

NAME: \_\_\_\_\_

SECTION: \_\_\_\_\_

## FUNDAMENTAL PRINCIPLE OF COUNTING



### I. OBJECTIVES

The learner will be able to find the number of possibilities of an event using fundamental principle of counting.



### II. LESSON

#### FUNDAMENTAL PRINCIPLE OF COUNTING

- It is used to count the number of possibilities of an event occurring.
- Suppose an event can be chosen (occur) in  $m$  different ways and another independent event can be chosen in  $n$  different way, then the two events can occur in  $m \times n$  ways.
- Multiply the number of options in each event to find the total number of outcomes.

#### Example:

1. If two coins are tossed, then in how many ways can they fall?

**Answer:**  $2 \times 2 = 4$

2. The club members are going to elect their officers. If there are 4 candidates for presidents, 3 for vice president and 2 for secretary, then in how many ways can the officers be elected?

**Answer:**  $4 \times 3 \times 2 = 24$

3. In how many ways can the Miss Universe, the first runner-up, and the second runner-up be chosen from 10 finalists?

**Answer:**  $10 \times 9 \times 8 = 720$



### III. ACTIVITY

Using fundamental principle of counting, determine the number of possibilities of an event.

- \_\_\_\_\_ 1. Count the number of possibilities when a coin is tossed 3 times.
- \_\_\_\_\_ 2. Find the number of four-letter words with or without meaning, which can be made from letters of the word ROSE, where the repetition of letters is not allowed.
- \_\_\_\_\_ 3. How many 2-digit even numbers can be formed from the digits 1, 2, 3, 4, and 5 if the digits can be repeated?
- \_\_\_\_\_ 4. Dana can choose from four different gym classes to take next year and three different art classes. How many different combinations of a gym class and art class can she choose?
- \_\_\_\_\_ 5. When buying a "value meal" at Wendy's, there are 9 different sandwiches and 7 different sides. How many different meals consisting of one sandwich and one side could someone buy?
- \_\_\_\_\_ 6. Fred wants to buy either a Toyota Camry or a Honda Accord. Both cars come in three different interior colors and four different exterior colors. How many different options can Fred choose from?
- \_\_\_\_\_ 7. At Chubby's Ice Cream Parlor, you can choose from 3 different ice cream flavors (chocolate, vanilla, or strawberry), served in a cone or dish, and one of 2 toppings (whipped cream or sprinkles). How many options do you have to choose from?
- \_\_\_\_\_ 8. Suppose you roll a 6-sided die and draw a card from a deck of 52 cards. What is the total possible outcome of the experiment?
- \_\_\_\_\_ 9. How many 2-digit even numbers can be formed from the digits 1, 2, 3, 4, and 5 if the digits can be repeated?
- \_\_\_\_\_ 10. A company puts a code on each different product they sell. The code is made up of 3 numbers and 2 letters. How many different codes are possible?

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