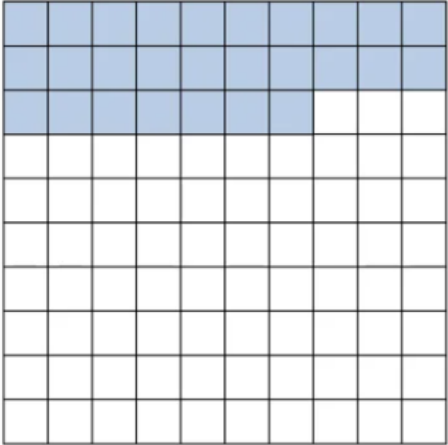## Year 4 Maths

Fractions – Including Equivalent Fractions

Day 1 – Equivalent Fractions

Follow the link below to a lesson all about tenths and hundredths.

Recognise tenths and hundredths

I square out of 100 is shaded blue.

The blue square represents $\frac{1}{100}$

$\underline{27}$ squares out of 100 are shaded blue.
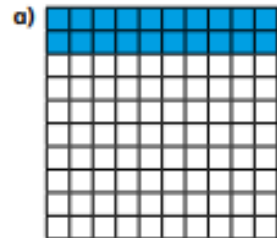
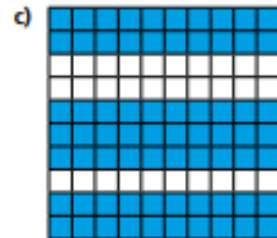The blue squares represent $\frac{27}{100}$
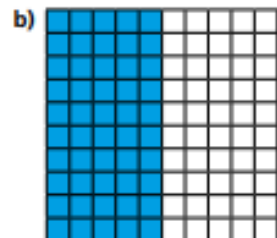
https://vimeo.com/418164979

Now have a go Day's questions

Day 1

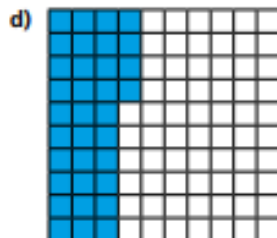**Recognise tenths and hundredths**

1 The hundred square represents 1 whole.

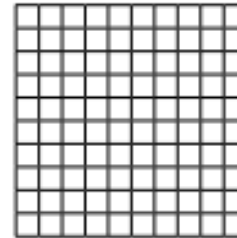What fraction of each hundred square is shaded?

a)

b)

c)

d)

2 Here is a hundred square.

What fraction of the whole does each represent?

a) 4 full rows =

b) 6 full columns =

c) 13 squares =

d) 2 full rows and 5 squares =

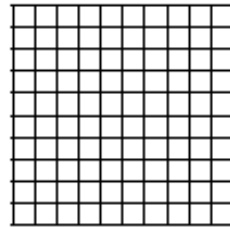e) 3 full columns and 8 squares =

3 Complete the sentences.

a) 4 tenths is equivalent to ☐ hundredths.

b) 70 hundredths is equivalent to ☐ tenths.

c) 5 tenths is equivalent to ☐ hundredths or 1 ☐

4

One row is one tenth and one column is one tenth, so if I colour one row and one column on my hundred square I will have shown 2 tenths.
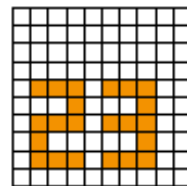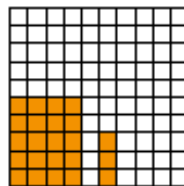
Is Dexter correct? ☐

Explain your answer.

You may use the hundred square to help you.

