

Dividing
bar

Fractions: Lesson 1

Equal
parts

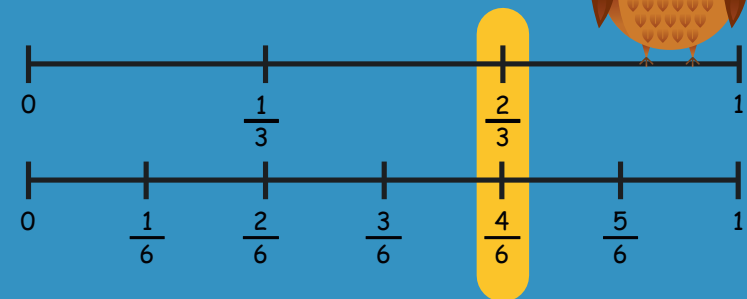
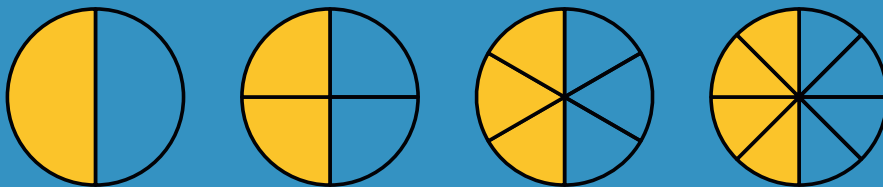
Finding Equivalent Fractions, part 1

Maths KS2 Years 5 and 6

One
sixth



One
quarter



Maths Lesson 1: Fractions

Finding Equivalent Fractions

Maths

Key Stage 2 Years 5 and 6

Learning Objectives:

- to understand that fractions may have the same value but a different appearance
- to understand that having the same value means that they sit at the same place on a number line
- to explore the multiplicative relationship between the numerators and the denominators of equivalent fractions

Curriculum Link

- to solve problems that involve fractions

Keywords

Fraction. Equal parts. Dividing bar. Denominator. Numerator. One half. One third. One quarter. One sixth. One eighth. These can also be found in printable format at the end of this PDF.

Fraction

**Dividing
bar**

**One
sixth**

Numerator



You will need the following resources for this lesson

- Pupil whiteboards (or else notebook to write on) and pens
- Multi-link cubes, Cuisenaire rods, counters, squared paper
- A4 paper strips, scissors and a pencil (for Activity 1)
- Handouts 1 to 4 Fraction Circles (1 set per pair) (for Activity 2)
- Handout 5 Fraction Cards (1 set per small group) (for Activity 3)

PowerPoint presentation

The accompanying PowerPoint has 13 slides with the following learning points:

- Slides 1 and 2 introduce the lesson and the learning aims. You can also point out the keywords at this point. This introduction considers how, when two fractions have different numerators and denominators to one another but share the same numerical value they are called 'equivalent fractions'.
- Slide 3: show this slide and tell the story that you went to the sweet shop and bought some sweets. On the way home you ate a third of them.
You could also role play this using multi-link or Cuisenaire rods to represent the sweets.
Ask the children to show how many of the sweets you ate.
- Slide 4: Show this slide and read out the stem sentence.
The whole is divided into 3 equal parts and we have 1 of them.
Ask questions such as:
 - Where are the three equal parts?
 - Where is the one part?Now show the fraction for one third.
- Slide 5: Show this slide and continue the story. My friend Jay went to the sweet shop and bought some sweets. On the way home he ate $\frac{2}{6}$ of the sweets. Ask the children how many sweets Jay ate.
- Slide 6: show this slide and read out the stem sentence.
The whole is divided into 6 equal parts and we have 2 of them.
Ask questions such as:
 - Where are the six equal parts?
 - Where are the two equal parts?Now show the fraction for two sixths.



- Slide 7 provides opportunities for the children to compare the two fractions by identifying a potential misconception. Ask the children to look at the two fractions and to discuss in pairs who ate the most sweets and why do they think so. Some children may think that Jay ate more sweets because the numerator is larger in $\frac{3}{6}$. Others may spot that $\frac{1}{3}$ of 6 is the same as/is equal to $\frac{2}{6}$ of 6. Click to reveal the fraction sentence $\frac{1}{3}$ is equal to $\frac{2}{6}$. Explain that $\frac{1}{3}$ and $\frac{2}{6}$ have a different appearance but have the same value.

Timing: approximately 10 minutes.

