

Richmond Public Schools
Curriculum Framework
Grade 7 Honors (7/8)

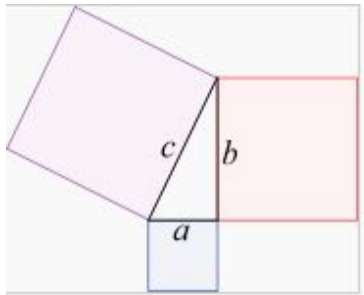
Strand: Measurement and Geometry	
8.9	<p>The student will</p> <p>a) verify the Pythagorean Theorem; and</p> <p>b) apply the Pythagorean Theorem.</p>
Suggested Pacing	
Related Standards	
Spiral Down:	Spiral Up: Geometry: <ul style="list-style-type: none"> • SOL G.8a
Essential Questions	Common Misconceptions
<ul style="list-style-type: none"> • What is the Pythagorean Theorem and how is it useful in finding unknown right triangle measurements? • What does the converse of the Pythagorean Theorem prove? • How could you use the Pythagorean Theorem to find the distance between two points on the coordinate plane? • How would you apply the Pythagorean Theorem to a real-world situation? • How can Pythagorean Theorem be used to solve problems? 	<ul style="list-style-type: none"> • Triangle Sides: students have difficulty recognizing which sides they are given in the word problem/illustration; this may cause the students to replace a variable in the formula with the wrong value • Solving: if students did not fully understand how to solve equations, they will have difficulty solving for the unknown variable • Converse: students may have difficulty knowing which numbers to substitute for which variables and knowing if the statement represents a true sentence.
Understanding the Standard	Essential Knowledge and Skills
<ul style="list-style-type: none"> • The Pythagorean Theorem is essential for solving problems involving right triangles. • The relationship between the sides and angles of right triangles are useful in many applied fields. 	<ul style="list-style-type: none"> • Verify the Pythagorean Theorem, using diagrams, concrete materials, and measurement. (a) • Determine whether a triangle is a right triangle given the measures of its three sides. (b)

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- In a right triangle, the square of the length of the hypotenuse equals the sum of the squares of the legs. This relationship is known as the Pythagorean Theorem: $a^2 + b^2 = c^2$.



- The Pythagorean Theorem is used to determine the measure of any one of the three sides of a right triangle if the measures of the other two sides are known.
- The converse of the Pythagorean Theorem states that if the square of the length of the hypotenuse equals the sum of the squares of the legs in a triangle, then the triangle is a right triangle. This can be used to determine whether a triangle is a right triangle given the measures of its three sides.
- Whole number triples that are the measures of the sides of right triangles, such as (3, 4, 5), (6, 8, 10), (9, 12, 15), and (5, 12, 13), are commonly known as Pythagorean triples.
- The hypotenuse of a right triangle is the side opposite the right angle.
- The hypotenuse of a right triangle is always the longest side of the right triangle.
- The legs of a right triangle form the right angle.

- Determine the measure of a side of a right triangle, given the measures of the other two sides. (b)
- Solve practical problems involving right triangles by using the Pythagorean Theorem. (b)

Vocabulary	Instructional Activities Organized by Learning Objective
	Textbook

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Pythagorean Theorem	Right Triangle	Leg	Notes
Hypotenuse	Pythagorean Triple		
Assessment			Resources
			<ul style="list-style-type: none"> ● Print ● Technology-based
			Station Activities
Cross-Curricular Connections			Tiered Differentiations