Fractions on a number line

1 Draw an arrow to show the fractions on the number lines.

a) $\frac{1}{2}$

0 ————————————— 1

b) $\frac{1}{3}$

0 ————————————— 1

c) $\frac{1}{4}$

0 ————————————— 1

Are your answers accurate or are they estimates?

2 Write <, > or = to compare the fractions.

a) $\frac{1}{2}$ ◯ $\frac{1}{4}$

b) $\frac{1}{4}$ ◯ $\frac{1}{3}$

c) $\frac{1}{3}$ ◯ $\frac{1}{2}$

4 Draw an arrow to estimate where each fraction belongs on the number line.

a) $\frac{3}{4}$

0 ————————————— 1

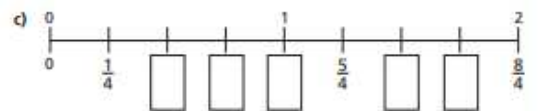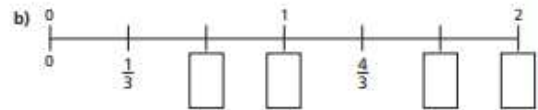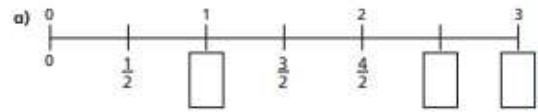b) 1 and $\frac{2}{3}$

0 ——————— 1 ——————— 2

5 Write each fraction under the correct heading.

$\frac{2}{3}$ $\frac{4}{4}$ $\frac{5}{3}$ $\frac{1}{8}$ $\frac{3}{3}$

$\frac{3}{4}$ $\frac{7}{4}$ $\frac{8}{8}$ $\frac{7}{8}$

Less than one whole	Equal to one whole	More than one whole

3 Write the missing fractions on the number lines.

a) 0 ——— 1 ——— 2 ——— 3

0   $\frac{1}{2}$ ☐ $\frac{3}{2}$ $\frac{4}{2}$ ☐   ☐

b) 0 ——— 1 ——— 2

0   $\frac{1}{3}$ ☐   ☐ $\frac{4}{3}$ ☐   ☐

c) 0 ——— 1 ——— 2

0   $\frac{1}{4}$ ☐   ☐   ☐ $\frac{5}{4}$ ☐   ☐ $\frac{8}{4}$

d) Write three fractions that are equivalent to one whole.
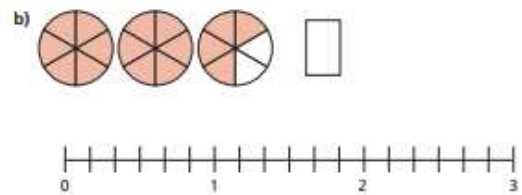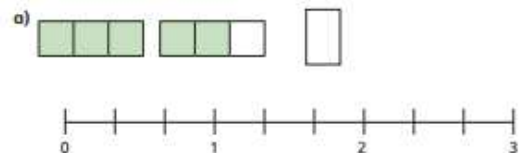Use the number lines to help you.

☐ ☐ ☐

What do you notice?

_____

_____
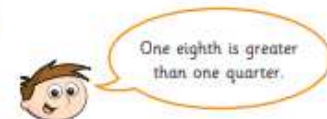
Talk about it with a partner.

6 What fraction is shown in each diagram?
Draw an arrow to show the fraction on the number line.

a)

0 —+—+—+—+—+—+—+—+—+— 3
    1   2   3

b)

0 +++++++++++++++++++ 3
    1   2   3

7

One eighth is greater than one quarter.

Do you agree with Teddy? _____

Use the number line to show why.

0 ————————————— 1

Fractions of a set of objects (1)
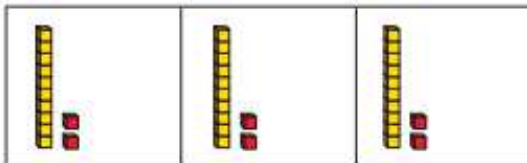
1 Here are some counters.

a) Circle $\frac{1}{4}$ of the counters.

b) How many counters did you circle? ☐

c) What is $\frac{1}{4}$ of 12? ☐

2 Draw counters in the bar models to help you complete each number sentence. The first one has been done for you.

a) $\frac{1}{2}$ of 8 = 4

b) $\frac{1}{2}$ of 16 = ☐

c) $\frac{1}{4}$ of 8 = ☐

d) $\frac{1}{4}$ of 16 = ☐

5 Huan uses a bar model and base 10 to find $\frac{1}{3}$ of 36

Use Huan's method to complete the calculations.

