How deep?

Annotation

Olivia understands the problem and knows the relationship between the measurements of length, width and height (or depth) and the volume of the pool. She calculates using the volume, readily applying the known formula to fractions, decimals and whole numbers.

Problem: How deep?

The teacher shows this problem to the student and reads it with her as required:

The rectangular swimming pool holds 125m³ of water. It is 20m long, 5m wide and the same depth all over. How deep is the pool?

Student response

Olivia:	The pool is 1.25m deep.
Teacher:	Tell me how you did that.
Olivia:	Well I know that volume of the pool is length x width x depth so that told me what to do with the numbers. Since the depth is the only one we don't know you can work it out by saying 20 x 5 x what is 125. That is the same as 100 x what equals 125. Writing it down it looks like this (Olivia writes, 125 = 100 x □). If the depth was 1m then the volume would be 100m³, but this pool is 25m³ more. I know that 25 is a quarter of 100 so the depth is 1¼ metres or 1.25 metres deep. I can check that by saying 1.25 x 100 is 125m³ or the other way is simply to say 100 x 1¼ is 125 cubic metres.