

Lesson Summary

An *outcome* is the result of a single observation of an experiment.

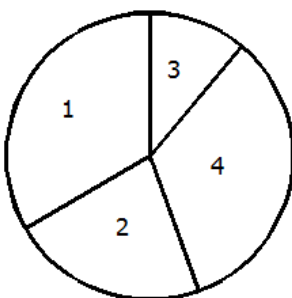
The *sample space* of an experiment is the set of all possible outcomes of that experiment.

The outcomes of an experiment are *equally likely* to occur when the probability of each outcome is equal.

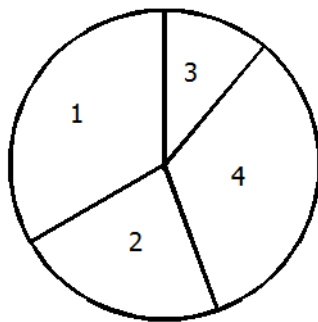
Suppose a bag of crayons contains 10 green, 10 red, 10 yellow, 10 orange, and 10 purple crayons. If one crayon is selected from the bag and the color is noted, the *outcome* is the color that is chosen. The *sample space* will be the colors: green, red, yellow, orange, and purple. Each color is *equally likely* to be selected because each color has the same chance of being chosen.

Problem Set

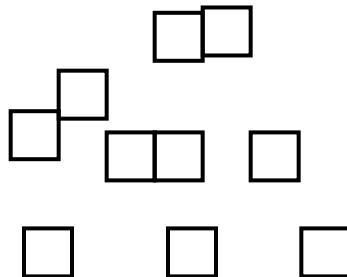
1. For each of the following chance experiments, list the sample space (all the possible outcomes).
 - a. Rolling a 4-sided die with the numbers 1–4 on the faces of the die
 - b. Selecting a letter from the word *mathematics*
 - c. Selecting a marble from a bag containing 50 black marbles and 45 orange marbles
 - d. Selecting a number from the even numbers 2–14, including 2 and 14
 - e. Spinning the spinner below:



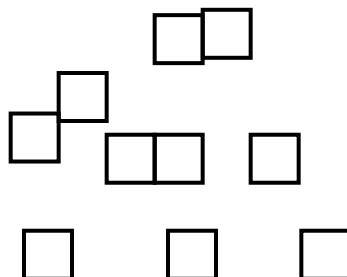
2. For each of the following, decide if the two outcomes listed are equally likely to occur. Give a reason for your answer.
- Rolling a 1 or a 2 when a 6-sided number cube with the numbers 1–6 on the faces of the cube is rolled
 - Selecting the letter *a* or *k* from the word *take*
 - Selecting a black or an orange marble from a bag containing 50 black and 45 orange marbles
 - Selecting a 4 or an 8 from the even numbers 2–14, including 2 and 14
 - Landing on a 1 or a 3 when spinning the spinner below



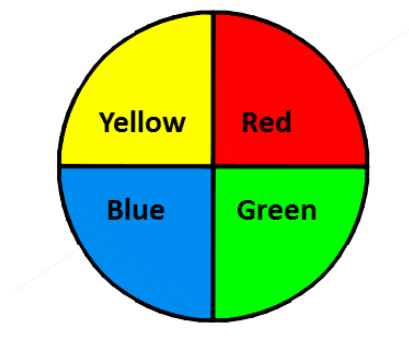
3. Color the squares below so that it would be equally likely to choose a blue or yellow square.



4. Color the squares below so that it would be more likely to choose a blue than a yellow square.



5. You are playing a game using the spinner below. The game requires that you spin the spinner twice. For example, one outcome could be yellow on the 1st spin and red on the 2nd spin. List the sample space (all the possible outcomes) for the two spins.



6. List the sample space for the chance experiment of flipping a coin twice.