Week 6, Day 4
Imperial measures (2)

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.
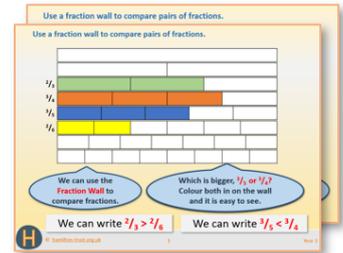
   OR start by carefully reading through the **Learning Reminders**.
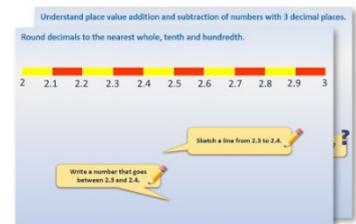
2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.
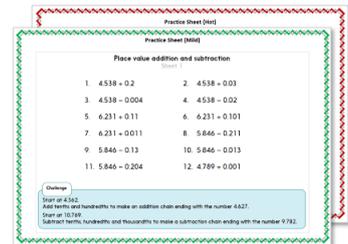
3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**

4. Think you've cracked it? Whizzed through the Practice Sheets?
   Have a go at the **Investigation**…

Learning Reminders

Draw a conversion graph of imperial to metric units and use it to read equivalent measures.

Ounces are an imperial measure, still used sometimes in cooking, as are **pounds**.
People also often report babies' weights in pounds, and one pound is 16 ounces.

Table of approximate conversions of grams to ounces

Grams	Nearest tenth of an ounce
100	3.5
200	7
300	10.6
400	14.1
500	17.6
600	21.2
700	24.7
800	28.2
900	31.7
1000	35.3
1100	38.8
1200	42.3
1300	45.9
1400	49.4
1500	52.9
1600	56.4
1700	60
1800	63.5
1900	67
2000	70.5

What is 60 ounces in pounds and ounces?

And 67 ounces in pounds and ounces?

$60 \div 16 = 3$ r12
So, 60 ounces are 3 pounds and 12 ounces

$67 \div 16 = 4$ r3
So, 67 ounces are 4 pounds and 3 ounces

Learning Reminders

Draw a conversion graph of imperial to metric units and use it to read equivalent measures.

In the table 1.7kg was approximately equal to 60 ounces. Check this on the graph.

Because the relationship between kilograms and ounces is always the same, the graph is a straight line, so we do not need to mark on all the other points.

Can you use the graph to estimate how many kilograms are the same as 100 ounces even though 100 ounces is not on the graph?
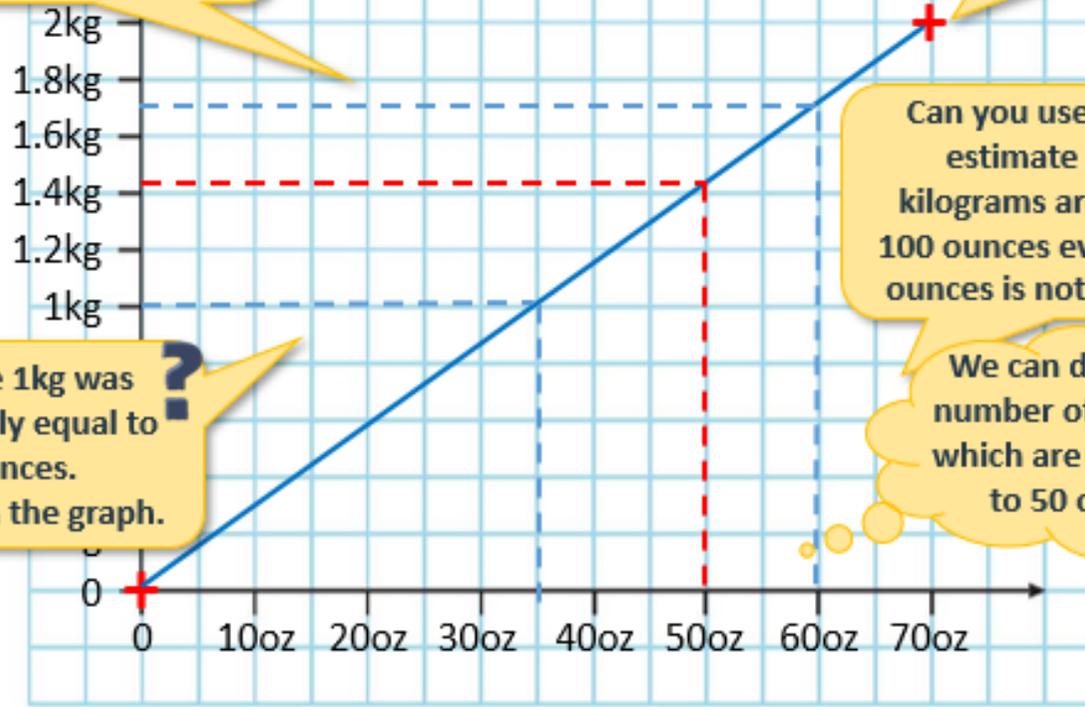
In the table 1kg was approximately equal to 35.3 ounces. Check this on the graph.

