15.1

Outcomes & Events

Do Now

Write the ratio in simplest form.

1. **baseballs to footballs**

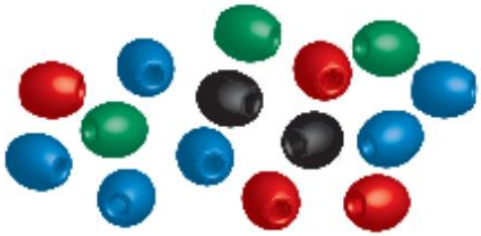
2. **sneakers to ballet slippers**

3. **footballs to total pieces of equipment**

4. **sneakers to total number of shoes**

5. **green beads to blue beads**

6. **red beads:green beads**



7. **green beads:total number of beads**

Learning Target:

I can identify and count the outcomes of experiments.

Key Ideas:

experiment: an _____ or a _____ that has varying results.

outcomes: the _____ _____ of an experiment.

event: collection of ____ or _____ outcomes.

favorable outcomes: the outcomes of a _____ _____.

Learning Target:

I can identify and count the outcomes of experiments.

Example:

randomly selecting a marble from a group of marbles is an _____.

each marble in the group is an _____.

selecting a green marble from the group is an _____.

When an experiment is performed *at random* or *randomly*, all of the possible outcomes are equally likely.

Identifying Outcomes

a. What at the possible outcomes?

b. What are the favorable outcomes of rolling an even number?

c. What are the favorable outcomes of rolling a number greater than 5?

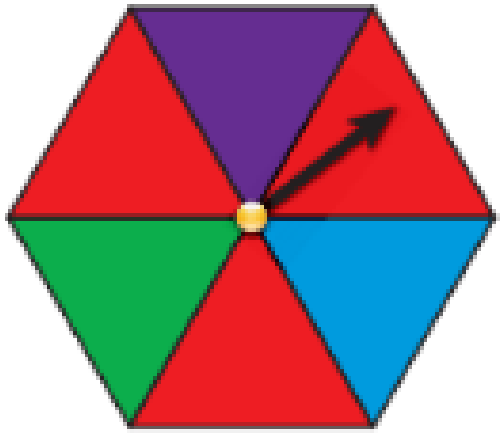
Practice

1. You randomly choose a letter from a hat that contains the letters A through K.

   a) What are the possible outcomes?

   b) What are the favorable outcomes of choosing a vowel?

Counting Outcomes



You spin the spinner.

a. How many possible outcomes are there?

b. In how many ways can spinning red occur?

c. In how many ways can spinning *not* purple occur? What are the favorable ways of spinning *not* purple?

Practice

You randomly choose a marble.

a. How many possible outcomes are there?

b. How many ways can choosing blue occur?

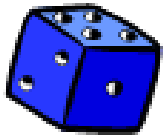
c. In how many ways can choosing *not* yellow occur?
What are the favorable ways of choosing *not* yellow?

15.2

Probability

Do Now

1. **Is rolling an even number on a number cube an outcome or an event? Explain.**



2. **Describe how an outcome and a favorable outcome are different.**

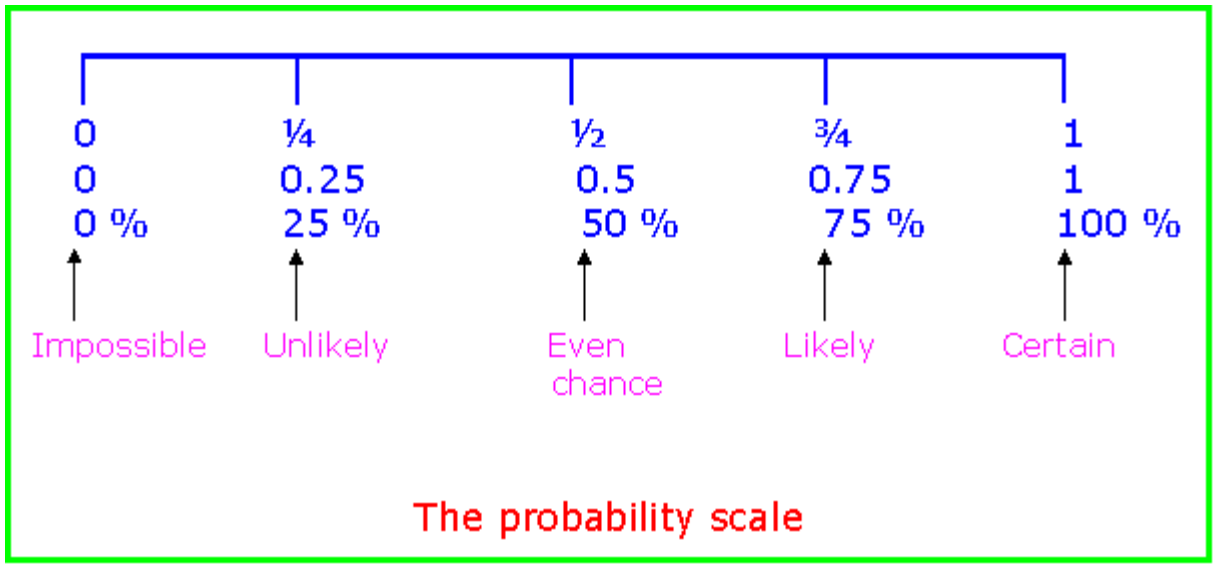
Learning Target:

- **I can understand the concept of probability and the relationship between probability and likelihood.**
- **I can find probabilities of events.**

Key Ideas:

Probablity: **of an _____ is a _____ that measures the _____ that the event will occur.**

Probabilities are between ___ and ___, _____ 0 and 1.



**probabilities can be written as fractions, decimals, or percents*

Describing the Likelihood of an Event

There is an 80% chance of thunderstorms tomorrow. Describe the likelihood of the event.

Practice:

Describe the likelihood of the event given its probability.

1) The likelihood that you land a jump on a snowboard is ½.

2) There is a 100% chance that the temperature will be less than 120°F tomorrow.

Finding the Probablity of An Event

When all possible _____ are equally _____, the _____ of the _____ is the ratio of the number of _____ _____ to the number of _____ _____.

the probability of an event is written as P(event).

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

Practice:

3) What is the probability of rolling a number greater than 2?

4) What is the probability of rolling a 7?

Using ProbablitY

The probability that you randomly draw a short straw from a group of 40 straws is $\frac{3}{20}$. How many are short straws?

(A) 4

(B) 6

(C) 15

(D) 34

Practice:

5) The probability that you randomly draw a short straw from a group of 75 straws is _____. How many are short straws?