



TEACHER PAGE

Lesson: Surface Area of Cylinders

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Arizona Math Strand 4 Geometry and Measurement

Grades 8-12

New Articulated 4MH4-03 Calculate the surface area of three-dimension geometric figures; **4MH1-03** Make a net to represent a three-dimensional object; **4MH1-04** Make a three-dimensional model from a net; **4M84-03** Calculate the surface area of rectangular prisms or cylinders;

Old Arizona Math Standard 4 Geometry Proficiency 2

Grades 9-12

4MP2-PO1 Calculate surface areas and volumes of three-dimensional geometric figures, given the required formulas

Learning objectives: the student will be able to:

- demonstrate understanding of using general formulas to calculate surface areas of cylinders
- demonstrate understanding of the correct use of a formula for a specific figure
- demonstrate understanding of the vocabulary: faces, bases, lateral surface area, net, radius, diameter, and Pi

Overview:

This is a step-by-step process lesson focusing on working with the formula for determine surface area of cylinders. The lesson moves deliberately through several figures and provides needed to time to determine the calculations. The student cannot move forward in the lesson without determining the correct answers. This lesson is available with English and Spanish narrations and scripts.

Classroom Management:

This can be used in large group lessons, small group, or individual assignments. Each student will move through the lesson at differing speeds.

Engaging Students:

Most students have had the experience of saving Campbell's™ soup can labels for school projects. Remind them of that experience and question them about the shape of the label when it is removed from the can. It might be a good idea to actually bring a soup can with the label intact and then remove the label in the classroom. The area of the soup label is very close to the lateral area of the can.

Follow-up:

Throughout the units related to three-dimensional figures (nets, surface area and volume), the teacher should emphasize the importance of maximizing the volume of a figure while minimizing its surface area. A discussion related to the use of many different can sizes in the grocery/foods industry could be quite interesting. Extend the ideas presented in DIG DEEPER (soda cans) by discussing the practical reasons for different can sizing. Find more mathematics teaching resources at: <http://www.evtpc.org/tutor>

Assessment:

Multiple-choice questions must be correctly answered in order to finish the lesson.

