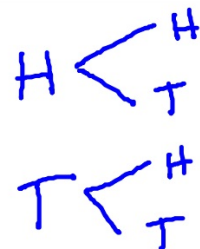# Simple Probability

Vocabulary:
- Probability - The chance of an event ocurring
  _____

- Outcome - _____
  A single specific possible result of an experiment

- Event - _____
  a set of possible outcomes resulting from a particular experiment

- Sample Space - A set of ALL possible outcomes
  _____

Toss a coin 2 times
$$\{HH, TT, HT, TH\}$$

$$H \begin{cases} H \\ T \end{cases}$$

$$T \begin{cases} H \\ T \end{cases}$$

	Rolling a number cube	Spinning a spinner
Experiment		
Sample Space	{1, 2, 3, 4, 5, 6}	{B, Y, R, G}

Probabilities can be expressed as fractions (between 0 and 1), decimals (between 0 and 1) or as a percent (between 0% and 100%).

Impossible	As likely as not	Certain
0		1
0%	0.5, $\frac{1}{2}$, 50%	100%
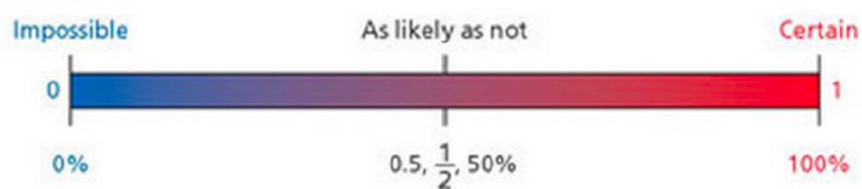
$$0 \leq P(x) \leq 1$$

Ex 1:
A CD has 5 upbeat songs and 7 slow ballads. What is the probability that a randomly selected song is an upbeat dance song?

$$P(\text{upbeat}) = \frac{5}{12}$$

Complement: A set of outcomes that are not in the set

$$A = \{1, 2, 3, 4, 5\}$$

$$B = \{6, 7\}$$

not

$$\sim A = \{6, 7\}$$

Students were asked "What is your favorite food?"

Pasta $\quad$ 12

Pizza $\quad$ 7D

Ice Cream $\quad$ 3

Chicken $\quad$ 9

Other $\quad$ 25

$$P(\text{ice cream or chicken}) = \frac{12}{119}$$

$$P(\text{liked pasta}) = \frac{12}{119}$$

$$P(\text{does not like pasta}) = \frac{119-12}{119}$$

$$1 - \frac{12}{119} \qquad = \frac{107}{119}$$