

Measuring Volume in Cubic Centimetres

You will need

- centimetre linking cubes
- base ten blocks

GOAL

Estimate, measure, and compare volumes using cubic centimetres.

Tyler and Brandon made cube creatures using centimetre linking cubes.



Tyler's creature



Brandon's creature



Whose creature has the greater volume?



Tyler's Plan

I compared my whole creature to its leg (4 cubes). I estimated that the volume of the whole creature might be about 36 cubes. I can figure out the volume by adding the number of cubes in its body parts.

Body parts	Number of cubes
legs	2×4
arms	2×3
head	2
torso	2×8

cubic centimetre (cm³)

The volume of a cube that is 1 cm long, 1 cm wide, and 1 cm high



For example, the volume of a marble is about 1 cm³.

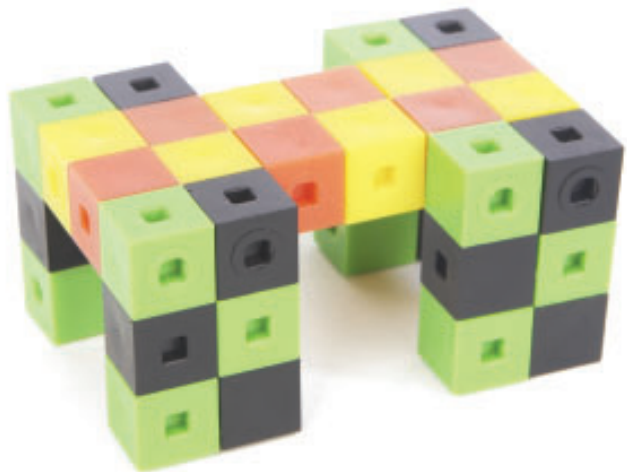
- A. What is the volume of Tyler's creature, in cubic centimetres (cm³)?
- B. Was his estimate reasonable? Explain why or why not.
- C. Estimate and then calculate the volume of Brandon's creature in cubic centimetres.
- D. Whose creature has the greater volume?

Reflecting

- E. Look at a centimetre cube. Use it to estimate the volume of your thumb in cubic centimetres.
- F. Suppose that Brandon had used cubes that were not the same size as Tyler's cubes. Would it have been easier or harder for Tyler to compare the volumes? Explain why.

Checking

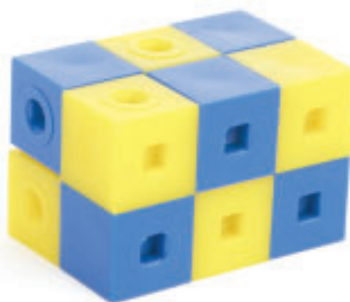
- 1. a) Estimate the volume of the creature below in cubic centimetres. Explain how you estimated.
- b) Determine the volume of the creature.



Practising

- 2. Make your own cube creature. What is the volume of your creature in cubic centimetres?

3. Show two ways to figure out the volume of this prism by counting layers of centimetre linking cubes.



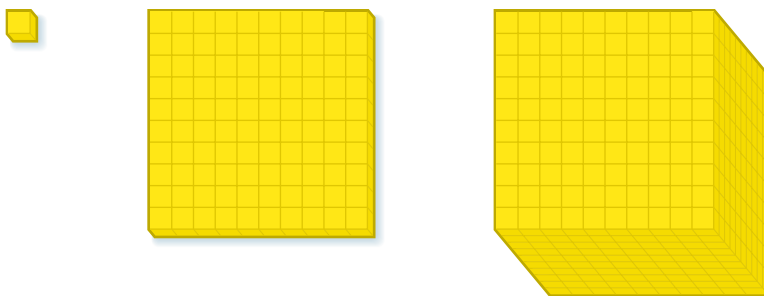
4. The volume of the sticky notes is about 20 cm^3 . Estimate the volume of the CD case and the TV remote control. Explain your thinking.



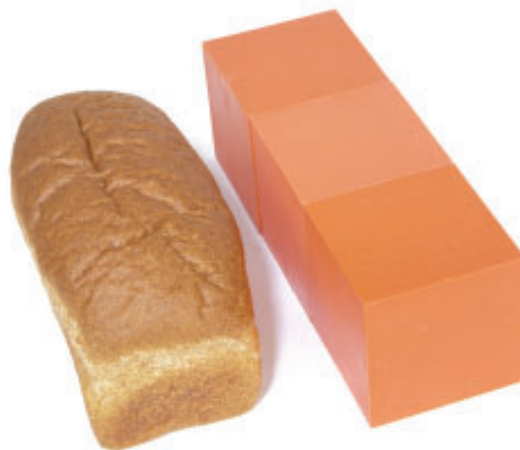
5. A box has a volume of 150 cm^3 . Is the box more likely to hold a necklace or a book? Explain your thinking.



6. a) Build a rectangular prism with a volume of 20 cm^3 . Sketch the prism and label the dimensions.
 b) Build a different rectangular prism with a volume of 20 cm^3 . Sketch this prism and label the dimensions.
7. a) What is the volume of the middle block below in cubic centimetres?
 b) What is the volume of the large cube?



8. Estimate each volume in cubic centimetres. Think about base ten blocks to help you estimate.
- a) your hand
 - b) this textbook
 - c) a full juice box
 - d) a sneaker
9. a) Estimate the volume of the loaf of bread below in cubic centimetres. Explain how you estimated.
- b) How would the volume change if the loaf were twice as long and twice as high? Explain your thinking.



cubic centimetre

10. Describe an object, other than a centimetre cube or a marble, that might have a volume of about 1 cm^3 . How do you know that the volume of the object is about 1 cm^3 ?
11. Estimate the volume of a rectangular box that would be the right size to hold the soapstone sculpture shown at the left. Use the picture of a centimetre cube to help you.
12. a) Name two objects that have a volume you might measure in cubic centimetres.
- b) Estimate the volume of each object. Explain how you estimated.