We can double the number of kilograms which are equivalent to 50 ounces.

Litres and pints

4 litres is approximately equal to 7 pints.

Use this information to draw a conversion graph up to 12 litres.

Use your graph to convert the following to the nearest half pint:

1.   2 litres
2.   10 litres
3.   12 litres

Use your graph to convert the following to the nearest half litre:

1.   14 pints
2. $10\frac{1}{2}$ pints
3.   1 pint

Challenge

A 'gallon' is equal to 4544ml. How many pints in a gallon?

Converting imperial units

Centimetres and inches

2.5cm is approximately equal to one inch.

Use this information to draw a conversion graph up to 25cm.

Measure your hand span, length of your shortest finger, length of your longest finger, wrist circumference and hand length (wrist to middle finger tip) to the nearest centimetre.

Use your graph to estimate each distance to the nearest $\frac{1}{2}$ inch.

Challenge

Bob Beamon's world record long jump, set in 1968, stood for almost 23 years.
At 29 feet $2\frac{1}{2}$ inches, it broke the previous record by about 22 inches!
How far was the jump in metres and centimetres?

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Practice Sheets Answers

Converting imperial units (mild)

Litres and pints
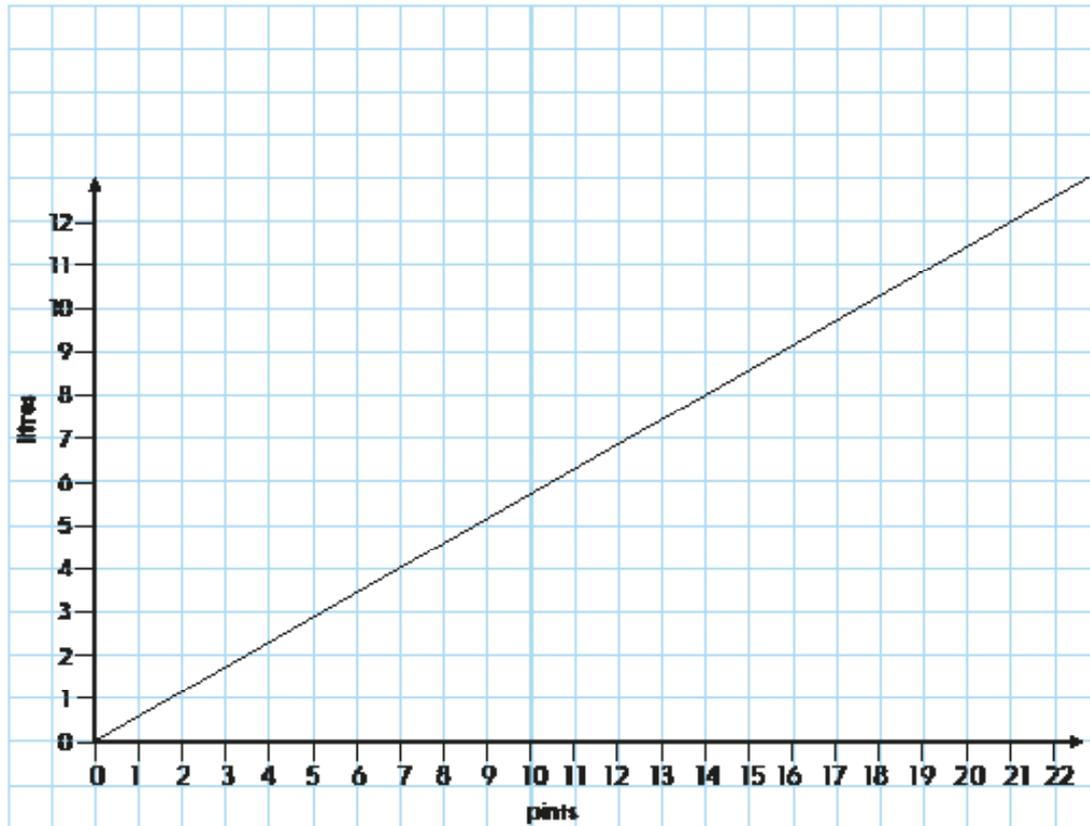
1. $3\frac{1}{2}$ pints
2. $17\frac{1}{2}$ pints
3. 21 pints

1. 8 litres
2. 6 litres
3. 0.5 litres

Challenge

There are 8 pints in a gallon.

