Math 4 Honors

**Unit 5 Learning Goals**

**“Counting Methods & Induction”**

*Lesson 5-1: Counting Strategies*

* I can use systematic counting by thinking carefully about the number of possibilities in a variety of contexts.

*Lesson 5-2: Order & Repetition I*

* I can determine when order and repetition involved in counting situations.
* I can apply the appropriate strategies and formulas in counting situations, not involving repetitions, where order is important and where order is not important.
* I can identify similarities and differences between permutations and combinations.

*Lesson 5-3: Order & Repetition II*

* I can determine when order and repetition involved in counting situations.
* I can apply the appropriate strategies and formulas in counting situations, not involving repetitions, where order is important and where order is not important.
* I can identify similarities and differences between permutations and combinations.

*Lesson 5-4: Counting and Multiplication Rules for Probability*

* I can use counting methods to determine probabilities.

*Lesson 5-5: Combinations, the Binomial Theorem, and Pascal's Triangle*

* I can apply connections among combinations, Pascal’s triangle, and expansions of binomial expressions of the form (*a* + *b*)*n*.

*Lesson 5-6: Recursive & Explicit Formulas for Sequences*

* I can find terms of a sequence with both types of rules – recursive and explicit.
* I can write explicit and recursive rules for sequences.
* I can use the explicit and recursive rules of sequences to solve problems.

*Lesson 5-7: Summation Notation*

* I can use summation notation used to write sums.
* I can rewrite sums recursively.

*Lesson 5-8: Mathematical Induction*

* I can apply the principle of mathematical induction to sum formulas involving natural numbers.