




8th Grade Module 1 Scientific Notation

Topic A: Exponential Notation and Properties of Integer Exponents

8.EE.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, $3^2 \times 3^5 = 3^7 = 1/3^3 = 1/27$*





Lesson 1 Exponential Notation			SBAC Connections
Lesson Hints	Additional Supports/ Materials	I can...	<p>8.EE.1</p> <p>Select all of the expressions that have a value between 0 and 1.</p> <p>(A) $8^7 \cdot 8^{-12}$</p> <p>(B) $\frac{7^4}{7^{-3}}$</p> <p>(C) $\left(\frac{1}{3}\right)^2 \cdot \left(\frac{1}{3}\right)^9$</p> <p>(D) $\frac{(-5)^6}{(-5)^{10}}$</p>
<ul style="list-style-type: none"> Show You Tube video of Scientific Notation Rap (to Launch Unit) 	<ul style="list-style-type: none"> Scientific Calculator for all lessons Exit Task 	<p>I can...</p> <ul style="list-style-type: none"> Use parenthesis correctly when creating bases with exponents. Represent repeated multiplication using powers. 	
Lesson Hints	Additional Supports/ Materials	I can...	
Lesson 2 Multiplication of Numbers in Exponential Form			
Lesson Hints	Additional Supports/ Materials	I can...	
<ul style="list-style-type: none"> Problem set can be replaced by using Kuta Software in Multiplying Numbers in Exponential Form 	<ul style="list-style-type: none"> Kuta Software Exit Task 	<p>I can...</p> <ul style="list-style-type: none"> Make sense of the first law of exponents. Write equivalent expressions with numbers and symbols. Recognize rules involving division of exponential expressions. 	
Lesson 3 Numbers in Exponential Form Raised to a Power			
Lesson Hints	Additional Supports/ Materials	I can...	
<ul style="list-style-type: none"> Do all 	<ul style="list-style-type: none"> Exit Ticket Kuta Software 	<p>I can...</p> <ul style="list-style-type: none"> Simplify expressions when a power is raised to a power. Solve for a power raised to another power. 	

 Lesson 4 Numbers Raised to the Zeroth Power		
Lesson Hints	Additional Supports/ Materials	I can...
<ul style="list-style-type: none"> Do all 	<ul style="list-style-type: none"> Exit Ticket Kuta Software Copies of the Sprint 	<ul style="list-style-type: none"> Understand the importance of the properties of exponents. Raise a number to the zeroth power.
 Lesson 5 Negative Exponents and the Laws of Exponents		
Lesson Hints	Additional Supports/ Materials	I can...
Do all	<ul style="list-style-type: none"> Exit Ticket Kuta Software 	<ul style="list-style-type: none"> Write equivalent expressions using negative exponents. Simplify expression using negative exponents.
 Lesson 6 Proofs of Laws of Exponents		
Lesson Hints	Additional Supports/ Materials	I can...
Teacher discretion	<ul style="list-style-type: none"> Exit Ticket is great Kuta Software 	<ul style="list-style-type: none"> Apply my previous learning to all integer exponents. Use concrete examples to create proofs using symbols.
Mid Module Assessment (Tests over skills from lessons 1-6) Teacher discretion	<ul style="list-style-type: none"> Rubric is available Use test and rubric as teacher discretion 	

Topic B: Magnitude and Scientific Notation

- 8.EE.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9 , and determine that the world population is more than 20 times larger.*
- 8.EE.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Lesson 7 Magnitude			SBAC Connections
Lesson Hints	Additional Supports/ Materials	I can...	<p>8.EE.3</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>The average distance from Jupiter to the Sun is about 5×10^8 miles. The average distance from Venus to the Sun is about 7×10^7 miles.</p> <p>The average distance from Jupiter to the Sun is about how many times as great as the average distance from Venus to the Sun?</p> <p style="text-align: center;"><input style="width: 50px; height: 20px;" type="text"/> times</p> </div>
# Line was confusing for the launch of the lesson	<ul style="list-style-type: none"> Exit Ticket 	<ul style="list-style-type: none"> Recognize that exponents express information about the magnitude of a number. Distinguish between positive and negative powers of 10. 	
Lesson 8 Estimating Quantities			
Lesson Hints	Additional Supports/ Materials	I can...	
Do all Sprint gets difficult	<ul style="list-style-type: none"> Exit Ticket Copies of sprint 	<ul style="list-style-type: none"> Compare and estimate quantities using a power of 10. Simplify expressions using ratios, fractions and the laws of exponents. 	
Lesson 9 Scientific Notation			
Lesson Hints	Additional Supports/ Materials	I can...	
Great real-world situations Problem set is good Begins to connect with Science	<ul style="list-style-type: none"> Exit Ticket 	<ul style="list-style-type: none"> Use parenthesis correctly when creating bases with exponents. Represent repeated multiplication using powers. 	

 Lesson 10 Operations with Numbers in Scientific Notation		
Lesson Hints	Additional Supports/ Materials	I can...
Great real-world situations Problem set is good	<ul style="list-style-type: none"> Exit Ticket 	<ul style="list-style-type: none"> Solve problems written in scientific and standard notation.
 Lesson 11 Efficacy of the Scientific Notation		
Lesson Hints	Additional Supports/ Materials	I can...
Watch Suggested video Powers of Ten http://www.youtube.com/watch?v=OfKBhvDjuy0 to launch lesson	<ul style="list-style-type: none"> Exit Ticket Graphic Organizer for keeping thinking while watching movie 	<ul style="list-style-type: none"> Become fluent in working with numbers in scientific notation. Read, write, and solve expressions using scientific notation.
 Lesson 12 Choice of Unit		
Lesson Hints	Additional Supports/ Materials	I can...
Substitute with real world situations with conversions	<ul style="list-style-type: none"> Exit Ticket 	<ul style="list-style-type: none"> Use scientific notation and choose for measurements of appropriate size of very small quantities. Use scientific notation and choose for measurements of appropriate size of very large quantities.
 Lesson 13 Comparison of Numbers Written in Scientific Notation and Interpreting Scientific Notation Using Technology		
Lesson Hints	Additional Supports/ Materials	I can...
Teacher discretion	<ul style="list-style-type: none"> Exit Tickets 	<ul style="list-style-type: none"> Compare numbers written in scientific notation. Interpret scientific notation that has been generated by technology.

Sept. 11, 2015

End of Module Assessment			
Teacher discretion	<ul style="list-style-type: none">• Rubric is available• Use test and rubric as teacher discretion		