



Topic/Skill	Definition/Tips	Example																																																	
Probability	The likelihood/chance of something happening, is expressed as a number between 0 (impossible) and 1 (certain) . A probability P(A) can be expressed as a fraction, decimal, percentage.																																																		
Theoretical Probability / Relative Frequency	$\frac{\text{Favourable Outcomes}}{\text{Total Possible Outcomes}}$ $\frac{\text{Successful Trials}}{\text{Total Trials}}$	Probability of rolling a 4 on a fair 6-sided die = $\frac{1}{6}$. A coin is flipped 50 times and lands on Tails 29 times. The relative frequency of getting Tails = $\frac{29}{50}$.																																																	
Expected Outcomes	To find the number of expected outcomes, multiply the probability by the number of trials .	The probability that a football team wins is 0.2 How many games would you expect them to win out of 40? $0.2 \times 40 = 8 \text{ games}$																																																	
Exhaustive	All possible outcomes , the probabilities of an exhaustive set of outcomes add up to 1 .	When rolling a six-sided die, the outcomes 1, 2, 3, 4, 5 and 6 are exhaustive																																																	
Mutually Exclusive	Events are mutually exclusive if they cannot happen at the same time .	Examples of mutually exclusive events: - Turning left and right																																																	
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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Sample	A sample is a small selection of items from a population. A sample can be biased .	A sample could be selecting 10 students from a year group at school.																																																	
Ratio	Ratio compares the size of one part to another part . Written using the ':' symbol.	$3 : 1$ 																																																	
Proportion	Proportion compares the size of one part to the size of the whole .	In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$																																																	
Simplifying Ratios	Divide all parts of the ratio by a common factor . Ratios in the form $1 : n$ or $n : 1$ (Unitary Method)	$5 : 10 = 1 : 2$ (divide both by 5) $14 : 21 = 2 : 3$ (divide both by 7) $5 : 7 = 1 : \frac{7}{5}$ in the form $1 : n$																																																	
Sharing in a Ratio	<ol style="list-style-type: none"> Add the total parts of the ratio. Divide the amount to be shared by this value to find the value of one part. Multiply this value by each part of the ratio. 	Share £60 in the ratio 3 : 2 : 1. $3 + 2 + 1 = 6$ $60 \div 6 = 10$ $3 \times 10 = 30, 2 \times 10 = 20, 1 \times 10 = 10$ £30 : £20 : £10																																																	
Proportional Reasoning	Comparing two things using multiplicative reasoning and applying this to a new situation. Identify one multiplicative link and use this to find missing quantities.																																																		