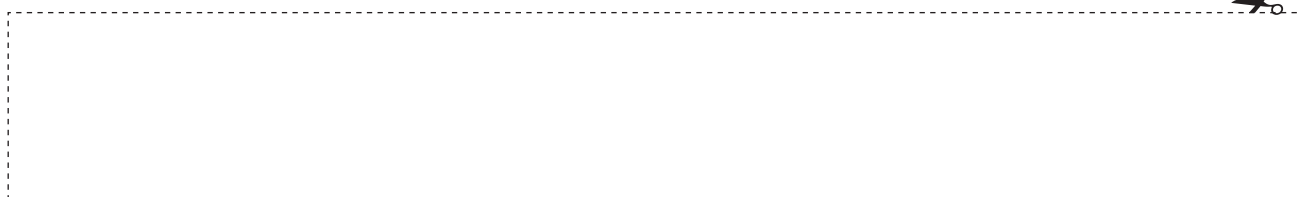# Introducing fractions – modelling fractions

Here we are going to explore fractions.

You will need: ■ a copy of this page ■ scissors ■ a paper bag
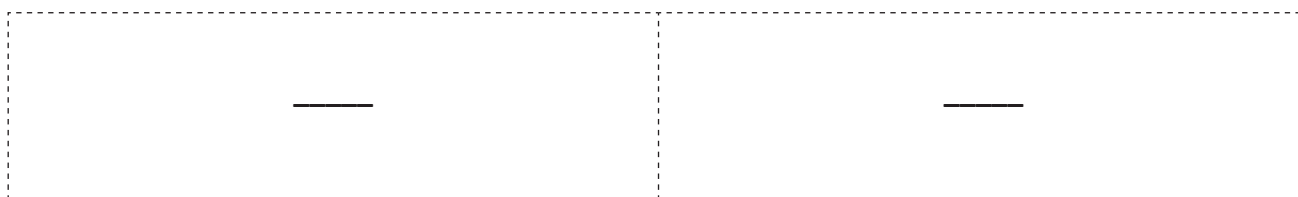■ coloured pencils (blue, red, yellow and orange)

Instructions:

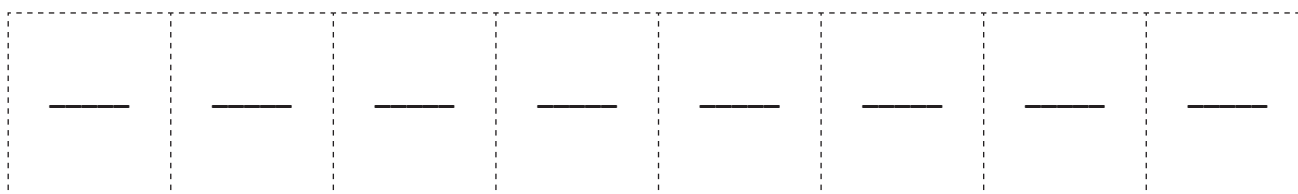**a** Colour this strip blue. Cut it out. Label it 1 whole.

b Colour this strip red. Cut it out. Fold it in half along the line and label each part $\frac{1}{2}$.

_____   _____

c Colour this strip yellow. Cut it out. Fold it in half and half again along the lines and label each part $\frac{1}{4}$.

_____   _____   _____   _____

d Colour this strip orange. Cut it out. Fold it in half three times and label each part $\frac{1}{8}$.

_____   _____   _____   _____   _____   _____   _____   _____

e Cut them carefully along the folded lines and place the pieces inside your paper bag. This is your fraction kit!

Introducing fractions – modelling fractions

You will need: ■ your fraction kit   ■ a die

Number on die	Fraction piece from kit
1 or 6	$\frac{1}{2}$ red
2 or 5	$\frac{1}{4}$ yellow
3 or 4	$\frac{1}{8}$ orange

Game 1

The aim of this game is get as close to one whole as possible by placing pieces from your fraction kit on top of the whole.

