Year 5 maths – Summer 2 Week beginning: 22.6.20

Theme	Lesson 4 of 8 Volume To find the capacity of rectangular boxes	Lesson 5 of 8 Volume To compare and convert units of volume	Lesson 6 of 8 Volume To convert units of volume (metric and imperial)	Lesson 7 of 8 Volume To convert units of volume (metric and imperial)	Lesson 8 of 8 Volume To solve word problems involving volume
Factual fluency (to aid fluency)	**Multiply 1-digit by 3 or 4-digit numbers activity**	**Practise converting units of volume activity**	**Practice converting imperial and metric measures activity**	**Practise converting units of volume activity**	**Practise volume activity**
Problem/ activity of the day **Remember, just like in class, you can still show the depth of your knowledge** **LINK**	**(Lesson 1 resources below)** **MAKING LINKS:** Last week we found the volume of solids. Today we will be finding the capacity of boxes. **THINK: (support below)** Can you help me with this problem? My friend says she can work out the volume of this square box in cm³ and ml just by using the measurements shown on the net. How can she do this? Our problem is in the textbook on page 249. Look at it now. **SEE: (model below)** Check the solution on page 250 of your textbook. **DO:** Use what you have learnt today to solve: PART 1: Do questions 1 and 2 on page 251 of the textbook Check your answers below before moving on to: PART 2: Complete question 1, Chapter 13, worksheet 5, pages 162 of your workbook. Don't forget to include the unit of measurement in your answers!	**(Lesson 2 resources below)** **MAKING LINKS:** Yesterday we found the capacity of boxes. Today we will be comparing and converting units of volume **THINK: (support below)** Can you help me with this problem? My friend is trying to compare the volume of different amounts of liquid. Some of the containers show the liquid in litres and millilitres with fractions and decimal numbers. Can you help convert them to make comparing them easier? Our problem is in the textbook on page 252. Look at it now. **SEE: (model below)** Check the solutions for both methods on pages 252-253 of your textbook. **DO:** PART 1: Do questions 1 to 4 from page 254 of the textbook. Check your answers below before moving on to: PART 2: Complete questions 1 and 3, Chapter 13, worksheet 6, pages 164 - 165 of the workbook. Don't forget to include the unit of measurement in your answers!	**(Lesson 3 resources below)** **MAKING LINKS:** Yesterday we compared and converted units of volume. Today we will be converting metric and imperial units of volume. **THINK: (support below)** Can you help me with this problem? My friend says pints are used to measure volume in other countries. If you know that 1 pint is about 568ml can you convert 4 pints into millilitres? Our problem is in the textbook on page 255. Look at it now. **SEE: (model below)** Look at the different solutions on pages 255-256 of your textbook. Check here to recap the formal method for year 4 multiplication. **DO:** PART 1: Do the questions on page 256 of the textbook. Check your answers below before moving on to: PART 2: Complete workbook, Chapter 13, Worksheet 7, on pages 166-167. Not question 2C. Don't forget to include the unit of measurement in your answers!	**(Lesson 4 resources below)** **MAKING LINKS:** Yesterday we converted units of volume. Today we will continue with that. **THINK: (support below)** Can you help me with this problem? My friend needs to get 2 pints of milk for his mum but the cartons only come in 500 ml or 250ml. Can you help him convert the volume? Our problem is in the textbook on page 257. Look at it now. Check here to recap the formal method for year 4 multiplication. **SEE: (model below)** Look at the solutions on pages 257-258 of your textbook. Watch the lesson video. **DO:** PART 1: Do the questions on page 258 of the textbook. Check your answers below before moving on to: PART 2: Complete workbook, Chapter 13, Worksheet 8 on page 168.	**(Lesson 5 resources below)** **MAKING LINKS:** Yesterday we converted units of volume. Today we will solve problems involving volume. **THINK: (support below)** Can you help me with this problem? Could you find how much mango juice there was at the beginning? Our problem is in the textbook on page 259. Look at it now. **SEE: (model below)** Check the solution on page 260 of your textbook. Watch the lesson video. **DO:** PART 1: Do questions 1 and 2 on page 261 of the textbook. Check your answers below before moving on to: PART 2: Complete workbook, Chapter 13, Worksheet 9 on pages 169-172.
Methods, tips, clues & checks	**Day 1 resources and answers (below)**	**Day 2 resources and answers (below)**	**Day 3 resources and answers (below)**	**Day 4 resources and answers (below)**	**Day 5 resources and answers (below)**