a) $\frac{1}{3}$ of 63 = ☐

c) $\frac{1}{4}$ of 92 = ☐

b) $\frac{1}{4}$ of 48 = ☐

6 Nijah uses a bar model and place value counters to find $\frac{1}{3}$ of 36

Use Nijah's method to complete the calculations.

a) $\frac{1}{3}$ of 96 = ☐

c) $\frac{1}{4}$ of 52 = ☐

b) $\frac{1}{5}$ of 60 = ☐

7 Which amount is greater? Tick your answer.

| $\frac{1}{3}$ of £75 | or | $\frac{1}{5}$ of £75 |

Show your workings.

3 To find a half I need to divide by 2

Do you agree with Dexter? _____

Talk about it with a partner.

4 Complete the table.

Fraction	Division	Example	Drawing
one half	divide by 2	$\frac{1}{2}$ of 6 = 3	
one quarter		$\frac{1}{4}$ of 8 = 2	

8 Complete the number sentences.

a) $\frac{1}{2}$ of ☐ = 30

c) $\frac{1}{5}$ of ☐ = 50

b) $\frac{1}{4}$ of ☐ = 20

9 Rosie, Amir and Alex each find a fraction of 24 using counters.

Rosie: I have $\frac{1}{6}$ of 24

Amir: I have $\frac{1}{3}$ of 24

Alex: I have 6 counters.

a) Order the children from least counters to most counters.

_____   _____   _____

least counters   most counters

b) What fraction of the counters does Alex have? ☐

c) Rosie and Amir put their counters together.
Write their total number of counters as a fraction of 24 ☐

Fractions of a set of objects (2)

1 Draw counters in the bar models to help you complete each number sentence.

a) $\frac{2}{3}$ of 15 = ☐

b) $\frac{3}{4}$ of 8 = ☐

c) $\frac{2}{5}$ of 20 = ☐

2 Match the questions and answers.

$\frac{2}{3}$ of 9 = ?	9
$\frac{1}{5}$ of 15 = ?	6
$\frac{5}{6}$ of 12 = ?	15
$\frac{3}{4}$ of 20 = ?	10

3 What is $\frac{5}{6}$ of 18?   ☐

How do you know?

6 Complete the number sentences.

a) $\frac{2}{3}$ of ☐ = 30

b) $\frac{3}{4}$ of ☐ = 30

c) $\frac{5}{6}$ of ☐ = 30

7

Tommy: To find $\frac{3}{4}$ of 12, you divide by 4 and then multiply the answer by 3

Dexter: To find $\frac{3}{4}$ of 12, you divide by 3 and then multiply the answer by 4

Who is correct? _____
How do you know? Show your working.

4 Brett uses a bar model and base 10 to find $\frac{2}{3}$ of 36
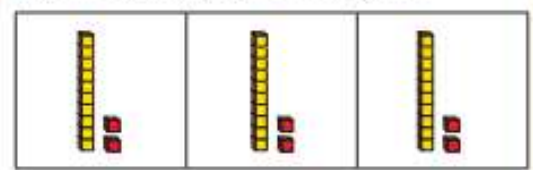
Use Brett's method to complete the number sentences.

a) $\frac{2}{3}$ of 63 = ☐

b) $\frac{1}{4}$ of 48 = ☐

c) $\frac{3}{4}$ of 92 = ☐

5 Kim uses a bar model and place value counters to find $\frac{2}{3}$ of 36

Use Kim's method to complete the number sentences.

a) $\frac{2}{3}$ of 96 = ☐

b) $\frac{3}{5}$ of 60 = ☐

c) $\frac{3}{4}$ of 52 = ☐

8 Dora, Whitney and Ron each find a fraction of 24 using counters.

Dora: I have $\frac{5}{6}$ of 24

Whitney: I have $\frac{2}{3}$ of 24

Ron: I have 18 counters.

a) Who has the most counters? Show your workings.

_____

b) How many more counters does Dora have than Whitney?   ☐

9 Write fractions to make the statements correct.

☐ of 36 < 18

☐ of 36 = 18

☐ of 36 > 18

How many different answers can you find for each? Compare with a partner.

Fractions of a set of objects (3)

White Rose Maths

1 In a class of 32 children, three eighths are girls.

How many children are boys?

2 Alex is taking part in a 10 km race.

10 km

$\frac{2}{5}$

She has run two fifths of the race.

What distance does she have left to run?   km

3 Filip has £3 and 20p.

He spends half of his money.

