

## Fraction families

### Activity 1

**Focus of activity:** Find equivalent fractions to  $\frac{1}{2}$ ,  $\frac{1}{3}$  and  $\frac{1}{4}$ .

#### Working together: conceptual understanding

- Give each pair a copy of the coloured fraction wall (see child instructions). Talk through what each strip shows – one is split into halves, one into thirds, one into quarters and so on. Point out how these are written, e.g.  $\frac{1}{12}$  – one split into 12, one part out of 12.
- Ask them to cut off the strip showing one half. They move this strip to the row showing quarters. *How many quarters are the same as one half? Write  $\frac{1}{2} = \frac{2}{4}$ . We say that one half and two quarters are equivalent.*
- Chn work in pairs to find another group of unit fractions which are the same size as one half, e.g.  $\frac{4}{8}$ . Write the equivalent pairs, e.g.  $\frac{1}{2} = \frac{4}{8}$ . *We could say that all these fractions are in the half family.* Don't worry about finding all the fractions equivalent to one half as chn will have the opportunity to do this in their activity.
- Ask chn to cut out  $\frac{1}{3}$ , and find one fraction which is equivalent. Record the equivalence, e.g.  $\frac{1}{3} = \frac{2}{6}$ .

#### Up for a challenge?

*How many sixths are the same as  $\frac{2}{3}$ ? How many eighths are the same as  $\frac{1}{2}$ ?*

#### Now it's the children's turn:

- Give each pair three copies of a fraction wall (see child instructions).
- They take one, and cut it into strips of fractions. They colour one half of the strip divided into halves, and then look for as many other fractions as they can which are equivalent. They stick theses under one half, and colour in half of each strip to match. They write the pairs of equivalent fractions.
- They take the next fraction wall, cut into strips and colour in one quarter of the strips of quarters. They look for fractions equivalent to  $\frac{1}{4}$ . They stick under strips of quarters and write the pairs of equivalent fractions.
- Repeat for  $\frac{1}{3}$  using the last fraction wall.
- Go round the group and check their sets of equivalent fractions.

#### **S-t-r-e-t-c-h:**

If chn cope well, ask them to use the groups of fractions they have stuck together to find fractions equivalent to  $\frac{2}{3}$  and  $\frac{3}{4}$ . Some chn may be able to do the easier activity on Day 4 of the weekly plan.

### Things to remember

*Remember that there are lots of fractions which are equivalent to one half. Ask chn to look at the fractions they found. Ask them what they notice about the top number (numerator) compared to the bottom number (denominator). The top number is half the bottom number, as we want half of the parts of the bottom number to get a fraction which is equivalent to  $\frac{1}{2}$ .*

*You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.*

Resources	Outcomes
<ul style="list-style-type: none"><li>• Coloured fraction walls for the whole group session (see child instructions)</li><li>• Three black and white fraction walls for the paired activity (see child instructions)</li><li>• Scissors</li><li>• Glue sticks</li></ul>	<ol style="list-style-type: none"><li>1. Chn can find fractions which are equivalent to <math>\frac{1}{2}</math>, <math>\frac{1}{3}</math> and <math>\frac{1}{4}</math>.</li><li>2. Chn begin to find fractions equivalent to <math>\frac{2}{3}</math> and <math>\frac{3}{4}</math>.</li></ol>

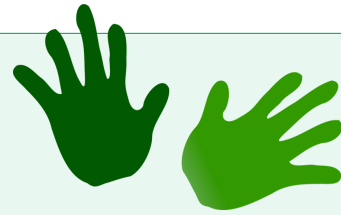
# Fraction families

## Activity 1

### Work in pairs

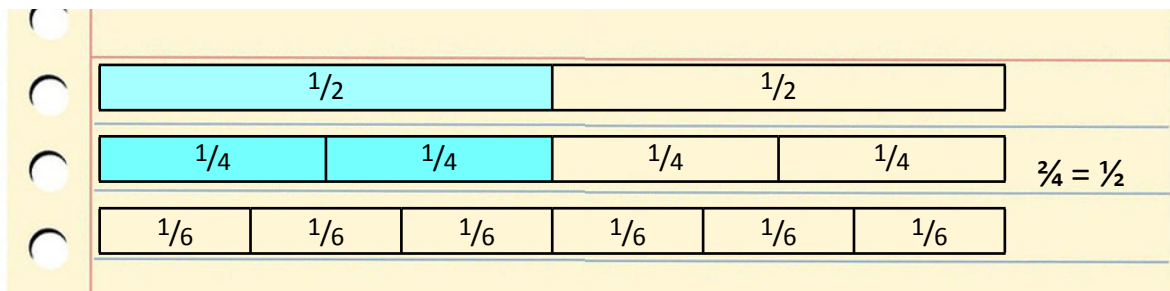
#### Things you will need:

