Maths - Year 5

Numbers and the Number System 7: Solving problems with fractions, decimals and percentages

Key Vocabulary

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Equivalence	The same value represented in different ways.
Proportion	Used to express a fraction of a whole e.g. ½ the grapes are green.
Proper fraction	A fraction where the numerator is smaller than the denominator.
Improper fraction	A fraction where the numerator is bigger than the denominator.
Mixed number	A number written as a whole number and a fraction e.g. 2½.
Factor	A number that divides into another number exactly.
Common factor	A whole number that divides into two or more other numbers exactly.
Percentage	Used to show a fraction 'out of 100' with the symbol % e.g. 50%.

Mathematical Skills

- Notice patterns that support their understanding and talk about these using mathematical language.
- Explain equivalences between fractions, decimals and percentages.
- Use knowledge of, e.g. 1% or 10% of an amount to work out other percentage of the same amount.
- Find percentages and fractions of amounts in a range of contexts such as money and measures.
- Convert fractions with denominators that are factors of 100 to percentages, e.g.

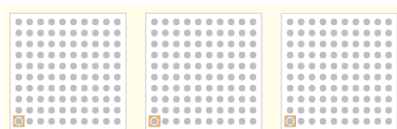$$\frac{11}{25} = \frac{44}{100} = 44\%$$

Mathematical Methods

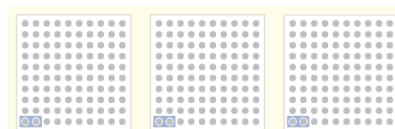- Finding equivalents of 1% and other percentages.
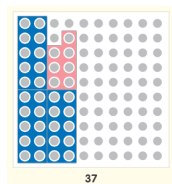
37 out of 100 = 37% or $\frac{37}{100}$ or 0.37.

- Finding percentages of amounts other than 100

e.g. 1% of 300 is 3.   Therefore, 2% is 6.

- Finding equivalents of multiples of 10% and finding percentages of amounts e.g.

$$\frac{1}{10} = \frac{10}{100} = 0.1 = 10\% \quad so \quad \frac{2}{10} = \frac{20}{100} = 0.2 = 20\% \ etc.$$

- Finding equivalents of commonly used fractions e.g. $\frac{1}{2} = \frac{50}{100} = 0.5 = 50\%$

- Using percentages as proportions of quantities.

$\dfrac{4}{10}$ = 40%

$\dfrac{4}{8} = \dfrac{1}{2}$ = 50%

$\dfrac{5}{10} = \dfrac{1}{2}$ = 50%

$\dfrac{6}{12} = \dfrac{1}{2}$ = 50%

- Using percentages as operators e.g.

£40

$2\frac{1}{2}$% = £1

5% = £2

10% = £4

20% = £8

30% = £12

50% = £20

25% = £10
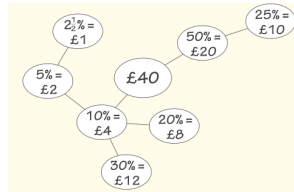
Can you..?

- Write 30% as a fraction and as a decimal.

- A book costs £10.00. There is a 15% discount. How much will the book be after the discount?

- Calculate 50% of £4.64.

- Calculate 25% of £48.00