My goal is to learn maths with litres and millilitres

A Warm-up. Listen to your teacher.

1,000ml		$\frac{1}{2}$ litre	
	10		litre
More than 25 litres		millilitres	

B Capacity

1. How much liquid is in each container?

(a)   (b)   (c)   (d)

2. Colour these containers to show the correct amounts of liquid.

(a) 400ml   (b) 700ml   (c) 350ml   (d) $\frac{3}{4}$ l

C Match the pictures to the correct box.

Less than 1 litre   About 1 litre   More than 1 litre

A Collect some containers. Estimate the capacity of each and then measure. Work out the difference between your estimate and the actual capacity.

pair work

Item	My estimate	Actual capacity	Difference

B Capacity

1. The roof has sprung a leak. It rained for $\frac{3}{4}$ of an hour.
   (a) How many times did Imelda have to empty the basin if it filled up in 9 minutes?
   (b) How much water did the basin catch altogether if it holds 3 litres?
2. How long will Bill's boat stay afloat? It can take on 200l of water before it sinks, but there are 25l coming in every minute?

Example 4,800ml = 4l 800ml.

C Converting millilitres to litres and millilitres.

1. millilitre	litres and millilitres	2. litres and millilitres	millilitres
(a) 3,700ml		(a) 3l 200ml	
(b) 2,567ml		(b) 3l 530ml	
(c) 4,600ml		(c) 1l 789ml	
(d) 2,989ml		(d) 4l 654ml	
(e) 4,689ml		(e) 1l 340ml	
(f) 8,000ml		(f) 3l 4ml	
(g) 4,005ml		(g) 6l	
(h) 5,034ml		(h) 3l 45ml	

D Adding and subtracting litres and millilitres.

1. (a) l ml / 3 455 / + 2 670 (b) l ml / 4 781 / + 3 456 (c) l ml / 7 527 / + 5 356 (d) l ml / 6 58 / + 5 521 (e) l ml / 8 43 / + 5 573

2. (a) l ml / 7 463 / − 4 381 (b) l ml / 6 822 / − 4 145 (c) l ml / 5 670 / − 3 87 (d) l ml / 5 594 / − 1 755 (e) l ml / 5 700 / − 3 673

A Adding and subtracting posers.

1. A car has $6\frac{1}{2}$l of biofuel left in its tank. How much fuel will be in the tank if the driver adds 20l 750ml?

2. A printing cartridge contains 1 litre of black ink. How much is left if 475ml of the ink are used?

3. Naomi adds 80ml of lemon juice to 230ml of orange juice. She drinks 120ml of the mixture. How much has she left?

B Litres and decimals.

1. Write as litres using a decimal point e.g. 3l 250ml = 3·25l
   (a) 4l 280ml = ___   (b) 1l 630ml = ___   (c) 4l 550ml = ___
   (d) 3l 700ml = ___   (e) 7l 430ml = ___   (f) 3l 50ml = ___
   (g)   50ml = ___   (h)   7l = ___   (i)   70ml = ___

2. Write as litres and millilitres e.g. 4·75l = 4l 750ml
   (a) 4·53l = ___   (b) 2·56l = ___   (c) 1·98l = ___
   (d) 3·78l = ___   (e) 7·56l = ___   (f) 12·40l = ___
   (g) 3·05l = ___   (h) 2·3l = ___   (i) 6·08l = ___

3. (a) l   (b) l   (c) l   (d) l
      3·50   4·23   5·71   4·26
    × 3   × 6   × 2   × 5

Example
l
3·48
$X_{1,}7$
24·36
= 24l 360ml

4. (a) 4 × 3l 200ml   (b) 4 × 3l 20ml
   (c) 7 × 3l 560ml   (d) 6 × 8l 140ml

5. (a) 5)2·35l (b) 4)1·36l (c) 6)8·16l (d) 9)4·23l

Example
9)4·23l
0·47l
= 0l 470ml

6. (a) 5l 850ml ÷ 5   (b) 9l 520ml ÷ 8
   (c) 9l 660ml ÷ 7   (d) 8l 850ml ÷ 3

C Answer the questions.

