

## Cubic Meters (m<sup>3</sup>)

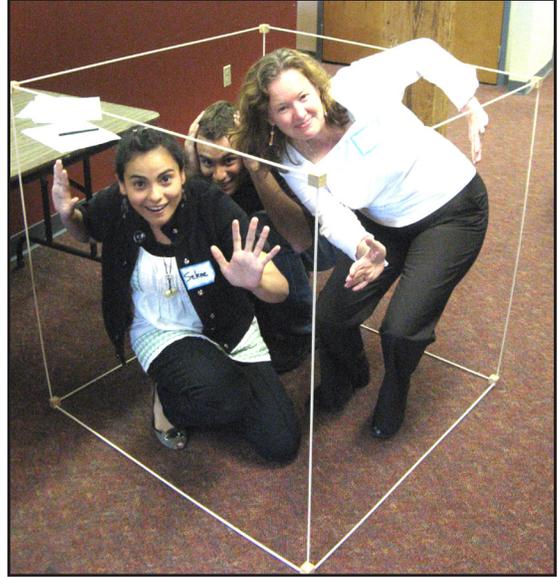
### Definition

A cubic meter (m<sup>3</sup>) is the space contained by a cube one meter on each side. It's a measure of volume, equal to 1,000 liters, or 264 gallons.

(A meter is 100 centimeters, the same as 39.4 inches, or a little longer than a yard.)

### Uses

Cubic meters are used to measure a volume of air. Air contamination is usually measured in milligrams or micrograms of contamination per cubic meter (mg/m<sup>3</sup> or µg/m<sup>3</sup>).



### Examples

- Five 55-gallon barrels are about the same as a cubic meter.
- The space underneath a 6' x 2½' table that is 2½' high is about a cubic meter.
- A 12-foot storage pod holds about 21 cubic meters.
- A typical refrigerator takes up about 1.5 cubic meters of space in a room (but holds less than that).
- A typical adult male breathes a cubic meter of air every 2 hours.



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### Launch the Discussion

Remind or tell the group why you're talking about cubic meters (it came up at a meeting, it's a key to understanding something the group has identified as a priority, etc.) Ask the group:

### Has anyone heard of a cubic meter before?

It might be best to compare it to a standard 55-gallon steel drum or barrel - the kind used for oil or waste. (Confirm participants are familiar with these before continuing.) How many 55-gallon drums do you think are in a cubic meter? (Read the list and have participants vote, but don't give an answer until they have had a chance to guess.)

- Half of a 55-gallon drum?
- A full one?
- Two?
- Five? (Answer: A cubic meter is a little less than five 55-gallon drums.)
- Ten?

### Fact Sheet

Pass out the Fact Sheet. Review key points. Discuss with the group how it connects to their work.

### Activities

- Build a cubic meter using 12 meter sticks. Alternatively or use 3 meter sticks and the corner of a room to define the outlines of a cubic meter.
- Find something in the room that takes up about a cubic meter of space (or something like half or twice that size). Measure it out to confirm. Estimate: how many of those would fit in the room? Then measure the dimensions of the room to confirm.
- How much lead (or any other contaminant) would it take to contaminate the air in the room above the air quality standard of 0.15  $\mu\text{g}/\text{m}^3$  (or any other air quality standard?) Calculate the volume of the air in room in cubic meters. Use this Fact Sheet together with the Fact Sheet for kilograms and grams if needed.