What's the Connection?

You need: a classmate, a 10 x 10 x 10 cm solid wooden or plastic cube, a bucket, a plastic basin, kitchen scales with a bowl, a measuring jug, water, various plastic bottles with their labels still on, 12 one-metre rules or sticks, sticky tape

Julia says there is a handy connection between the mass and volume of water. Angie and Brianna aim to find out what it is:



ACTIVITY

They stand a bucket in an empty plastic basin and fill it to the top, making sure it doesn't overflow.



They carefully push a 10 x 10 x 10 cm wooden cube down into the water so that it is just covered.



They tip the overflow from the basin into a measuring jug and read off the volume.



They pour this water into the bowl of the kitchen scales and note its mass.

- 1. Working with a classmate, carry out Angie and Brianna's experiment.
 - a. How much water fills the space taken by 1 000 cm³?
 - **b.** What is its mass?
 - c. What is the handy connection that Julia talked about?
- 2. Find a number of different plastic bottles with their labels still on. Fill them with water.
 - a. Read the volume on the labels and use this information to predict the mass.
 - b. Weigh the bottles. How close were your predictions?
- **3.** Use 12 one-metre rules (or sticks) and sticky tape to build a "cubic metre". Explain to your classmates how much water this cube would hold (if it could hold water), how much the water would weigh, and how you know.