5 Tick the hundred squares with $\frac{23}{100}$ shaded.
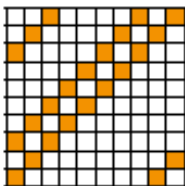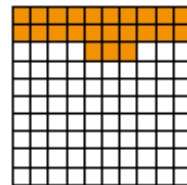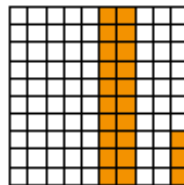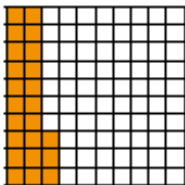
☑ ☑

☑ ☑

☑

☑

6 Complete the part-whole models.

a)
$\frac{23}{100}$
$\frac{2}{10}$ ☐

c)
☐
$\frac{3}{10}$ $\frac{9}{100}$

b)
$\frac{47}{100}$
☐ $\frac{7}{100}$

d)
$\frac{20}{100}$
$\frac{2}{10}$ ☐

7

$\frac{73}{100} = \frac{7}{10} + \frac{3}{100}$ $\frac{73}{100} = \frac{6}{10} + \frac{13}{100}$

Annie   Ron
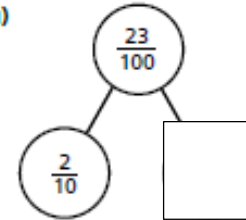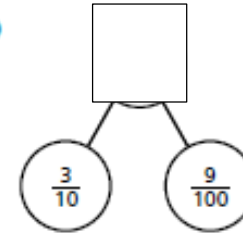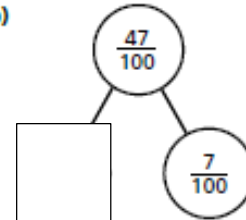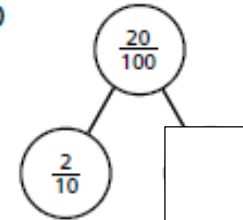
Who is correct? _____

How many ways can you partition $\frac{73}{100}$?

Day 2 – Equivalent Fractions

Follow the link below to a lesson all about tenths and hundredths.

$$\frac{1}{6} = \frac{2}{12}$$

Have a go ⏸

https://vimeo.com/418154458

Now have a go Day's questions

Day 2

Equivalent fractions (1)

White Rose Maths

1 Shade the bar models to represent the equivalent fractions.

a)

| $\frac{1}{2}$ | $\frac{1}{2}$ |

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |

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

b)

| $\frac{1}{2}$ | $\frac{1}{2}$ |

| $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ |

$\frac{1}{2} = \frac{5}{10}$

c)

| $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ |

| $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ |

$\frac{4}{5} = \frac{8}{10}$

d)

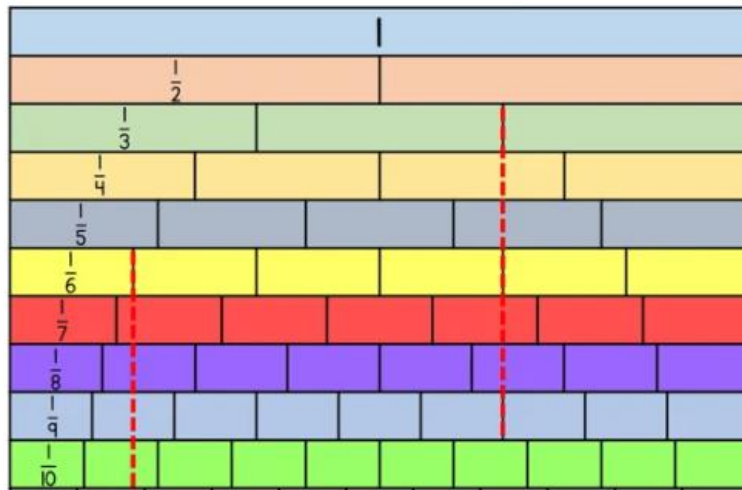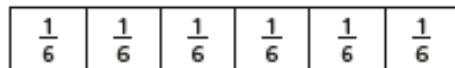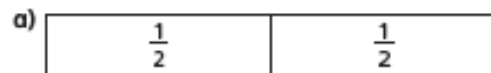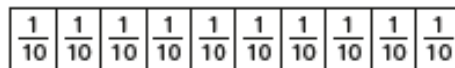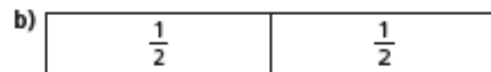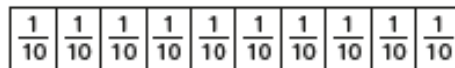| $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ |

| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |

$\frac{6}{8} = \frac{3}{4}$

2 Use the fraction wall to complete the equivalent fractions.

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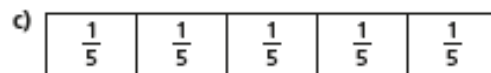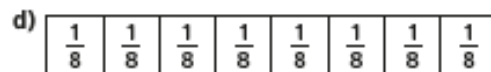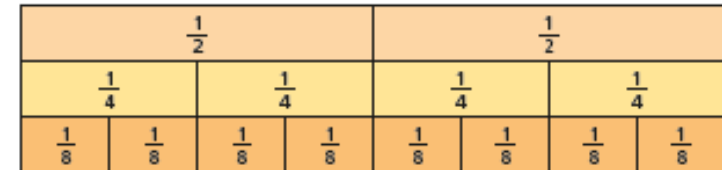
a) $\frac{1}{2} = \frac{\square}{4}$

c) $\frac{2}{4} = \frac{4}{\square}$

e) $\frac{\square}{8} = \frac{3}{4}$

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

d) $\frac{2}{8} = \frac{\square}{4}$

f) $\frac{2}{2} = \frac{\square}{4} = \frac{\square}{8}$

3 a) Label the fractions on the fraction wall.

1		
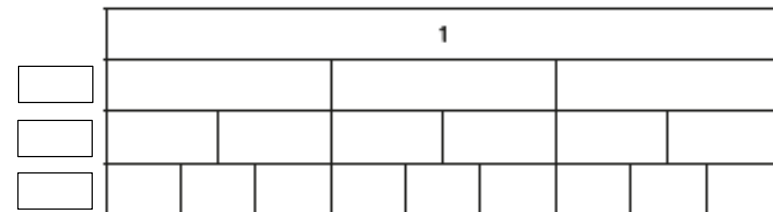
b) Use the fraction wall to complete the equivalent fractions.

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

$\frac{\square}{3} = \frac{4}{\square} = \frac{6}{9}$

$\frac{3}{\square} = \frac{6}{\square} = \frac{9}{\square} = 1$

4 Here is a fraction wall.

$\frac{1}{2}$			$\frac{1}{2}$		
$\frac{1}{3}$		$\frac{1}{3}$		$\frac{1}{3}$	
$\frac{1}{4}$	$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

Is each statement true or false? Tick your answers.

	True	False	
a) $\frac{1}{2}$ is equivalent to $\frac{3}{6}$	☐	☐	✔
b) $\frac{2}{3}$ is equivalent to $\frac{3}{4}$	☐	☐	✔
c) $\frac{2}{4}$ is equivalent to $\frac{3}{6}$	☐	☐	✔
d) $\frac{2}{3}$ is equivalent to $\frac{4}{5}$	☐	☐	✔
e) $\frac{2}{3}$ is equivalent to $\frac{4}{6}$	☐	☐	✔
f) $\frac{3}{5}$ is equivalent to $\frac{4}{6}$	☐	☐	✔

Write your own equivalent fractions statements.

Ask a partner to say if they are true or false.

5 Are the statements always, sometimes or never true?

Circle your answer.

Draw a diagram to support your answer.

a) The greater the numerator, the greater the fraction.

always   sometimes   never

b) Fractions equivalent to one half have even numerators.

always   sometimes   never

c) If a fraction is equivalent to one half, the denominator will be double the numerator.

always   sometimes   never

Day 3 – Equivalent Fractions

Follow the link below to a lesson all about tenths and hundredths.

$$\frac{1}{6} = \frac{3}{8}$$

https://vimeo.com/418154572
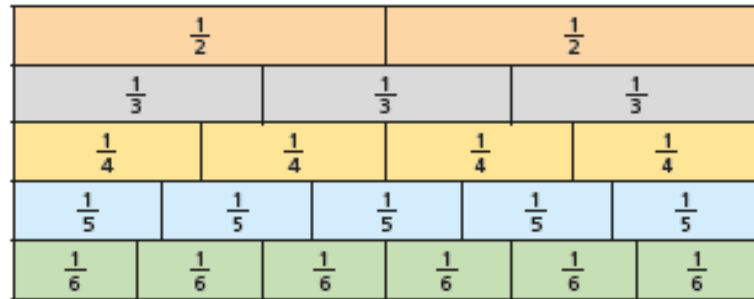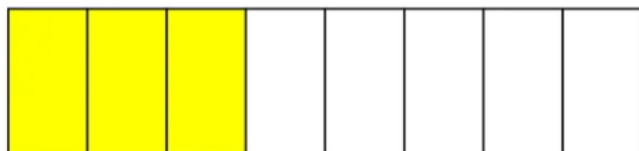
Now have a go Day's questions