- A pencil
- Three fraction walls
- Scissors
- Glue sticks



#### What to do:

- Colour in half of the strip divided into  $\frac{1}{2}$ s.
- Cut the fraction wall into strips. Lay each strip one at a time next to the strip of halves until you find a number of fractions which are the same size as  $\frac{1}{2}$ . Colour in half of this strip.
- Repeat for each strip until you have found all the fractions which are equivalent (same size) to  $\frac{1}{2}$ .
- Stick these fractions under one another.



- Write the pairs of equivalent fractions.
- Take the next fraction wall. Find the strip of  $\frac{1}{3}$ s and colour  $\frac{1}{3}$ .
- Cut the fraction wall into strips. Lay each strip one at a time next to the strip of thirds until you find a number of fractions which are the same size as  $\frac{1}{3}$ . Colour in  $\frac{1}{3}$  of this strip.
- Repeat for each strip until you have found all the fractions which are equivalent to  $\frac{1}{3}$ .
- Stick these fractions under one another.
- Write the pairs of equivalent fractions.
- Now use the third fraction wall to find fractions which are equivalent to  $\frac{1}{4}$ .

#### **S-t-r-e-t-c-h:**

Use your groups of fraction strips to find fractions which are equivalent (same size) to  $\frac{2}{3}$ .

Now find fractions which are equivalent to  $\frac{3}{4}$ .

#### Learning outcomes:

- I can find fractions which are equivalent to  $\frac{1}{2}$ ,  $\frac{1}{3}$  and  $\frac{1}{4}$ .
- I am beginning to find fractions equivalent to  $\frac{2}{3}$  and  $\frac{3}{4}$ .

# Fraction families

## Activity 1

1											
$\frac{1}{2}$						$\frac{1}{2}$					
$\frac{1}{3}$				$\frac{1}{3}$				$\frac{1}{3}$			
$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$		
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# Fraction families

## Activity 1

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$\frac{1}{2}$						$\frac{1}{2}$					
$\frac{1}{3}$				$\frac{1}{3}$				$\frac{1}{3}$			
$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$		
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## Pete's pies

### Activity 2

**Focus of activity:** Adding fractions with same denominator, including answers greater than 1.

#### Working together: conceptual understanding

- Say that Pete loves pies, but he knows that eating too many isn't good for him, so he just eats fractions of pies. But all those fractions add up!
- Show the picture of two pies split into fifths (see resources with child instructions). *What fraction of a pie is one piece?*
- *Pete eats  $\frac{2}{5}$  of a pie, then another  $\frac{2}{5}$ . How much has he eaten altogether?* Ask a child to shade  $\frac{2}{5}$ , and another to shade another  $\frac{2}{5}$  of the first pie. Agree that Pete has  $\frac{4}{5}$  of a pie. Record  $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$ .
- Say that then Pete eats another two fifths. Shade the last piece of the first pie, and one slice from the next pie. *How many pieces has he eaten now? Six, so  $\frac{6}{5}$ . This is more than a whole pie!* Point out that  $\frac{6}{5} = 1\frac{1}{5}$ . Record  $\frac{4}{5} + \frac{2}{5} = \frac{6}{5} = 1\frac{1}{5}$ . *We call  $\frac{6}{5}$  an improper fraction – it's a bit improper because the numerator (number on the top) is bigger than the denominator (number on the bottom). We can also write it as a mixed number – a mix of whole number and fraction,  $1\frac{1}{5}$ .*
- Show the next picture of two pies split into eighths. Agree that each pie is split into eighths. Ask chn how we write one eighth. Today Pete eats 5 slices (after all these are smaller slices) and then another 5 slices. Write  $\frac{5}{8} + \frac{5}{8} =$ . *How many slices altogether? How many eighths?* Ask a child to shade  $\frac{5}{8}$ , and then another  $\frac{5}{8}$ . Agree the answer as  $\frac{10}{8}$ , which is  $1\frac{2}{8}$ .

