Math 8 Curriculum Map

Unit 1: Equations and Expressions (Exponents) and the Number System/ Function

Enduring Understanding:
Know that there are numbers that are rational, irrational numbers, and approximate them by rational numbers.
Work with radicals and integer exponents.
Understand the connections between proportional , lines, and linear equations.
Define evaluate and compare functions.
Use functions to model relationships between quantities.

Essential Question(s):
Why is it helpful to write numbers in different ways?
What is equivalence?
Why are graphs helpful?
How do you model relationships between quantities?

Time Frame	**Concepts & Content:**	**Student Learning Expectations:**	**Standard(s):**	**Key Terminology**	**Activities & Assessments**	**Resources & Materials**
1st Nine week Lesson 1-8 Week 1: **Lesson 1** Properties of Integer Exponents Week 2: **Lesson 2** Square Roots and Cube Roots **Week 3:** **Lesson 3** Understanding Rational and Irrational Numbers	Integer Exponents/ Laws of Exponents Square Roots/Cube Roots	**Lesson 1:** Understand the properties of integers. Use the properties of exponents to evaluate expressions with exponents **Lesson 2:** Identify perfect squares between 1 and 225. Solve equations with squares,	**8.EE.A.1:** Know and apply the properties of integer exponents **8.EE.A.2:** Use Square root and cube roots symbols to represent solution to equations **8.NS.A.1:** No that numbers that are not rational. Understand decimal expansion.	**Lesson 1:** Integers Base Exponent **Lesson 2:** Perfect square Square root of x Cube root of x Perfect cube **Lesson 3:** Irrational number Real number Rational number Equivalent Estimate	**Lesson 1:** Think Pair Share Concept Activity: Find the missing exponent Hands on Activity: Students write general rules for multiplying powers and raising powers. Lesson 1 Quiz: Assesses integer exponents to determine	Ready Math 8th Textbooks: Teacher's Edition / students' editions: Instruction/ Practice and Problem Solving Math Discourse Cards Mastery Prep-Math Anchor charts Hands on Activities

Math 8 Curriculum Map

Week 4: **Lesson 4** Scientific Notation **Week 5:** **Lesson 5** Operations and Scientific Notation **Week 6:** **Lesson 6** Understand Functions **Week 7:** **Lesson 7** Compare Functions **Week 8:** **Lesson 8** Understand Linear Functions **Week 9:** Review Lesson 1-5 Unit 1 Test/ 9-weeks Exam	Rational/Irrational numbers Scientific Notation Functions: Input/Output, Graphing Linear Functions	cubes, square root and cubed numbers to solve word problems. Understand and use the square root and the cube root symbols. **Lesson 3:** Understand what rational and irrational numbers are. Identify rational and irrational numbers. Express a repeating decimal as a fraction. Estimate square roots to the nearest hundredth Compare and order rational and irrational numbers using a number line. Estimate the values of expressions.	**8.NS.A.2:** Use rational approximations of irrational to compare. **8.EE.A.3:**Use numbers express in the form of a single digit times an integer power of 10 to estimate very large/small numbers **8.EE.A.4**:Perform operations with numbers expressed in Scientific Notation **8.F.A.1:**Understand that a function is a rule thats assigned to each input/output **8.F.A.2:** Compare properties of two functions represented in different ways **8.F.A.3:** Interpret the equation y=mx+b as defining a linear	**Lesson 4.** Scientific Notation Standard form **Lesson 5:** Estimate Evaluate Express Reasonable **Lesson 6**: Function Input Output Substitute **Lesson 7:** Rate of change Initial Value Horizontal change Vertical change **Lesson 8:** Linear function Constant Constant rate of change	equivalent expressions, solve for exponent values in expression, and to generate equivalent expressions. **Lesson 2:** Think Pair Share Hands on Activity: Make a physical model of squares and cubes. Hands on Activity: Illustrate the difference between doubling a number and squaring a number. Challenge Activity: Examine patterns in perfect squares. Concept Activity: Explore cube roots and negative integers. Lesson 2 Quiz: identify perfect squares, solve equations that	Concept Activities Mathematical Videos Kahoots.com Quizlets Family Letters Units Games Fluency Practice Ready toolbox Index cards Chart paper Markers

		Lesson 4: Write numbers using scientific notation . Express numbers written in scientific notation in standard form. Give two numbers written in scientific notation, identify how many times as much one is than the other. **Lesson 5:** Perform operations with numbers expressed in scientific notation, including problems with both decimals and scientific notation are used. Solve real world problems that require operations with numbers expressed Choose units of appropriate size for large and small	function		include square roots and cube roots, and to evaluate expressions that include square roots and cube roots. **Lesson 3:** Think Pair Share Visual Model: Use colors to connect repeating decimals with fraction Hands on activity: Create a human number line with rational and irrational numbers. Lesson 3 Quiz: Student are required to determine the approximate value of irrational number, to identify expression as rational or irrational numbers and to solve problems using irrational numbers.	

		measurement. **Lesson 6:** Understand that a function is a rule that assigns to each input exactly one output. Identify whether a relationship is a function from a diagram, the table values, graph, or equation. **Lesson 7:** Translate among The forms of linear functions: table, graph, or verbal description. Identify the rate of change and initial value of a function. **Lesson 8:** Determine if a function is linear or nonlinear Interpret the equation y=mx+b As defining a linear equation			**Lesson 4:** Think Pair Share Visual Model: Illustrate how place value digit change Hands on Activity: Compare numbers written in scientific notation Hands on activity: Identify numbers written in scientific notation. Challenge Activity: Write numbers in non-standard form in scientific notation Lesson 4 Quiz: Students are required to understand scientific notation is an expression of numbers using a power of 10, to solve equations that include scientific notation, express numbers as a power of 10, and to express	

					how many times as much one number is than another. **Lesson 5:** Think Pair Share Concept extension: Examine relationships between powers of ten and place value. Hands on activity: Demonstrate the difference between distributive property and associative properties Challenge Activity: Compute in standard and scientific notation. Lesson 5 Quiz: Assessment require students to interpret scientific notation and to use operations to solve problems that include scientific notation	

					Lesson 6: Vocabulary concept development activity Hands on activity: Arrange number cards to define function Hands on activity : Make a graph to determine whether a graph is a function Challenge activity: Investigate transformation of functions Lesson 6 Quiz: Students use graphs, data sets, and equations to determine whether or not relationships are functional and to understand the definitions of a function. **Lesson 7:** Hands on activity: Compare	

					functions on concrete graphs. Challenge Activity: Create equations for function. Lesson 7 Quiz: Students are required to describe functions using rate of change, to compare functions represented in graphs, tables, equations, and verbal descriptions: to solve problems using functions and to create equations that describe the functional relationships. **Lesson 8:** Hands on activity: Explore rate of change in linear and nonlinear Challenge Activity: Examine the relationship between	

					equations of graphs that produce perpendicular lines. Lesson 8 Quiz: Students are to recognize linear equations/ functions when described by an equation, and to determine whether an equation is linear and nonlinear.	