

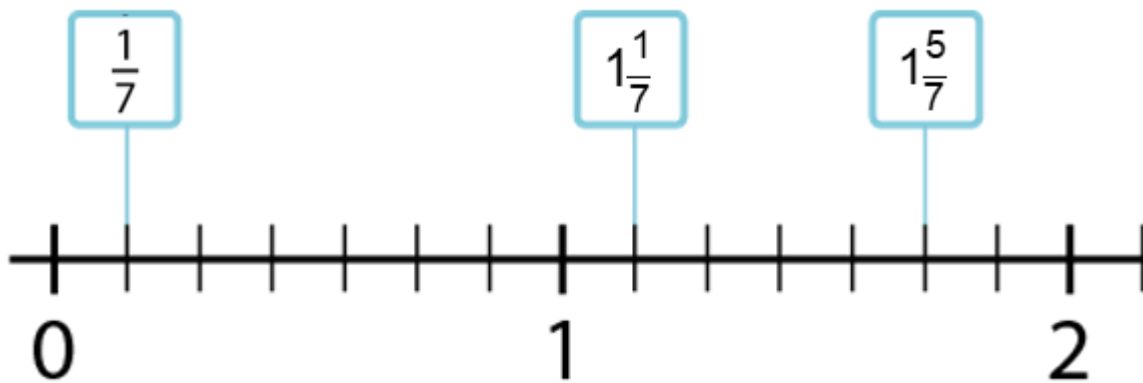
Maths

Mixed Numbers and Improper Fractions

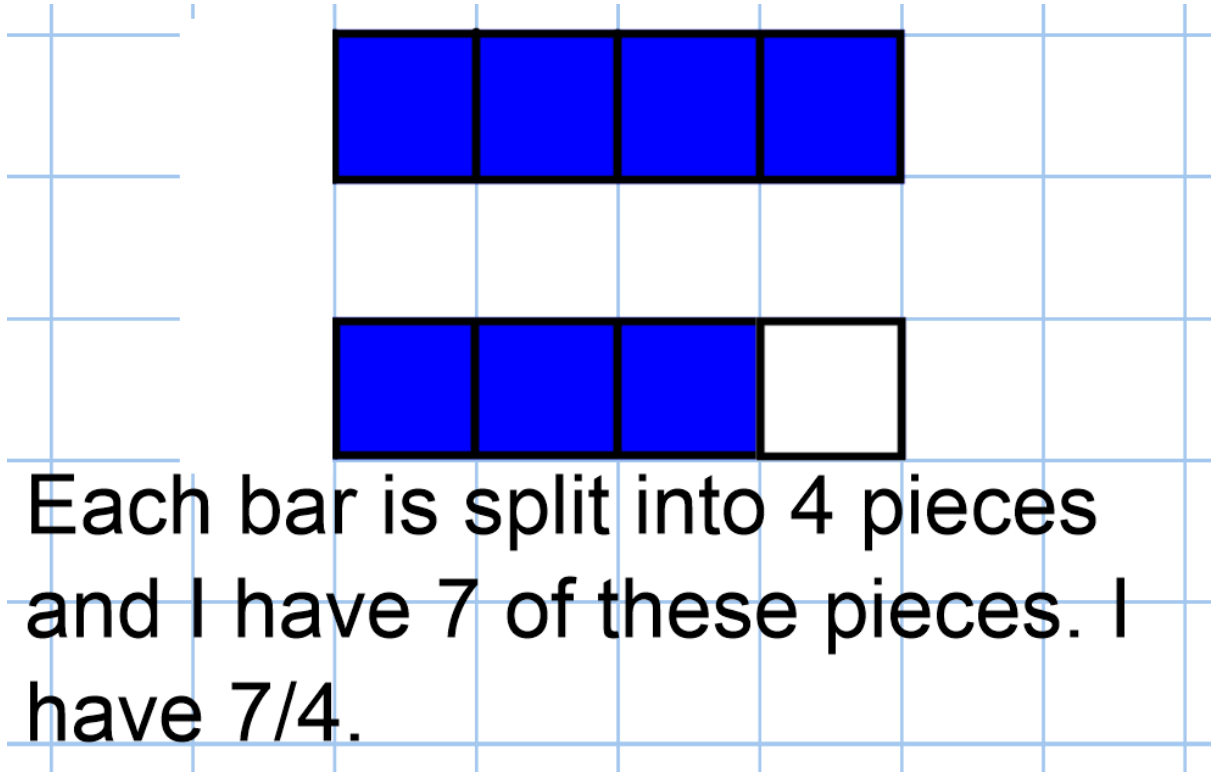
Lesson 1

The denominator (bottom number) shows the number of times the whole has been equally split and the numerator (top number) shows the number of those equal pieces you have. For example $\frac{3}{4}$ means something is split into 4 equal pieces and we are talking about 3 of them.

