

Lesson 1: Counting Principles

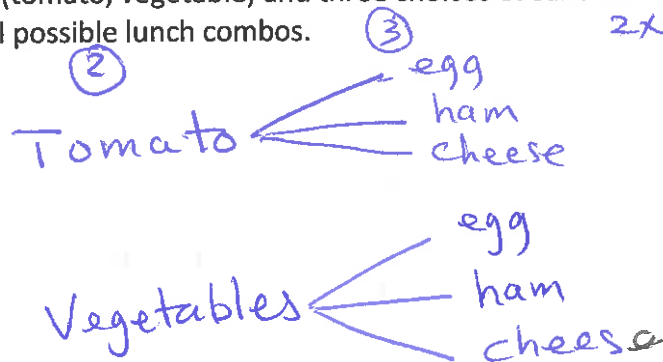
GOAL:

- Represent and solve counting problems using a graphic organizer.
- Generalize, from examples, the fundamental counting principle.
- Solve counting problems using the fundamental counting principle.

We are constantly being asked to make choices or decisions. We must make choices about courses we want to take, what we want to order for a meal, or what we want our new PIN number or password to be. When two or more decisions must be made together, it helps to have a logical system that will allow us to consider all of these possibilities. In these situations, it helps to use a graphic organizer such as a chart, a tree diagram, or a Venn diagram.

Example 1

A school lunch program offers a soup and sandwich combo. Students must choose from one of two choices of soup (tomato, vegetable) and three choices of sandwich (egg, ham, cheese). Using a graphic organizer, list all possible lunch combos.



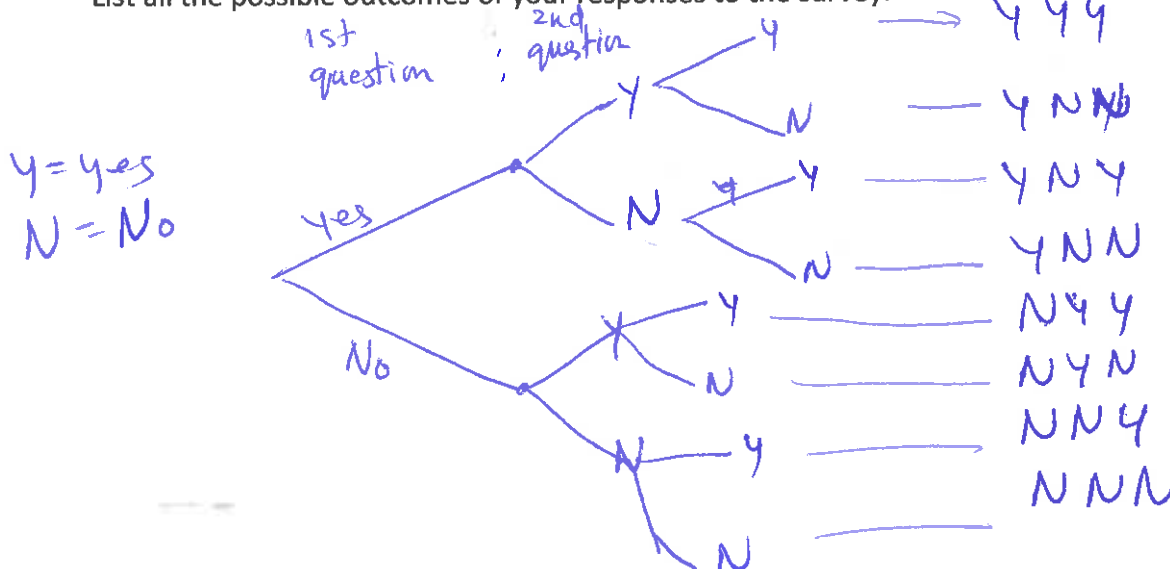
$2 \times 3 = 6$ outcomes

$2 \text{ soups} \times 3 \text{ sandwich combinations} = 6$

Example 2

You are completing a survey with three questions. The possible answers to each question are yes or no.

List all the possible outcomes of your responses to the survey.



Y = Yes
N = No

8 outcomes

OR

$2 \times 2 \times 2 = 8$
Q1 Q2 Q3