Each player starts the game with the blue piece of paper from the kit. This is 1 whole.

Player 1 rolls the die and places a matching fraction piece on their whole.

Player 2 rolls the die and places a matching fraction piece on their whole.

Continue taking turns placing fraction pieces on top of the whole.

The winner is the player who is the closest to one whole without going over.

Game 2

The aim of this game is to be the first to reveal the whole piece of paper from your fraction kit.

Each player starts the game with the whole covered with 2 halves.

Player 1 rolls the die and takes off that fraction. Players may need to swap pieces first. For example, if you roll $\frac{1}{4}$ first, you need to swap $\frac{1}{2}$ for $\frac{2}{4}$ then you can take off $\frac{1}{4}$.

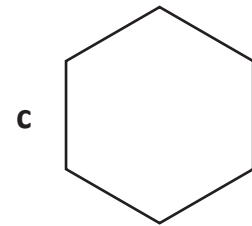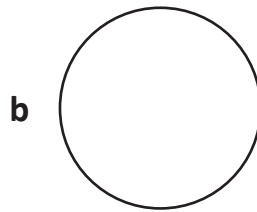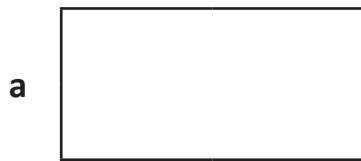Player 2 rolls the die and takes off that fraction, swapping pieces if needed.

The winner is the player who is the first to reveal the whole piece of paper.

Fractions

Introducing fractions – modelling fractions

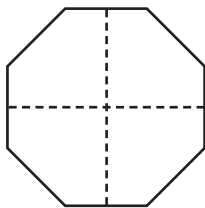**1** **Show one half in a different way on each rectangle:**

a [   ]   b [   ]   c [   ]

....
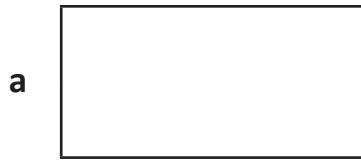
2 **Show how each shape can be divided into quarters:**

a [rectangle]   b [circle]   c [hexagon]

....

3 **Colour the fractions of each shape:**

a two quarters   **b** three quarters   **c** one half   **d** three quarters
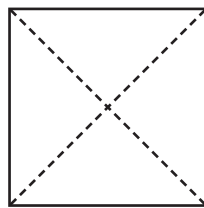
[octagon]   [square with X]   [heart]   [rectangle divided]

....
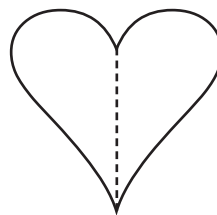
4 **Answer these sharing problems. Draw a picture to match:**

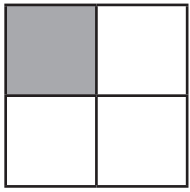**a** I have 10 lollies and I have to share them with my brother.
How many do we each get?

[   ] out of [   ]

b There are 12 biscuits to be shared among 3 people.
How many does each person get?

[   ] out of [   ]

Introducing fractions – modelling fractions
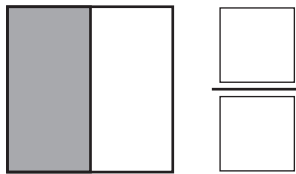
Fractions are written like this:

$\dfrac{1}{4}$

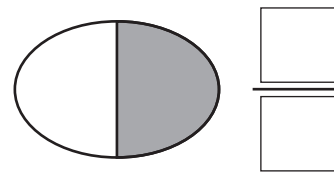The number on the top is the numerator and shows the number of parts.

The number on the bottom is the denominator and shows the number of parts in the whole.

