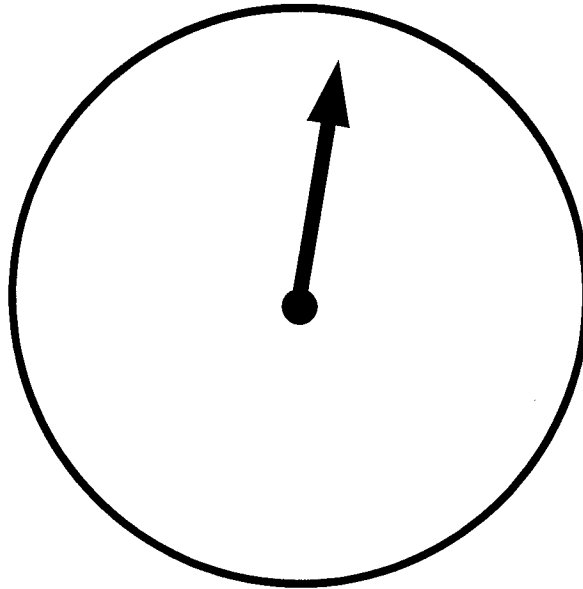


Spinner Creation Evaluation

Use the diagram below to create a spinner according to the given information.



Spinner Criteria:

- (1) Create a spinner so that the probability of landing on red is more than the probability of landing on any other single color.
- (2) All the sections of the spinner must be equal and there must be at least 6 sections.
- (3) Use *exactly* two other colors besides red.
- (4) Use the table below to state the probability of each color using a fraction.

Color	Probability (in words)	Probability as a Fraction (in simplest form)

Probability Likelihood Practice

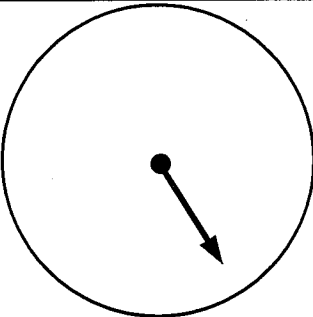
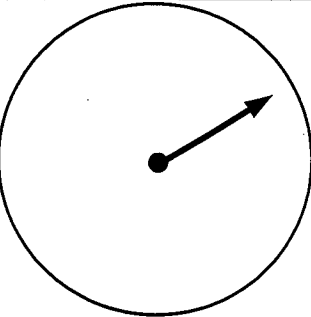
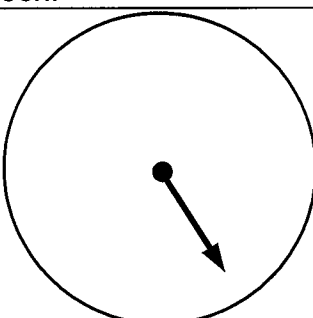
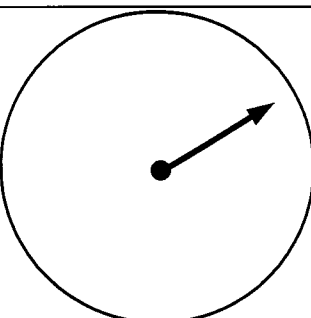
Probability Notes:

An event is **certain** if it will **always** happen. It has a probability of 1.

An event is **impossible** if it will **never** happen. It has a probability of 0.

An event is **likely** if it will **probably** happen. If a spinner has more of one color than another, that color is **more likely** to be spun than others.

An event is **unlikely** if it will probably **not** happen. If a spinner has a very small section of one color, it is not likely that the small section will be spun.

(1) Color the spinner so it is unlikely to spin yellow.	(2) Color the spinner so it is certain to spin blue.
	
(3) Color the spinner so it is impossible to spin green.	(4) Color the spinner so it is as likely to spin blue as red.
	

Tell whether the chances of each are *certain*, *impossible*, *likely*, or *unlikely*.

5. A horse will tell you in words whether it wants to canter or gallop. _____

6. Tomorrow the sun will rise. _____

7. You will have homework this weekend. _____

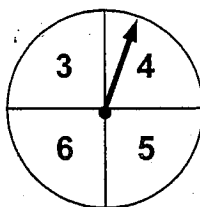
8. The ice in your drink will melt. _____

9. You will never have to eat broccoli. _____

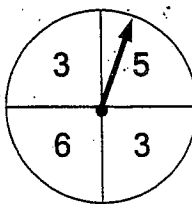
10. You will have to study to get a 100% on your tests. _____

Spinner Predictions

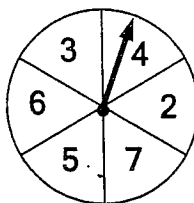
Predict the results of spinning a spinner and use an experiment to test your predictions. Use the spinners shown above each table to complete the table.



	Event	Probability as a Fraction	Possible Outcome: Less likely, More likely, Equally likely
(1)	Spinning an even number		
(2)	Spinning an odd number		



	Event	Probability as a Fraction	Possible Outcome: Less likely, More likely, Equally likely
(3)	Spinning an even number		
(4)	Spinning an odd number		



	Event	Probability as a Fraction	Possible Outcome: Less likely, More likely, Equally likely
(5)	Spinning an even number		
(6)	Spinning an odd number		

Combination & Arrangements Notes/Practice (pp. 1 of 2)

A **combination** is a selection of items in which order is **not** important.

Terry can choose either a Garden salad or a Chef salad. The dressings she can choose are: Ranch, Italian and French. How many different combinations of salad and dressing can Terry choose?

