2022-2023 Eighth Grade Unit 6 Skeleton Plan

Quarter 2 (41 Days)

Unit 6 - Topic 1: Real Numbers - Part 2	**Timeline:** 14 days

Standards:

- **8.EEI.4** Apply the concepts of decimal and scientific notation to solve real-world and mathematical problems.
  - a. Multiply and divide numbers expressed in both decimal and scientific notation.
  - b. Select appropriate units of measure when representing answers in scientific notation.
  - c. Translate how different technological devices display numbers in scientific notation.
    - **8.NS.2** Estimate and compare the value of irrational numbers by plotting them on a number line.
    - **8.EEI.1** Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property, negative exponents) to simplify numerical expressions that include integer exponents.
    - **8.EEI.2** Investigate concepts of square and cube roots.
    - a. Find the exact and approximate solutions to equations of the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number.
    - b. Evaluate square roots of perfect squares.
    - c. Evaluate cube roots of perfect cubes.
    - d. Recognize that square roots of non-perfect squares are irrational.
    - **8.EEI.3** Explore the relationship between quantities in decimal and scientific notation.
    - a. Express very large and very small quantities in scientific notation in the form $a \times 10b = p$ where $1 \leq a < 10$ and b is an integer.

- b. Translate between decimal notation and scientific notation.
- c. Estimate and compare the relative size of two quantities in scientific notation.

Student Learning Targets (SLT):

LEARNING TARGETS 8.EEI.4

- I can multiply and divide numbers written as decimals and in scientific notations.
- I can recognize differences in technological representations of scientific notation.

Unit Notes:

➢ Calculators should be used to show multiple representations of Scientific Notation (*E*).

Prior Skills:

➢ Operations with rational numbers
➢ Integer Rules

Vocabulary:

➢ Negative Exponent Property
➢ Power of Powers Property
➢ Product of Powers Property
➢ Quotient of Powers Property
➢ Scientific Notation
➢ Square Root
➢ Zero Exponent Property

Lesson Progression:

1. Use Properties of Exponents (Multiplying and Dividing Monomials, Lesson 1-6, Examples 1, 2, 4) - Day 1
2. Use Properties of Exponents (Power of a Power and Zero Exponent Property, Lesson 1-6, Example 3 and Lesson 1-7, Example 1) - Day 2
3. Review Properties of Integer Exponents (L83: Integer Exponents)
4. More Properties of Integer Exponents (Virtual Nerd: What Do You Do with a Negative Exponent?, Negative

Extended Learning:

➢ Adding, Subtracting, Multiplying Polynomials (A1.ASE.2)

		Exponents, Lesson 1-7) - Day 1 5. Negative Exponents (Open Up Resources Grade 8, Unit 7, Lesson 5: Negative Exponents with Powers of Ten) - Day 2 6. Review Laws of Exponents and Mid-Unit Review 7. Use Powers of 10 to Estimate Quantities (Lesson 1-8) 8. Understand Scientific Notation (Lesson 1-9) 9. 3-Act Mathematical Modeling (Topic 1, Page 65A) 10. Operations with Numbers in Scientific Notation (Lesson 1-10) - Day 1 11. Operations with Numbers in Scientific Notation - Day 2 12. Review: Performance Task (Topic 1, Page 81C/D - Forms A and/or B) 13. Review (Topic 1: Concepts and Skills Review) 14. Unit Test	
Assessment: Accessible through Mastery Manager			
MLL Supports:			
Team Instructional Notes:			

Reflections: Exponents are numbers only, no variables