5 Look at these fraction diagrams and label them.

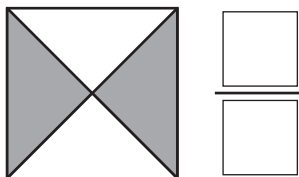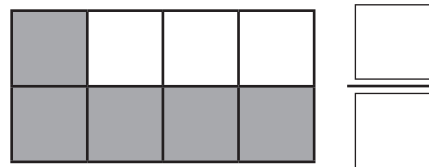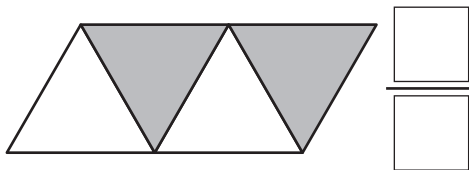**a** | 1 | out of | 2 |

$\dfrac{}{}$

b | | out of | |

$\dfrac{}{}$

c | | out of | |

$\dfrac{}{}$

d | | out of | |

$\dfrac{}{}$

e | | out of | |

$\dfrac{}{}$

f | | out of | |
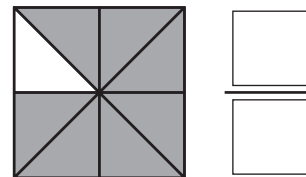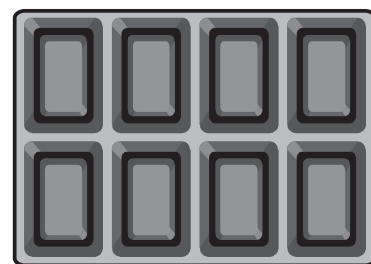
$\dfrac{}{}$

6 Share this chocolate bar among 4 kids:

a Draw lines to show how you will break it.

b How many pieces will each kid get?

c Show this as a fraction.

$\dfrac{}{}$

D SERIES **1** TOPIC

Fractions

Introducing fractions – fractions of a collection

Fractions can show part of a collection. 3 out of 6 lollies are circled.

$$\frac{3}{6}$$
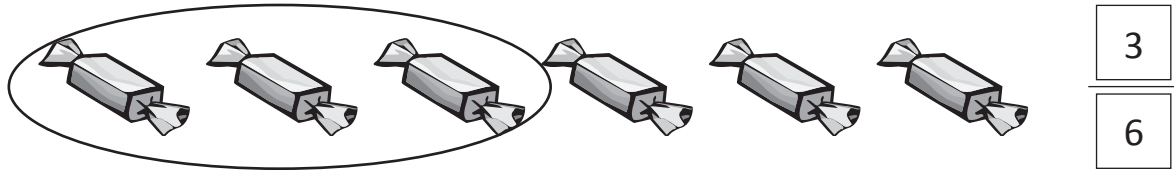
1 What fraction of each group is circled?

a [ ] out of [ ]

$$\frac{\ }{\ }$$

b [ ] out of [ ]

$$\frac{\ }{\ }$$

c [ ] out of [ ]

$$\frac{\ }{\ }$$

d [ ] out of [ ]

$$\frac{\ }{\ }$$

2 Circle the fraction shown:

a 6 out of 8

$$\frac{6}{8}$$

b 4 out of 6

$$\frac{4}{6}$$

c 3 out of 9

$$\frac{3}{9}$$

d 4 out of 12

$$\frac{4}{12}$$

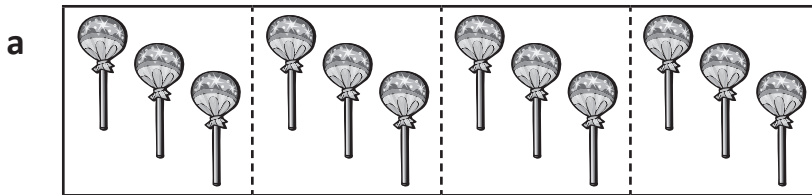# Introducing fractions – fractions of a collection