Day 3

Equivalent fractions (2)

White Rose Maths

1 Shade the diagrams to help you complete the equivalent fractions.

The first one has been done for you.

a)

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

b)

$\frac{1}{2} = \frac{\boxed{}}{\boxed{}}$

c)

$\frac{1}{4} = \frac{\boxed{}}{\boxed{}}$

2 Draw a diagram to show that $\frac{3}{4} = \frac{6}{8}$

3 Match the equivalent fractions.

$\frac{1}{4}$		$\frac{3}{21}$
$\frac{4}{10}$		$\frac{2}{3}$
$\frac{10}{15}$		$\frac{2}{5}$
$\frac{1}{7}$		$\frac{3}{12}$

4 Complete the equivalent fractions.

a) $\frac{1}{5} = \frac{\boxed{}}{10}$

b) $\frac{4}{5} = \frac{\boxed{}}{10}$

c) $\frac{3}{10} = \frac{6}{\boxed{}}$

d) $\frac{3}{10} = \frac{9}{\boxed{}}$

e) $\frac{6}{8} = \frac{3}{\boxed{}}$

f) $\frac{8}{12} = \frac{\boxed{}}{3}$

g) $\frac{8}{12} = \frac{2}{\boxed{}}$

h) $\frac{2}{\boxed{}} = \frac{10}{25}$

i) $\frac{1}{\boxed{}} = \frac{4}{28}$

© White Rose Maths 2019

5 a) Write the fractions in the correct place on the sorting diagram.

$\frac{8}{24}$ $\frac{3}{12}$ $\frac{5}{15}$ $\frac{6}{24}$ $\frac{4}{12}$ $\frac{9}{36}$ $\frac{3}{9}$ $\frac{4}{16}$

	equivalent to $\frac{1}{3}$	equivalent to $\frac{1}{4}$
odd denominator		
even denominator		

b) Are any of the boxes empty?

Why do you think this is?

Talk about your answer with a partner.

6 Find three ways to make the fractions equivalent.

a) $\frac{2}{\boxed{}} = \frac{4}{\boxed{}}$ $\frac{2}{\boxed{}} = \frac{4}{\boxed{}}$ $\frac{2}{\boxed{}} = \frac{4}{\boxed{}}$

b) $\frac{1}{\boxed{}} = \frac{4}{\boxed{}}$ $\frac{1}{\boxed{}} = \frac{4}{\boxed{}}$ $\frac{1}{\boxed{}} = \frac{4}{\boxed{}}$

c) $\frac{\boxed{}}{3} = \frac{\boxed{}}{9}$ $\frac{\boxed{}}{3} = \frac{\boxed{}}{9}$ $\frac{\boxed{}}{3} = \frac{\boxed{}}{9}$

7 Eva and Ron have a baguette each.

The baguettes are the same size.

Eva cuts her baguette into 8 equal pieces.
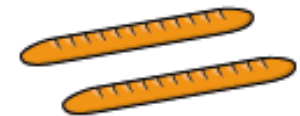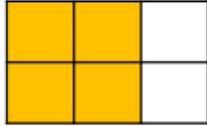
3 of my equal pieces are equal to 6 of Eva's.

How many equal pieces has Ron cut his baguette into?
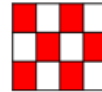
Ron has cut his baguette into ☐ equal pieces.