Mixed numbers show when we have a whole and then a part of another whole. They can be represented on a number line like the one below.



If there is more than one whole the fraction can also be displayed as an improper (top heavy) fraction. For instance, if chocolate bars are split into quarters and I have one whole chocolate bar and $\frac{3}{4}$ of another I could say that I have $\frac{4}{4}$ of one chocolate bar – the whole bar – and $\frac{3}{4}$ of another, meaning altogether I have $\frac{7}{4}$ of a chocolate bar.



To convert improper fractions to mixed numbers – numbers with a whole number and a fraction – you divide the numerator by the denominator and see how many times it goes into it, with your remainder becoming your fraction.

For instance with $7/4$ – 7 divided by 4 is 1 remainder 3 so our mixed number would be 1 and $3/4$.

Mathematics tasks have been assigned to children for this and this should constitute one hour of their maths learning.

Lesson 2

Here are 10 top heavy fractions converted into mixed numbers, some have been done correctly some have been done wrong. Work out which ones are correct and incorrect ensuring that you correct the ones which are wrong.

$$\frac{42}{5} = 8 \frac{2}{5}$$

$$\frac{25}{4} = 6 \frac{1}{4}$$

$$\frac{21}{3} = 6 \frac{1}{3}$$

$$\frac{38}{9} = 4 \frac{2}{9}$$

$$\frac{54}{4} = 12 \frac{2}{4}$$

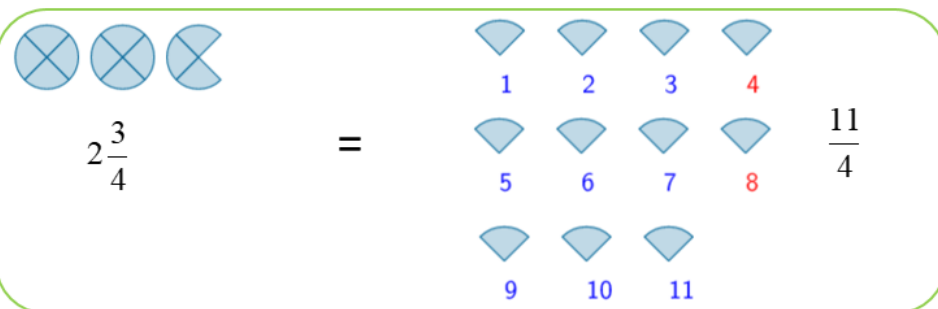
$$\frac{150}{12} = 12 \frac{6}{12}$$

To convert a mixed number into an improper fraction you multiply the whole number by the denominator and then add on the numerator.

$$\begin{array}{l} + \text{r} \\ 2 \frac{3}{4} \\ \times \text{l} \end{array} = \frac{(4 \times 2) + 3}{4} = \frac{8 + 3}{4} = \frac{11}{4}$$

Mixed Number

Improper Fraction



Convert the following mixed numbers into improper fractions:

$$2\frac{1}{7}$$

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

$$7\frac{3}{4}$$

$$8\frac{1}{12} =$$

$$2\frac{7}{10} =$$

$$8\frac{7}{15} =$$

Lesson 3

When adding or subtracting mixed numbers children must first convert the number into an improper fractions – see the last hour of learning.

If the denominator is the same with the mixed numbers it will be the same when the number has been converted to an improper fraction. When adding these fractions children must remember that the **denominator stays the same**. This means all that the children have to do is **add or subtract the numerators**.

Add these numbers.

$$\frac{7}{5} + \frac{6}{5} = \frac{13}{5}$$

Stays the same.

This is the same when subtracting improper fractions. A common misconception when subtracting mixed numbers is to think it isn't possible as one fraction is smaller than another. We must remember we can tell if a number is bigger or smaller by looking at the **whole number**.

For example in

$$7\frac{1}{3} - 2\frac{2}{3}$$

7 and one third is bigger as there are 7 wholes.

Answer the following questions. As an extension can you change your answers back to mixed numbers.

$$2\frac{1}{4} + 1\frac{2}{4} =$$

$$10\frac{3}{8} + 2\frac{5}{8} =$$

$$4\frac{7}{15} + 5\frac{9}{15} =$$

$$8\frac{4}{5} - 2\frac{1}{5} =$$

$$10\frac{1}{9} - 2\frac{4}{9} =$$

$$7\frac{10}{15} - 2\frac{12}{15} =$$

Throughout the week

Children should look at learning their six times tables. They can do this through Mathematics and Hit the Button and they should look to spend one hour on this across the week.