How much does he have left?   £   and   p

4 Teddy opens a bag of cherries and puts $\frac{1}{2}$ on a plate.
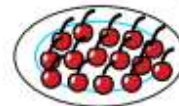
How many cherries were there in the whole bag?

5 Ron has £4 and 50p.

He decides to share the money equally between himself and his two sisters.

How much money will each child get?

£   and   p

6 A bag of potatoes weighs 500 g.

Annie's dad uses one quarter of the potatoes to make a shepherd's pie.

500 g
Potatoes

What is the mass of the potatoes left in the bag?

g

7 Dexter spends one third of his money.

He has these coins left.

How much did Dexter spend?

£   and   p

8 Eva has a bag of 20 sweets.

She eats $\frac{1}{4}$ of the sweets.

She gives $\frac{1}{5}$ of the sweets that are left to Dora and 2 sweets to her mum.

How many sweets does Eva have left?

9 Whitney has a box of raisins.

She eats $\frac{1}{4}$ of the raisins and gives 3 to her brother.

She has 9 raisins left.

How many raisins were in the box at the start?

10 Here is a rectangle.

The perimeter of the rectangle is less than 30 cm.
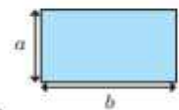
Side a is one half of the length of side b.

a

b

a) Complete the table to show the different possible integer lengths of side a and side b.

Length of side a	Length of side b	Perimeter
1 cm	2 cm	6 cm

b) What are the longest possible integer lengths of side a and b?

side a _____

side b _____

c)

I think a can be 5 cm.

Talk to a partner about why Dexter is wrong.

Equivalent fractions (1)

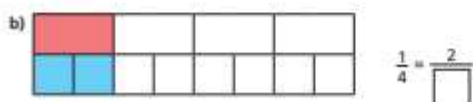**1** Shade the bar models to represent the fractions.

a) Shade $\frac{1}{2}$ of the bar model.
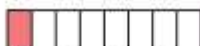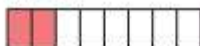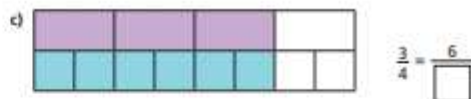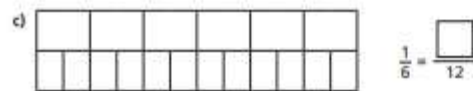
b) Shade $\frac{2}{4}$ of the bar model.
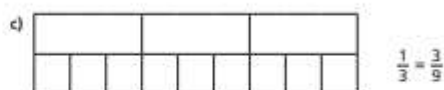
What do you notice?

2 Complete the equivalent fractions.
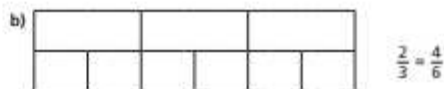
a)

$\frac{1}{2} = \frac{\square}{8}$

b)

$\frac{1}{4} = \frac{2}{\square}$

4 Match each bar model to its equivalent fraction.

$\frac{1}{2}$

$\frac{1}{3}$

$\frac{1}{4}$

$\frac{1}{8}$

5 Shade the bar models to complete the equivalent fractions.

a)

$\frac{1}{2} = \frac{\square}{12}$

b)

$\frac{1}{3} = \frac{\square}{12}$

c)

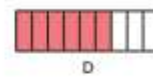$\frac{1}{6} = \frac{\square}{12}$

c)

$\frac{3}{4} = \frac{6}{\square}$

3 Shade the bar models to represent the equivalent fractions.

a)

$\frac{1}{3} = \frac{2}{6}$

b)

$\frac{2}{3} = \frac{4}{6}$

c)

$\frac{1}{3} = \frac{3}{9}$

d)

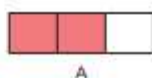$\frac{2}{3} = \frac{6}{9}$
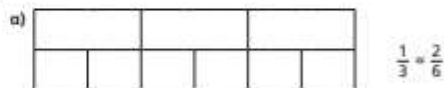
Can you find any more equivalent fractions using the bar models?

6 The bar models represent fractions.

A

C

B

D
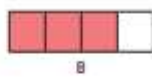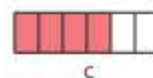
Which is the odd one out? _____

Why do you think this?

7 This bar model represents $\frac{3}{4}$

Tick the bar models that can be used to show a fraction that is equivalent to $\frac{3}{4}$

Shade the bar models to support your answers.

☐

☐

☐

Talk to a partner about your answers.