Practice Sheets Answers

Converting imperial units (hot)

Centimetres and inches
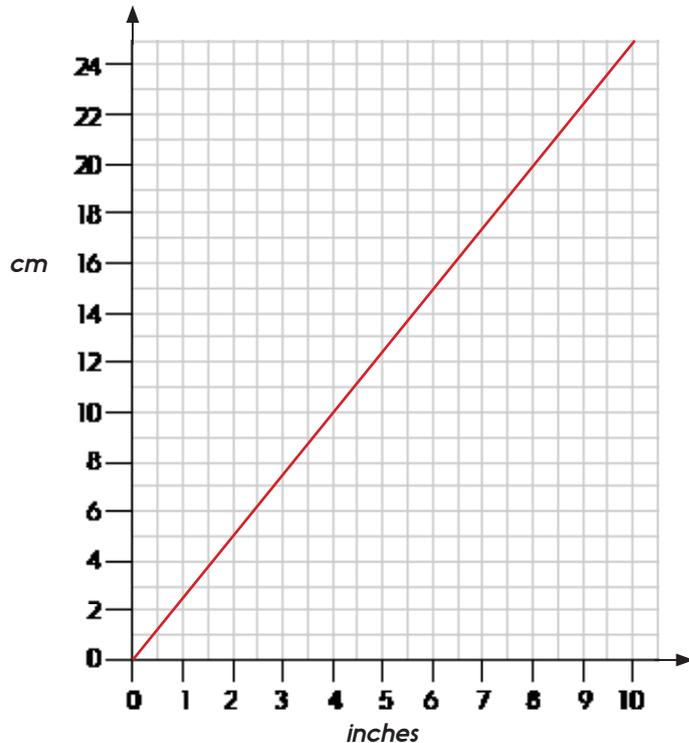
Children use their graphs to estimate the measurements to the nearest half inch of their hand span, length of their shortest finger, length of their longest finger, wrist circumference and hand length (wrist to middle finger tip).

Challenge

Using our conversion of 1 inch = 2.5 cm, the long jump measuring 29 feet $2\frac{1}{2}$ inches (350.5 inches) is equal to 8m 75 cm. Have children mark out this distance and try to jump it!

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A Bit Stuck?
A special cake
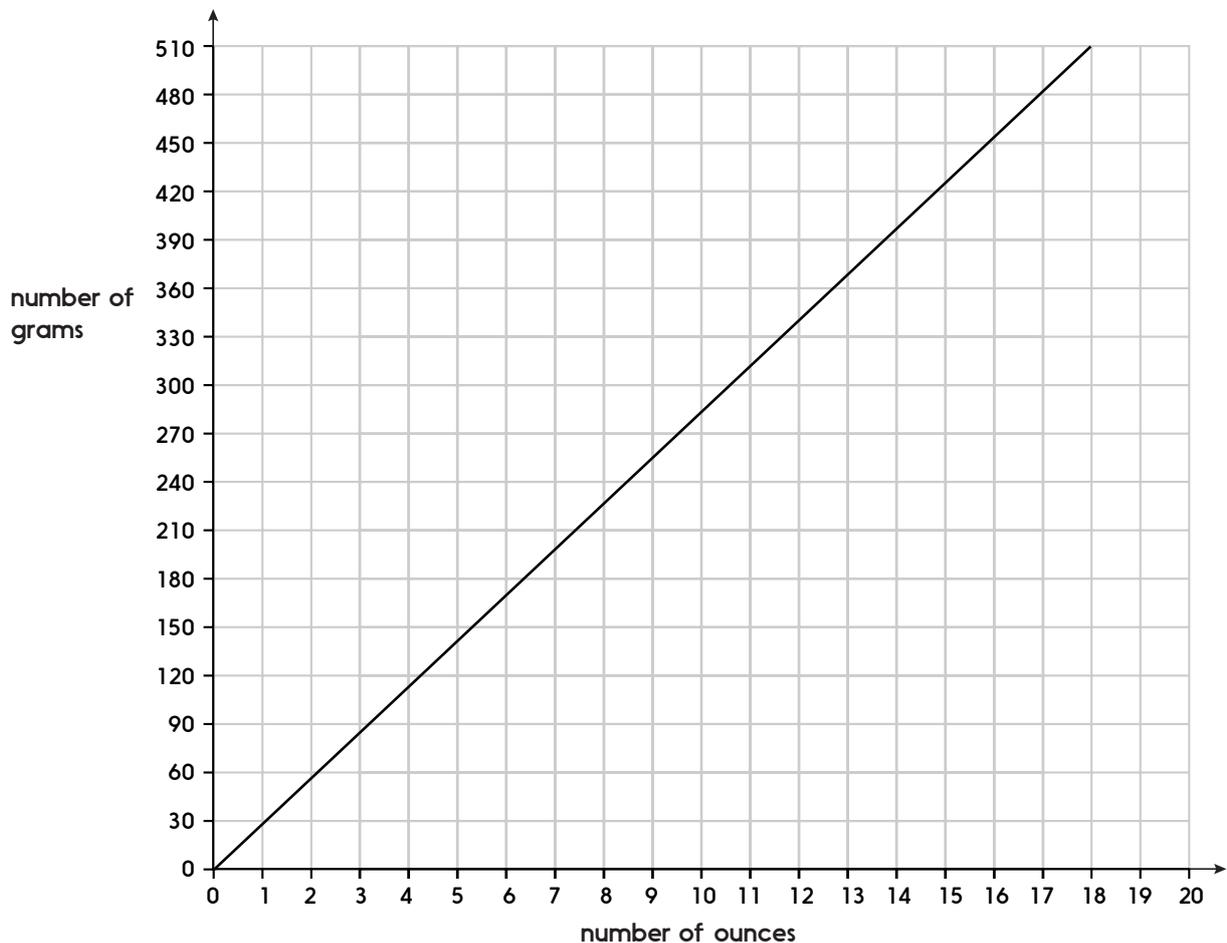
Here are the ingredients for a special cake:

