbers that make that value. For example, if a player picks a 5 or a 6, the player can choose to cross out 11, or 5 or 6, or 7 and 4, or 8 and 3, or 9 and 2, or 10 and 1 or 1, 2, and 8. If a player cannot cross off a number, the player loses the turn. The first player to cross off all the numbers wins.
2. **Make the Sum of 100.** Use only cards 1-6. Each player takes turns drawing a card and each player must take 6 cards from the deck. With each draw, a player decides whether to use the number on the card in the 10s place or the 1s place so that the numbers total as close to 100 as possible without going over. For example, suppose a player draws the following cards in this order: 1, 6, 3, 2, 3, 2, and chooses to use the numerals in the following way: 63, 23 and 12. When each player turns over their numbers, the person with the highest total without going over 100, gets 5 points. The first person to reach a stated number wins.

Parent Pointer: This card game helps children develop various ways to use numbers in different combinations and to see the many possibilities of arriving at the same sum by adding different sets of numbers.

What Are The Coins?   Grades 2-5

You'll need: Some coins

Ask your child the following questions:
1. I have three coins in my pocket. They are worth 7 cents. What do I have? (a nickel and 2 pennies)
2. I have three coins in my pocket. They are worth 16 cents. What do I have? (a dime, a nickel and a penny)
3. I have three coins in my pocket. They are worth 11 cents. What do I have? (2 nickels and 1 penny)

4. I have three coins in my pocket. They are worth 30 cents. What do I have?
   (3 dimes)
5. I have six coins in my pocket. They are worth 30 cents. What could I have?
   (1 quarter and 5 pennies or 6 nickels). This problem has more than one answer.
   It is challenging for children to experience problems like this.
6. I have coins in my pocket, which have a value of 11 cents. How many coins
   could I have?

You get the idea! Give your child a few coins to figure out the answers.

Parent Pointer: Use this activity to help your child develop an understanding of patterns and variables (the unknown) to solve a problem. This is critical to understanding algebra.

Card Smarts   Grades 3-5

You'll need: Number cards, Pencil and Paper

1. **How many numbers can we make?** Give each player a piece of paper and a
   pencil. Using the cards from 1 to 9, deal four cards out with the numbers showing.
   Using all four cards and a choice of any combination of addition, subtraction,
   multiplication, and division, have each player see how many different numbers a
   person can get in 5 minutes. Players get one point for each answer. For example,
   suppose the cards drawn are 4, 8, 9, and 2. What numbers can be made?
2. **Make the most of it.** This game is played with cards from 1 to 9. Each player
   alternates drawing one card at a time, trying to create the largest 5-digit number
   possible. As the cards are drawn, each player puts the cards down in their
   "place" (ten thousands, thousands, hundreds, tens, ones) with the numbers
   showing. Once placed, a card cannot be moved. The first player with the largest
   5-digit number wins. For example, if a 2 was drawn first, the player might place it
   in the ones' place, but if the number had been an 8, it might have been put in
   the ten thousands' place.

Parent Pointer: This card game helps children develop strategies for using numbers in different combinations using addition, subtraction, multiplication, and division.