

Whole

Fractions: Lesson 3

Part

Identifying, representing and comparing unit fractions
and non-unit fractions, part 1

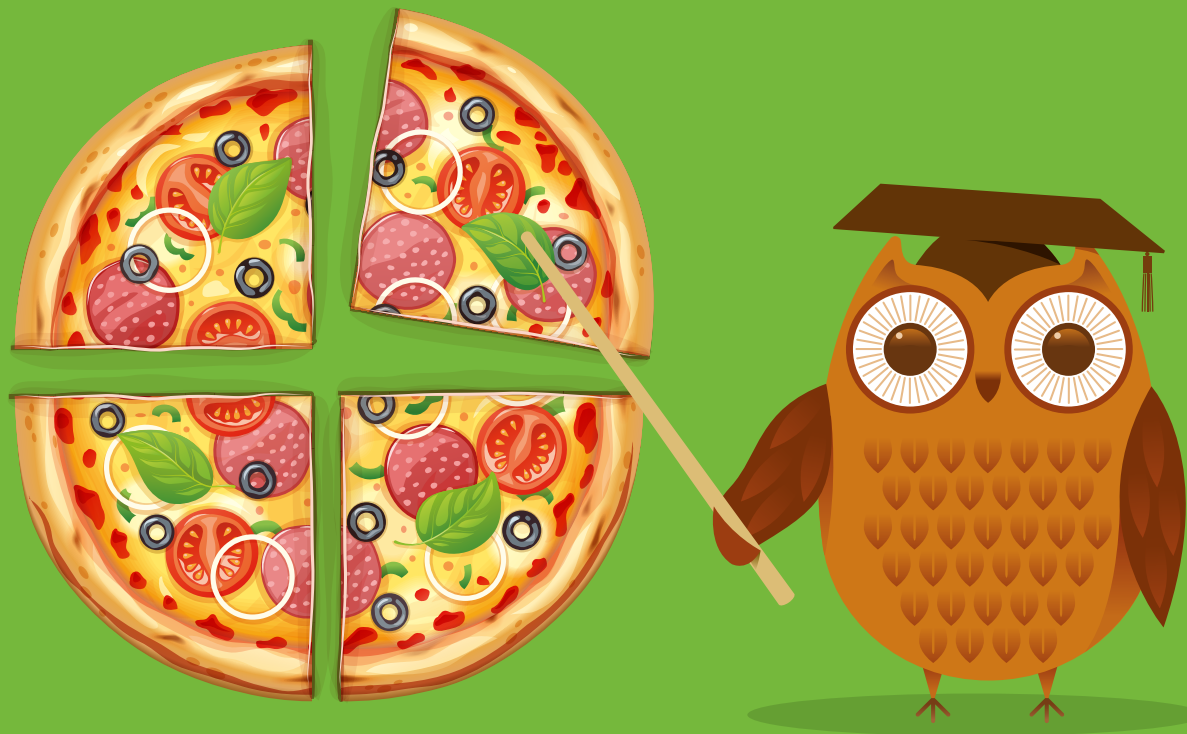
Maths KS2 Years 3 and 4

Unequal
Parts

One
eighth

One
half

Equal
Parts



Maths Lesson 3: Fractions

Identifying, representing and comparing unit fractions and non-unit fractions

Maths

**Key Stage 2
Years 3 and 4**

Learning Objectives:

To deepen understanding that:

- fractional notation can be applied to represent one part of a whole in different contexts
- equal parts do not need to look the same.
- unit fractions can be compared and ordered by looking at the denominator. The greater the denominator, the smaller the fraction.

Curriculum Link

To solve problems that involve fractions.

Keywords from Lesson 1 and 2

Part. Whole. Fraction. Equal parts. Dividing bar. Denominator. Numerator. One half. One third. One quarter. One sixth.

Keywords for Lesson 3

One eighth. The whole has been divided into ____ equal parts. Each equal part is one-____ of the whole.

