

# Algebra/Geometry Institute 2007

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Leland Elementary School, Leland MS

Grade level: 5



## Teaching Objective(s):

- Competency:5 Objective: d
  - The student will learn to calculate and apply basic probability

## Instructional Activities:

- Bell ringer: Students will define in their own words the following terms.  
  
a. unlikely   b. likely   c. eventually   d. chance
- The teacher will introduce the lesson on probability by asking students "What does the word probability mean?" (various answers will be given)
- The teacher will explain that probability is the likelihood/chance that an event will occur.
- The teacher will explain that most times we use the words such as likely, unlikely and certain when we talk about probability.
  - Probability scale is used when determining the likelihood that an event will occur. This scale starts with zero (0) and ends with one (1).
  - The closer a number is to 0 the **less** likely the event will occur. The closer a number is to one the more likely an event will occur.
  - If the probability is zero (0), the event will **not** occur (impossible). If the probability is one (1), the event will occur (certain to happen). If the probability is  $\frac{1}{2}$ , the event has an even chance of occurring or not occurring.
- The teacher will give examples of unlikely, likely and even chance probability.
  - Chances of winning a million dollars (unlikely)
  - Chances of taking a test Friday (likely)
  - Chances of flipping a quarter and landing on heads (even chance)
- The teacher will explain that probability can be expressed as a ratio of favorable outcomes to the total possible outcomes.

$$\text{Probability} = \frac{\text{favorable outcomes}}{\text{total \# of possible outcomes}}$$

Example: There are 11 marbles in a bag. Four are blue, three red, two yellow and two white. If a student reaches into the bag without looking and pulls a marble, what is the probability of that marble being red?

What is the favorable outcome in this problem? red

How many red marbles are there? 3

What is the total number of outcomes? (How many marbles are there?) 11

The probability of choosing a red marble would be 3 out of 11 or  $\frac{3}{11}$ .

- The teacher will also tell students to simplify if the answer is not in simplest form.
- The teacher will put students into groups of three or four. Each group will be given a deck of playing cards, a die and a bag of small alphabet and number beads containing the entire alphabet and the numbers 1 through ten.
- The teacher will read the directions for the activity (attached).
- The teacher will guide the students through the first problem.

### Materials

<ul style="list-style-type: none"> <li>• Overhead</li> <li>• Markers</li> <li>• What's Your Probability?- handout (teacher made)</li> <li>• Textbook Saxon Math 65</li> <li>• Scratch paper</li> </ul>	<ul style="list-style-type: none"> <li>• Pencils</li> <li>• dice</li> <li>• Playing cards</li> <li>• Alphabet beads</li> <li>• Number beads</li> <li>• small bags</li> </ul>
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### Assessment

- What's Your Probability? worksheet
- Observation

# What's Your Probability?

Directions: Use the list of questions and the items issued by the teacher to complete the following chart(s).

Favorable Outcome	# of Favorable Outcomes	Total # of possible outcomes	Probability
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			

Directions: Tell whether each event is certain, impossible, likely, unlikely or have an even chance of occurring.

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

# What's Your Probability?

Directions: Use the following questions to fill in the chart(s) on page 1.

## Playing Cards

1. All the cards are placed face down and scattered. If you pull a card without looking, what is the probability of pulling a black card?
2. All the cards are placed face down and scattered. If you pull a card without looking, what is the probability of pulling a heart?
3. All the cards are placed face down and scattered. If you pull a card without looking, what is the probability of pulling a joker?
4. All the cards are placed face down and scattered. If you pull a card without looking, what is the probability of pulling a face card (King, Queen, Jack, or Joker)?

## Die

5. John rolls the die once. What is the probability that he will land on an even number?
6. Yalinda rolls the die once. What is the probability that she will land on the number 7?
7. Tiffany rolls the die once. What is the probability that she will land on the number zero (4)?
8. Mike rolls the die once. What is the probability that he will land on an odd number?
9. Sally rolls the die once. What is the probability that she will land on the number one (1) or a number greater than one (1)?

## Alphabet and Numbers

10. If you reach into the bag without looking and pull, what is the probability you will pull an E?
11. If you reach into the bag without looking and pull, what is the probability of you pulling one alphabet?
12. If you reach into the bag without looking and pull, what is the probability of you pulling the number 2?
13. If you reach into the bag without looking and pull, what is the probability of you pulling a consonant?

Directions: Tell whether each event is certain, impossible, likely, unlikely, or have an even chance of occurring.

14. You will win the lottery.
15. Cows will have wings.
16. You will read a book today.
17. You will flip a coin and get heads.