#### Up for a challenge?

*Can we write the answer to  $\frac{5}{8} + \frac{5}{8}$  in yet another way?* Point out that  $\frac{2}{8}$  is equivalent to  $\frac{1}{4}$  of a pie, so we can also write the answer as  $1\frac{1}{4}$ .

#### Now it's the children's turn:

- Chn work out how much pie Pete eats each day. They are challenged to spot days where Pete eats more than a whole pie.
- Go round the group and mark their additions as they do them, e.g. initially after three examples. Make sure that chn only add the numerators not the denominators as well, e.g. for  $\frac{3}{8} + \frac{2}{8}$ , they write  $\frac{5}{8}$  not  $\frac{5}{16}$ .

#### S-t-r-e-t-c-h:

If chn cope well, ask them to simplify their answers where possible, e.g. write  $1\frac{2}{8}$  as  $1\frac{1}{4}$ . Chn may be able to do the easier activity on Day 1 of the weekly plan.

### Things to remember

*Remember that when we add fractions with the same denominator (number on the bottom) we just add the numerators (numbers on the top). When we get an answer bigger than 1, we can write the answer as an improper fraction or mixed number. Ask chn to write an addition of sevenths where the answer is bigger than 1.*

*You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.*

Resources	Outcomes
<ul style="list-style-type: none"><li>• Pie pictures (see child instructions)</li></ul>	<ol style="list-style-type: none"><li>1. Chn can add fractions with the same denominators, including answers greater than 1, writing the answers both as improper fractions and as mixed numbers.</li><li>2. Chn begin use equivalence to simplify answers, e.g. write <math>1\frac{2}{8}</math> as <math>1\frac{1}{4}</math>.</li></ol>



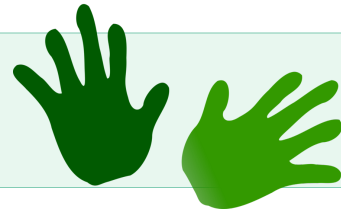
## Pete's pies

### Activity 2

*Work in pairs, but record your work on your own sheet*















#### Things you will need:

- Coloured pencils



#### What to do:

- Pete loves pies, but he knows that eating too many isn't good for him, so he just eats fractions of pies. But all those fractions add up!
- Colour each fraction of pie that he eats in a different colour. Work out how much pie he eats altogether on each day. Write the answer to the fraction addition. If Pete eats more than a whole pie, write the answer as an improper fraction and as a mixed number.
- Before you start can you see days where Pete eats more than a whole pie? How do you know?

Sunday	$\frac{2}{3} + \frac{1}{3} =$		
Monday	$\frac{3}{8} + \frac{2}{8} =$		
Tuesday	$\frac{3}{4} + \frac{3}{4} =$		
Wednesday	$\frac{4}{5} + \frac{3}{5} =$		
Thursday	$\frac{3}{7} + \frac{2}{7} =$		
Friday	$\frac{7}{8} + \frac{5}{8} =$		
Saturday	$\frac{5}{6} + \frac{5}{6} =$		

#### ***S-t-r-e-t-c-h:***

Simplify your answers where possible, e.g. write  $1\frac{3}{8}$  as  $1\frac{1}{4}$ .

