Math Grades 6 - 10
Geometry

MA.6.G.5.1
MA.7.G.2.1

The Blue Fairy Book
"The History of Jack the Giant-Killer"
Traditional folk tale

Reading Level: 6.9

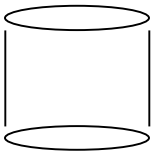
Directions:

With a teacher-lead discussion, the students will find the volume of the shapes referenced in the reading.

After students have read the passage, have them reread the sentence referencing the size of the giant: *"In those days there lived on St. Michael's Mount, off Cornwall, a huge giant, eighteen feet high and nine feet round; his fierce and savage looks were the terror of all who beheld him."*

Ask the students what three-dimensional shape could be used to represent the giant. Lead the discussion so that there is agreement to use the cylinder as the shape of the giant. Give students the formula for finding the volume of a cylinder:

Sketch a cylinder on the board and label the height given in the text. The height is 18 ft..



Ask students what the *"nine feet round"* is referencing.
Depending on the level of the students, there are two possible ways this could be interpreted.

I. If students believe that the *"nine feet round"* is saying that the width of the giant is nine feet, then that would mean that the diameter of the giant is 9 feet. Students will need to calculate the radius before they can find the volume. In this case the radius is 4.5 ft. The volume would then be calculated to be 1144.53 cubic feet.

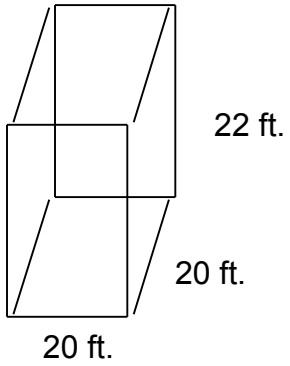
II. If the students believe that the *"nine feet round"* is referring to the circumference of the circle/giant, the distance around the circle, then more elaborate calculations are needed. Students will need to

calculate the diameter, then the radius before they can find the volume. The diameter can be found by dividing the circumference by π (use 3.14). The diameter is approximately 2.9 feet. The radius would then be found by dividing the diameter by 2 to get 1.45 feet. Now students can substitute the values for *r* and *h* to calculate the volume of the giant to be 118.83 cubic feet.

Have students reread the sentence referencing the size of the pit: *"There he dug a pit twenty-two feet deep and twenty broad."*

Ask the students what three-dimensional shape could be used to represent the pit. Lead the discussion so that there is agreement that the best shape to use is that of a rectangular prism with a square base.

Sketch the prism and have students help label the sides.



Give students the formula for finding the volume of a rectangular prism:
where

Answer: 8800 cubic feet.

Conclude lesson by discussing if Jack could have made a better decision about the size of the pit he dug. Could he have dug a smaller pit and still have the giant fit? Have students make suggestions as to the best size to dig the pit and have them calculate the volumes. Remember that the pit must be wide enough and deep enough for the giant to fit.