

# xPub. Math Gr. 8 Unit 9: Exponents & Scientific Notation

Content Area: **Math**  
Course(s):  
Time Period: **May**  
Length: **6-8 Weeks**  
Status: **Published**

## Unit Overview

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- Exponents
- Product of Powers Property
- Quotient of Powers Property
- Zero & Negative Exponents
- Estimating Quantities
- Scientific Notation
- Operations in Scientific Notation

## Enduring Understandings

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SWBAT:

- Use exponents to write and evaluate expressions
- Generate equivalent expressions involving products of powers
- Generate equivalent expressions involving quotients of powers
- Apply properties of zero and negative exponents
- Round numbers and write the results as the product of a single digit and power of ten
- Write numbers in standard and scientific notation
- Perform operations with numbers written in scientific notation

## Essential Questions

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- How can we use exponents to write and evaluate expressions?

- How do we generate equivalent expressions involving products of powers?
- How do we generate equivalent expressions involving quotients of powers?
- How can we apply properties of zero and negative exponents?
- How do we round numbers and write the results as the product of a single digit and power of ten?
- How do we write numbers in standard and scientific notation?
- How can we perform operations with numbers written in scientific notation?

## **Instructional Strategies & Learning Activities**

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- Guided Practice
- Do Now
- Extra Practice & Puzzle Time (Resources)
- Scavenger Hunts
- Coloring Activities
- Task Cards (Around the World)
- Maze Activities
- Quizizz Online Assignments
- Kahoot! Online Games

## **Integration of 21st Century Themes and Skills**

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CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP11	Use technology to enhance productivity.

## **Technology Integration**

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- Kahoot! Online Games
- Quizizz Online Assignments

## **Interdisciplinary Connections**

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LA.L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.8.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
LA.L.8.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
LA.W.8.1	Write arguments to support claims with clear reasons and relevant evidence.
LA.W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
LA.RI.8.1	Cite the textual evidence and make relevant connections that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
LA.RI.8.10	By the end of the year read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.
LA.SL.8.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

## **Differentiation**

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Additional support for struggling learners will be available.

Challenges will be offered to students requiring additional depth of knowledge.

## **Modifications & Accommodations**

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IEP and 504 accommodations will be utilized.

## **Benchmark Assessments**

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- AIMSWEB Testing

## **Formative Assessments**

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- Kahoot! Games
- Quizizz Games
- Homework
- Q & A
- Scavenger Hunts
- Coloring Activities
- Task Cards
- Partner Activities

## **Summative Assessments**

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- Chapter Tests
- Quizzes

## **Instructional Materials**

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1. Big Ideas Math: Modeling Real Life 8th Grade Book
2. Quizizz
3. Kahoot
4. Scavenger Hunts
5. Task Cards
6. Coloring Activities
7. Resources Book
8. Scientific Calculator

## **Standards**

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MA.8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.
MA.8.EE.A.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.
MA.8.EE.A.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.

