

8th Grade Unit 3 Information

Geometric Applications of Exponents

CRCT Domain & Weight: Geometry 11 %

[Flip Book](#)

[Overview: Unit 3](#)

[Prerequisites: Unit 3](#)

Unit Length: Approximately 21 days (*On a calendar it's 25 school days, but 4-5 of those days are Georgia Studies*)

[Checklist for Unit 3](#)

[Study Guide for Unit 3](#)

[Study Guide KEY for Unit 3](#)

[Suggested Use of Calculators](#)

Calculators are allowed on ALL standards in this unit. However, it is very important that students write formulas and write the numbers that they will be substituting into the formula **BEFORE** they use the calculator.

Click on the links below for resources by Concept:

[Concept One: Pythagorean Theorem](#)

[Concept Two: Volume of Cones, Cylinders, & Spheres](#)

TCSS 8th Math Unit 3 Geometric Applications of Exponents

Concept One: Pythagorean Theorem

Standard(s) & Essential Questions	Vocabulary	Resources	Assessment
<p>MGSE8.G.6 Explain a proof of the Pythagorean Theorem and its converse.</p> <p>E.Q. How do I know that I have a convincing argument to informally prove Pythagorean Theorem?</p> <p>MGSE8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.</p> <p>E.Q. How can I use the Pythagorean Theorem to find the length of a leg or the hypotenuse of a right triangle?</p> <p>MGSE8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.</p> <p>E.Q. How can I determine the length of a diagonal?</p>	<ul style="list-style-type: none"> ▪ Base (of a polygon) ▪ leg of a triangle ▪ hypotenuse ▪ altitude of a triangle ▪ Pythagorean Theorem ▪ Pythagorean Triples ▪ Converse of Pythagorean Theorem ▪ right triangle ▪ deductive Reasoning 	<ul style="list-style-type: none"> ▪ Activator for Pythagorean Theorem: Video: Using Pythagorean Theorem in the NFL ▪ Eureka Math (2014 Common Core) License Concept Two ~ TE SE <i>Note: This is a compilation of the Pythagorean Theorem sections from 3 modules(2, 3, & 7).</i> ▪ Graphic Organizer Pythagorean Theorem ▪ Pythagorean Theorem with Squares Organizer ▪ Pythagorean Triples Organizer ▪ ActivInspire FlipBooks Regular / Halloween ▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 409-440 ▪ Patty Paper Activity pages 225-226, and 230 ▪ 3D Pythagorean Practice <p>Differentiation Opportunities:</p> <ul style="list-style-type: none"> ▪ Station Activities Properties of Right Triangles ▪ Station Activities Understanding the Pythagorean Theorem <ul style="list-style-type: none"> ▪ Differentiation from GSE Frameworks <ul style="list-style-type: none"> ○ Pythagoras Plus (<i>These are the same activity, but the Extend version goes beyond the standard.</i>) <ul style="list-style-type: none"> ▪ On Target & Struggling Version ▪ Extend (Accelerated) Version ○ FAL Pythagorean Theorem 	<p>MGSE.8.G.6</p> <p>MGSE.8.G.7</p> <p>MGSE.8.G.8</p> <p>[Back to Top]</p>

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Concept Two: Volume of Cones, Cylinders, and Cubes			
Standard(s) & Essential Questions	Vocabulary	Resources	Assessment
<p>MGSE8.G.9 Apply the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p> <p>E.Q. How does the change in radius affect the volume of a cylinder, cone, or sphere?</p> <p>E.Q. How does the change in height affect the volume of a cylinder, cone, or sphere?</p>	<ul style="list-style-type: none"> ▪ cone ▪ cylinder ▪ sphere ▪ volume ▪ radius ▪ diameter ▪ height of solids ▪ geometric solid 	<p>Activator for Volume: <i>Use 3D figures to demonstrate the relationship between the volume of a cylinder and the volume of a cone.</i></p> <p>Cylinder Resources:</p> <ul style="list-style-type: none"> ▪ Posters: On Target & Support Extend ▪ ActiveInspire Cylinders ▪ Popcorn cylinders to Compare Volume ▪ Graphic Organizer Volume of prism/Cylinder ▪ Posters for Volume & Surface Area On Target & Support Extend ▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 589-596 (Cylinders) ▪ Skills Practice Volume of Cylinders ▪ Problem Solving Practice Volume of Cylinders <p>Differentiate: Extend: Graphic Organizer Surface Area of Cylinder</p> <p>Cone Resources:</p> <ul style="list-style-type: none"> ▪ ActiveInspire Cones ▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 597-604 (Cones) ▪ Skills Practice Volume of Cones ▪ Problem Solving Practice Volume of Cones <p>Sphere Resources:</p> <ul style="list-style-type: none"> ▪ ActiveInspire Spheres ▪ Glencoe CCGPS Math Text (McGraw-Hill, 2013) p. 605-616 (Spheres) ▪ Skills Practice Volume of Spheres ▪ Problem Solving Practice Volume of Spheres ▪ Volume of 3D with spheres <p>Continued on the next page...</p>	<p>MGSE.8.G.9</p> <p>[Back to Top]</p>

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Concept Two: Volume of Cones, Cylinders, and Cubes

Standard(s) & Essential Questions	Vocabulary	Resources	Assessment
		<p>...Continued from the previous page.</p> <p>Comparing Cylinders, Cones, and Spheres:</p> <ul style="list-style-type: none">▪ CCGPS Frameworks:<ul style="list-style-type: none">○ How Full is Your Glass? SE TE▪ Station Activities: Volume Cylinders, Cones, Spheres▪ CCGPS Frameworks:<ul style="list-style-type: none">○ Comparing Cylinders & Spheres <p>Enrichment Differentiation Opportunity:</p> <ul style="list-style-type: none">○ Shell FAL: Calculating Volumes	<p>[Back to Top]</p>

