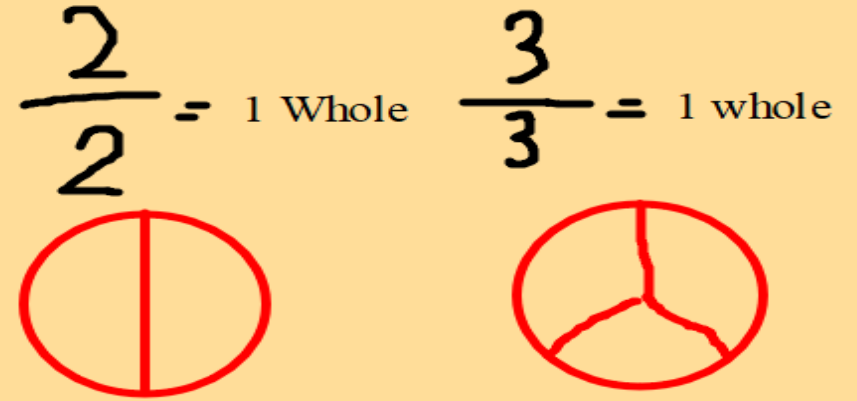
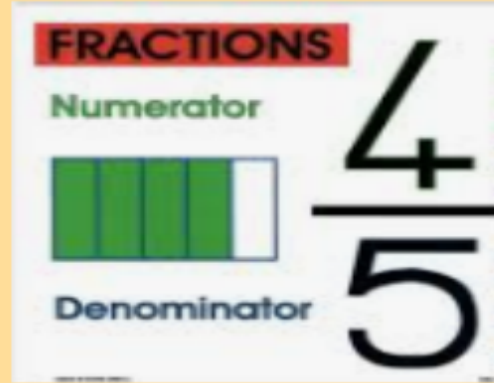


Fractions

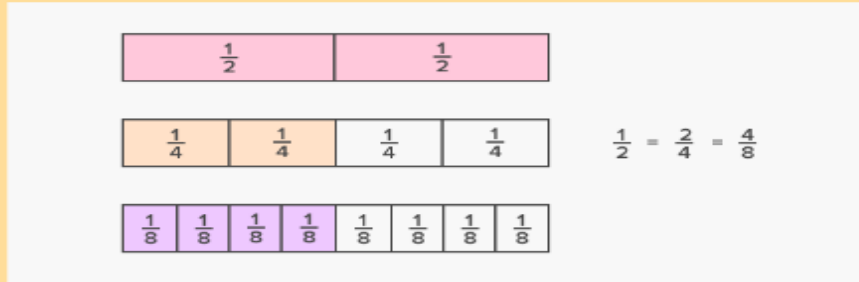
Fraction = number of parts / total parts

Every fraction has a numerator that equals the number of parts we have and a denominator equaling the total number of parts in a whole.



EQUIVALENCES

Fraction walls are useful to see equivalence. As we move up the year groups, we will use our multiplication and division facts to work this out.



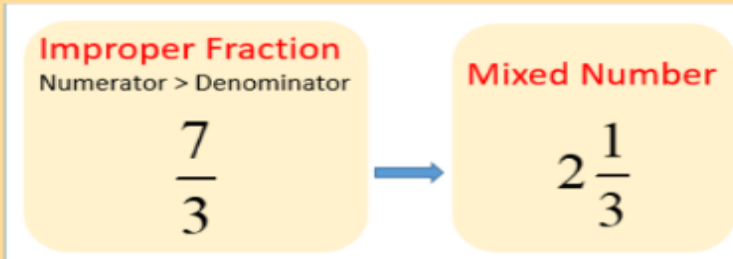
$$\begin{array}{l} \frac{4}{8} \times 2 = 8 \\ \quad \times 2 = 16 \\ \hline \frac{4}{8} = \frac{8}{16} \end{array}$$



$$\begin{array}{l} \frac{4}{8} \div 2 = 2 \\ \quad \div 2 = 4 \\ \hline \frac{4}{8} = \frac{2}{4} \end{array}$$

What ever you do to the top, you must do to the bottom

IMPROPER AND MIXED NUMBER FRACTIONS



	$\frac{16}{6}$	$2\frac{4}{6}$
	$\frac{12}{5}$	$2\frac{2}{5}$
	$\frac{7}{4}$	$1\frac{3}{4}$

Use of images helps to convert fractions from mixed number to improper fractions and vice versa. Here's how I do it mathematically.

Mixed to improper

$$2\frac{4}{6}$$

$2 \times 6 = 12$ (I do this because 1 whole has 6 pieces so 2 wholes will have 12) and then I add the 4 parts.

$$\frac{16}{6}$$

Opposite way, I say to myself 'How many times does 6 go in to 16?' The answer is '2' with a remainder of 4, which I put over the denominator.

ADDING/SUBTRACTING FRACTIONS

$$\frac{5}{9} + \frac{1}{9} = \frac{6}{9}$$

$$\frac{6 \div 3}{9 \div 3} = \frac{2}{3}$$

If the denominator is the same, you simply add the numerators and keep the denominator the same. This has been simplified using our knowledge of equivalences.

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{4} = \frac{6}{12} + \frac{4}{12} + \frac{3}{12}$$

$$= \frac{6 + 4 + 3}{12} = \frac{13}{12}$$

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

If the denominators are different, you need to find the lowest common multiple. The smallest number that is a multiple of the denominators. In this case 12.

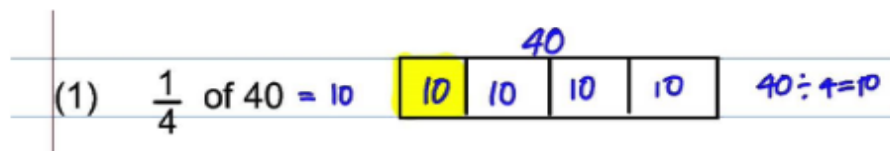
2	4	6	8	10	12
3	6	9	12		
4	8	12			

MULTIPLYING FRACTIONS

$$\frac{2}{3} \times \frac{3}{5} = \frac{2 \times 3}{3 \times 5} = \frac{6}{15} = \frac{2}{5}$$

Simply multiply the numerators and the denominators.

Fractions of amounts



To find fractions of amounts you must divide by the denominator and this will tell you one part. Then take this answer and multiply it by the numerator. A bar model to show you why.

$$\frac{3}{6} \text{ of } 18$$

$$18 \div 6 = 3$$

$$3 \times 3 = 9$$

DIVIDING FRACTIONS

'Flip, reverse it'

$$\frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \times \frac{3}{2}$$

Flip the second fraction

$$\frac{4}{5} \times \frac{3}{2} = \frac{12}{10}$$

Reverse the operation: division becomes times.

$$\frac{12}{10} = 1 \frac{1}{5}$$

Simplify

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

$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$

If the fraction is divided by a whole number, place a one underneath the fraction and then do the same method. The reason being is because 2 wholes is the same as $\frac{2}{1}$