WAKE COUNTY PUBLIC SCHOOL SYSTEM

**Middle School Programs**
***Building Healthy Core Learning***
***8th Grade Math, Unit 1***

# *8th Grade UNIT 1 OVERVIEW: Number Sense*

| **Unit Outcomes**<br>At the end of this unit, your student should be able to: | **Key Vocabulary**<br>Terms to deepen the student's understanding |
|---|---|
| ✓ Determine if a number is a perfect square or a perfect cube<br>✓ List the first 15 perfect squares<br>✓ Evaluate square roots of small perfect squares and cube roots of small perfect cubes<br>✓ Estimate the value of square roots of non-perfect squares and find their approximate value on the calculator | ✓ Cube Root<br>✓ Integer<br>✓ Irrational Numbers<br>✓ Perfect Cube<br>✓ Perfect Square<br>✓ Radical<br>✓ Radicand<br>✓ Rational Numbers<br>✓ Root<br>✓ Square Root<br>✓ Whole Number |
| **Key Standards Addressed**<br>Connections to Common Core/NC Essential Standards | **Where This Unit Fits**<br>Connections to prior and future learning |
| 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 √2 is irrational.<br><br>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., $\pi^2$). *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.* | **Coming into this unit, students should have a strong foundation in:**<br>✓ Simplifying expressions with exponents<br>✓ Understanding what it means to "square" a number<br><br>**This unit builds to the following future skills and concepts:**<br>✓ Comparing and ordering rational and irrational numbers<br>✓ Solving equations with real numbers<br>✓ Solving Pythagorean Theorem equations<br>✓ Utilizing Volume formulas |
| **Additional Resources**<br>Materials to support understanding and enrichment | **"Learning Checks"**<br>Questions Parents Can Use to Assess Understanding |
| ✓ Teaching videos made by Wake County teachers<br>✓ WCPSS YouTube Channel – Math Playlist<br>✓ Squares and Square Roots Overview<br>✓ Cubes and Cube Roots Overview<br>✓ Estimating Square Roots Video<br>✓ First 15 Perfect Squares Study Tool<br>✓ Squares and Square Roots Practice<br>✓ Radicals Overview<br>✓ Professions That Use Radicals<br>✓ Identifying and Finding Square Roots Video<br>✓ Identifying and Finding Cube Roots Video | ✓ What makes a number a "perfect square"?<br>✓ How does a "perfect square" relate to the area of a checkerboard?<br>✓ What makes a number a "perfect cube"?<br>✓ How does a "perfect cube" relate to the volume of a cube?<br>✓ Why is it impossible to take the square root of a negative number?<br>✓ What professions commonly use square roots?<br>✓ Why is it possible to take the cube root of a positive or negative number?<br>✓ Why is it useful to be able to approximate square roots? |