The objectives for this section include:

1. Count elements in a set systematically.
2. Use tree diagrams to represent counting situations graphically.
3. Apply Counting techniques to solve problems.

Class Practice

When counting the number of different outcomes to determine the all the possibilities of the genders of two children. One way is to generate that list is by using a tree diagram.

Gender outcomes

2nd child

1st Child

Begin

_____

_____

_____

_____
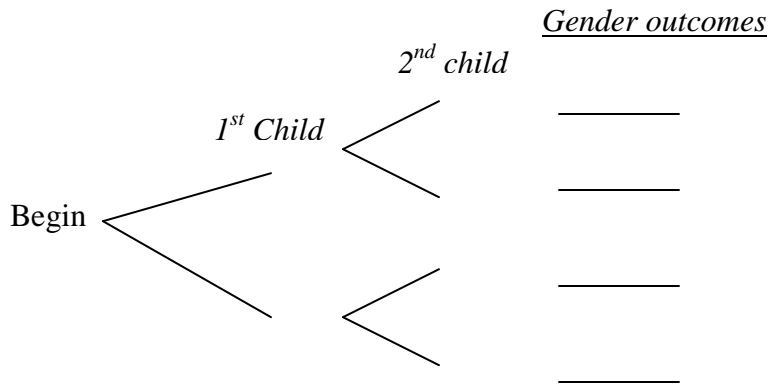
When counting the number of possible outcomes look carefully to determine if order is important and if replacement is allowed.

Class Practice - If you picking groups for a project and there are five people left (A, B, C, D, E) and you must select two how many ways can this be done?

Is this with or without replacement?

Class Practice – Use a tree diagram to list all the outcomes when a standard die is tossed and a coin is flipped. (Try having your tree grow downward.)

Complete **Quiz Yourself** (**1**) on p. 624

Class Practice – Given the set of digits {1, 3, 5, 6}

    a. How many two-digit numbers can be formed *without* repetition?

    b. How many two-digit numbers can be formed *with* repetition?

    c. How many three-digit numbers can be formed *with* repetition?

    d. How many three-digit numbers can be formed if the number must be even and no repetition of digits is allowed?

Class Practice – How many different license plates can be made if each license plate is to consist of three letters followed by two digits?

What is the # letters that can be used?_____

What is the # of digits that can be used?_____

In this context is repetition allowed?_____

Complete **Quiz Yourself** (**2**) on p. 625

Class Practice – A combination lock has 0-39 on its dial.
a. How many combinations are possible with a three number code?

b. How many combinations are possible that start with a 5 on the three number code?

Complete a Cartesian product of tossing a pair of die, one red and one white. (See p. 626)

Section 13.2 - The Fundamental Counting Principle Read pp. 631-635

The objectives for this section include:

1. Understand the fundamental counting principle
2. Use slot diagrams to organize information in counting problems.
3. Know how to solve counting problems with special conditions

Ex. How many ways can you choose two students one to drive and the other to read directions from a group of 4 students (Rachel, Tyler, Sara, Ben)?

The Fundamental Counting Principle is very helpful when you want to calculate the number of possibilities when you are to perform a series of tasks. *Use slots as a way to organize the counting problems.*

1st task		2nd task		3rd task		4th task		5th task …
# of Ways	X	# of Ways	X	# of ways	X	# of ways	X	# of ways …

<u>Class Practice</u> –How many possible outcomes are possible when you toss a standard die and then flip a coin?

Complete **Quiz Yourself** (**4**) on p. 633

Complete **Quiz Yourself** (**5**) on p. 635

Assignment Due Wed 9/12 (No Class on Monday 9/10 as Fall Breather)
Finish Guided Notes pp. 36-39
Complete #1, 5, 8, 11-14, 19-23, 28, 31, 39, 57 on pp. 628-629
& Lab on Section 13.1