

1

Get your fair share

Put children into groups of 5 and challenge them to share 9 A4 sheets of paper equally between them. Discuss the different solutions to the problem, for example one group might distribute one sheet to each person and then cut the remaining four in half and give each person a half then do the same with the remaining 3 and so on. Another group might cut each A4 sheet into 5 and distribute them that way. At each point encourage children to express the fractions and also record them. Repeat using different numbers of sheets and different shapes!

2

All about the base

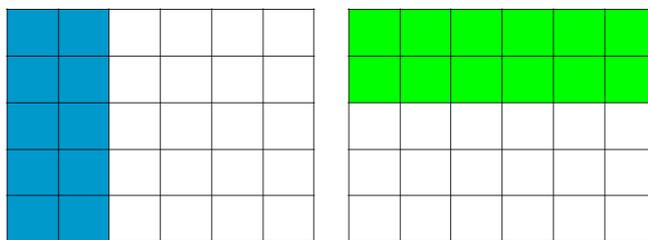
To ensure that children really understand that the role of the denominator is to show how many parts the item is divided into, encourage them to visualise the fraction as a number of equal sized parts. Provide children with several copies of a shape divided up into a numbers of parts. Ask children to colour using 2 colours and then challenge them to provide all the calculations they can work out from one representation e.g. for $\frac{3}{7} + \frac{4}{7} = \frac{7}{7}$ or 1. In turn we know that $1 - \frac{3}{7} = \frac{4}{7}$ and $1 - \frac{4}{7} = \frac{3}{7}$. In this way children will see that they only add and subtract the numerators.



3

Finding common ground

Use the array method to introduce addition of fractions with different denominators. This gives children them a visual grasp of adding fractions and helps when they move on to more abstract methods. For example to add $\frac{2}{6}$ and $\frac{2}{5}$ draw an array of 6 by 5 (taking the value of the denominators for the dimensions of the array). Colour in $\frac{2}{6}$. Draw another 6 by 5 array and this time colour $\frac{2}{5}$.

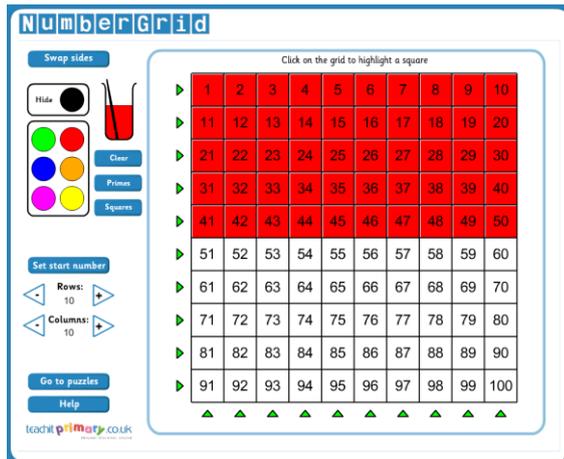


Challenge the children to work out the common denominator and then add the equal parts to find the numerator, i.e. $\frac{22}{30}$. Extend for more able children to ask them to express this fraction in its simplest form, i.e. $\frac{11}{15}$.

4

Parts of a hundred

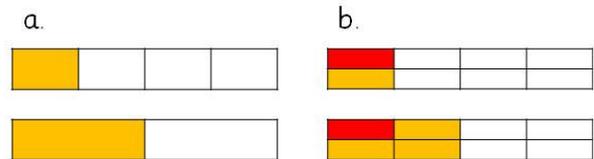
Using blank laminated hundred squares show how the square can be divided in to equal parts. Call out a fraction with any of the following denominators 2, 4, 5, 10, 20, 25, 50,100 and ask the children to colour the fraction on the hundred square and then to convert it to a decimal by looking at the number of hundred parts which have been coloured. For example if $\frac{1}{2}$ has been covered that would be 50 hundred squares so the decimal would be 0.50. Try using our interactive [Number square](#) which makes the highlighting of squares quick and easy



5

The Bar Model.

Use a bar – a strip of paper that children can fold or shade to represent a fraction of a whole – to help introduce multiplying a fraction by a fraction. For example $\frac{1}{4} \times \frac{1}{2}$ would look like either a or b depending on whether you divide the bar into quarters and then halve the quarters or divide the bar into halves and then quarter a half. The answer is $\frac{1}{8}$.



Similarly, you can divide a unit fraction by a whole number e.g. $\frac{1}{3} \div 2$ would look like:



Both these concepts are requirements of the new curriculum in Year 6. This will lead to children learning that multiplying by $\frac{1}{2}$ is the same as dividing by 2.