

Year 8 Sets 1 and 2 Summer Term 1

Topic/Skill	Definition/Tips	Example																																																	
1. Probability	<p>The likelihood/chance of something happening.</p> <p>Is expressed as a number between 0 (impossible) and 1 (certain).</p> <p>Can be expressed as a fraction, decimal, percentage or in words (likely, unlikely, even chance etc.)</p>																																																		
2. Probability Notation	P(A) refers to the probability that event A will occur .	P(Red Queen) refers to the probability of picking a Red Queen from a pack of cards.																																																	
3. Theoretical Probability	$\frac{\text{Number of Favourable Outcomes}}{\text{Total Number of Possible Outcomes}}$	Probability of rolling a 4 on a fair 6-sided die = $\frac{1}{6}$.																																																	
4. Relative Frequency	$\frac{\text{Number of Successful Trials}}{\text{Total Number of Trials}}$	<p>A coin is flipped 50 times and lands on Tails 29 times.</p> <p>The relative frequency of getting Tails = $\frac{29}{50}$.</p>																																																	
5. Expected Outcomes	To find the number of expected outcomes, multiply the probability by the number of trials .	<p>The probability that a football team wins is 0.2 How many games would you expect them to win out of 40?</p> <p style="text-align: center;">$0.2 \times 40 = 8 \text{ games}$</p>																																																	
6. Exhaustive	<p>Outcomes are exhaustive if they cover the entire range of possible outcomes.</p> <p>The probabilities of an exhaustive set of outcomes adds up to 1.</p>	When rolling a six-sided die, the outcomes 1, 2, 3, 4, 5 and 6 are exhaustive, because they cover all the possible outcomes.																																																	
7. Mutually Exclusive	<p>Events are mutually exclusive if they cannot happen at the same time.</p> <p>The probabilities of an exhaustive set of mutually exclusive events adds up to 1.</p>	<p>Examples of mutually exclusive events:</p> <ul style="list-style-type: none"> - Turning left and right - Heads and Tails on a coin <p>Examples of non mutually exclusive events:</p> <ul style="list-style-type: none"> - King and Hearts from a deck of cards, because you can pick the King of Hearts 																																																	
8. Sample Space	The set of all possible outcomes of an experiment.	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>+</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> </tr> <tr> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> </tr> </table>	+	1	2	3	4	5	6	1	2	3	4	5	6	7	2	3	4	5	6	7	8	3	4	5	6	7	8	9	4	5	6	7	8	9	10	5	6	7	8	9	10	11	6	7	8	9	10	11	12
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<p>9. Tree Diagrams</p>	<p>Tree diagrams show all the possible outcomes of an event and calculate their probabilities.</p> <p>All branches must add up to 1 when adding downwards. This is because the probability of something not happening is 1 minus the probability that it does happen.</p> <p>Multiply going across a tree diagram.</p> <p>Add going down a tree diagram.</p>	
<p>10. Independent Events</p>	<p>The outcome of a previous event does not influence/affect the outcome of a second event.</p>	<p>An example of independent events could be <u>replacing</u> a counter in a bag after picking it.</p>
<p>11. Dependent Events</p>	<p>The outcome of a previous event does influence/affect the outcome of a second event.</p>	<p>An example of dependent events could be not replacing a counter in a bag after picking it. '<u>Without replacement</u>'</p>
<p>12. Scale</p>	<p>The ratio of the length in a model to the length of the real thing.</p>	<p>Real Horse 1500 mm high 2000 mm long</p> <p>Scale 1:10</p> <p>Drawn Horse 150 mm high 200 mm long</p>
<p>13. Scale (Map)</p>	<p>The ratio of a distance on the map to the actual distance in real life.</p>	<p>1 in. = 250 mi 1 cm = 160 km</p>
<p>14. Bearings</p>	<ol style="list-style-type: none"> 1. Measure from North (draw a North line) 2. Measure clockwise 3. Your answer must have 3 digits (eg. 047°) <p>Look out for where the bearing is measured <u>from</u>.</p>	<p>The bearing of <i>B</i> from <i>A</i></p> <p>The bearing of <i>A</i> from <i>B</i></p>