WAKE COUNTY PUBLIC SCHOOL SYSTEM

8th Grade UNIT 8 OVERVIEW: Volume of Cylinders, Cones, and Spheres

Unit Outcomes	Key Vocabulary
At the end of this unit, your student should be able to:	Terms to deepen the student's understanding
✓ Find the perimeter, area, and circumference of 2-dimensional figures ✓ Calculate the volume of right prisms, cylinders, cones, and spheres ✓ Apply the volume formulas for cylinders, cones, and spheres	✓ Area ✓ Chord ✓ Circle ✓ Circumference ✓ Cone ✓ Cube Root ✓ Cylinder ✓ Diameter ✓ Height ✓ Pi ✓ Radius ✓ Sphere ✓ Volume

Key Standards Addressed	Where This Unit Fits
Connections to Common Core/NC Essential Standards	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 rational number. 8.G.9 - Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	**Coming into this unit, students should have a strong foundation in:** ✓ Calculating the perimeter and area of 2-dimensional figures ✓ Using the general formula V=Bh to find the volume of rectangular prisms, triangular prisms, and right square pyramids ✓ Understanding why the units for volume are cubed **This unit builds to the following future skills and concepts:** ✓ Giving an informal argument for the formulas of a circle, area of a circle, volume of a cylinder, pyramid, and cone ✓ Applying volume formulas for cylinders, pyramids, cones, and spheres to solve problems ✓ Using geometric shapes, their measures, and their properties to describe real-world scenarios

8th Grade UNIT 8 OVERVIEW: Volume of Cylinders, Cones, and Spheres

Additional Resources Materials to support understanding and enrichment	**"Learning Checks"** Questions Parents Can Use to Assess Understanding
✓ [Teaching videos made by Wake County teachers](#) ✓ [WCPSS YouTube Channel – Math Playlist](#) ✓ [Volume of a Cylinder Video](#) ✓ [Volume of a Cone Video](#) ✓ [Volume of a Sphere Video](#) ✓ [Volume Word Problem Practice](#)	✓ How would you find out how much carpet you need for your bedroom? ✓ What are the key differences in the circumference and area of a circle? How does it affect the formula and units used? ✓ What irrational number is used with circles? ✓ What is the ratio of a circle's circumference to its diameter? ✓ How can volume formulas be used in the real world? ✓ What occupations require the use of volume formulas? ✓ Is the volume of the soda can the aluminum can or the soda? Explain how you reached your conclusion. ✓ How can volume formulas be used in the real world? ✓ What occupations require the use of volume formulas? ✓ When would you need to find the volume of a cone? ✓ Is the volume of the ice cream cone the cone or the ice cream inside? Explain how you reached your conclusion. ✓ Why would you need to find the volume of a sphere? ✓ Is the volume of the volleyball the outside material or the air inside? Explain how you reached your conclusion.

* Please note, the unit guides are a work in progress. If you have feedback or suggestions on improvement, please feel free to contact wakemiddle@wcpss.net.