

Maths - Year 6

Calculating 5: Percentages

Key Vocabulary

| | |
|-------------|---|
| Percentage | A part of a whole expressed in hundredths e.g. 10% means 10 out of every hundred. |
| Proportion | Used to express a fraction of a whole e.g. $\frac{1}{2}$ the grapes are green. |
| Numerator | Upper number of a fraction, shows how many of this kind of fraction. |
| Denominator | Lower number of a fraction, gives the fraction its name. |
| Equivalence | At least two numbers or quantities are the same or equal to each other. |

Mathematical Skills

- Give common fraction, percentage and decimal equivalents, e.g. $\frac{1}{2} = 50\% = 0.5$
- Explain how to convert between fractions, percentages and decimals with reference to expressing proportions 'out of 100'.
- Explain that quantities can be compared as proportions (that is, without calculating the actual quantities) provided the total quantity is the same for each proportion.
- Explain that proportions of different total quantities can be compared by expressing them 'out of' the same number e.g. as percentages.
- Calculate simple percentages of quantities by using their relationship to equivalent fractions and dividing e.g. calculate 50% as $\frac{1}{2}$ of a quantity by halving.
- Calculate other percentages of quantities based on their relationship to simple percentages, e.g. calculate 30% of a quantity by finding 10% then multiplying by 3.
- Explain, following an increase or decrease, whether a quantity is greater or less than 100% of the original quantity, e.g. that following a 5% increase the new quantity is 105% of the original.
- Explain what data presented in the form of percentages shows.

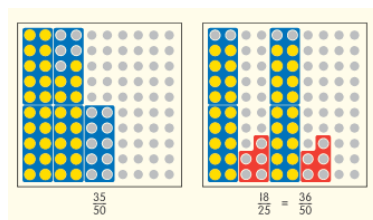
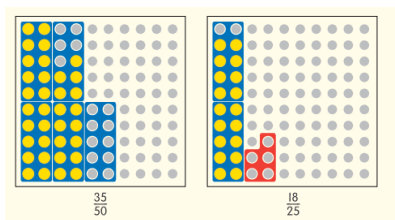
Mathematical Methods

- Making connections between fractions, decimals and percentages.

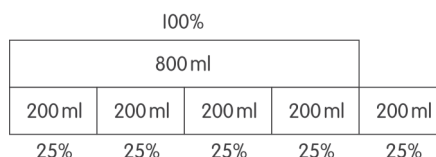
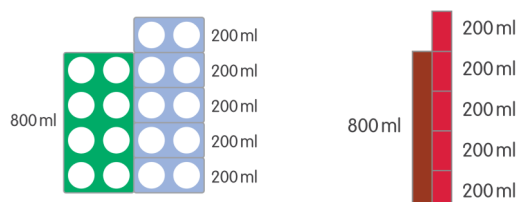
| Discount on £70 | | | Offer Price |
|-----------------|------------|--------|-----------------------|
| Original | Percentage | Amount | |
| $\frac{1}{5}$ | 20% | £14 | £70 - £14 = £56 |
| 0.16 | 16% | £11.20 | £70 - £11.20 = £58.80 |
| 15% | 15% | £10.50 | £70 - £10.50 = £59.50 |

- Using percentages to compare scores.

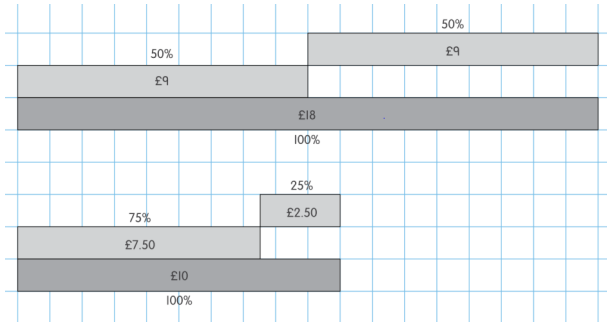
| Level | Score |
|-------|-----------------|
| 1 | $\frac{15}{20}$ |
| 2 | $\frac{35}{50}$ |
| 3 | $\frac{18}{25}$ |



- Calculating simple percentage increases e.g. '25% extra free' on a carton of juice that normally contains 800ml.



- Calculating simple percentage decreases e.g. Matt is trying to choose between two jumpers. The first jumper is normally £18 but is now on sale at 50% off. The second is normally £10 but the price has been reduced by 25%. Which discount is bigger and which jumper is cheaper?



- Exploring data involving percentages e.g. Rainforests once covered about 14% of the land on Earth; now they cover around 6%. 300 million square kilometres of the Earth's surface is land. Estimate what area of land rainforests used to cover in this fictional scenario and how much they cover now, in square kilometres.



Can you..?

- Find equivalences to complete the table.

| Fraction | Percentage | Decimal |
|---------------|------------|---------|
| $\frac{1}{8}$ | | |
| | 66.67% | |
| | | 0.8 |

- If 100% = £5.50 can you find a) 12% b) $\frac{3}{5}$ c) 0.28