These can be found in printable format at the end of this PDF, for your learning wall.

**Equal
parts**

Whole

**Dividing
bar**

**One
quarter**



You will need the following resources for this lesson:

- Scissors, pencil, whiteboard and whiteboard pens
- Cuisenaire rods or Lego bricks
- An A4 sheet of paper for each child to be used with Activity 1.
- Handout 2 to be used with Activities 2 and 3 (which is on page 8 of this PDF), scissors and pencil.
- Cuisenaire rods to be used with activities 3 and 5
- Lego cubes to be used with Activity 3 (or use Handout 2, cut up into different length rods)
- Counters, 12 per pair to be used with Activity 4
- Handout 3 (on page 9 of this PDF) to be used with Activity 4
- Handout 4, the Gameboard (on page 10 of this PDF), to be used with Activity 4, for 'three in a row game', one pair.

To be used with the plenary:

- Jug
- Clear plastic bottle
- Some water or orange squash

The accompanying PowerPoint has the following learning points:

- Slides 1 and 2 introduce the lesson, the learning aims and the key words.
- Slides 3-7 introduce the key idea that **fraction notation is used with different types of representation: area, linear and as part of a set** using stem sentences to link the whole, the number of equal parts and the fraction created from this.

Activity 1

- Slide 4 introduces Activity 1: This is a paired activity folding a paper strip in half. The stem sentence reinforces the language with the actions and can be repeated at each fold of the paper strip.

The whole has been divided into ____ equal parts.

Each equal part is one-____ of the whole.

One ____ of the whole has been cut off.



Activity 2 (using Handout 1, for slides 5, 6 and 7)

- Slide 5 introduces Activity 2: Each pair now needs 3 paper strips, or Handout 1. Model how to fold, cut and label the parts. This is animated on the slide. At each stage repeat the stem sentence.

The whole has been divided into ____ equal parts.

Each equal part is one- ____ of the whole.

Timings for Activity 1 and 2: approximately 10 minutes.

- Slides 6 and 7 continue Activity 2.
- Slide 8 introduces the challenge question. Ask the children what they notice about the parts.
For example, when the strip is divided into halves there are two parts, when the strip is divided into quarters there are four parts and when the strip is divided into eighths there are eight parts.

Model how $\frac{3}{8}$ would be written and ask the children to investigate with their quarter pieces and their half pieces.

What fractions would they have ($\frac{1}{4}$ and $\frac{3}{8}$)?

Share the stem sentence: **When the numerator and the denominator in a fraction are the same, the fraction is equivalent to one whole.**

Timings for challenge activity: approximately 5 minutes.

Activity 3 (using Handout 2 (on page 8 of this PDF), for slides 9 to 11)

- Slides 9-11 introduce Activity 3. Using either Cuisenaire rods, Lego bricks or Cuisenaire paper strips, ask the children to explore in how many different ways they can represent one half and one quarter. Children could also use the rod images on 'mathsbot', (the link is at the end of Handout 2 on page 8 of this PDF). Handout 2 has images of Cuisenaire rods that could be copied onto A3 paper and then cut up.

The stem sentences, **the whole has been divided into ____ equal parts. Each equal part is one ____ of the whole** are shown as a reminder. You can also print them from the keywords and point them out on your learning wall.

Timings: approximately 10 minutes.

- Slide 11 is a challenge question asking children to investigate which other unit fractions they can represent.
- Slide 12 uses a linear representation and asks children to consider what's the same and what's different?
This addresses the second key idea that equal parts do not need to look the same. The second line shows a different quarter identified. Emphasise how this is still a representation of **ONE quarter** not three quarters.