See below for resources to support you to THINK-SEE-DO

DAY 1 RESOURCES:

THINK: Our problem is on textbook page 249

My friend says she can work out the volume of this square box in cm^3 and ml just by using the measurements shown on the net. How can she do this?

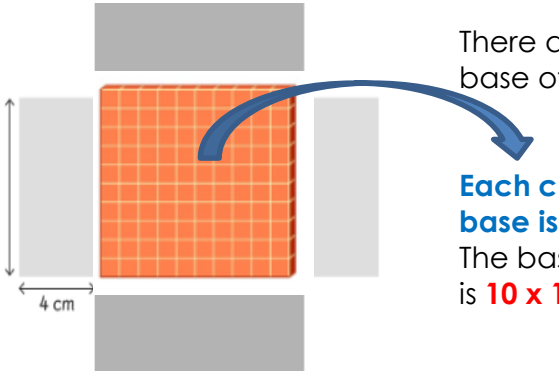
DO: Use what you have learnt today to solve:

PART 1: Do questions 1 and 2 on page 251 of the textbook.

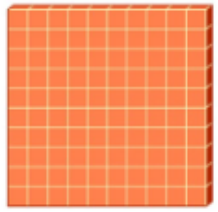
Check your answers below before moving on to:
PART 2: Complete **question 1**, Chapter 13, worksheet 5, pages 162 of your workbook.

Don't forget to include the unit of measurement in your answers!

SEE: Look at the different ways to solve the problem on page 250 of your textbook.

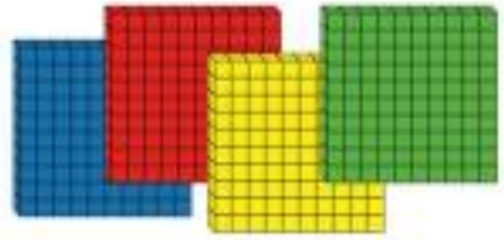


There are10 rows of 10 cubes on the base of the box.



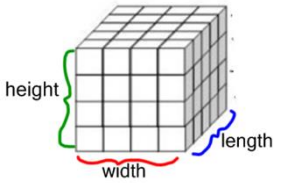
Each cube on the base is $1cm^3$.
The base of the box is **$10 \times 10cm^3$.**

The height of the box is 4cm.
We can fit in **4 layers of cubes** into the box.



The volume of the box is:
$10 \times 10cm^3 \times 4$ = $400cm^3$
(That's **10 rows of $10cm^3$ on its base multiplied by 4 layers**)

Remember, **volume = width x length x height**
You can work out how many cubes there are in each layer by multiplying the number of cubes in the **width** by the number of cubes in the **length**. Then multiply the amount of cubes in each layer by layers (its **height**).



If we were to pour sand or liquid into the box we would find that 400ml would fit into it. So **$1\ cm^3 = 1$ ml**

DAY 2 RESOURCES:

THINK: Our problem is in the textbook on page 252.

My friend is trying to compare the volume of different amounts of liquid. Some of the containers show the liquid in litres and millilitres with fractions and decimal numbers. Can you help to convert them to make comparing them easier?

DO: Use what you have learnt today to solve:

PART 1: Do questions 1 to 4 from page 254 of the textbook.

Check your answers below before moving on to:
PART 2: Complete **questions 1 and 3,** Chapter 13, worksheet 6, pages 164 - 165 of the workbook.

Don't forget to include the unit of measurement in your answers!

SEE: Check the solution on pages 252-253 of your textbook.