Finding a fraction of different amounts is like division. Look at this tray of 4 ice creams. We can see that $\frac{1}{2}$ of this group is 2. This is the same as dividing 4 by 2.
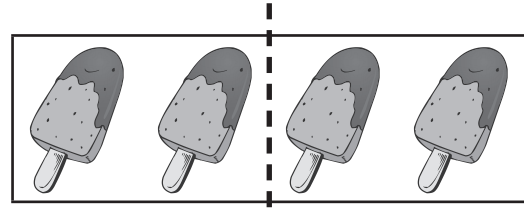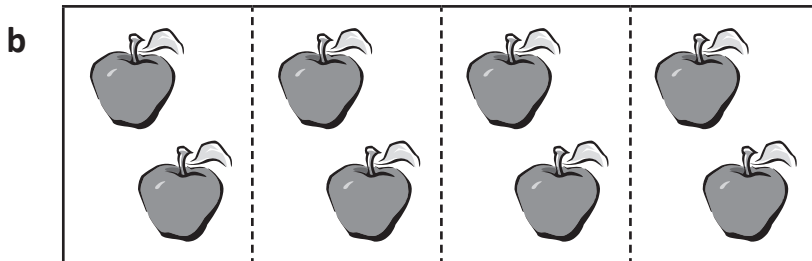

$$4 \div 2 = 2$$
$$\frac{1}{2} \text{ of } 4 = 2$$

3 Look at these fraction pictures. They have been divided into groups to help you. Complete the boxes to show how division and fractions are related. The first one has been done for you.
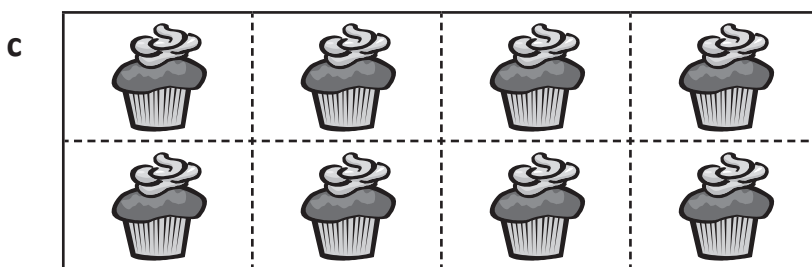
a

$$\boxed{12} \div \boxed{4} = \boxed{3}$$

$$\frac{1}{4} \text{ of } \boxed{12} = \boxed{3}$$

b

$$\boxed{} \div \boxed{4} = \boxed{}$$

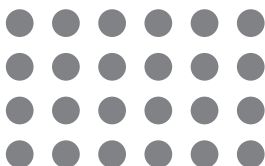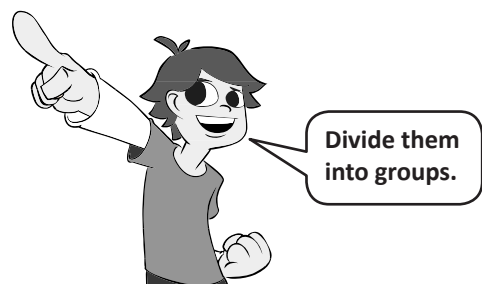$$\frac{1}{4} \text{ of } \boxed{} = \boxed{}$$

c

$$\boxed{} \div \boxed{8} = \boxed{}$$

$$\frac{1}{8} \text{ of } \boxed{} = \boxed{}$$

4 Find $\frac{1}{4}$ of these amounts:

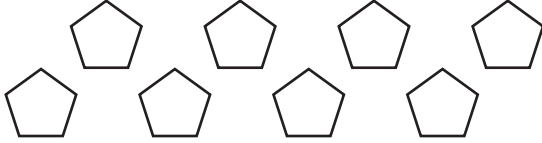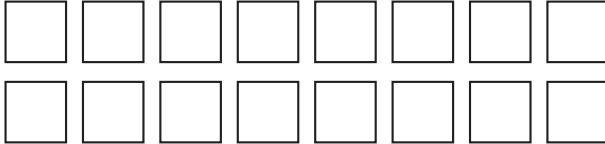$$\frac{1}{4} \text{ of } 24 = \boxed{}$$

Divide them into groups.

