## Varied Fluency <br> Step 3: Calculate with Metric Measures

## National Curriculum Objectives:

Mathematics Year 6: (6M5) Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
Mathematics Year 6: (6M9) Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

## Differentiation:

Developing Questions to support calculating with metric measurements, using numbers with up to 1 decimal place.
Expected Questions to support calculating with metric measurements, using numbers with up to 3 decimal places sometimes including 1 zero as a place holder, and including halves and quarters as fractions.
Greater Depth Questions to support calculating with metric measurements, using numbers with up to 3 decimal places using a number of zeros as place holders, and including any fractions and percentages.

## More Year 6 Converting Units resources.

Did you like this resource? Don't forget to review it on our website.

## Calculate with Metric

Measures

Calculate with Metric
Measures

| 1a. A programme is on for 1.5 hours. There is a power cut after 39 minutes. |  | 1b. Children are asked to cut a length of ribbon. Oliver's measures 1.2 m . Steven's measures 80 cm . |  |  |
| :---: | :---: | :---: | :---: | :---: |
| How many minutes of the programme will be missed? |  | How many metr have altogether | aterial do the |  |
| ¢ |  | ~ |  |  |
| 2a. Tick the correct statement. |  | 2b. Tick the correct statement. |  |  |
| A. 3 parcels, weighing 400 g each, have a total weight of 1.4 kg . |  | A. 1.3 L of milk and 470 ml of water will overflow a 2L jug. |  |  |
| B. The total weight of a 2.5 kg case and a 2.2 kg bag is under the $4,800 \mathrm{~g}$ limit. |  | B. I can pour 2 L of pop out of five 320 ml bottles. |  |  |
| C. If Tom takes 320 g of flour out of a 1.1 kg bag, he has 680 g left in the bag. |  | C. If Rey pours 840 ml out of a 1.5 L bottle, 660 ml will be left in the bottle. |  |  |
|  |  | ) |  |  |
| 3a. A wedding dress is 2.7 m long. The box to store it in is 245 cm long. |  | 3b. Wilma's suitcase weighs 21.5 kg . She still needs to pack her 600 g hairdryer. |  |  |
| How many centimetres will need to be folded over? |  | How heavy will the case be when she puts the hairdryer inside? |  |  |
|  | vF | W |  |  |
| 4a. The recipe needs: |  | 4b. The different exercises are: |  |  |
| water | 60 ml | star jumps | 7 minutes |  |
|  |  | jogging | 0.5 hours |  |
|  | 0.75 | press ups | 12 minutes |  |
| oil | ml | leg pulls | _ minutes |  |
| The total amount of liquid in this recipe is 820 ml . How much oil is there? |  | The whole workout is 60 minutes long. How long do the leg pulls take? |  |  |
| $\widehat{\sim}$ |  | $\underset{\sim}{\infty}$ |  |  |

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5a. Jenny has 3.35 litres of milk left in the fridge. The porridge needs $\frac{3}{4}$ litres of milk.

How many millilitres of milk will she have left over?

6a. Tick the correct statement.
A. Sally can cut 14 lengths of 0.25 m from a 3m plank of wood.
B. Toby can cut 12 lengths of $\frac{3}{4} \mathrm{~m}$ from a 9 m plank of wood.
C. John can cut 6.5 lengths of 70 cm from a 4m plank of wood.

7a. Daniel has a bath that lasts 1.25 hours. Later that day he showers for 16 minutes.

How many minutes in total does he spend washing himself that day?

8 a . The table shows the weight of some animals at the wildlife park.

| Tiger | Meerkat | Lion | Asian <br> Otter | Indri <br> Lemur |
| :---: | :---: | :--- | :---: | :---: |
| 196 kg | 750 g | $\ldots \mathrm{~kg}$ | $\frac{1}{4} \mathrm{~kg}$ | 9.5 kg |

Their total weight is 566.5 kg . What is the weight of the lion?

5b. Tom has three bags of sugar, each weighing 1.3 kg . He is going to need 2.4 kg to bake his cake orders this week.

How many grams of sugar will he have left over?

6b. Tick the correct statement.
A. We drove for $3 \frac{3}{4}$ hours and had an 18 minute break. The journey took 4 hours.
B. 4 athletes run for 26 minutes each. They run for 1.5 hours in total.
C. Food is ready in 30 minutes. Jay can watch $\frac{1}{4}$ of a 2 hour film before then.

7b. There are 12.75 L of lemonade. Ten tables will each have one jug which holds 750 ml .

How much spare lemonade will there be in millilitres?

8b. The table shows the length of shadows at different times during the day.

| 8 am | 10 am | 12 pm | 2 pm | 4 pm |
| :---: | :---: | :---: | :---: | :---: |
| 1.95 m | 129 cm | $\ldots \mathrm{~m}$ | 124 cm | 1.36 m |

The total length of shadows is 6.73 m . How long is the shadow at 12 pm ?


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9a. A performance lasts for 150 minutes. It is shown four times during the week.

How many hours of performing time are left that week if $45 \%$ of it is already completed?
B. Tim has drunk 2,050ml of water. He must drink 0.05L more to reach his 3L target.
C. If $\mathbf{1 5 \%}$ has been poured out of a full 1.3 L bottle, there will be 1.105 L left.

11a. A large bag of potatoes weighs 6 kg and a box of sugar weighs $\frac{3}{5}$ of the weight of potatoes.

How heavy is the sugar in grams?

12a. Four girls have their hair cut and donate it for wigs.

| Maddie | Niamh | Amy | Eden |
| ---: | :---: | :---: | :---: |
|  |  | $45 \%$ of | $\frac{4}{7}$ of |
| 125 cm | 140 cm |  |  |, 0.120 m.

The total length of hair donated is 182.25 cm . How much hair did Maddie donate?

9b. A running track is 200 m long. The runner in the lead completes $\frac{6}{8}$ of the track before falling.

How much further in km did the runner have left to run?

10b. Tick the correct statement.
A. Tom weighs 43.8 kg . Jane weighs 36.5 kg . Tom is $10 \%$ heavier than Jane.
B. Gary weighed 53.06 kg . He lost $1,070 \mathrm{~g}$ in weight. He now weighs 51.099 kg .
C. A dog weighs 14 kg . A cat weighs $4,000 \mathrm{~g}$. The cat is $\frac{2}{7}$ the weight of the dog.

11b. During a test, children are told they have $40 \%$ of the time left. The test is 1.5 hours long.

How many minutes of the test are left?

12b. Three neighbours make their own wine.

| $\operatorname{Jim}$ | Keith | Trevor |
| :---: | :--- | :--- |
| $76 \%$ of <br> 2 L | $\ldots \mathrm{ml}$ | $\frac{7}{8}$ of <br> 1 L |

$3,440 \mathrm{ml}$ of wine was made in total. How much wine did Keith make?

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## Developing

1a. 51 minutes
2a. B
3a. 25 cm
4a. 10ml
Expected
5a. 2,600ml
6a. B
7a. 91 minutes
8a. 360kg

## Greater Depth

9a. 5.5 hours
10a. C
11a. $3,600 \mathrm{~g}$
12a. 0.34 m

## Developing

1b. 2 m
2b. C
3b. 22.1 kg
4b. 11 mins
Expected
5b. 1,500g
6b. C
7b. $5,250 \mathrm{ml}$
8b. 0.89 m

## Greater Depth

9b. 0.05 km
10b. C
11b. 36 minutes
12b. $1,045 \mathrm{ml}$