We have three amounts:
One container is written in millilitres: **1020ml (convert to a decimal number on the place value chart by dividing by 1000)**

One container is written as a decimal: **1.2litres (convert to millilitres on the place value chart by multiplying by 1000)**

One container is written with a fraction: **$1\frac{2}{5}$ litre (convert fifths into tenths and use the place value chart to show the number as a decimal number. Then multiply by 1000 to show the amount in millilitres)**

What have we learnt in year 4 and year 5 that could help us solve this problem?
- comparing the three amounts would be easier if we convert them to the same type of unit of measure.
- we can use1000ml = 1 litre to work out other amounts such as 100ml = 0.1 litre and 10ml = 0.01 litre, or 20ml = 0.02 litre.
- when converting millilitres to litres we divide by 1000.
- when converting litres to millilitres we multiply by 1000.
- we can convert fifths to tenths and tenths to a decimal number.
- using a place value chart can support us to multiply and divide by a thousand and to show tenths as a decimal number (for example **$\frac{4}{10}$ = 0.4**).

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths

DAY 3 RESOURCES:

THINK: Our problem is in the textbook on page 255.

My friend says pints are used to measure volume in other countries. If you know that 1 pint is about 568ml can you convert 4 pints into millilitres?

DO: Use what you have learnt today to solve:

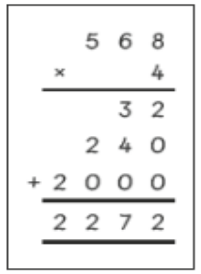
PART 1: Do the questions on page 256 of the textbook.

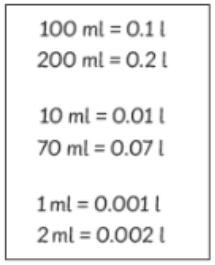
Check your answers below before moving on to:
PART 2: Complete workbook, Chapter 13, Worksheet 7, on pages 166-167. DO NOT DO QUESTION 2C.

SEE: Look the different solutions on pages 255-256 of your textbook.

Before this lesson watch the recap the formal method for year 4 multiplication.

1 pint in millilitres ≈ 568ml
4 pints in millilitres ≈ **4 x 568ml = 2272ml**
Remember the symbol ≈ means 'approximately'





We can convert millilitres to litres using a place value chart to support our division by 1000 or we can use known facts, such as 2ml = 0.002 litres.

2272ml ÷ 1000 = 2.272 litres

Remember when we convert from ml to L we divide by 1000. All our digits move 3 places to the right.

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
2	2	7	2			

A place value chart also helps us to estimate millilitres to the nearest 10ml. Remember; the **ones number** tells us whether to round up or down.

2272ml rounds to 2270ml.

DAY 4 RESOURCES:

THINK: Our problem is in the textbook on page 257.

My friend needs to get 2 pints of milk for his mum but the cartons only come in 500 ml or 250ml.

Can you help him convert the volume?

DO: Use what you have learnt today to solve:

PART 1: Do the questions on page 258 of the textbook.

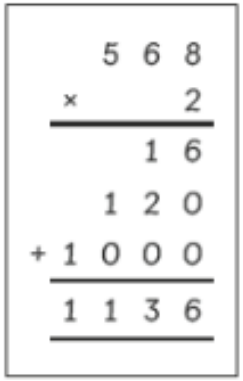
Check your answers below before moving on to:
PART 2: Complete workbook, Chapter 13, Worksheet 8 on page 168.

SEE: Look at the solutions on pages 257-258 of your textbook.

Watch the lesson video.

Before this lesson watch the recap the formal method for year 4 multiplication.

Remember 1 pint in millilitres ≈ 568ml
so 2 pints ≈ 2 x 568ml **(or you could add 568 + 568 = 1136ml)**



We are trying to get 'about 2 pints' using the cartons containing 500ml and 250ml.

500ml + 500ml + 250ml = 1250ml

2 large cartons + 1 small carton of milk would be enough milk if we needed 'about 2 pints'.