D SERIES   1 TOPIC

Fractions

Introducing fractions – fractions of a collection

5 **Shade the fraction of these amounts:**

a

$\dfrac{1}{4}$ of $\boxed{8}$ = $\boxed{2}$

---

b

$\dfrac{1}{2}$ of $\boxed{16}$ = $\boxed{8}$

---

6 **Find these amounts. Use counters to help you.**

a How many sweets did I get if I was allowed $\dfrac{1}{4}$ of 24? _____ sweets

b $\dfrac{1}{3}$ of all the kids in my class have a pet dog.
How many have a dog if there are 30 kids in my class? _____ kids

c $\dfrac{1}{5}$ of all the kids in my class ate an apple at recess.
How many apples were eaten if there were 30 kids in my class? _____ apples

---

7 **Jackson loves to bake cookies. He is famous for his triple choc chip delights. Work out how many each person received if Jackson baked a batch of 24 triple choc chip delights.**
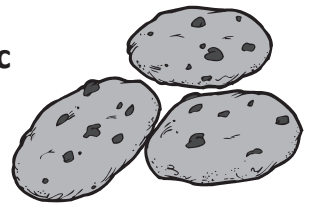
a His best friend Hamish got $\dfrac{1}{4}$. Hamish got _____ triple choc chip delights.

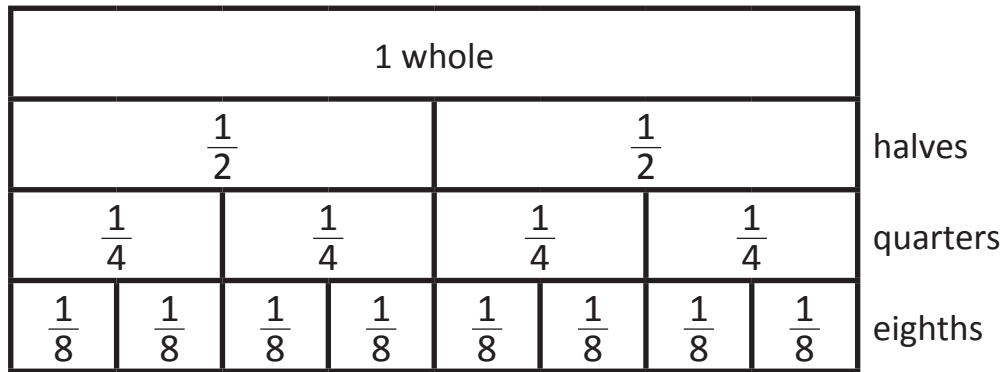**b** He gave $\dfrac{1}{2}$ away to the teachers in the staff room.

The teachers got _____ triple choc chip delights.

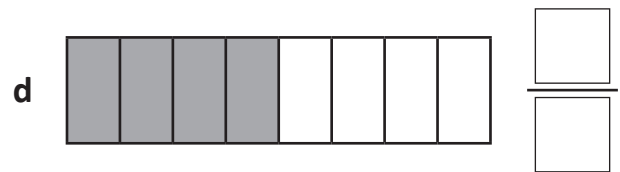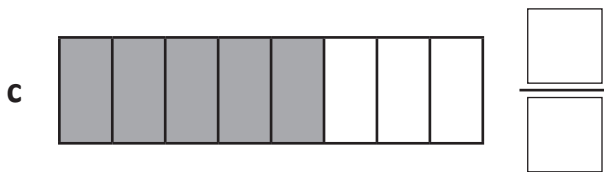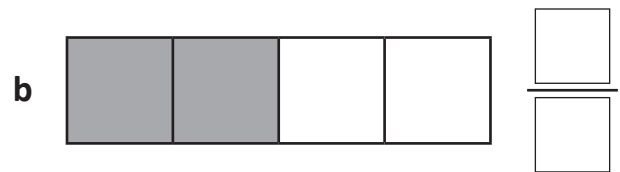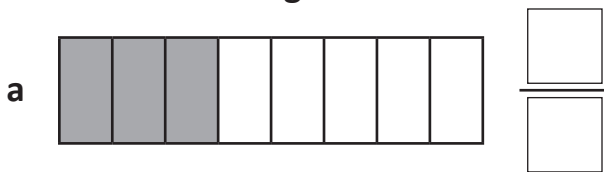**c** He gave the rest to his next door neighbour Mr Wallis.