Activity 1

- Slide 8 is animated to continue focusing on the teaching point that fractions may have the same value but have a different appearance.
Give each child a strip of A4 paper and ask them to cut it in half. On one of the pieces they write $\frac{1}{2}$. Take the other half and cut it in half again and on both pieces write $\frac{1}{4}$. Now model how the two one-quarters are equal to one half. Say the stem sentence together:
One half is equal to two one-quarters. One half is equal to two quarters.

Activity 2

- Slide 9 explains the children's activity which is to work in pairs and, using a circle from Handouts 1, 2, 3 and 4, cut the circles into either halves, quarters, or eighths. They can then explore to see if they can find any other equal fractions, for example $\frac{2}{8}$ is equal to $\frac{1}{4}$. Children can record their equal fractions on whiteboards (or their notebooks).

Timing: approximately 10 minutes.

Activity 3 Matching game.

- Slide 10 explains Activity 3.
Give out Handout 5, cut up into cards. Children can work in small groups to work out which fractions are equal. Once they have found a matching set they can draw a picture to demonstrate to the rest of their group how they know. The slide is animated to model an example picture to match.

Timing: approximately 10 minutes.



- Slide 11 considers the key idea that fractions having the same value means they sit at the same place on a number line.

Use Handout 5 again.

Ask the children to look through their cards and find the fraction that is $\frac{1}{4}$.

Click to show the first number line, and show the children where $\frac{1}{4}$ lies on the line.

Now ask the children to find the fraction $\frac{3}{8}$. Click on the slide to reveal the second number line and point to where $\frac{3}{8}$ lies on this line.

Highlight how $\frac{1}{4}$ and $\frac{3}{8}$ sit at the same position on the number lines. Therefore, they have the same value so $\frac{1}{4}$ is equal to $\frac{3}{8}$.

Read out the stem sentence.

$\frac{1}{4} = \frac{3}{8}$ as they have the same value.

Now ask the children, in pairs, to see if they can spot any other pairs of number that sit at the same place on the number lines. They should be able to see $\frac{2}{4}$ and $\frac{4}{8}$, $\frac{3}{4}$ and $\frac{6}{8}$.

Encourage the children to use the stem sentence to explain the equal pairs of fractions they find.

- Slide 12 is the plenary. The plenary starts to explore the multiplicative relationship between the numerators and the denominators of equivalent fractions which will be taught in more depth in lesson 2.

Show the three images on the slide and ask the children to discuss, in pairs or small groups, what is the same and what is different about the three images.

Start the class discussion by asking what fraction is being represented in each of the images.

Support children with identifying how all the images are showing a quarter of the whole, however this can be expressed in different ways such as $\frac{2}{8}$ and $\frac{3}{12}$.

Now allow 5 minutes for the children, working with a partner, to explore other ways to express $\frac{1}{4}$.

Allow children to use resources such as counters, multi-link cubes, Cuisenaire rods or squared paper to investigate this.

Take feedback and share children's ideas, such as $\frac{4}{16}$ and $\frac{5}{20}$

- Slide 13 is a review slide for you to annotate on your interactive whiteboard, or to collect what the children reflect they have been learning about.

The coloured underlined ideas are the key ideas from this lesson. They indicate opportunities for pupil talk indicated throughout the PowerPoint.



