Name: _____ Group Members: _____

Exploration 9-4a: Probability of Various Permutations

Date: _____

Objective: Calculate the probability of various arrangements that can be made from the elements in a given set.

1. What is meant by a **permutation** of a set of objects?

2. How many different permutations can be made from the letters in SEQUOIA?

3. How many of the permutations of the letters in SEQUOIA begin with a vowel and end with a consonant?

4. What is the probability that a permutation of SEQUOIA picked at random begins with a vowel and ends with a consonant?

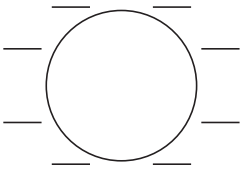
5. What is the probability that a permutation of SEQUOIA picked at random begins with a vowel and ends with another vowel?

6. If you pick three different letters at random from SEQUOIA, how many different three-letter "words" could be formed?

7. How many of the permutations in Problem 6 begin with the letter *S*?

8. How many different "words" can be made from the six letters in MESSES, considering that the three *S*s are the same and the two *E*s are the same?

9. In how many different ways could the letters in SEQUOIA be arranged in a circle if you are concerned only with which letters are to the left and right of which other letters, not where the letters appear on the circle?



10. In how many different ways could seven children be arranged around a merry-go-round if one child sits in the middle and the other six sit around the outside?

11. What did you learn as a result of doing this Exploration that you did not know before?