

Prerequisite Skills

Lesson objectives

- I know how to use fractions, decimals, and percentages
- I know how to use ratios and proportions
- I understand what randomisation is
- I know the attributes of playing cards and dice
- I know how to organise, present, and analyse data

1.1

Lesson objectives

Teachers' notes

Lesson notes

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Fractions, Decimals and Percentages

In short, these are three different ways to represent the same value.

Converting between them:

Fraction $\xrightarrow{\text{red}}$ Decimal $\xrightarrow{\text{blue}}$ Percentage

Divide the numerator (top) by the denominator (bottom).

Multiply the decimal by 100.

Simplifying Fractions

Find the HCF (highest common factor) of the top and bottom and divide both them by it.

Adding and Subtracting Fractions

Fractions **MUST** have the same denominators for this to be possible.

- Create equivalent fractions for each fraction such that they all have the same denominator.
- Add/subtract the numerators as appropriate (denominators don't change).
- Look to simplify if possible.

Example: $\frac{2}{3} + \frac{1}{4}$

LCM of 3 and 4 is 12

$$\frac{2}{3} \xrightarrow{\times 4} \frac{8}{12} \quad \frac{1}{4} \xrightarrow{\times 3} \frac{3}{12}$$

$$\Rightarrow \frac{8}{12} + \frac{3}{12} = \frac{11}{12}$$

Multiplying Fractions

Multiply the numerators together, multiply the denominators together. Simplify if possible.

Example: $\frac{3}{4} \times \frac{1}{6}$

$$\Rightarrow \frac{3 \times 1}{4 \times 6}$$

$$= \frac{3}{24}$$

both divide by 3

$$= \frac{1}{8}$$

Ratio and Proportion

Ratio compares either "part to part" We use a colon (:) to signify this. The order is important.

Proportion compares "part to whole". Usually written as a fraction.

5 red counters 15 green counters

Ratio of green to red is

$$15 : 5 \quad (\text{both divide by } 5)$$

$$\Rightarrow 3 : 1$$

Proportion that are green?

$$\Rightarrow \frac{15}{20} \leftarrow \begin{array}{l} \text{total number} \\ \text{of counters} \end{array}$$

$$= \frac{3}{4}$$

Playing Cards

52 cards in a pack (we don't include Jokers)

13 cards in each suit: A,2,3,4,5,6,7,8,9,10,J,Q,K

4 suits: Hearts, Diamonds, Clubs, Spades

Picture cards: Aces, Kings, Queens, Jacks

Face cards: Kings, Queens, Jacks

Dice

A regular die (plural is dice) has six faces. There are other types of die available that can have 4, 8, 12 or 20 faces.

Take care when stating outcomes... thinking of the dice having different colours can help.

Bar Charts

We use bar charts to represent one-variable data.

Charts should have a title and the axes should be labelled.

The bars **should have gaps between them** (when the bars touch, this is called a histogram, and is a different type of chart).