Estimating the amounts could help us.
We could round 1 pint of milk to estimate the amount we need.
568ml ≈ 600ml
2 x 600ml = 1200ml (that would be **more than 2 pints,** so that would be more than enough milk).

This would be more useful than rounding the final amount as 1136ml ≈ 1100ml (that would be **less than 2 pints,** so would not be enough).

DAY 5 RESOURCES:

THINK: Our problem is in the textbook on page 259.

Could you find how much mango juice there was at the beginning?

DO: Use what you have learnt today to solve:

PART 1: Do questions 1 and 2 on page 261 of the textbook.

Check your answers below before moving on to:
PART 2: Complete workbook, Chapter 13, Worksheet 9 on pages 169-172.

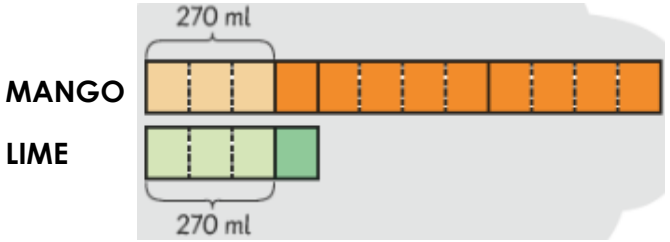
If you find these problems tricky draw the bar models for each question to show how the problems start instead of solving them completely and share those with your teacher.

SEE: Check the solution on page 260 of your textbook.
Watch the lesson video.
Draw a bar model to show the problem.

The first bit of important information is that there is 3 times as much mango juice as lime juice.

In the beginning: Mango juice is 3 times the amount of lime juice.

At the end: **After using 270ml of both juices,** the mango juice was 9 times the amount of lime juice so our mango bar is now made of 270ml + 9 units.



If we divide the mango bar up to show 270ml + 9 units we can see that there were 12 units of mango juice at the start and we can use that to calculate 1 unit.

270 ml = 3 units
1 unit = 270 ÷ 3 = 90, so 1 unit = 90 ml.
12 × 90 ml = 1080 ml = 1 litre 80ml

ANSWERS – part 1:

Day 1	Day 2	Day 3	Day 4	Day 5
Part 1: Q.1: a) 1350ml, b) 810ml, c) 729ml Q.2: a) 9000 cm^3, b) 7 x 5 x 3 =105 cubes	Part 1: Q.1: 1litre 65ml Q.2: 1.136 litre Q.3: 1 litre 750ml (1750ml) Q.4: 3 litre 600ml (3600ml)	Part 1: Q.1: 1140ml Q.2: 430ml	Part 1: Q.1: a) 1 x 500ml and 1 x 250ml b) 8 x 500ml Q.2: 7 x 250ml containers are needed	Part 1: Q.1: Before: 1650ml After: 2200ml Q.2: Before: 2970ml After: 3520ml

ANSWERS – part 2:

Day 1	Day 2	Day 3	Day 4	Day 5
Part 2: Workbook, Q.1: a) 160cm^3, b) 90 cm^3, c) 144cm^3	Part 2: Workbook, Do not do question 2. Question 4 is a deepening question. Q.1: a) 1litre 425ml = 1.425 litres, b) 4litres 300ml, = 4.3 litres c) 2litres 910ml = 2.91litres Q.3: 3a) 1600ml, b) 4005ml, c) 1750ml, d) 3800ml, e) 2075ml, f) 5880ml	Part 2: Workbook, Q.1: a) 3 x 568ml = 1704ml = 1700ml b) 7 x 568ml = 3976ml = 3980ml c) 0.25 x 568ml = 142ml = 140ml Q.2: a) 2.8 litres b) 2.6 litres d) 3.1 litres	Part 2: Workbook, Q.1: a) 29, b) 12, c) 9, d) 6	Part 2: Workbook, Q.1: 150 x 5 = 750 There was 750ml to start with. Q.2: 900ml x 6 = 5400ml = 5 litres 400ml = 5.4 litres Q.3: 80ml x 9 = 720ml There was 720ml to begin with. Q.4: 234ml x 8 = 1872ml She poured 1872ml to begin with.