

NJDOE MODEL CURRICULUM PROJECT

CONTENT AREA: Mathematics	GRADE: 8	UNIT #: 5	UNIT NAME: Geometry
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#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	Evaluate square roots and cubic roots of small perfect squares and cubes respectively and use square and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number..	8.EE.2
2	Identify $\sqrt{2}$ as irrational	8.EE.2
3	Explain a proof of the Pythagorean Theorem and its converse.	8.G.6
4	Utilize the Pythagorean Theorem to determine unknown side lengths of right triangles in two and three dimensions to solve real-world and mathematical problems	8.G.7
5	Use the Pythagorean Theorem to determine the distance between two points in the coordinate plane.	8.G.8
6	Know and apply the appropriate formula for the volume of a cone, a cylinder, or a sphere to solve real-world and mathematical problems.	8.G.9

Major Content **Supporting Content** **Additional Content** (Identified by PARCC Model Content Frameworks).

Bold type indicates grade level fluency requirements. (Identified by PARCC Model Content Frameworks).

Selected Opportunities for Connection to Mathematical Practices

1. **Make sense of problems and persevere in solving them.**
SLO 6 Involve problems that must be constructed and deconstructed in order to solve.
2. Reason abstractly and quantitatively.
3. **Construct viable arguments and critique the reasoning of others.**
SLO 3 Explain the difference between the Pythagorean Theorem and its converse. Listen to or read the explanations of others and pose questions that will clarify or improve the explanations.
4. **Model with mathematics.**
SLO 5 Use the coordinates of a figure represented on a coordinate plane to determine the length of a missing side.

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5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

All of the content presented at this grade level has connections to the standards for mathematical practices.

Bold type identifies possible starting points for connections to the SLOs in this unit.

Code #	Common Core State Standards
8.EE.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that the square root of 2 is irrational.
8.G.6	Explain a proof of the Pythagorean Theorem and its converse.
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two or three dimensions.
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Major Content **Supporting Content** **Additional Content** (Identified by PARCC Model Content Frameworks).

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