

### Lesson Summary

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

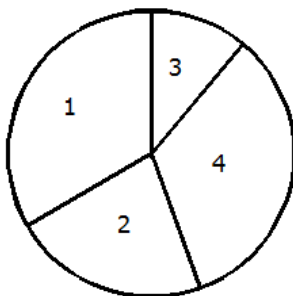
The *sample space* of an experiment is the set of all possible outcomes of that experiment.

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

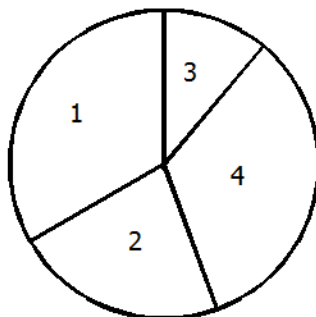
Suppose a bag of crayons contains green, red, yellow, orange, and purple crayons. If one crayon is selected from the bag and the color is noted, the *outcome* is the color that is chosen. The *sample space* will be the colors: green, red, yellow, orange, and purple. Each color is *equally likely* to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

### Problem Set

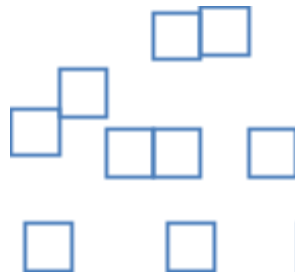
- For each of the following chance experiments, list the sample space (all the possible outcomes).
  - Rolling a 4-sided die with the numbers 1–4 on the faces of the die.
  - Selecting a letter from the word *mathematics*.
  - Selecting a marble from a bag containing 50 black marbles and 45 orange marbles.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



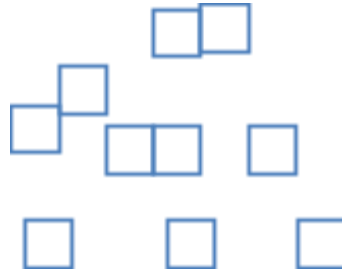
- For each of the following, decide if the two outcomes listed are equally likely to occur. Give a reason for your answer.
  - Rolling a 1 or a 2 when a 6-sided number cube with the numbers 1–6 on the faces of the cube is rolled.
  - Selecting the letter *a* or *k* from the word: take.
  - Selecting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



13. Color the cubes below so that it would be equally likely to choose a blue or yellow cube.



14. Color the cubes below so that it would be more likely to choose a blue than a yellow cube.



15. 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 1<sup>st</sup> spin and red on 2<sup>nd</sup> spin. List the sample space (all the possible outcomes) for the two spins.



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