Probability

Basic probability

The probability of an event is how likely it is to occur.

You can describe an event as:

impossible – it will never happen

unlikely – it probably won't happen

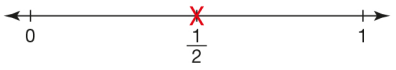
likely – it probably will happen

certain – it will definitely happen

In mathematics, the probability of an event is given a numeric value between 0 and 1. The value is given as a decimal, percentage or fraction.

Probabilities can be marked on a probability scale.

For example, the chance of rolling a dice and it landing on an even number is $\frac{1}{2}$, marked with a cross on the scale.



DOIT!

Write down examples of events that have probabilities of 0, 1 and $\frac{1}{2}$.

SNAPIT!

Common probablities

Learn these common probabilities:

impossible – 0 or 0%

certain – 1 or 100%

even chance, fifty-fifty – $\frac{1}{2}$ or 0.5 or 50%

NAILIT!

A probability scale is always between 0 and 1. When marking events on a scale, make sure you divide the line equally – so if you want to mark $\frac{1}{3}$ on the scale, measure the line and divide it equally into three parts.

The **relative frequency** of an event can be used as an estimate for the probability of an event when you cannot calculate it mathematically.

For example, if you wanted to estimate the probability of a piece of toast landing butter side down you could carry out 100 trials. If it landed butter side down on 60 of those trials, the relative frequency of the event would be:

Relative frequency $= \frac{60}{100} = \frac{3}{5}$

SNAPIT! **Probability and relative frequency**

$$\text{Probability} = \frac{\text{number of successful outcomes}}{\text{total number of possible outcomes}}$$

$$\text{Relative frequency} = \frac{\text{number of successful outcomes}}{\text{total number of trials}}$$

By 'successful' outcomes we mean the relevant ones that we are interested in.