## Unit 7
### Surface Area and Volume of Cylinders

#### 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.

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<th>Day</th>
<th>Lesson Title</th>
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| 1   | How Much Space Is Occupied? (lesson not included) | • 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! (lesson not included) | • 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 (lesson not included) | • 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 (lesson not included) | • Investigate the surface area of a cylinder. | 8m38  
CGE 5a |
| 5   | It’s a Wrap! (lesson not included) | • 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 (lesson not included) | • 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 | | |