

Info Sheet

Measurement Units

Volume

- 1 cubic centimeter (cm^3) = 1 milliliter (ml)
- 1 liter (L) = 1,000 ml (same as a $10 \text{ cm} \times 10 \text{ cm} \times 10 \text{ cm}$ cube)
- 1 cubic meter (m^3) = 1,000 liters (L) (same as a $1 \text{ m} \times 1 \text{ m} \times 1 \text{ m}$ cube)
- 1 gallon is about 3.8 liters

Length

- 100 centimeters (cm) = 1 meter (m)
- 1 meter is about 3 feet

Water Needed Per Day

Below is an excerpt from Red Cross and FEMA guide: “Food and Water in an Emergency” (page 7), https://www.redcross.org/content/dam/redcross/atg/PDF_s/Preparedness___Disaster_Recovery/Disaster_Preparedness/Food_Safety/Food_and_Water-English.revised_7-09.pdf

A normally active person needs to drink at least two quarts (half gallon [or about 1.9 liters]) of water each day. People in hot environments, children, nursing [parents], and ill people will require even more.

You will also need water for food preparation and hygiene. Store at least one gallon [or 3.8 liters] per person, per day. Consider storing at least a two-week supply of water for each member of your family. If you are unable to store this quantity, store as much as you can.

Water Requirements for Survival (per person)

Type of Need	Water Needed	Comments
Survival (drinking and food)	2.5–3 liters per day	Depends on climate and individual
Basic hygiene practices	2–6 liters per day	Depends on social and cultural norms
Basic cooking needs	3–6 liters per day	Depends on food and social/cultural norms
Total	7.5–15 liters per day	

Table 1: Excerpt from World Health Organization Guide: “How Much Water Is Needed in Emergencies” (page 9.2), https://cdn.who.int/media/docs/default-source/wash-documents/who-tn-09-how-much-water-is-needed.pdf?sfvrsn=1e876b2a_6

Finding Formulas

To find relevant formulas, Google for things like “volume cone” or “surface area cylinder” and you should get results like what is shown below.

Google search results for "volume cone". The search bar shows "volume cone" with a clear button (X) and voice search/microphone icon. Below the search bar are tabs for All, Images, News, Books, Videos, and More. The results show "About 269,000,000 results (0.61 seconds)".

Right circular cone
Solve for volume ▾

$$V = \pi r^2 \frac{h}{3}$$

r Radius

h Height

The diagram shows a right circular cone. A vertical line segment from the apex to the center of the base is labeled 'h'. A horizontal line segment from the center of the base to the edge is labeled 'r'. A line segment along the side of the cone is labeled 'l'. A right-angle symbol is shown at the center of the base where the height and radius meet.

- Notice the drop down arrows where it says “Solve for. . .” You can change this if needed.
- You will see the formula and the relevant measurements.
- You still need to adjust if part of the shape is not relevant (for instance, where you connect two shapes).