Handout 1



Whole

Whole

Whole

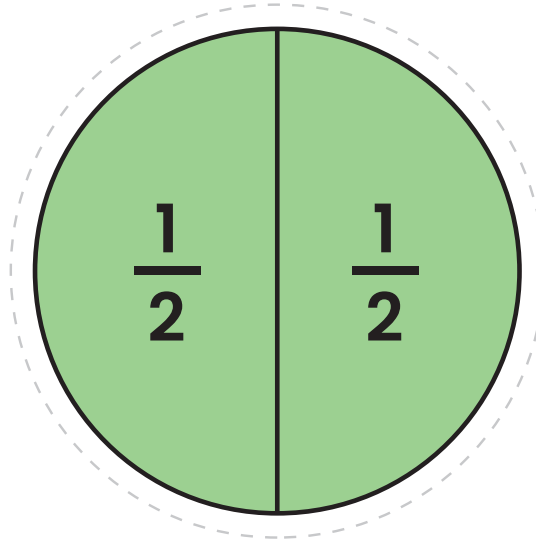
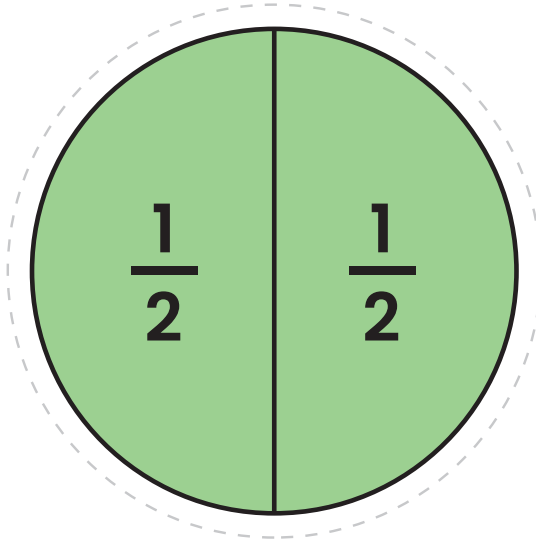
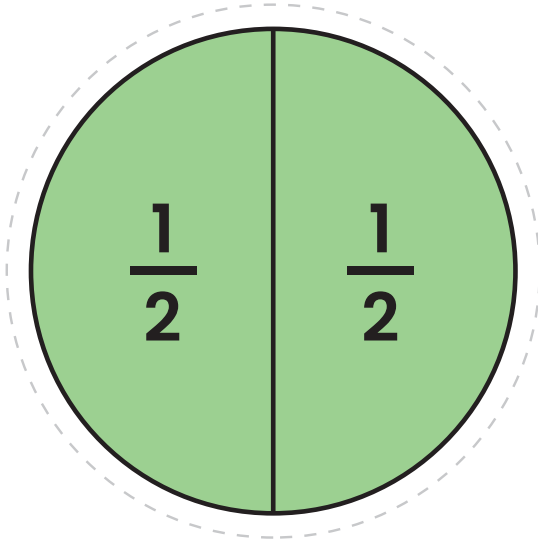
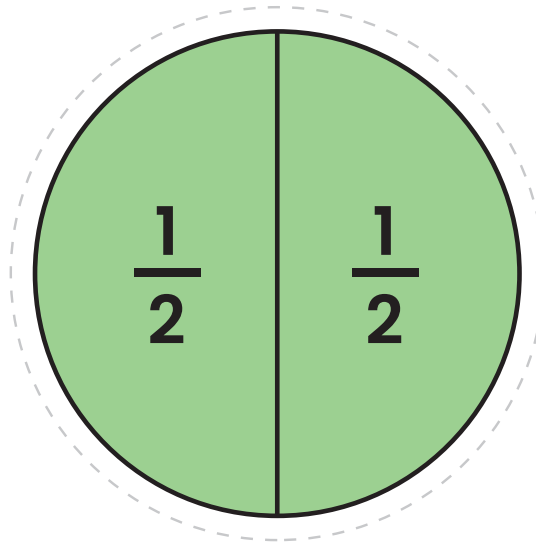
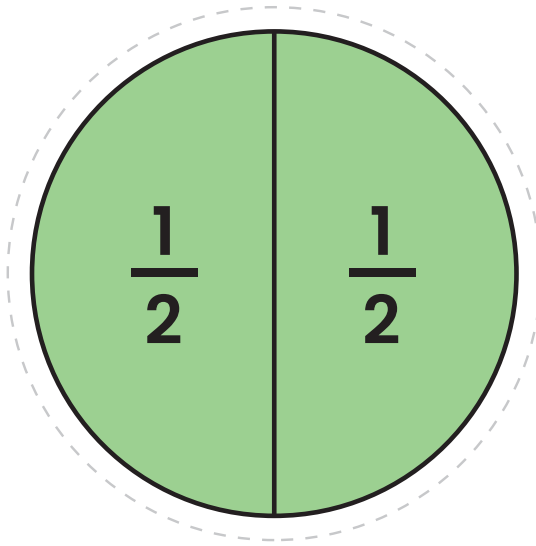
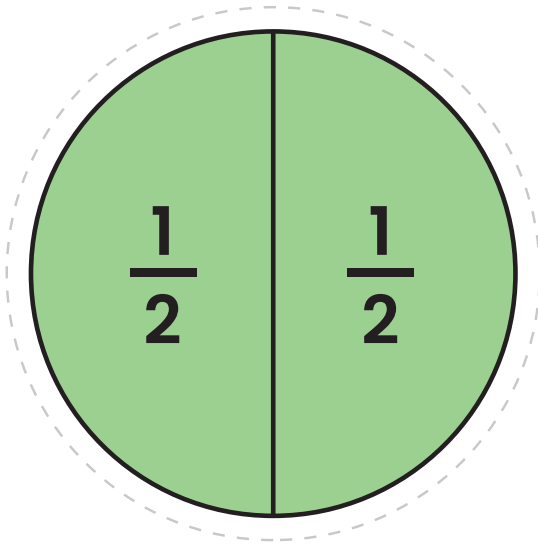
Whole

