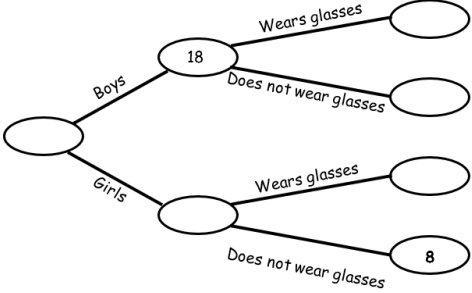


Topic: Basic Probability

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> $0.2 \times 40 = 8 \text{ games}$
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



<p>8. Frequency Tree</p>	<p>A diagram showing how information is categorised into various categories.</p> <p>The numbers at the ends of branches tells us how often something happened (frequency).</p> <p>The lines connected the numbers are called branches.</p>																																																		
<p>9. Sample Space</p>	<p>The set of all possible outcomes of an experiment.</p>	<table border="1" data-bbox="1045 548 1369 824"> <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>10. Sample</p>	<p>A sample is a small selection of items from a population.</p> <p>A sample is biased if individuals or groups from the population are not represented in the sample.</p>	<p>A sample could be selecting 10 students from a year group at school.</p>																																																	
<p>11. Sample Size</p>	<p>The larger a sample size, the closer those probabilities will be to the true probability.</p>	<p>A sample size of 100 gives a more reliable result than a sample size of 10.</p>																																																	

