3F–1 Use and understand fraction notation

Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.

3F–1 Teaching guidance

Pupils should learn that when a whole is divided into equal parts, fraction notation can be used to describe the size of each equal part relative to the whole. Because it is the size of a part relative to the whole which determines the value of a fraction, it is important that pupils talk about, and identify, both the whole and the part from the start of their work on fractions. They should not begin, for example, by talking about '1 out of 3 parts' without reference to a whole.

Pupils should begin by working with concrete resources and diagrams. First they should learn to identify the whole and the number of equal parts, then to describe one particular equal part relative to the whole.

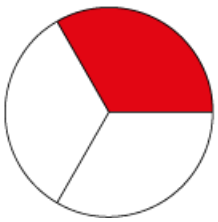


Figure 90: a circle divided into 3 equal parts, with one part shaded

Language focus

"The whole is divided into 3 equal parts. 1 of these parts is shaded."

Pupils must be able to use this precise language to describe a unit fraction of a:

- shape/area (as in the above example)
- measure (for example, a length of ribbon or a beaker of water)
- set (for example, a group of sheep where all are white except one, which is black)

Pupils should then learn to interpret and write unit fractions, relating to these contexts, using mathematical notation. They should continue to describe the whole, the number of parts and the particular part, and relate this to the written fraction.

Say	Write
"The whole has been divided…"	The fraction bar: –
"…into 3 equal parts."	The denominator: **3**
"1 of these parts is shaded."	The numerator: **1**

Language focus

"The whole is divided into 3 equal parts. Each part is one-third of the whole."

A clear understanding of unit fractions is the foundation for all future fractions concepts. Pupils should spend sufficient time working with unit fractions to achieve mastery before moving on to non-unit fractions.

Pupils should learn that a non-unit fraction is made up of a quantity of unit fractions. They should practise using unitising language to describe, for example, 5 eighths as 5 one-eighths (here, we are unitising in eighths).

Language focus

"The whole is divided into 8 equal parts and 5 of those parts are shaded.
$\frac{5}{8}$ of the shape is shaded. $\frac{5}{8}$ is 5 one-eighths."

Pupils should also experience examples where all parts of the shape are shaded (or all parts of the measure or set are highlighted) and the numerator is equal to the denominator. They should understand, for example that $\frac{5}{5}$ represents all 5 equal parts, and is equivalent to the whole.

Teaching should draw attention to the fact that in order to identify a fraction, the parts need to be equal. Comparing situations where the parts are equal and those where they are not is a useful activity (see **3F–1**, questions 2 and 4).

Making connections

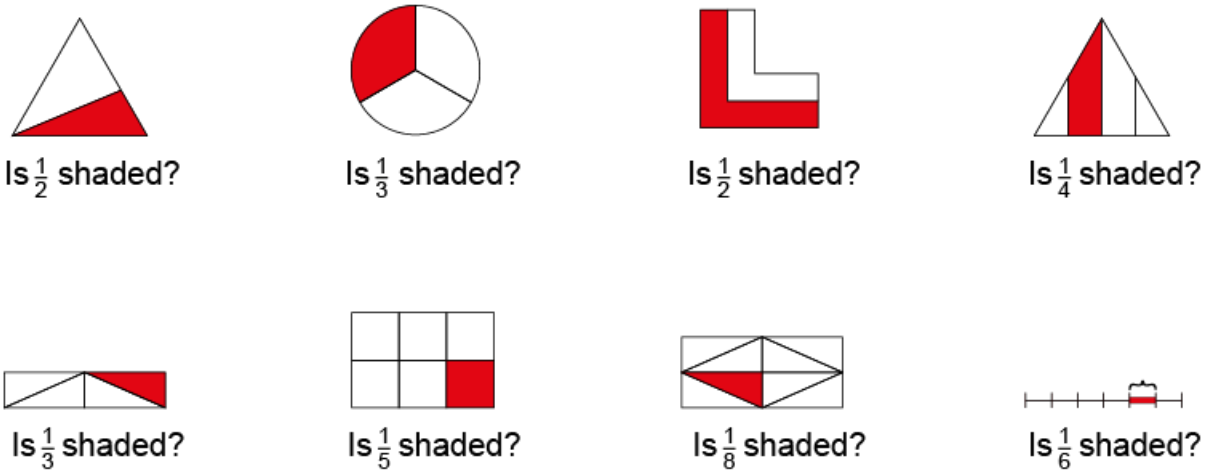
Showing, describing and representing a unit fraction of a shape, measure or set involves dividing it into a number of equal parts. The theme of dividing a quantity into a given number of equal parts runs through many topics, including:

- partitive division (3MD–1)
- finding a unit fraction of a value using known division facts (3F–2).

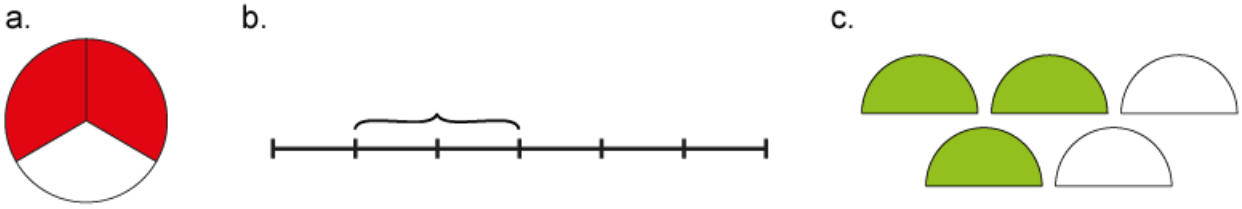
3F–1 Example assessment questions

1. What fraction of each diagram is shaded?

2. Does each diagram show the given fraction? Explain your answers.

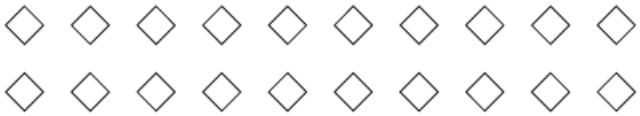


3. What fraction of each diagram is shaded/highlighted?

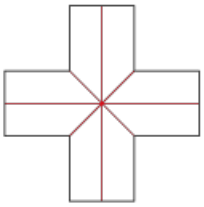


4. Tick or cross each diagram to show whether $\frac{3}{5}$ is shaded. Explain your answers.

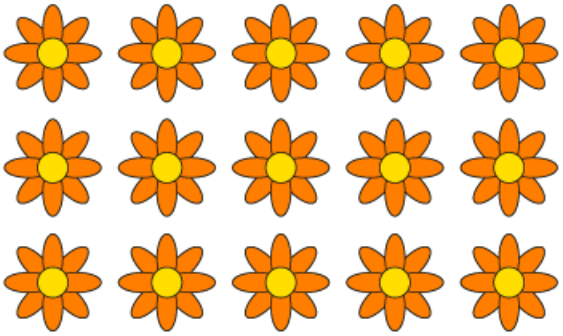
5. a. Shade $\frac{1}{10}$ of this set.



b. Shade $\frac{3}{4}$ of this shape.



c. Circle $\frac{4}{5}$ of the flowers.



d. Colour $\frac{1}{3}$ of the line.