

8th Grade UNIT 1 OVERVIEW: Number Sense

Unit Outcomes At the end of this unit, your student should be able to:	Key Vocabulary Terms to deepen the student's understanding
<ul style="list-style-type: none"> ✓ Determine if a number is a perfect square or a perfect cube ✓ List the first 15 perfect squares ✓ Evaluate square roots of small perfect squares and cube roots of small perfect cubes ✓ Estimate the value of square roots of non-perfect squares and find their approximate value on the calculator 	<ul style="list-style-type: none"> ✓ Cube Root ✓ Integer ✓ Irrational Numbers ✓ Perfect Cube ✓ Perfect Square ✓ Radical ✓ Radicand ✓ Rational Numbers ✓ Root ✓ Square Root ✓ Whole Number
Key Standards Addressed Connections to Common Core/NC Essential Standards	Where This Unit Fits Connections to prior and future learning
<p>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 $\sqrt{2}$ is irrational.</p> <p>8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). <i>For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.</i></p>	<p>Coming into this unit, students should have a strong foundation in:</p> <ul style="list-style-type: none"> ✓ Simplifying expressions with exponents ✓ Understanding what it means to “square” a number <p>This unit builds to the following future skills and concepts:</p> <ul style="list-style-type: none"> ✓ Comparing and ordering rational and irrational numbers ✓ Solving equations with real numbers ✓ Solving Pythagorean Theorem equations ✓ Utilizing Volume formulas
Additional Resources Materials to support understanding and enrichment	“Learning Checks” Questions Parents Can Use to Assess Understanding
<ul style="list-style-type: none"> ✓ Teaching videos made by Wake County teachers ✓ WCPSS YouTube Channel – Math Playlist ✓ Squares and Square Roots Overview ✓ Cubes and Cube Roots Overview ✓ Estimating Square Roots Video ✓ First 15 Perfect Squares Study Tool ✓ Squares and Square Roots Practice ✓ Radicals Overview ✓ Professions That Use Radicals ✓ Identifying and Finding Square Roots Video ✓ Identifying and Finding Cube Roots Video 	<ul style="list-style-type: none"> ✓ What makes a number a “perfect square”? ✓ How does a “perfect square” relate to the area of a checkerboard? ✓ What makes a number a “perfect cube”? ✓ How does a “perfect cube” relate to the volume of a cube? ✓ Why is it impossible to take the square root of a negative number? ✓ What professions commonly use square roots? ✓ Why is it possible to take the cube root of a positive or negative number? ✓ Why is it useful to be able to approximate square roots?