Reasoning and problem solving questions

1. Explain how the diagram shows both $\frac{2}{3}$ and $\frac{4}{6}$
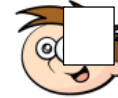
Answer here

2. Which is the odd one out? Explain why

Answer here

3. Teddy makes this fraction:

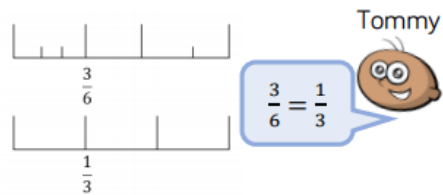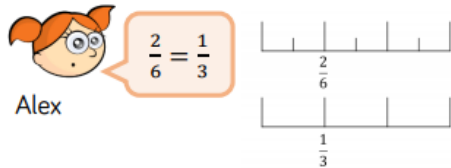Mo says he can make an equivalent fraction with a denominator of 9

Dora disagrees. She says it can't have a denominator of 9 because the denominator would need to be double 3

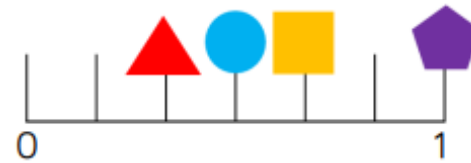Who is correct? Who is incorrect? Explain why.

Answer here

4. Alex and Tommy are using number lines to explore equivalent fractions.

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

$\frac{2}{6}$

$\frac{1}{3}$

Tommy

$\frac{3}{6}$

$\frac{1}{3}$

Tommy: $\frac{3}{6} = \frac{1}{3}$

Who do you agree with? Explain why.

Answer here

5.

0   1

Use the clues to work out which fraction is being described for each shape.

- My denominator is 6 and my numerator is half of my denominator.
- I am equivalent to $\frac{4}{12}$
- I am equivalent to one whole
- I am equivalent to $\frac{2}{3}$

Can you write what fraction each shape is worth? Can you record an equivalent fraction for each one?
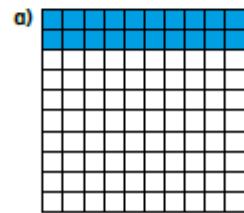
▲ = ☐   ■ = ☐

● = ☐   ⬟ = ☐

ANSWERS

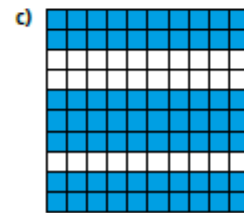## Recognise tenths and hundredths

White Rose Maths
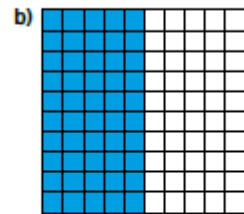
1 The hundred square represents 1 whole.

What fraction of each hundred square is shaded?

a)

$\frac{1}{5}$

c)

$\frac{7}{10}$

b)

$\frac{1}{2}$

d)
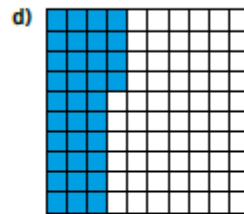
$\frac{17}{50}$

2 Here is a hundred square.
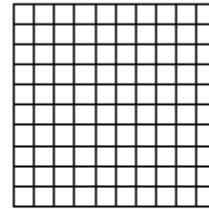
What fraction of the whole does each represent?

a) 4 full rows = $\frac{2}{5}$

b) 6 full columns = $\frac{3}{5}$

c) 13 squares = $\frac{13}{100}$

d) 2 full rows and 5 squares = $\frac{1}{4}$

e) 3 full columns and 8 squares = $\frac{19}{50}$

3 Complete the sentences.

a) 4 tenths is equivalent to 40 hundredths.

b) 70 hundredths is equivalent to 7 tenths.

c) 5 tenths is equivalent to 50 hundredths or 1 half

4

One row is one tenth and one column is one tenth, so if I colour one row and one column on my hundred square I will have shown 2 tenths.

Is Dexter correct? _No_

Explain your answer.

You may use the hundred square to help you.

There would only be 19 squares shaded.

