

Weighty Water

You need: a calculator, a ruler, access to a bath

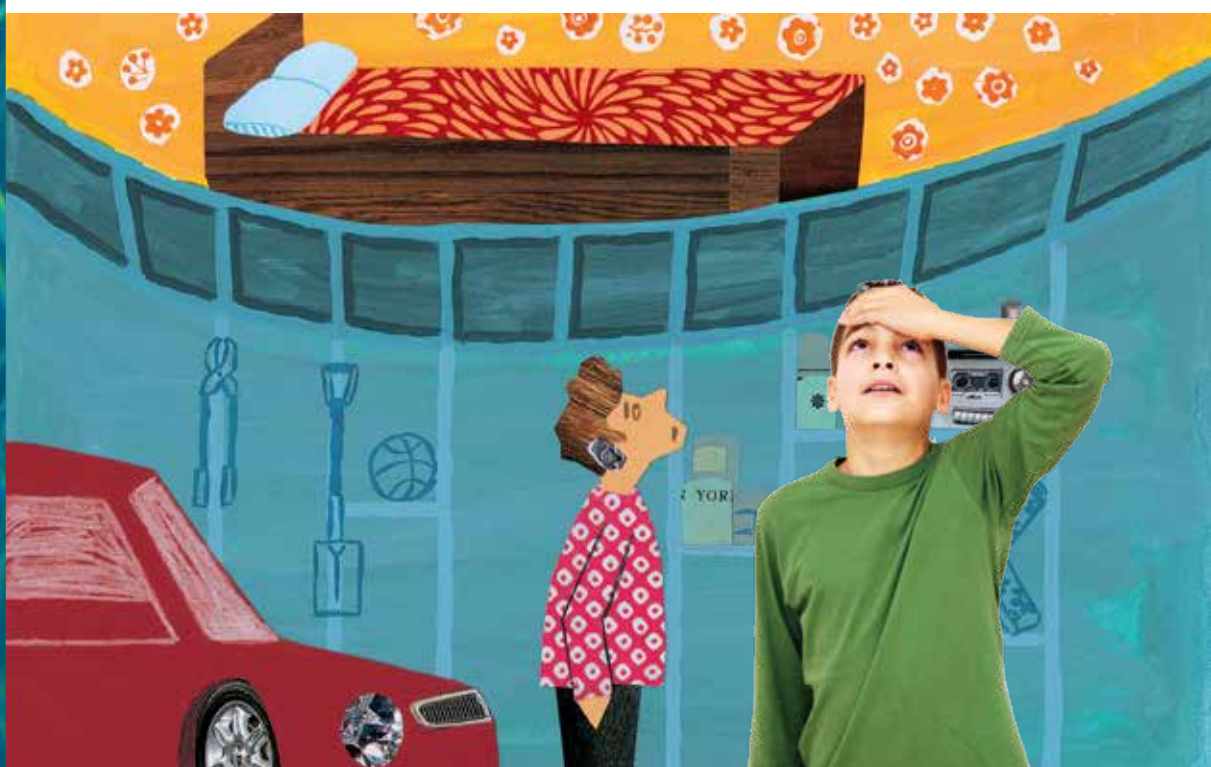
ACTIVITY

Dean's parents have just bought a new waterbed. The installer fills the mattress using a hose connected to the bath tap.

The water in this bed would fill about 3 baths.



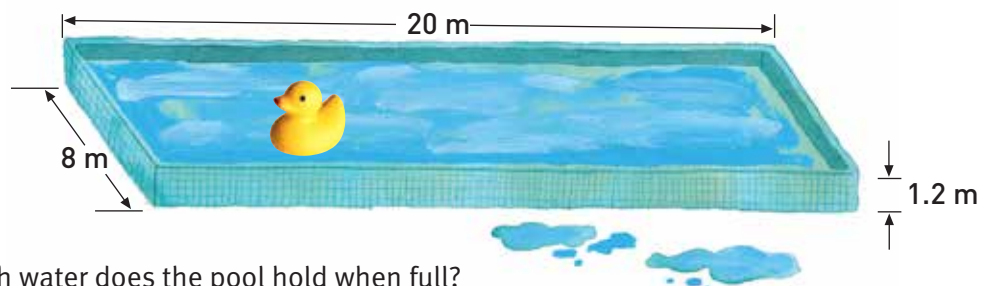
1. How much water is needed to fill a bath 3 times?
Explain how you worked out your answer.
2. After a few days, Dean's dad notices that the floor under their new waterbed is sagging. It looks like the bed could fall into the garage below.
 - a. How heavy is the water in their waterbed?
 - b. How does this mass compare with the mass of a car?



3. After their experience with the waterbed, the family starts wondering if the neighbours' old swimming pool could be a danger. It is above their section and is leaking badly.



Here is the pool. When it is full, the water is 1.2 metres deep.



1 litre of
water weighs
1 kilogram.
1 000 litres
of water weigh
1 tonne.

- How much water does the pool hold when full?
 - What is the mass of this water?
 - How might the pool be a problem for Dean's family?
4. The owner of the pool checks the depth of the water and finds it is 93 centimetres. After 5 more days the depth is 89 centimetres.
- How many litres is it losing each day?
 - At this rate, how long will it take to empty completely?
 - What factors could increase or decrease this amount of time?