**Grade Level Tasks**

**Outcome SS4**

Develop and apply formulas for determining the volume of right prisms and right cylinders.

**Building Block:** Students can determine the volume of a given right prism or right cylinder given the area of the base.

1. Math Makes Sense: the textbook is a great resource to find example questions that can be used with students. Below are some examples to get you started:

	1. Math Makes Sense Grade 8, page 198: #4
	2. Math Makes Sense Grade 8, page 205: #4
	3. Math Makes Sense Grade 8, page 218: #4
2. Below are some websites that deal with volume.

	1. <http://illuminations.nctm.org/Activity.aspx?id=4095>
	2. <http://www.interactivestuff.org/sums4fun/3dboxes.html>
	3. <http://www.learner.org/interactives/geometry/area_volume.html>
3. What happens to the volume of a rectangular prism when the area of its base is doubled?  Use an example in your explanation.
4. A triangular prism has a volume of 128 cm3.  Its height is 8 cm.  What is the area of its base?
5. Explain the connection between the area of the base of a right 3-D object and the formula for the volume of the object.
6. What could be the volume of the right rectangular prism below? Prove your answer.

**2.4cm2**

**4.8cm2**

**Building Block:** Students can demonstrate that the orientation of a given 3-D object does not affect its volume.

1. Which right rectangular prisms have the same volume as the one below?

8cm

100 cm

30cm

8cm

30cm

100 cm

* 1. c.

10cm

8 cm

30 cm

* 1.

100 cm

30cm

9cm

1. Compare the volume of the following cylinders. Fill in the blank with >, < or =



**Building Block:** Students can apply a formula to solve a given problem involving volume of a right cylinder or a right prism.

1. A certain cube has the side length of 4 cm. What is the volume of the cube?
2. Find the volume of the triangular prism below.

 
3. Find the volume of a rectangular prism measuring 5 m by 9 m by 4 m.
4. Which of the following is the volume of the cylinder if the height is 15 cm and the diameter is 8 cm?

	1. 3014.4 cm3
	2. 753.6 cm3
	3. 200.96 cm3
	4. 50.24 cm3
5. Draw two different right rectangular prisms that both have a volume of 2400 cm3.
6. Which cylinder would hold more water?  Explain your answer.

 Cylinder A:  height 7.0 cm, diameter 5.0 cm
 Cylinder B: height 5.0 cm, diameter 7.0 cm
7. A cube has a volume of 96cm3.  What are its dimensions?
8. A hockey puck is a solid piece of rubber with a diameter of 10 cm and a height of 2.5 cm. How many hockey pucks can fit inside a cylindrical container with a volume of 1.1 m3?