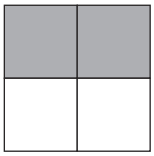
Guidance

Equivalent Fractions

The basis of equivalent fractions is that all fractions can be expressed in different ways.



This diagram shows that $\frac{1}{2}$ is equivalent to $\frac{2}{4}$. Equivalents fractions can also be found by multiplying or dividing the numerator and denominator by the same number.

$\frac{2}{3} = \frac{8}{12}$: multiply numerator and denominator by 4.

Ordering Fractions

There are 2 main ways to order fractions with different denominators. One is to find the equivalent fractions with the same denominator. The other is to convert the fractions into decimals.

The fractions in Q1 are $\frac{2}{3}$ $\frac{5}{6}$ $\frac{5}{9}$ $\frac{7}{12}$. The denominators are all multiples of 3. In this case question, only 3 fractions are needed, so converting 3 of the fractions to twelfths is a good option.

$\frac{2}{3} = \frac{8}{12}$, $\frac{5}{6} = \frac{10}{12}$, $\frac{7}{12}$. Theses can be ordered as follows: $\frac{7}{12} < \frac{2}{3} < \frac{5}{6}$.

Converting to decimals can be done using division, or can rely upon knowledge of common fractions and decimal equivalents. $\frac{2}{3}$ = 0.667, $\frac{5}{6}$ = 0.833, $\frac{5}{9}$ = 0.556, giving $\frac{5}{9} < \frac{2}{3} < \frac{5}{6}$.

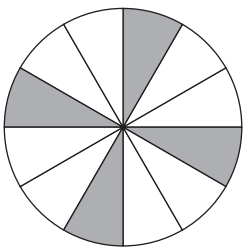
Fraction Problems

Fraction problems can take many forms and children need to be confident in using fractions in many different contexts. Many rely upon finding fractions of amounts.

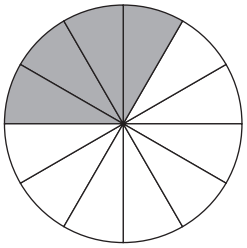
Visual Representations

Younger children will be asked to shade the fraction of a shape where the number of equal parts of the shape is equal to the denominator of the fraction. However at KS2, the number of parts of the shape will be a multiple of the denominator.

Shading $\frac{1}{3}$ of a shape of 12 equal parts can be done by shading every third part,



or by calculating that $\frac{1}{3}$ of 12 = 4, so 4 parts need to be shaded.



Fraction Word Questions

With fraction word questions, as with calculation word questions, there are 2 main parts. Firstly to understand which calculations are needed, and secondly to perform the calculations accurately.

Q6 above states: At the beginning of the day, Hasim counted his money. He gave his brother $\frac{1}{3}$ of his money. He spent £12 on a present for his sister. He then counted what he had left, and it was half what he had at the beginning of the day. How much did he give his brother?

One way to visually represent this is by using a bar to represent all the money and divide the bar into the different amounts and fractions.

$\frac{1}{3}$ to the brother	£12 gift	$\frac{1}{2}$ is left over
$\frac{2}{6}$	$\frac{1}{6}$	$\frac{3}{6}$

Using equivalent fractions the £12 gift is $\frac{1}{6}$ of the money. Therefore the money given to the brother is twice this, £24.

Decimal Number Problems

Decimal problems can often involve calculations where it is important to recognise the place value of the decimal numbers.

With Q7: Circle two numbers that add together to equal 0.75.

0.03 0.7 0.72 0.07

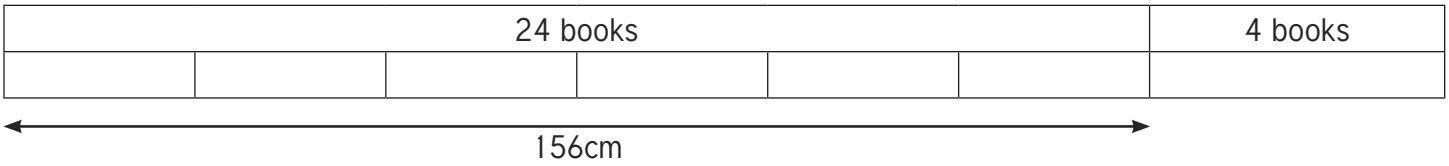
Children need to recognise that when adding 0.03 and 0.72, the 3 and 2 are both hundredths, so the total is 0.75.

Rounding decimals uses the same principals as rounding whole numbers, where the number is rounded to the nearest whole, number, tenth or hundredth, and a 5 is always rounded up. 1.5 rounded to the nearest whole number is 2, because the 5 tenths is rounded up. 1.367 rounded to the nearest tenth is 1.4, because the 6 hundredths is rounded up. In this case, the 7 thousandths is not used in rounding to tenths.

Ratio

Ratio questions can be similarly expressed using a bar.

In Q11 there are 24 books, and 4 more are added.



This bar shows how the 24 books can be divided into 6 sets of 4 books. Therefore, 4 books will measure 156 ÷ 6 = 26cm. The new width will be 156 + 26 = 182cm.