

Unit 7

Surface Area and Volume of Cylinders

Grade 8

Lesson Outline

BIG PICTURE

Students will:

- determine, through investigation, the relationships among the measurable attributes of circles and cylinders;
- develop, through investigation, the formula for the volume of a cylinder;
- develop, through investigation, the formula for the surface area of a cylinder;
- research and report on applications of volume and capacity measurement;
- solve multi-step problems involving volume and surface area of cylinders arising from real-life contexts using a variety of tools and strategies;
- solve problems requiring operations with powers of ten such as converting metric units of volume and capacity.

Day	Lesson Title	Math Learning Goals	Expectations
1	How Much Space Is Occupied? <i>(lesson not included)</i>	<ul style="list-style-type: none"> • Investigate, using a variety of tools, the relationships between the area, the base, and the volume of a cylinder. • Research applications of volume and capacity measurement. 	8m32 CGE 3c, 5a
2	Pump Out the Volume! <i>(lesson not included)</i>	<ul style="list-style-type: none"> • Report on and describe applications of volume and capacity measurement. • Generalize findings from Day 1 to develop a formula for the volume of a cylinder. • Solve problems requiring the calculating of the volume of cylinders. 	8m16, 8m32, 8m37, 8m39, 8m62 CGE 2c, 4f
3	It's About Capacity <i>(lesson not included)</i>	<ul style="list-style-type: none"> • Solve problems finding the area of the base, the height, the volume, and the capacity of cylinders – sometimes requiring metric unit conversions. 	8m16, 8m18, 8m20, 8m24, 8m33, 8m39, 8m62 CGE 5b, 7b
4	The Cover Up <i>(lesson not included)</i>	<ul style="list-style-type: none"> • Investigate the surface area of a cylinder. 	8m38 CGE 5a
5	It's a Wrap! <i>(lesson not included)</i>	<ul style="list-style-type: none"> • Solve problems requiring the calculation of the dimensions as well as the surface area of cylindrical shapes abstractly and in context. 	8m16, 8m18, 8m20, 8m24, 8m33, 8m39, 8m62 CGE 5b, 7b
6	It's All in the Cylinder <i>(lesson not included)</i>	<ul style="list-style-type: none"> • Solve problems abstractly and in context relating the surface area to the volume of cylindrical shapes. 	8m16, 8m18, 8m20, 8m24, 8m33, 8m39, 8m62 CGE 7b, 5g
7	Summative Assessment		