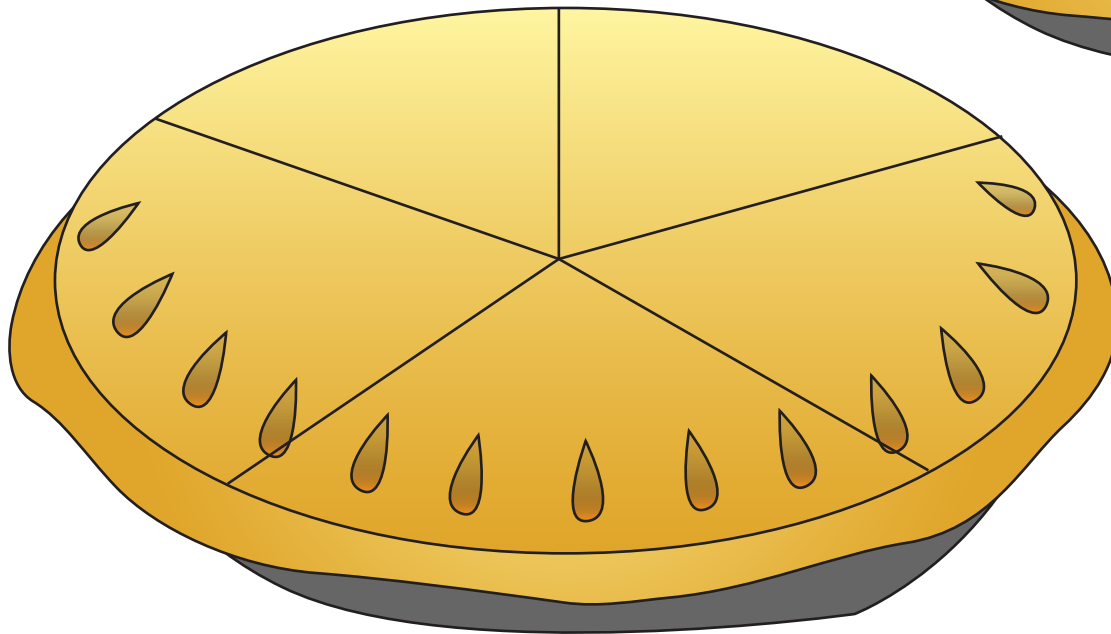
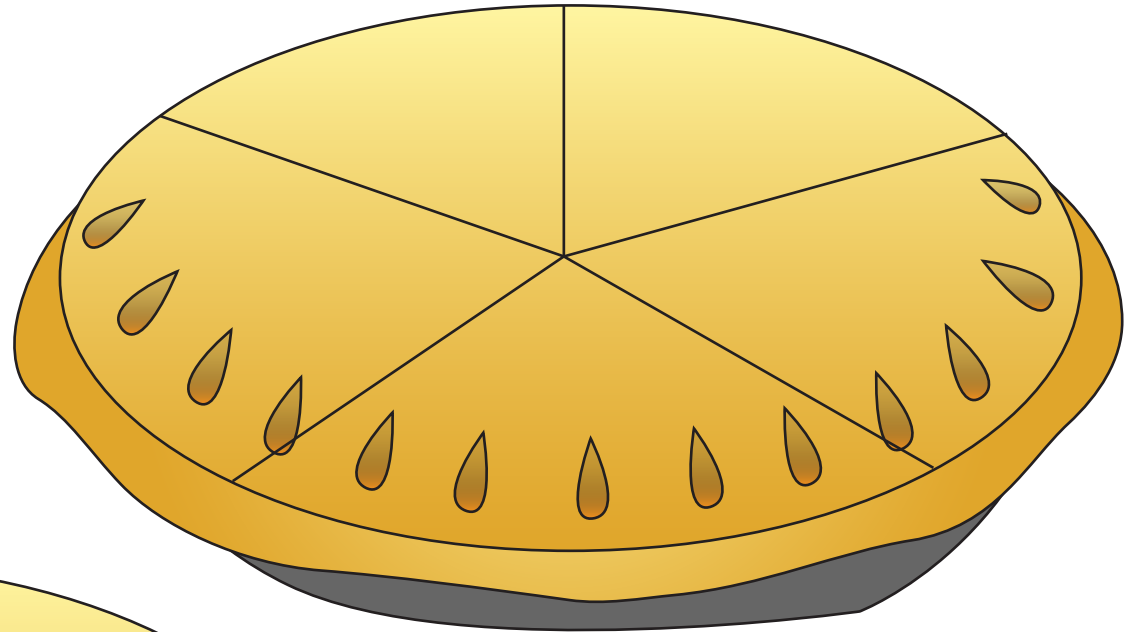
#### Learning outcomes:

- I can add fractions with the same denominators, including answers greater than 1, writing the answers both as improper fractions and as mixed numbers.
- I am beginning to use equivalence to simplify answers, e.g. write  $1\frac{3}{8}$  as  $1\frac{1}{4}$ .



# Pete's pies

## Activity 2



# Pete's pies

## Activity 2