Activity 4 (for slides 13 to 14 using Handout 3, on page 9 of this PDF)

- Slide 13 introduces Activity 4. Model the slide using the children in the class. Select eight pupils to come out to the front. Ask the remaining children if the eight pupils could be divided into two equal groups. The slide is animated to show how the group of children could be divided in half.
Now ask if the children could be divided into any other equal groups, e.g. into quarters, four groups of two. They could also be divided into eighths, eight groups of one. Also show that the children could stay as one group of eight because each child would be worth $\frac{1}{8}$. There are eight children so $\frac{8}{8}$ would be the whole.
- Slide 14 introduces the '**three in a row game**' independent activity. Provide 12 counters, the gameboard (Handout 4) and game cards (from Handout 3) to each pair of children. The aim of the game is to investigate the different ways 12 counters could be divided into different groups such as halves, thirds, quarters, etc.
Instructions: Turn over a card, from Handout 3. This tells you the group size. For example if you turn over a card with a four on it you will put the counters into groups of four.
Now count how many different groups you have made. This will tell you if you have divided the counters into one whole group of twelve, two groups of six (in half), three groups of four (in thirds), four groups of three (in quarters), six groups of two (in sixths), or in 12 groups of one (in twelfths).
Now find that fraction on the gameboard (Handout 4) and put your initial on this. The aim of the game is to cover three squares in a row/column, with your name. Then you have won the game.

Timings: Approximately 10 minutes

Activity 5 (for slides 15 and 16 – using Cuisenaire rods or Handout 2)

- Slides 15 and 16 consider the final key idea for this lesson: unit fractions can be compared and ordered by looking at the denominator. The greater the denominator, the smaller the fraction.
Ask the children to either make a fraction wall using the Cuisenaire rods or to use the cut up strips from handout 2. Ask questions such as:
Which coloured rods have the most equal parts?
What else do you notice about them? Expect a response such as, 'they are the smallest.'
Which coloured rods have the fewest equal parts, what do you notice about these? They are the largest.



- Slide 16: Read out the stem sentence: **When the whole is the same, the smaller the number of equal parts, the bigger each equal part is.**
Use the question on the slide as a prompt for comparing the lengths of all the different rods to the whole.
- Slide 17 reiterates this using the greater than and less than signs. You may prefer to do this by asking children to come out to the front, holding the different fractions and signs. A copy of these is on Handout 5, on page 11 of this PDF.
Share the stem sentence: **When comparing unit fractions the greater the denominator the smaller the fraction.**

Timings: Approximately 10 minutes.

Plenary

- Slide 18 introduces the plenary. This slide is animated.
Using a jug of orange squash and an empty bottle, ask the children to say STOP when the bottle is one third full.
On the interactive whiteboard, ask a child to draw the line on the bottle to indicate a third.
Now repeat for $\frac{1}{4}$, $\frac{1}{10}$ and $\frac{1}{100}$.
Reiterate that the more parts the whole is divided into the smaller the size of the part.

Timings: approximately 15 mins.

Review

- Slide 20 is a review slide for you to annotate on your interactive whiteboard or to collect what children reflect they have been learning about.