Mr Wallis got _____ triple choc chip delights.

Introducing fractions – comparing and ordering fractions

This fraction wall is just like your fraction strips laid out side by side.

1 whole							
$\frac{1}{2}$				$\frac{1}{2}$			halves
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	quarters
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$ $\frac{1}{8}$	eighths

1 **Label the following fractions:**

a

b

c

d

e What do you notice with the fractions shown in b and d?

_____

2 **Use the fraction wall at the top of this page to decide which fraction is larger and circle it:**

a $\frac{1}{4}$ or $\frac{3}{8}$

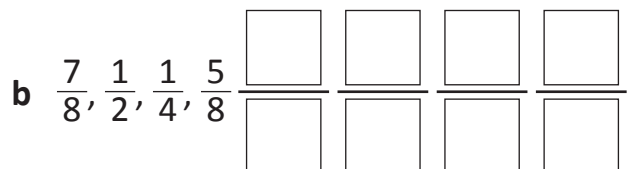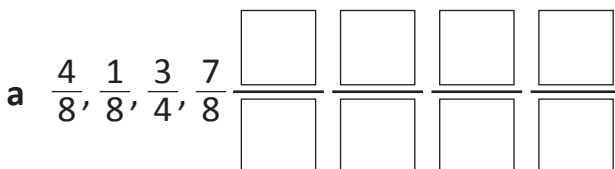**b** $\frac{2}{8}$ or $\frac{1}{2}$

c $\frac{3}{4}$ or $\frac{4}{8}$

d $\frac{1}{2}$ or $\frac{5}{8}$

e $\frac{5}{8}$ or $\frac{3}{4}$

f $\frac{2}{4}$ or $\frac{3}{8}$

3 **Put these fractions in order from smallest to largest:**

a $\frac{4}{8}, \frac{1}{8}, \frac{3}{4}, \frac{7}{8}$

b $\frac{7}{8}, \frac{1}{2}, \frac{1}{4}, \frac{5}{8}$

Fractions

Introducing fractions – comparing and ordering fractions

**Each player will need:** ■ to cut out the fraction cards below

C copy

This is a game for 2 players. Choose one player to be the dealer.

Each player cuts out their own set of fraction cards.

The dealer shuffles the cards well and places them in one stack in the centre.

Player 1 draws 3 cards, one at a time and places them from left to right in each box, from smallest to largest. If they are in the correct order, the player scores 5 points. If they are not in the correct order, they do not score any points. Player 2 then has their turn.

The winner is the player with the largest score after 3 turns each.

