

Year 5 Problems Summer 2 Week 7

Objectives:

- Convert between different units of metric measure (l/ml)
- Solve problems involving converting between units of time
- Solve problems involving numbers with up to three decimal places.

A machine pours 150 millilitres of toothpaste every 6 seconds.

How many litres of toothpaste does the machine pour every minute?

Model answer

Reading the problem over we can see that the machine pours 150 millilitres (ml) of toothpaste every 6 seconds. The question asks how many litres of toothpaste does the machine pour every minute? We can see that we will need to do some converting from one unit of measure to another. If we think about what we already know that can help us we need to remember these facts:

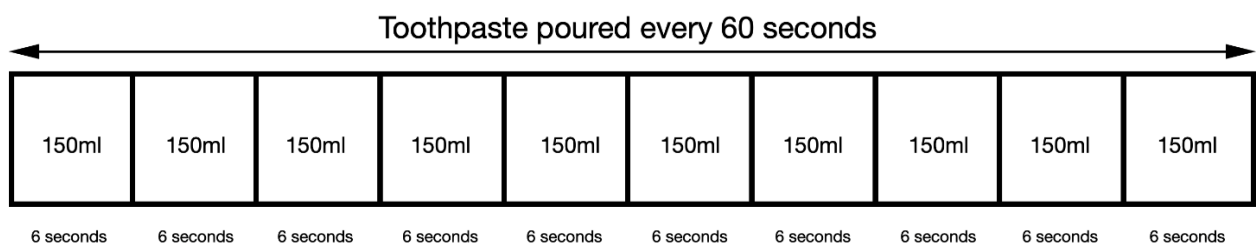
$$1000\text{ml} = 1 \text{ litre}$$

$$60 \text{ seconds} = 1 \text{ minute}$$

We need to find out how many lots of 6 seconds there are in 60 seconds.

$$60 \div 6 = 10$$

Drawing a bar model could help us see the problem more clearly.



We can see from the bar model that in 60 seconds the machine would pour 10 lots of 150ml.

$$10 \times 150\text{ml} = 1500\text{ml}$$

Going back to the problem we can see the answer needs to be given in litres. Remembering that 1000ml = 1 litre we can see that to convert from millilitres to litres we need to divide by 1000.

$$1500 \div 1000 = 1.5$$

So 1500ml = 1.5 litres

The answer to the problem is that the machine pours 1.5 litres of toothpaste every minute.

Now try these problems.

A machine pours 355 millilitres of toothpaste every 5 seconds.

How many litres of toothpaste does the machine pour every minute?

Space for working

A machine pours 525 millilitres of toothpaste every 3 seconds.

How many litres of toothpaste does the machine pour every minute?

Space for working

Answers:

- The machine pours 4.26 litres of toothpaste every minute.
- The machine pours 10.5 litres of toothpaste every minute.