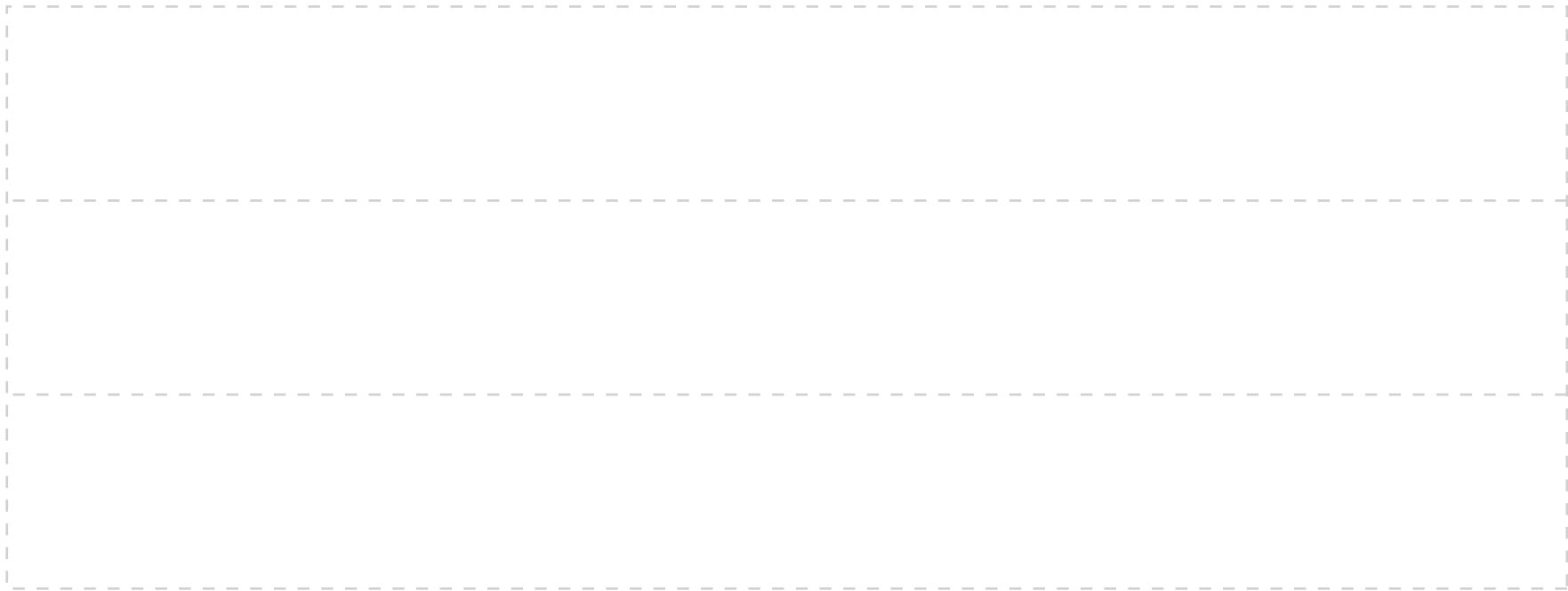
The coloured underlined ideas are the key ideas from this lesson. They indicate opportunities for pupil talk indicated throughout the PowerPoint.