$$\frac{1}{2} \quad \frac{1}{4} \quad \frac{5}{8} \quad \frac{3}{4} \quad \frac{1}{8} \quad \frac{7}{8} \quad \frac{3}{8}$$
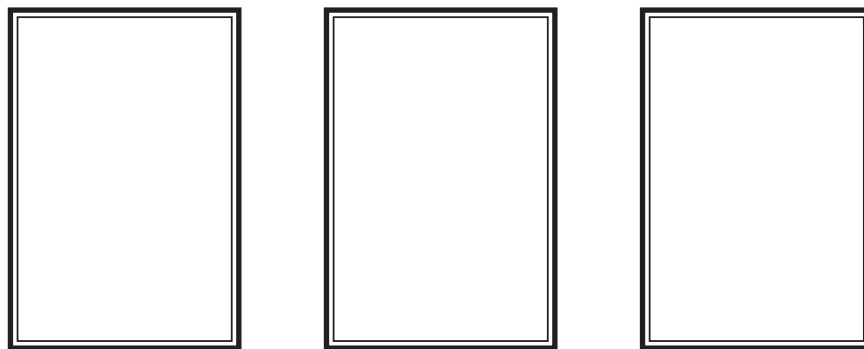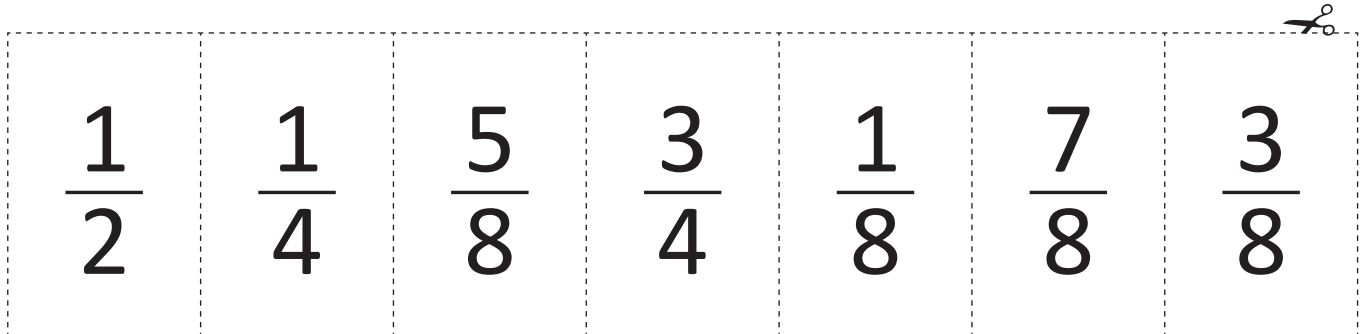
Smallest to largest

You can use the fraction wall on page 8 to help you see if the fractions are in the right order.

	Player 1	Player 2
1		
2		
3		
Total		

Introducing fractions – comparing and ordering fractions
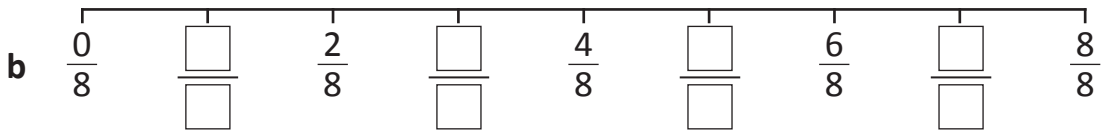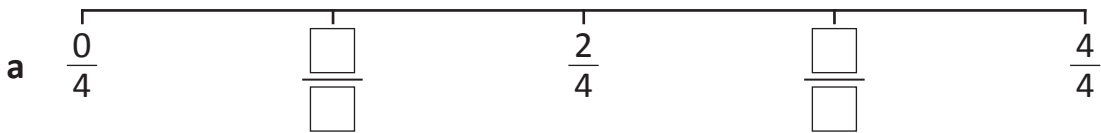
Let us now look at placing fractions on number lines.

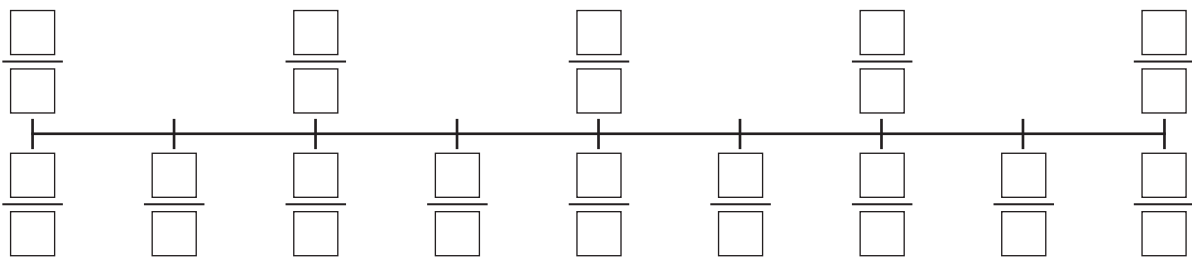halves $\frac{0}{2}$ $\frac{1}{2}$ $\frac{2}{2}$