1 lb self-raising flour
9 oz sultanas
7 oz raisins
6 oz currants
5 oz mixed peel
4 oz glace cherries
3 oz ground almonds
$5\frac{1}{2}$ oz butter
$4\frac{1}{2}$ oz brown sugar
14 oz icing sugar

Use the graph to find the approximate number of grams needed for each ingredient.

Challenge

If you made 6 cakes how much of each ingredient would be needed?

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A Bit Stuck? Answers

A special cake

1 lb self-raising flour	460g
9 oz sultanas	255g
7 oz raisins	200g
6 oz currants	170g
5 oz mixed peel	140g
4 oz glace cherries	110g
3 oz ground almonds	85g
5.5 oz butter	160g
4.5 oz brown sugar	130g
14 oz icing sugar	400g

Challenge

If you made 6 cakes how much of each ingredient would be needed?
Have the children accurately multiplied each of their measurements by 6?
e.g.

self-raising flour	2760g or 2.76 kg
sultanas	1530g or 1.53 kg
raisins	1200g or 1.20 kg
currants	1020g or 1.02 kg
mixed peel	840g
glace cherries	660g
ground almonds	510g
butter	960g
brown sugar	780g
icing sugar	2400g or 2.4 kg

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Investigation
Weights in a line

1. You have two weights – 1 gram and 5 gram.

2. Find out how many possible ways there are of making each total weight from 1 to 20 grams. You will need to list these in a logical order to be sure that you have them all. Once you have established a really clear order, divide the work between you.

   $6g = 1g + 1g + 1g + 1g + 1g + 1g$
   or $5g + 1g$
   $7g =$

3. Complete the table on the sheet (Table A).

4. Use the information in the table to complete Table B.

5. Imagine that you have two weights, this time a 1 gram and a 2 gram.

6. Find out how many possible ways there are to make each total weight.

7. Complete the two tables on the sheet.

   Discuss what you notice about the patterns in each table.

8. Plot the first Table B on a line graph. (The total weights are along the x axis and the number of ways up the y axis.) You will need to be very accurate!

9. Join the points – is it a straight line? Discuss the graph. Can you use it to predict how many ways there would be to make a total weight of 50 grams? Of 100 grams?

10. Plot the second Table B on a line graph in the same way. You will need to be really accurate!

11. Can you make a straight line? Discuss this graph – can you use it to make predictions? If so, how?

Investigation
Weights in a line

Table A: Two weights: 1g and 5g

Total weight	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. of ways																				

Table B: Two weights: 1g and 5g

Total weight	5	10	15	20	25	30	35
No. of ways							

Table A: Two weights: 1g and 2g

Total weight	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. of ways																				

Table B: Two weights: 1g and 2g

Total weight	5	10	15	20	25	30	35
No. of ways							

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Investigation
Weights in a line