



Speak AgentSM

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REAL-WORLD MATH

Calculating Volume

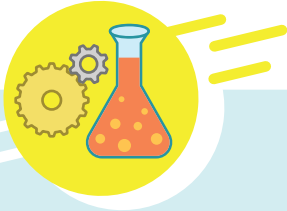


Psst! See this strategy in action here:

speakagent.com/strategies

HOW MUCH WATER IS IN ONE CUP? PAGE 1

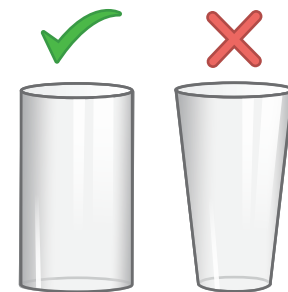
ACCEL.
2



We are going to measure the volume of one cup of water – twice!

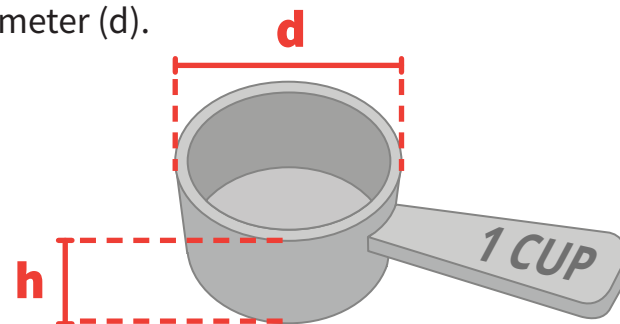
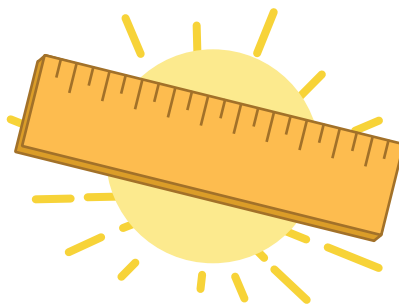
1 GATHER YOUR TOOLS

- Find a ruler that has inches on it.
- Find a 1-cup measuring cup.
- Find a glass or mug that is a cylinder shape. Make sure it is not wider at the top than the bottom.



2 MEASURE

- Measure the cup's height (h) and diameter (d).



3 FIND THE RADIUS

- Use the formula:

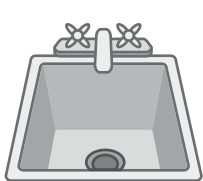
$$r = d \div 2$$



$$r = \underline{\hspace{2cm}}$$



TOOLS YOU NEED



Sink



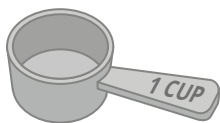
Glass / Mug



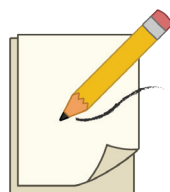
Ruler



Calculator



Measuring Cup



Paper & Pencil

4 CALCULATE

- ▶ Calculate the volume of the cup.
- ▶ Use the formula:
- ▶ Write this down for later.

$$V = \pi r^2 h$$

OR

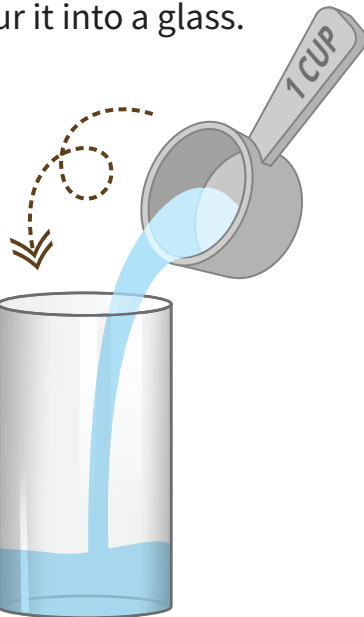
$$V = 3.14 \cdot r^2 \cdot h$$



$$V_{1\text{-cup}} = \underline{\hspace{2cm}}$$

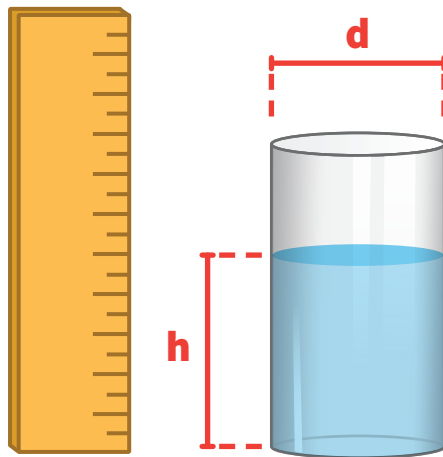
5 FILL

- ▶ Now fill the measuring cup and pour it into a glass.