1. The Pink Cat perfume shop sold 8 bottles, each containing 440ml. How much perfume is that?

2. Share a bottle of water containing $2\frac{1}{4}$l equally among 5 people. How much will each person get?

Shane's smoothies.

A

1. Shane sells **8** strawberry smoothies every hour. Each smoothie has **600mL**. How much strawberry smoothie mixture does he sell in one hour?

2. If Shane divided **3l** of 'Very Berry' smoothies among **5** people, how much would they each get?

3. The most popular drink is the 'Tropical Smoothie'. Shane sells **9** every hour. If he makes up **5·4l** of the mix every hour, how much would each person get?

4. How much 'Tropical Smoothie' mix does Shane need to make during **a 5-hour day** if he sells nine smoothies measuring **600ml** every hour?

5. Shane squeezes around **90ml** of juice from each orange. About how many oranges does he need to fill a one-litre jug? Why can we not say for certain?

B

1. Around **50ml** of juice comes from a lemon. About how many lemons need to be squeezed to make **0·5l** of lemon juice? Why can we not say for certain?

2. If Shane squeezes **5** oranges and **4** lemons, how much liquid can he expect to get? Is it possible that he could get more or less than he expects?

3. Shane spends **€180** on fruit every day. If he sells **85** smoothies a day at **€3** each, how much profit does he make?

4. If Shane can make **6l** of smoothie in **20** minutes, how much can he make in an hour? How much can he make in a 5-hour day?

5. If Shane puts three ice cubes, each with **50ml** of ice, into a **600ml** cup, how much smoothie mix does he need to fill the cup?

Strand	Measures
Strand Unit	Capacity

A **Explain it/** What is the difference between kilograms and litres?

B **Do it/**

1. Write the following as litres using a decimal point.
   (a) 4l 360ml   (b) 3l 290ml   (c) 8l 110ml   (d) 4l 400ml
   (e) 4l 40ml   (f) 40l 40ml   (g) 5l 160ml   (h) 1l 10ml

2. Write the following as l and ml.
   (a) 4·39l   (b) 1·18l   (c) 8·39l   (d) 50·50l
   (e) 5·5l   (f) 5·05l   (g) 2·02l   (h) 0·03l

3. (a) 5l 280ml + 3l 884ml   (b) 3l 65ml + 2l 650ml

4. (a) 3l 863ml – 1l 914ml   (b) 8l 70ml – 2l 650ml

5. (a) 4 x 2l 840ml   (b) 6 x 3l 90ml

6. (a) 6l 480ml ÷ 6   (b) 8l ÷ 5 (no remainder)

C **Solve it/**

Fact: A litre of water weighs 1kg.
The bottle on the scales contains exactly one litre of water.
Why does the needle on the scales not point exactly to **1kg**?

D **Say it/**
Choose sensible words to fill the blanks.

For breakfast, Naomi had cornflakes covered in ___ ml of fresh milk and a cup containing ___ ml of tea. Before setting out for work, she took two tablespoons of medicine, each containing 15 ___. Her route to work measures 15 ___. Naomi had to stop for petrol and bought 40 ___ at the service station. She also bought 2 bananas weighing 420 ___.
She arrived in work 10 ___ late because of heavy traffic. Before going into her office, she filled a paper cup with ___ ___ of water from the water cooler. Her printer was dry so she poured 35 ___ of ink into the small tank. Naomi had a meeting at the other end of the building. It took her 5 minutes to walk the ___ metres to the meeting room. The meeting lasted for 90 ___ after which she had lunch. It was then ___ pm.

E **Share it/**

You wish to measure 4 litres of water and all you have is a 3l container, a 5l container and plenty of water. There are no markings on the containers.
Can you measure exactly 4 litres of water (without estimating) by pouring water from one container to the other?

5 Litres   3 Litres