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

eighths $\frac{0}{8}$ $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$ $\frac{8}{8}$
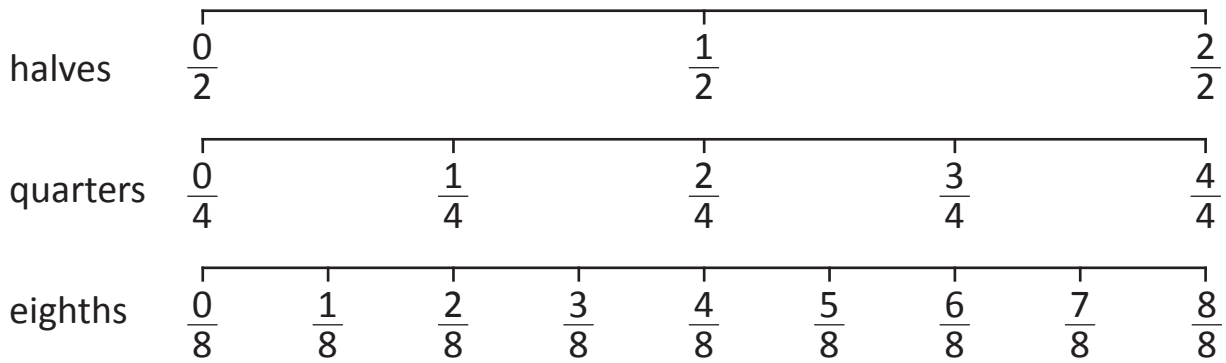
4 **Label the missing fractions on these number lines:**

a $\frac{0}{4}$ $\frac{\square}{\square}$ $\frac{2}{4}$ $\frac{\square}{\square}$ $\frac{4}{4}$

b $\frac{0}{8}$ $\frac{\square}{\square}$ $\frac{2}{8}$ $\frac{\square}{\square}$ $\frac{4}{8}$ $\frac{\square}{\square}$ $\frac{6}{8}$ $\frac{\square}{\square}$ $\frac{8}{8}$

c What do you notice about $\frac{2}{4}$ and $\frac{4}{8}$?

_____

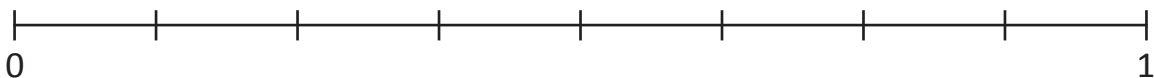**5** **Label this number line with quarters above the line and eighths below the line:**

6 **Draw a line to match each of these fractions to the correct positions on the number line. Use the number lines at the top of the page to help you.**

$\frac{7}{8}$ $\frac{3}{4}$ $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{1}$ $\frac{1}{2}$

0   1

D SERIES 1 TOPIC

Fractions

Fraction bingo apply

Getting ready

This is a game for 3 to 4 players. Each player will need the fraction board below and some counters. You will also need to cut out one copy of the flash cards on page 12.

C copy

What to do

Choose one player to be the caller. The rest of the players fill their fraction boards with any of the following fractions:

$$\frac{1}{2}, \ \frac{1}{4}, \ \frac{2}{4}, \ \frac{3}{4}, \ \frac{4}{4}, \ \frac{1}{8}, \ \frac{2}{8}, \ \frac{3}{8}, \ \frac{4}{8}, \ \frac{5}{8}, \ \frac{6}{8}, \ \frac{7}{8}, \ \frac{8}{8}$$

The caller chooses a flash card from the pile and shows the players.

If a player has the fraction, they place a counter over it.

The winner is the first player to cover 3 in a row.

Swap roles and play again until everyone in the group has been the caller.

FRACTION BINGO

Fraction bingo   apply

Fractions