Whole

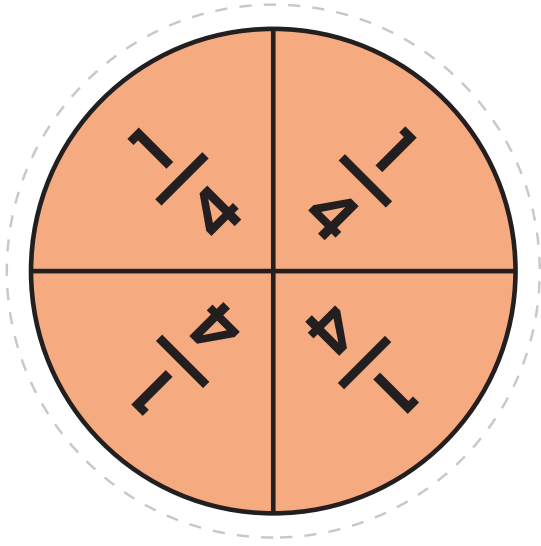
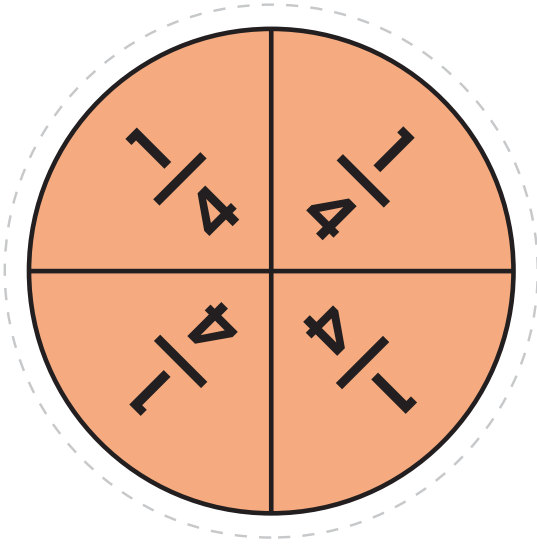
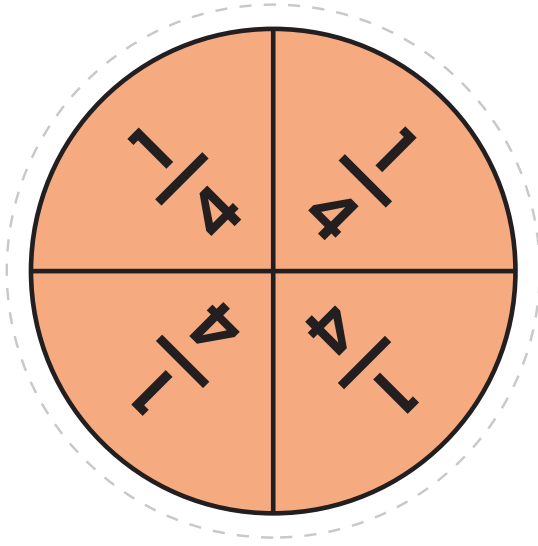
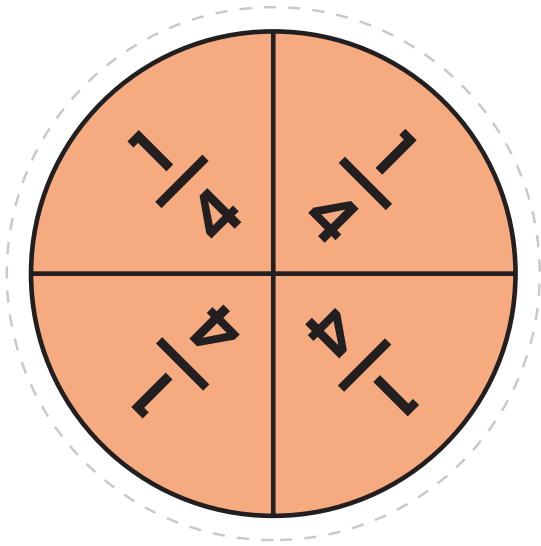
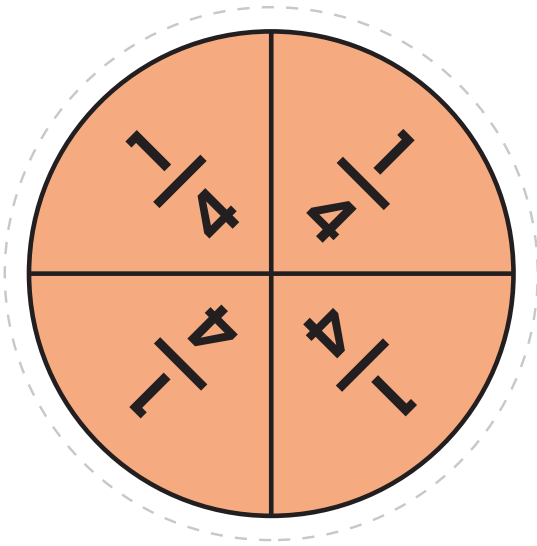
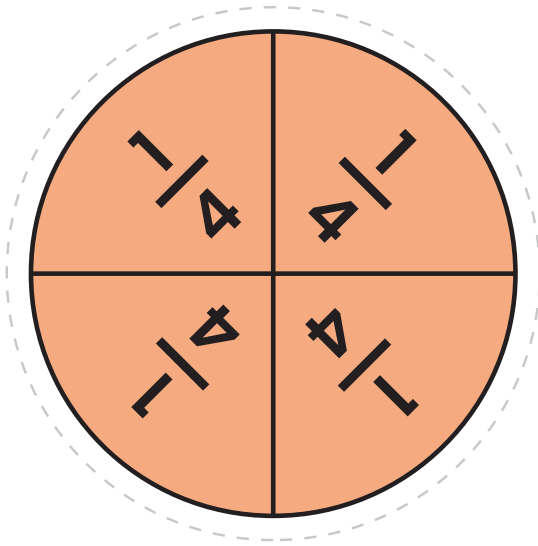
Whole