_____
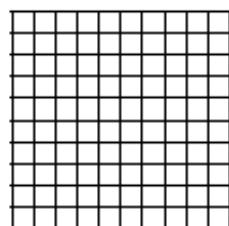
5 Tick the hundred squares with $\frac{23}{100}$ shaded.
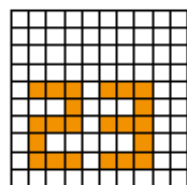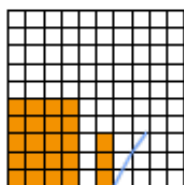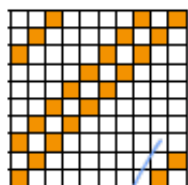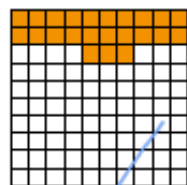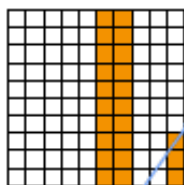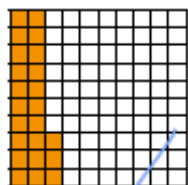
6 Complete the part-whole models.

a)

$\frac{23}{100}$

$\frac{2}{10}$ $\frac{3}{100}$

c)

$\frac{39}{100}$

$\frac{3}{10}$ $\frac{9}{100}$

b)

$\frac{47}{100}$

$\frac{4}{10}$ $\frac{7}{100}$

d)

$\frac{20}{100}$

$\frac{2}{10}$ $\frac{0}{100}$

7

$\frac{73}{100} = \frac{7}{10} + \frac{3}{100}$

$\frac{73}{100} = \frac{6}{10} + \frac{13}{100}$

Annie   Ron
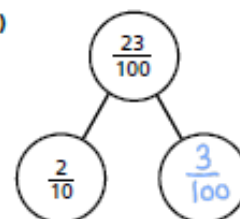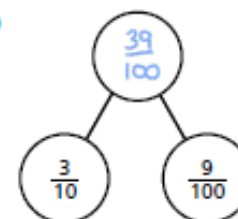
Who is correct? _Both_

How many ways can you partition $\frac{73}{100}$?

Equivalent fractions (1)

White Rose Maths

1 Shade the bar models to represent the equivalent fractions.

a)

$\frac{1}{2}$	$\frac{1}{2}$

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

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

b)

$\frac{1}{2}$	$\frac{1}{2}$

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

$\frac{1}{2} = \frac{5}{10}$

c)

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$

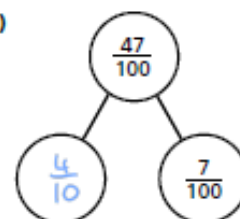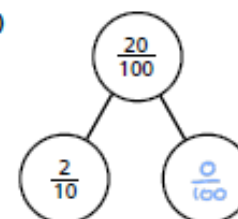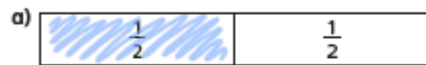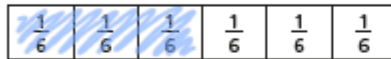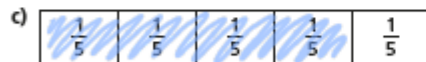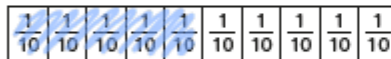| $\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

$\frac{4}{5} = \frac{8}{10}$

d)

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

$\frac{6}{8} = \frac{3}{4}$

2 Use the fraction wall to complete the equivalent fractions.

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

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

c) $\frac{2}{4} = \frac{4}{8}$

e) $\frac{6}{8} = \frac{3}{4}$

b) $\frac{1}{2} = \frac{4}{8}$

d) $\frac{2}{8} = \frac{1}{4}$

f) $\frac{2}{2} = \frac{4}{4} = \frac{8}{8}$

3 a) Label the fractions on the fraction wall.

