Name: _____ Date: _____

Counting Principle and Set Notation Vocabulary

	Definition	Example
Counting Principle	The process used to figure out the total number of ways a combination of events can occur The order of the events does not matter!	**Ex 1** Your school cafeteria offers chicken or tuna sandwiches; chips or fruit; and milk, apple juice, or orange juice. If you purchase one sandwich, one side item and one drink, how many different lunches can you choose? **Ex. 2** At a sporting goods store, skateboards are available in 8 different deck designs. Each deck design is available with 4 different wheel assemblies. How many skateboard choices does the store offer?
Factorials	• A factorial is used to multiply a series of descending natural numbers. • The symbol is an "**!**". • Useful in combinations when outcomes cannot repeat	**Ex. 3** $4! =$ **Ex. 4** I-Pods can vary the order in which songs are played. Mr. Brookin's iPod currently only contains 8 songs. Find the number of orders in which the songs can be played.
Probability	• How likely an event will occur • A number from 0 to 1 • Or, as a percentage from 0% to 100%	

Experiment	A process or action that has observable results	• Drawing a card from a deck of cards. • Pulling out a marble from a bag of marbles. • Rolling a die.
Outcomes	Results from experiments	• ALL cards are possible outcomes. • ALL marbles are possible outcomes. • ALL the sides of a die.
Sample Space	• The set (or list) of ALL possible outcomes • Sometimes called the universal set	• A list of all the 52 cards. • A list of all the marbles in the bag. • A list of all 6 sides of a 6-sided die.
Event	• A subset of an experiment • An outcome or set of desired results	• Drawing a 4 of Hearts out of the cards. • Drawing a red marble out of the bag. • Rolling a 2 on a 6-sided die.
Set	• A well-defined collection of objects. • Each object is called an element.	• $A = \{2, 4, 6, 8\}$ • *Set B consists of all integers from 1 to 10.* • *Set C consists of all dogs with spots.*
Subset	A list or collection of items contains within another set	Notation: $A \subset B$ (means all the items in A are also in B)
Empty	• A set that has no elements. • "null set", $\varnothing$	• Drawing a red spade out of the cards. • Rolling an 8 on a 6-sided die.