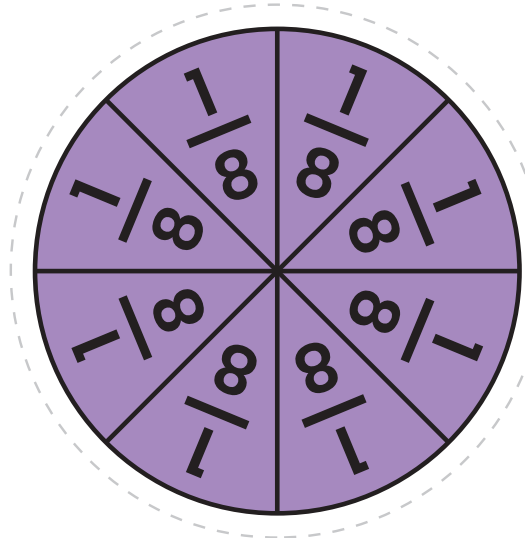
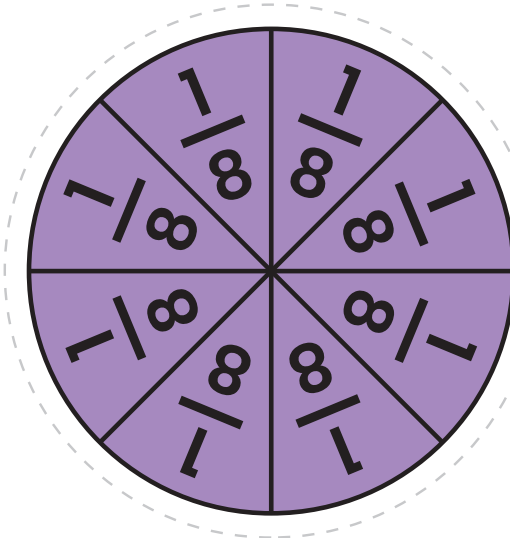
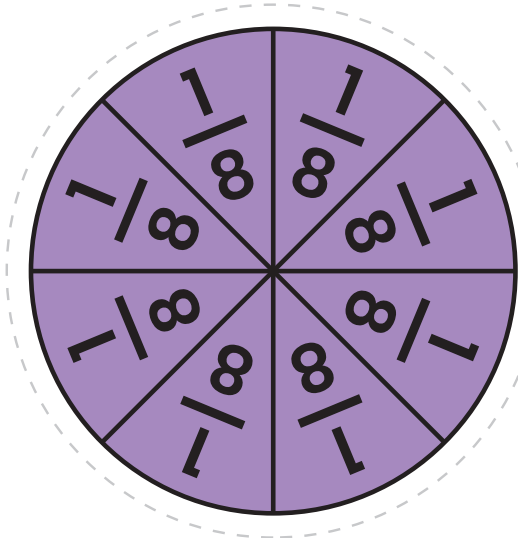
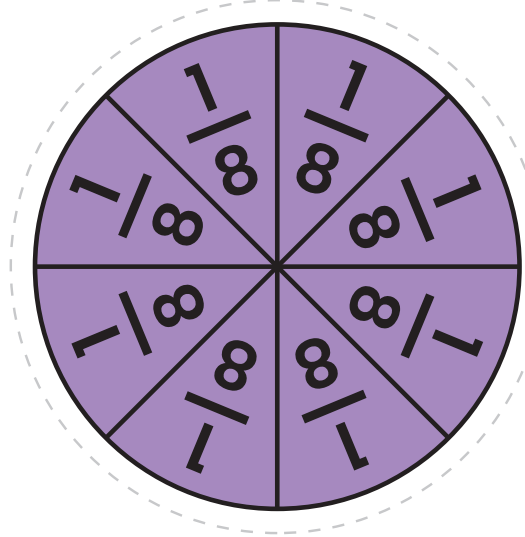
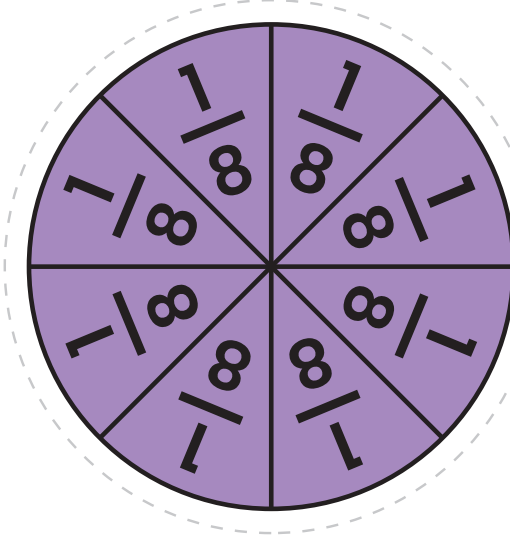
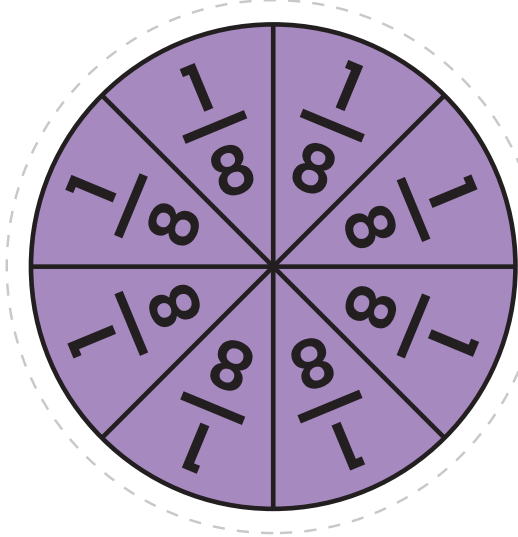
Handout 2



Handout 3



Handout 4



Handout 5



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

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

$$\frac{1}{3}$$

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

$$\frac{2}{4}$$

$$\frac{2}{8}$$

$$\frac{2}{6}$$

$$\frac{2}{10}$$

$$\frac{3}{6}$$

$$\frac{3}{12}$$

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

$$\frac{3}{15}$$



Fractions: Keywords Flashcards



Fraction

**Equal
parts**

**Dividing
bar**

Denominator

Numerator

**One
half**



Fractions: Keywords Flashcards



**One
third**

**One
quarter**

**One
sixth**

**One
eighth**



Fraction



Equal parts



Dividing bar



Denominator



Numerator



**One
half**



One quarter



One third



**One
sixth**



**One
eighth**

