Activity 12-13: **The Counting Principle** Name:

The Counting Principle uses multiplication to find the number of possible outcomes.

Event M followed by N can occur in $m \bullet n$ ways.

Example: The Capitol's Best Pizza serves 11 different kinds of pizza with 3 choices of crust and in 4 different sizes. How many different selections are possible?

Apply the Counting Principle: $11 \bullet 3 \bullet 4 = 132$ 132 pizza selections

Use the Counting Principle to find the total number of outcomes in each situation.

1.	The Hob nursery has 14 different colored tulip bulbs. Each color comes in dwarf, average, or giant size. How many different kinds of bulbs are there?	
2.	The type of bicycle Prim wants comes in 12 different colors of trim. There is also a choice of curved or straight handlebars. How many possible selections are there?	
3.	At a tribute banquet, guests were given a choice of 4 entrees, 3 vegetables, soup or salad, 4 beverages, and 4 desserts. How many different selections were possible?	
4.	Gale is setting the combination lock on his briefcase. If he can choose any digit 0-9 for each of the 6 digits in the combination, how many possible combinations are there?	
5.	Mrs. Everdeen choosing a paint color from among 6 color choices, and choosing a wallpaper pattern from among 5 choices	
6.	Clove flipping a penny, a nickel, and a dime	
7.	Marvel choosing the last three digits in a five-digit zip code if the first digit is 6, the second digit is 1, and no digit is used more than once	
8.	Glimmer choosing one of three science courses, one of five math courses, one of two English courses, and one of four social studies courses	
9.	Rue choosing from one of three appetizers, one of four main dishes, one of six desserts, and one of four soft drinks	
10.	Cashmere choosing a book with a mystery, science-fiction, romance, or adventure theme, choosing one of five different authors for each theme, and choosing paperback or hardcover for the type of book	
11.	Brutus is choosing a 7 digit phone number if the first three-digit combination can be one of 8 choices and if the last four digits can be any combination of digits from 1 to 9 without any repeated digits	
12.	In the 1980's telephone area codes in the US contain three digits, they did not begin with a 1 or 0, and the middle digit was always a 0 or a 1. Mags said, "If that is true, each state in the USA could have less than 5 area codes and yet all the area codes could be used up." Is Mags correct?	