

Probability

You will learn to

- identify the probability of an event as certain, impossible, maybe likely or maybe not likely,
- use a number line to show the probability of an event,
- express probability as a decimal and percent,
- express probability of an event with a number between 0 and 1.

Vocabulary

1. Probability is the measure of how likely it is that an event will occur.

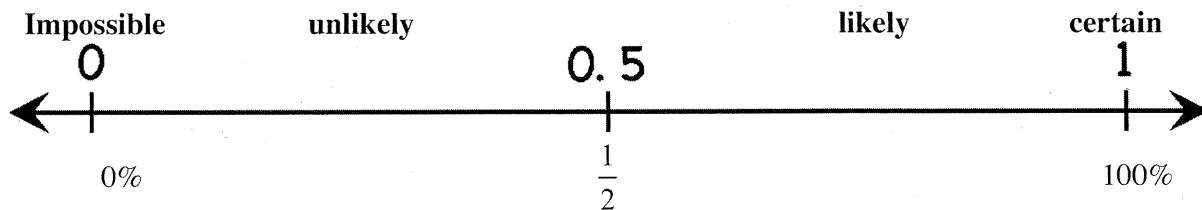
The probability of an event occurring is the ratio of the desired outcomes to the total number of possible outcomes. Choices that involve chance are based on an understanding of the reasonableness of obtaining a specific outcome.

2. Probability of 1 is the probability that an event is likely [certain] to occur.

3. Probability of 0 is the probability that an event is not likely [impossible] to occur.

4. Probability of $\frac{1}{2}$ is the probability that an event is as likely to occur as it is not to occur.

5. Simple Event is when all possible outcomes of an event are equally likely to happen.



ACTIVITY 1 - MAYBE YES, MAYBE NO

What is the chance of these events occurring?

Discuss the probability with a partner. Decide whether the probability of the event is certain, likely, maybe yes or maybe no, unlikely or impossible.

Record your answers.

TRY IT 1: DETERMINE THE PROBABILITY

Read each example and determine the probability. Use the numbers 0 to 1 identify the probability.

0 = impossible $\frac{1}{2}$ or 50% = equally likely or unlikely 1 or 100% = certain

- The freezing point of fresh water at sea level is 32 °F. What is the probability of fresh water freezing at 60 °F? _____
- The weather forecaster says there's a 50% chance of rain today. What is the probability that it will rain? _____
- What is the probability that the sun will rise every day? _____

SIMPLE EVENTS

If you tried to figure out just how likely it would be to spin a certain number on a spinner, then you are trying to determine the *favorable outcome*. All of the possible numbers are called *possible outcomes*.

We can predict this probability of this event by using this formula.

$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$

ACTIVITY 2 - WHAT ARE THE CHANCES?

Determining Probability

- Step 1: Find the total number. This will be the denominator.
Step 2: Count the number of red marbles. This will be the numerator.
Step 3: Write as a fraction. This represents the probability.

Example 1: A cooler was filled with the following sodas: 2 colas, a root beer, 5 orange sodas, and 4 ginger ales. What is the probability of reaching into the cooler and pulling out a cola?

- Step 1: How many sodas are there in all? This number is the denominator. _____
Step 2: How many colas are there? This number is the numerator. _____
Step 3: Write as a fraction? _____

$$\frac{2}{12} \text{ simplifies to } \frac{1}{6} \text{ The probability of picking a cola.}$$

Try it 2.

Look at the spinner. Calculate the probability of spinning A, $P(A)$?

