Time Frame: 50 minutes

Subject Matter: Permutation Rule TELL ME

Anticipatory Set:

1. At a local cheerleaders’ camp, 5 routines must be practiced. A routine may not be repeated. In how many different orders can these 5 routines be presented?
2. The call letters of a radio station must have 4 letters. The first letter must be a K or a W. How many different station call letters can be made if repetitions are not allowed? If repetitions are allowed?
3. How many different 3-digit identification tags can be made if the digits can be used more than once? If the first digit must be 5 and repetitions are not permitted?
4. How many different ways can 9 trophies be arranged on a shelf?
5. A baseball manager has 5 pitchers and 2 catchers, how many different pitcher-catcher combinations can he field?

Objective: TSWBAT find the number of ways that *r* objects can be selected from *n* objects, using the permutation rule.

Standards: DA – 5.2 Use counting techniques to determine the number of possible outcomes for an event.

Materials: PowerPoint Presentation and Worksheets

SHOW ME

Presentation of Information:

Discuss the factorial notation.

Example 1:

 Solve the fallowing factorials.

1. 4!
2. 5!
3. 0!
4. 1!
5. 6!

 *Permutation Rule*

* The arrangement of *n* objects in a specific order using *r* objects at a time is called a *permutation of n objects taking r objects at a time*. It is written as nPr, and the formula is

$$nPr= \frac{n!}{\left(n-r\right)!}$$

Example 2:

 Solve the following permutations.

1. 6P4
2. 5P5
3. 8P3

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

LET ME TRY

Evaluate the following.

1. 8! 6. 9P6

1. 10! 7. 7P2
2. 6! 8. 5P0
3. 2! 9. 8P8
4. 7P5 10. 9P7

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

HOMEWORK

Evaluate the following.

1. 9! 6. 10P6

1. 7! 7. 5P2
2. 4! 8. 5P1
3. 8! 9. 8P5
4. 3P3 10. 11P7