6 MEASURE

- ▶ Measure the height (h) and diameter (d) of the water in your glass.
Measure only up to the water line.



7 CALCULATE

- ▶ Calculate the volume of the water in your glass.



$$V_{\text{water}} = \underline{\hspace{2cm}}$$



Don't forget to halve the diameter to find the radius.



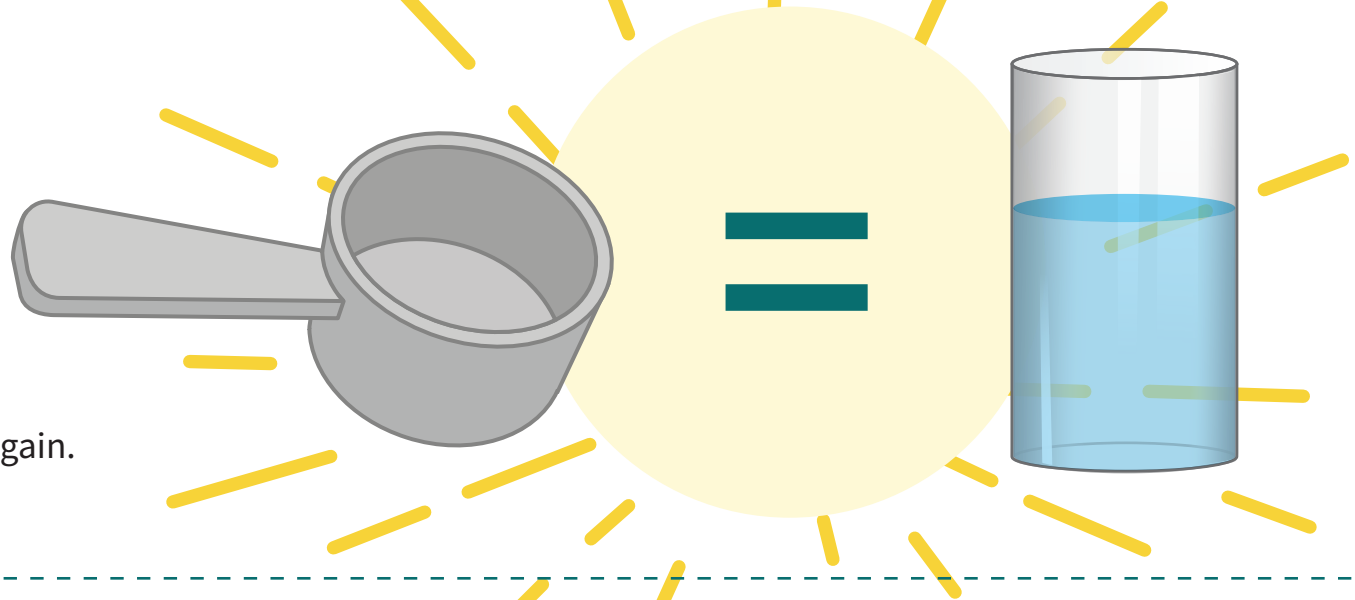
Don't forget to use the volume formula in step 4.

8 MATCH

▶ Did your answers match?

The volume of the 1-cup should equal the volume of the water in the glass.

- ▶ If they don't match, that's okay!
Try measuring and calculating again.



9 CHECK YOUR ANSWER

- ▶ Go to this webpage: speakagent.com/answer-keys



LEARNING GOALS

- ☐ Solve the volume of a cylinder using real-world objects.
- ☐ Students will also prove that volume is equivalent when moved from one container to another.

UNIT: Volume

ABOUT SPEAK AGENT

This series includes activities that use real-world scenarios to connect learners to these five topics:

- Number Lines & Coordinate Planes
- Probability Trees
- Calculating Volume
- Pythagorean Theorem & Angles
- Linear Functions

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