

## Y7 Maths Knowledge Organiser Topic 5: Probability essentials

What must I be able to do?	Key vocabulary	
<ul style="list-style-type: none"> <li>□ Learn and use the correct terminology to determine the likelihood of an event                             <ul style="list-style-type: none"> <li>➤ Sparx M655</li> </ul> </li> <li>□ Identify where events lie on a probability scale and be able to correctly place events.</li> <li>□ Calculate the probability of an event happening using fractions, decimals or percentages                             <ul style="list-style-type: none"> <li>➤ Sparx M938</li> </ul> </li> <li>□ Identify that all probabilities of an event happening or not happening sum to 1.</li> </ul>	<b>Event</b>	A <u>set of outcomes</u> of a probability event
	<b>Outcome</b>	A <u>result</u> of a probability experiment
	<b>Certain</b>	An event that has a likelihood of certain has a <u>probability of 1</u> .
	<b>Impossible</b>	An event that has a likelihood of impossible has a <u>probability of 0</u> .
	<b>Probability</b>	The <u>probability</u> of an event has a mathematical value, this is represented as a fraction, decimal or percentage.

### Likelihood of an event

You need to be familiar with the terminology used to describe the likelihood of an event. Below are some key words associated with the likelihood of events:

Impossible      Unlikely      Even Chance      Likely      Certain

e.g. If I roll a fair 6 sided dice, what is the probability of:

- a) rolling an odd number? This is even chance as they the same number of even and odd numbers on a six sided dice.
- b) rolling a 10? This is impossible as the only numbers that could appear are 1, 2, 3, 4, 5 or 6.
- c) rolling a number less than 7? This is certain as all the numbers on a six sided dice are less than 7.

### Probability scale

The terminology used to describe the likelihood of an event are labels on a probability scale.



The probability of an impossible event is 0

The probability of an even chance event is  $\frac{1}{2}$  or 0.5 or 50%

The probability of a certain event is 1 or 100%

There are no definitive probabilities for unlikely or likely events as these descriptors can range from between impossible to even chance and then even chance to certain.

### Probability of an event

Calculating the probability of a single event means the answer will result in a fraction, decimal or percentage, from 0 to 1 (both are inclusive).

e.g. If I have 12 cubes in a bag, 4 are red, 2 are yellow and 6 are green.

- a) What is the probability of choosing a yellow cube?

There are 2 yellow cubes out of a total of 12 cubes so the probability is  $\frac{2}{12}$

- b) What is the probability of choosing a cube that isn't yellow?

To calculate the probability of event not happening we subtract the probability that is does from 1

$$1 - \frac{2}{12} = \frac{10}{12}$$