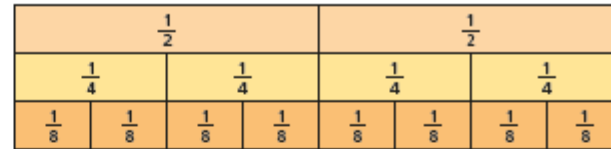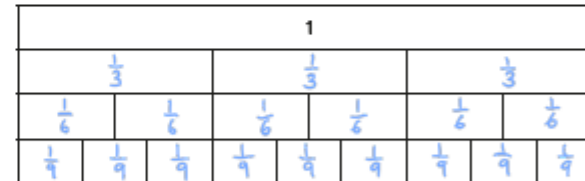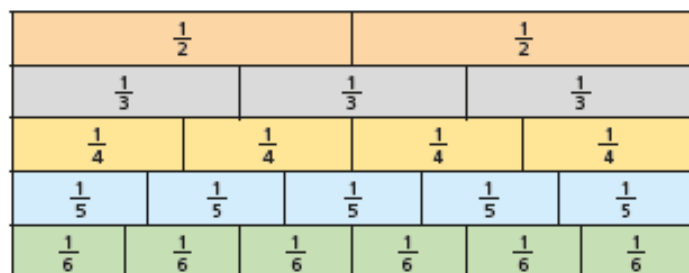| 1								
$\frac{1}{3}$			$\frac{1}{3}$			$\frac{1}{3}$		
$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$ ... $\frac{1}{6}$
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$

b) Use the fraction wall to complete the equivalent fractions.

$\frac{1}{3} = \frac{2}{6} = \frac{3}{9}$

$\frac{2}{3} = \frac{4}{6} = \frac{6}{9}$

$\frac{3}{3} = \frac{6}{6} = \frac{9}{9} = 1$

4 Here is a fraction wall.

$\frac{1}{2}$			$\frac{1}{2}$		
$\frac{1}{3}$		$\frac{1}{3}$		$\frac{1}{3}$	
$\frac{1}{4}$	$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$		$\frac{1}{5}$
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

Is each statement true or false? Tick your answers.

	True	False
a) $\frac{1}{2}$ is equivalent to $\frac{3}{6}$	✓	☐
b) $\frac{2}{3}$ is equivalent to $\frac{3}{4}$	☐	✓
c) $\frac{2}{4}$ is equivalent to $\frac{3}{6}$	✓	☐
d) $\frac{2}{3}$ is equivalent to $\frac{4}{5}$	☐	✓
e) $\frac{2}{3}$ is equivalent to $\frac{4}{6}$	✓	☐
f) $\frac{3}{5}$ is equivalent to $\frac{4}{6}$	☐	✓

Write your own equivalent fractions statements.

Ask a partner to say if they are true or false.

5 Are the statements always, sometimes or never true?

Circle your answer.

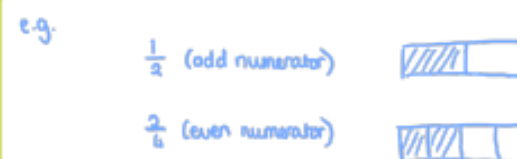Draw a diagram to support your answer.

a) The greater the numerator, the greater the fraction.

always   (sometimes)   never

e.g.

$\frac{4}{5} > \frac{1}{5}$ $\frac{1}{2} > \frac{2}{5}$

BUT

b) Fractions equivalent to one half have even numerators.

always   (sometimes)   never

e.g.

$\frac{1}{2}$ (odd numerator)

$\frac{2}{6}$ (even numerator)

c) If a fraction is equivalent to one half, the denominator will be double the numerator.

(always)   sometimes   never

No matter how many parts it's split into, the number shaded (numerator) will be half the total parts (denominator).
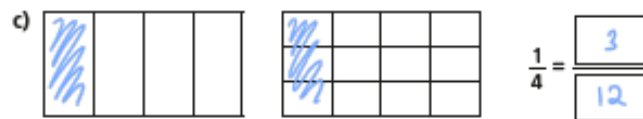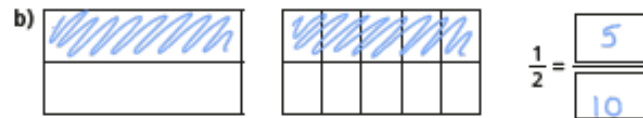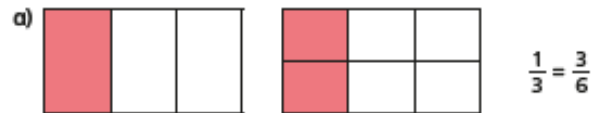
Equivalent fractions (2)

White Rose Maths

1 Shade the diagrams to help you complete the equivalent fractions.

The first one has been done for you.