Handout 1

Instructions

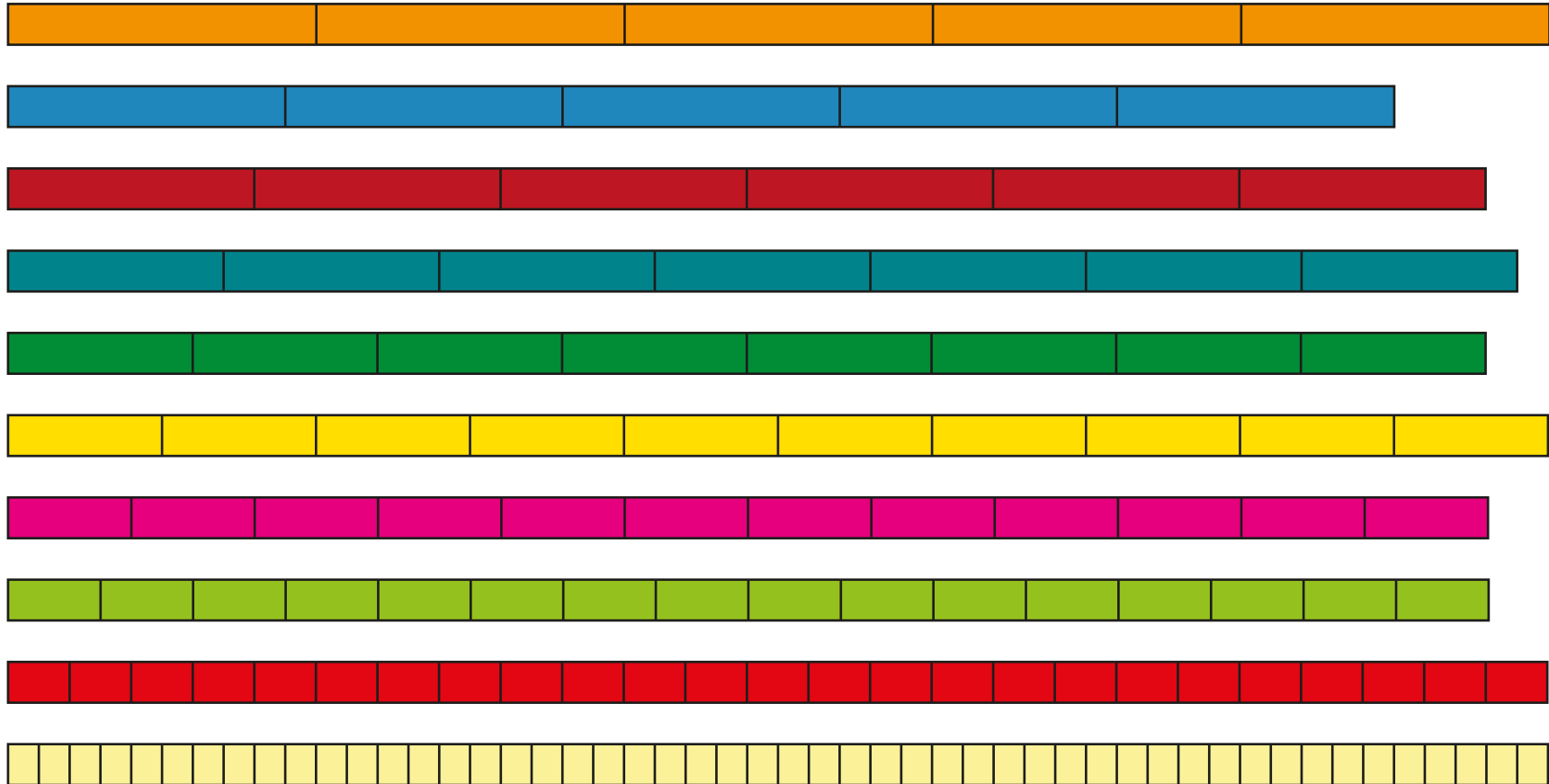
You need 3 strips of paper and a pair of scissors



The whole has been divided into ____ equal parts.
Each equal part is one ____ of the whole.
One ____ of the whole has been cut off.



Handout 2



Useful link: <https://mathsbot.com/manipulatives/rods>



Handout 3



1

1

2

2

4

4

3

3

6

6

12

12

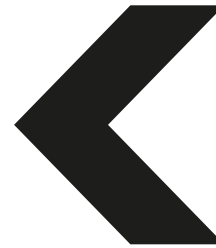
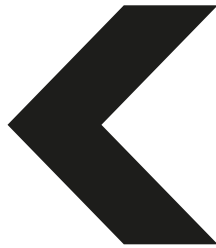
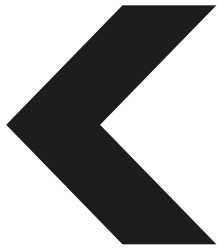


Handout 4, the Gameboard

$\frac{1}{2}$	$\frac{1}{12}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{6}$	1 whole	$\frac{1}{12}$	$\frac{1}{3}$
1 whole	$\frac{1}{3}$	$\frac{1}{6}$	$\frac{1}{2}$



Handout 5



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

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

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

$$\frac{1}{12}$$



Fractions: Keywords Flashcards



One-eighth

The whole has been divided into _____ equal parts.

Each equal part is one _____ of the whole.



One-eighth



**The whole has
been divided
into _____
equal parts.**



**Each equal
part is
one
of the whole.**

