Parents' Information
Fractions

Before fractions...

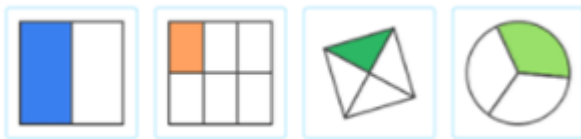### Parts and wholes

If .... is the whole, then .... is part of the whole.

If .... is the whole, then .... is **not** part of the whole.

Understanding fraction notation

3. Numerator
This shows how many parts we take (or shade).

$$\frac{3}{8}$$

1. Fraction bar
This shows we are dividing into equal parts.

2. Denominator
This shows how many equal parts we are dividing into.
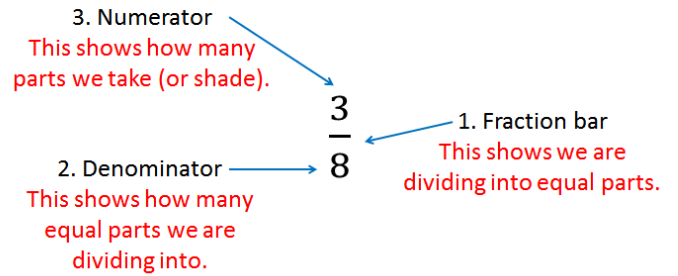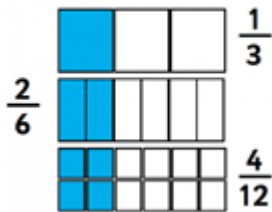
Unit fractions have a numerator of 1.

Non-unit fractions have a numerator **other** than 1.

Non-unit fractions are made of several unit fractions.

$$\frac{3}{4} = 3 \text{ lots of } \frac{1}{4}$$

Equivalent fractions have the same value or amount

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

Mixed numbers have a whole number and a fraction,

$$1\frac{3}{4}$$

Improper fractions have a numerator which is greater than the denominator.

$$\frac{5}{4}$$

Fractions are represented in different ways and in different contexts

Linear model

Whole

3/4

(a)

Whole

(b)

3/4

Area model

Whole

3/4

Discrete model

Using non-standard representations and non-examples really makes the children think and helps them to develop a deep understanding.
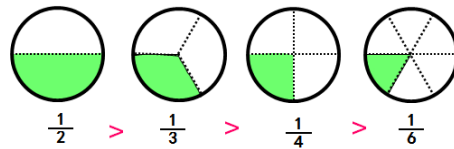
We can only compare fractions with the same sized wholes.

Tim told me that $\frac{1}{2}$ is always greater than $\frac{1}{4}$. Is he right?

It depends on the size of the whole!

For the same whole

$$\frac{1}{2} > \frac{1}{3} > \frac{1}{4} > \frac{1}{6}$$

In unit fractions…

The **greater** the **denominator, the smaller** the unit fraction.

This is true for any fractions with the same numerator.

There are two ropes. Parts of them have been covered up and now the exposed parts are the same length.
Do you know which rope is longer?

$\frac{1}{2}$

$\frac{1}{3}$

Which rod will be longer?

$\frac{2}{7}$

$\frac{3}{9}$

What fraction does the shaded part show?

I think $\frac{7}{10}$ is shaded.

I think $1\frac{2}{5}$ is shaded.

Who is right?
Convince me!
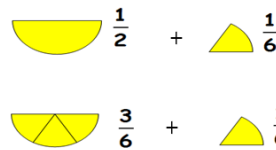
We need to define what the whole is!

It's easy to add things that have the same noun!

2 apples + 2 apples + 2 apples = 6 apples

2 thirds + 2 thirds + 2 thirds = 6 thirds $\frac{6}{3} = 2$
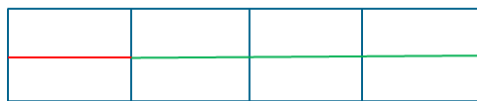
Common misconceptions / difficulties

Can we calculate?

$\frac{1}{2}$ + $\frac{1}{6}$

$\frac{3}{6}$ + $\frac{1}{6}$

We can add these fractions when we rename them and use the same nouns.

$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$ Think of this as ½ of ¼

Divide proper fractions by whole numbers
$\frac{1}{4} \div 2 = \frac{1}{8}$

What is $3\frac{1}{2} \div \frac{1}{4}$

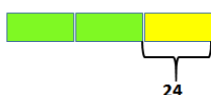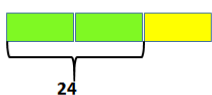How many quarters are there in $3\frac{1}{2}$?

| 1 | 1 | 1 | |

Bar models for fractions

Represent these problems with bar models

❶ The gardener planted some trees.
$\frac{2}{3}$ were apple trees.
The rest were pear trees.
There were 24 apple trees.

24

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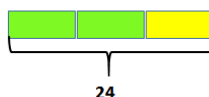
There was a tin of sweets. $\frac{1}{2}$ of the sweets in the tin were chocolates. $\frac{1}{4}$ were toffees and the rest were strawberry creams.
If there were 5 strawberry creams, how many sweets were in the tin?

Jane spent $^2/_5$ of her money on a book.
The book cost £10.
How much money did she start off with?

Tom baked some cookies. He packed 2/3 of then into a tin and gave 1/5 of the remainder to his friend. He had 40 biscuits left. How many biscuits did he bake?

5/8 of a group of boys chose the lion as their favourite animal.
2/3 of the rest chose the elephant.
The remaining 10 boys chose the cheetah.
How many boys were there in the group?