a)

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

b)

$\frac{1}{2} = \frac{5}{10}$

c)

$\frac{1}{4} = \frac{3}{12}$

2 Draw a diagram to show that $\frac{3}{4} = \frac{6}{8}$

3 Match the equivalent fractions.

$\frac{1}{4}$ $\frac{3}{21}$

$\frac{4}{10}$ $\frac{2}{3}$

$\frac{10}{15}$ $\frac{2}{5}$

$\frac{1}{7}$ $\frac{3}{12}$
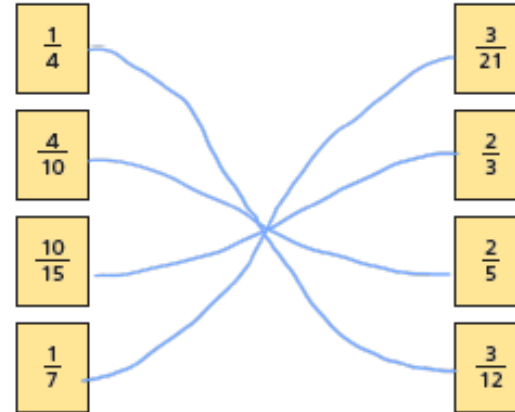
4 Complete the equivalent fractions.

a) $\frac{1}{5} = \frac{2}{10}$

d) $\frac{3}{10} = \frac{9}{30}$

g) $\frac{8}{12} = \frac{2}{3}$

b) $\frac{4}{5} = \frac{8}{10}$

e) $\frac{6}{8} = \frac{3}{4}$

h) $\frac{2}{5} = \frac{10}{25}$

c) $\frac{3}{10} = \frac{6}{20}$

f) $\frac{8}{12} = \frac{2}{3}$

i) $\frac{1}{7} = \frac{4}{28}$

5 a) Write the fractions in the correct place on the sorting diagram.

$\frac{8}{24}$ $\frac{3}{12}$ $\frac{5}{15}$ $\frac{6}{24}$ $\frac{4}{12}$ $\frac{9}{36}$ $\frac{3}{9}$ $\frac{4}{16}$

	equivalent to $\frac{1}{3}$	equivalent to $\frac{1}{4}$
odd denominator	$\frac{5}{15}$ $\frac{3}{9}$	
even denominator	$\frac{8}{24}$ $\frac{4}{12}$	$\frac{3}{12}$ $\frac{6}{24}$ $\frac{9}{36}$ $\frac{4}{16}$

b) Are any of the boxes empty?

Why do you think this is?

Talk about your answer with a partner.

6 Find three ways to make the fractions equivalent.

Various answers e.g.

a) $\frac{2}{2} = \frac{4}{4}$ $\frac{2}{5} = \frac{4}{10}$ $\frac{2}{71} = \frac{4}{142}$

b) $\frac{1}{5} = \frac{4}{20}$ $\frac{1}{2} = \frac{4}{8}$ $\frac{1}{10} = \frac{4}{40}$

c) $\frac{2}{3} = \frac{6}{9}$ $\frac{1}{3} = \frac{3}{9}$ $\frac{3}{3} = \frac{9}{9}$

7 Eva and Ron have a baguette each.

The baguettes are the same size.

Eva cuts her baguette into 8 equal pieces.

> 3 of my equal pieces are equal to 6 of Eva's.

How many equal pieces has Ron cut his baguette into?

Eva ▯▯▯▯▯▯▯▯

Ron ▯▯▯▯

Ron has cut his baguette into 4 equal pieces.

Reasoning and Problem Solving answers

1. The diagram is divided in to six equal parts and four out of the six are yellow. You can also see three **columns** and two columns are yellow.

2.

This is the odd one out because the other fractions are all equivalent to $\frac{1}{2}$

3. Mo is correct. He could make three ninths which is equivalent to one third.

Dora is incorrect. She has a misconception that you can only double to find equivalent fractions.

4. Alex is correct. Tommy's top number line isn't split into equal parts which means he cannot find the correct equivalent fraction.

5.

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

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

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

 $= \frac{6}{6}$ or $\frac{3}{3}$