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| Factor | Factors are numbers that divide exactly into another number. E.g. 2 is a factor of 4 as $4 \div 2 = 2$ |
| Common Factor | Numbers that divide exactly into two other numbers e.g. 4 is a common factor of 8 and 16 |
| Numerator | The top number – How many parts you are interested in out of the whole |
| Denominator | The bottom number – How many parts to the whole |
| Common fraction | Common fractions are smaller than 1. They are also called proper fractions . |
| Improper fraction | Improper fractions are bigger than 1. They are also called top-heavy fractions . |
| Mixed number fraction | Mixed numbers are bigger than 1. They are a whole number and a fraction together. E.G $2 \frac{3}{4}$ |
| Equivalent fractions | Equivalent fractions have the same value. $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$ |
| Simplifying | To simplify a fraction you divide the numerator and the denominator by the largest number that divides into both. This is also called reducing or simplifying . |

To simplify you need to find the highest common factor (the highest number that will divide equally into the two numbers without any remainders) of both the numerator and denominator. You can do this using a factor bug. You then divide the numerator and denominator by that factor. This will give you the simplest form of a fraction. The simplest form is the smallest value the fraction can be whilst still being equivalent.

numerator 18
denominator 30

To simplify a fraction, we divide both the numerator (top number) and the denominator (bottom number) by the same number.

If we divide both these numbers by 6, the fraction becomes:

18 divided by 6 = 3
30 divided by 6 = 5

The trick is knowing what number to divide by – you need to find a number that you know both numerator and denominator will divide by without a remainder. Knowing your times tables well will help!

Another way of simplifying fractions is to use your times tables knowledge and keep reducing the fraction until you can go no further. E.G $\frac{16}{20}$ divide top and bottom by 2 $\frac{8}{10}$ divide by 2 again = $\frac{4}{5}$. This is the simplest form.

Adding and subtracting simple fractions

We can use **equivalent** fractions to add fractions that do not have the same **denominator**.

For example: $\frac{3}{4} + \frac{1}{8}$ We need to change $\frac{3}{4}$ into an equivalent fraction with a denominator of 8.

$\frac{3}{4} = \frac{6}{8}$ (multiplied by 2)

Now we have: $\frac{6}{8} + \frac{1}{8} = \frac{7}{8}$

Section 3

- Denominator** – The bottom number of a fraction.
- Numerator** – The top number of a fraction.
- Equivalent** – The same as.

When you find equivalent fractions the denominators need to be the same to add or subtract. To find an equivalent fraction you must change the multiply or divide the denominator by the same amount. What you do to the bottom, you must do to the top.

Multiplying Fractions

$\frac{2}{7} \times \frac{3}{5} = \frac{6}{35}$

Section 4

$\frac{2}{4} \times \frac{3}{6} = \frac{6}{24}$

Multiply the numerators. Multiply the Denominators.

When multiplying fractions, you multiply the denominators and then multiply the numerators. You do not need the denominator to be the same. The product of two fractions gives a smaller answer. The whole has been split into more parts. Multiplication is commutative – it doesn't matter which way round you multiply the quantities, the answer is the same.

Dividing Fractions

Section 5

Use the bar model to help you divide fractions by whole numbers

Example: $\frac{1}{3}$ divided by 3 = $\frac{1}{9}$

Example $\frac{2}{5}$ divide by 5 = $\frac{2}{25}$

We can use models to help us divide. We can start with drawing a model of the whole and splitting it into parts determined by the denominator. Then put a dot in the sections determined by the numerator. The next step is where we divide by the whole number and split the whole horizontally by this amount. Your whole amount will now be split into more parts. The numerator stays the same and the denominator is the amount of parts you now have.