She used the Fundamental Counting Principle (multiplication) to determine the number of possible ways to choose 1 type of salad and 1 type of dressing.

$$\begin{array}{c} \text{Salad choices} \\ 2 \end{array} \times \begin{array}{c} \text{Dressing choices} \\ 3 \end{array} = 6$$

So, there are 6 different ways she can choose.

Another type of combination in which order is not important is shown below.

Mr. Sanchez chose these 4 people to play a game of tennis: George, Laura, Neva, and Jackie. If he wanted to make teams of two players, how many ways can he choose the people?

He made this organized list to determine the ways to choose.

George, Laura	Laura, Neva	Neva, Jackie
George, Neva	Laura, Jackie	
George, Jackie		

The order is not important because choosing George and Laura is the same as choosing Laura and George etc.

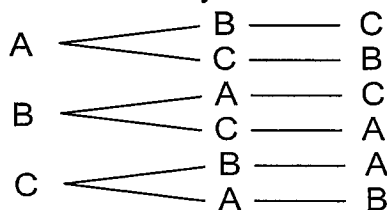
So, there are 6 different ways he can choose the players.

Notice that the Fundamental Counting Principle (multiplication) does not work in this situation.

An **arrangement** is a selection of items in which order is **important**.

Candace wants to place 3 books (A, B, C) on a shelf. How many different ways can she arrange the books?

She made this tree diagram to determine the ways to choose.



The order is important because putting Book A first and Book B second is different than putting Book B first and Book A second.

So, there are 6 different ways she can arrange the books. This can also be shown by using multiplication:

$$\begin{array}{c} 1^{\text{st}} \text{ Book Choice} \\ 3 \end{array} \times \begin{array}{c} 2^{\text{nd}} \text{ Book Choice} \\ 2 \end{array} \times \begin{array}{c} 3^{\text{rd}} \text{ Book Choice} \\ 1 \end{array} = \begin{array}{c} \text{Total Choices} \\ 6 \end{array}$$

Combination & Arrangements Notes/Practice (pp. 2 of 2)

Practice.

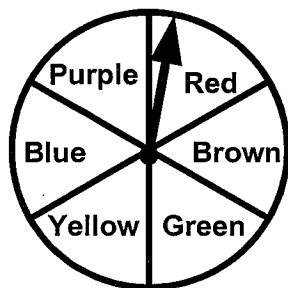
Make a list or draw a diagram to find the total number of outcomes.

(1) How many 3-digit numbers can be made from the digits in 461?	(2) How many types of sandwiches can be made with ham, turkey, or tuna and wheat, white, or rye bread?
(3) Nathan selects 2 DVDs from a stack of 6 DVDs. How many ways can he select the 2 DVDs?	(4) How many ways can Sara wear her red, green, or white sweater on 3 different days wearing each sweater only 1 time?
(5) Millie selected 2 pictures out of the 4 pictures to hang on the wall. How many ways can she hang the pictures on the wall?	(6) How many different ways can you arrange the letters in the word CAT?

What's My Outcome? Problem Cards

Problem #1

The spinner below is spun and a coin is tossed. How many possible outcomes are there?



Problem #2

Five pottery glazes are available, but you are only allowed to select 2 glazes. How many ways can the two glazes be selected?



Problem #3

A lunch menu offered the following entrees and sides. How many different lunches are available?

Entrées

Chicken

Fish

Pasta

Meat Patty

Sides

Mashed Potatoes

Cole Slaw

Rice

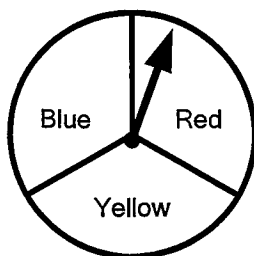
Problem #4

Four cartons of ice cream are on a freezer shelf. How many ways can 2 cartons be selected?



Problem #5

The spinner below is spun and a fair number cube (dice) is thrown. How many possible outcomes are there?



Problem #6

A theme park has 5 rides and 2 arcade games. How many different ways can one ride and one arcade game be selected?

Rides

Ride A

Ride B

Ride C

Ride D

Ride E

Games

Game 1

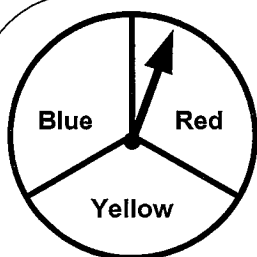
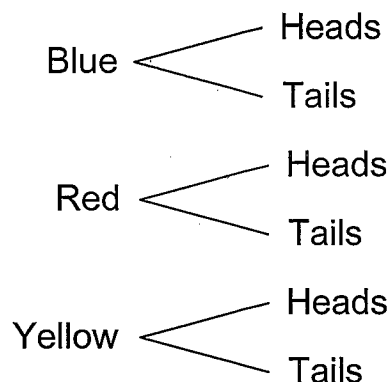
Game 2

Sample Space Display 1

Organized List

Blue, Heads
Blue, Tails
Red, Heads
Red, Tails
Yellow, Heads
Yellow, Tails

Tree Diagram



Sample Space: The set of all possible outcomes

Example: Find all the possible outcomes of spinning the spinner and tossing a coin



Table

Blue	Red	Yellow
Heads	Heads	Heads
Tails	Tails	Tails

Multiplication

Number of Coin Outcomes		Number of Spinner Outcomes		Total Possible Outcomes
↓		↓		↓
2	x	3	=	6