Unit Plan by Prioritized Standards

Content Area	Math
Grade/Course	8th
Unit of Study	Exponents - Unit 2
Duration of Unit	5 weeks/ 20 days

Insert priority standards below (include code). **CIRCLE or Highlight** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know. **(address "supporting" standards in daily lesson plans)**

MGSE8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.
MGSE8.EE.4 Add, subtract, multiply, and divide numbers expressed in scientific notation, including problems in both decimal and scientific notation are used. Understand scientific notation and choose units of appropriate size for measurements for very large and very small quantities. Interpret scientific notation that has been generated by technology.

Skills (what must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Know and apply	Integer exponents	2
Generate	Equivalent expressions	1
Understand	Scientific notation	1
Add Subtract Multiply Divide	Be able to add, subtract, multiply, and divide in standard form and scientific notation	2
Choose	Appropriate units of measurement for very large or very small quantities	2/3
Interpret	Scientific notation with technology	1
Know and evaluate	Square and cube roots	1
Know	Rational vs irrational numbers	2
Convert	Repeating decimals into fractions	2
Approximate	Irrational numbers on a number line	1/2

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Students will apply properties of the law of exponents to simplify expressions. **Numbers will be expressed in scientific notation so students can compare very large and very small quantities and compute with those numbers.**	How do you write repeated multiplication? I can simplify multiplication problems using exponents. Does the operation of the expression affect the operation of the exponents? I can generate equivalent expressions using integer exponents. How significant are the digits in really big or really small numbers? I can represent really big numbers as the

	product of a single-digit number and a positive power of ten. I can represent really small numbers as the product of a single-digit number and a negative power of ten. I can add, subtract, multiply, and divide numbers in scientific notation and/or standard form.
Students will understand the meaning behind square roots and cube roots and their symbols.	How are roots and exponents similar and different? I can recognize taking a square root as the inverse of squaring a number. I can recognize taking a cube root as the inverse of cubing a number. I can evaluate the square root of a perfect square. I can evaluate the cube root of small perfect cubes.
Students will know that there are numbers that are not rational, and approximate them by rational numbers. Students should know that numbers that are not rational are called irrational and understand that every number has a decimal expansion.	How can I determine is a number is rational and irrational? I can justify that the square root of a non-perfect square will be irrational. How can I determine where to place an irrational number on a number line? I can approximate irrational number on a number line. How do I write a repeating decimal as a rational number (fraction)? I can write a repeating decimal as a fraction.
Essential Unit Vocabulary	
Integer, exponent, cube root, square root, radical, perfect square, perfect cube, power of ten, scientific notation, rational number, irrational number	
Next step, create assessments and engaging learning experiences	