1 Adding/Subtracting Fractions – Decoding It

The common mistake of most pupils in 'adding fractions' is by adding/subtracting the denominators together. For example:

$$\frac{1}{2}+\frac{2}{3}=\frac{3}{5}$$ → Pupil added the denominators together ✗

Pupils need to understand the meaning of 'denominator'. It actually means the 'name' or the 'units' of the fraction. For example: $\frac{1}{apple}+\frac{2}{apples}=\frac{3}{apples}$

So if the fractions have 2 different denominators, it means they have different units and they cannot be added. The denominators (units) must be made the same if they are to be added.

Fraction	Units
$\frac{3}{10}+\frac{2}{5}$	$\left(\frac{3}{apples}+\frac{2}{boxes}\right)$
$=\frac{3}{10}+\frac{2\times2}{5\times2}$	$\left(\frac{3}{apples}+\frac{2\times2}{boxes\times2}\right)$
$=\frac{3}{10}+\frac{4}{10}$	$\left(\frac{3}{apples}+\frac{4}{apples}\right)$
$=\frac{7}{10}$	$\left(\frac{7}{apples}\right)$

2 Butterfly Fractions

To add or subtract fractions the butterfly way,

a) Write the fractions side-by-side as usual and draw two wings along the diagonals made by the numerator of one fraction & the denominator of the other fraction and draw an antenna on each wing.

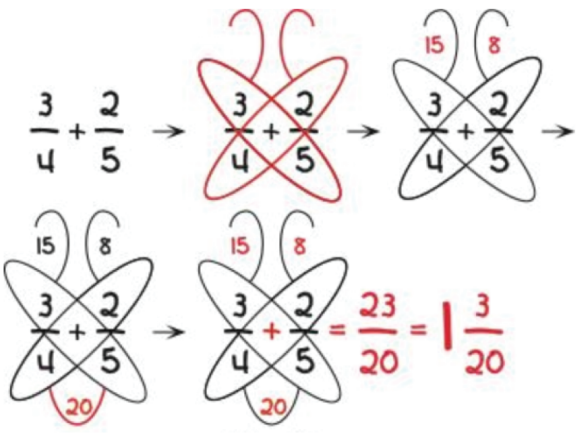
b) As suggested by the wings, that look like a multiplication sign, multiply the numbers in each wing and put the product in the antenna for the wing.

c) Think or say: "This poor butterfly needs a body." To give it a body, connect the bottom parts of the wings with a body-like loop and multiply the two denominators it connects, putting the product inside the body.

d) Add or subtract the numbers in the antennae in keeping with what is being done to the fractions and put the result over the number in the body.

e) If necessary, express the result in simplest form.

The butterflies below for $\frac{3}{4}+\frac{2}{5}$ illustrates the procedure.



Adapted from http://www.moveitmaththesource.com/realfractions/butterflyfractio.html