Learning Journey for Statistics
Probability

How does this unit link to prior learning?	What will you be learning about?
• Builds on **basic probability** (values between 0 and 1, simple events like coins and dice) and extends to combined events, sample spaces, and tree diagrams • Uses **fractions, decimals, and percentages** to express and interpret probabilities • Connects to **data handling** by using relative frequency and interpreting real data to estimate probability • Applies **ratio and proportion** in tree diagrams and conditional probability • Links to **basic algebra** by using variables and solving probability equations • Develops **logical reasoning** from earlier topics, extending to Venn diagrams, sample spaces, and understanding independent and dependent events	• Use standard probability notation. • Calculate probabilities of combined events, and repeated events. • Calculate with conditional probability **Key vocabulary** Probability, chance, impossible, likely, even chance, unlikely, certain, sample, population, experimental, theoretical, sample space, tree diagrams, Venn diagrams, variables, conditional probability, mutually exclusive, exhaustive events, dependant events, independent events.

Prior Knowledge

There are six counters in a bag. Three counters are red, two counters are green and one counter is blue.

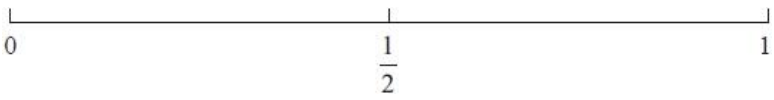
Nick takes at random a counter from the bag.

(a) Circle the word that best describes the likelihood that Nick takes a blue counter.

impossible unlikely even likely certain

(b) On the probability scale, mark with a cross (X) the probability that Nick takes a red counter.

(c) On the probability scale mark with a cross (X) the probability of getting a white counter



Boys	Girls
Alfie	Denise
Brian	Emily
Cliff	Freya

There are 3 boys and 3 girls on a school council.

A teacher wants to choose one of the boys and one of the girls to go to a meeting.
List all the possible combinations the teacher can choose.

We will develop our learning each week by focusing on:

	RAG
Lesson 1: The Probability Scale Compare the probability using ng the 0-1 or 1- 100% scale and statements of likelihood. Use fractions, decimals and percentages to represent probabilities.	
Lesson 2: Calculating Probabilities Use probability values to calculate expected frequency. Compare data with theoretical predictions to identify bias within experimental design.	

Understand that increasing sample size generally leads to better estimates of probability and population parameters.	
Lesson 3: Sample Space Diagrams Use to represent different outcomes to at most 3 events.	
Lesson 4: Independent Events Understand what it means for two events to be independent. Use the multiplication law for independent events.	
Lesson 5: Mutually Exclusive Events Understand mutually exclusive and exhaustive events, and use the addition rule for mutually exclusive events.	
Lesson 6: General Addition Law Use the general addition law for events that are not mutually exclusive.	
Lesson 7: Conditional Probability Understand what it means for two events to be conditional. Calculate condition probability using a tree diagram, two-way table and venn diagrams. Use the formula for conditional probability. Know that for independent events A and B, P(A) = P(A|B)	
Lesson 8: Two-Way Tables Draw, interpret and use to calculate probabilities. Including those that are conditional (may be taught in a later lesson).	
Lesson 9: Tree Diagrams Draw, interpret and use to calculate probabilities. Including those that are conditional.	
Lesson 10: Venn Diagrams Draw, interpret and use to calculate probabilities. Including those that are conditional (may be taught in a later lesson).	
Lesson 11: Risk Use collected data and calculate probabilities to determine and interpret risk.	
Lesson 10: Revision Lesson Select resources to use to revise for the end of topic assessment	
Lesson 11: Assessment Lesson Do 10-minute top up and go through answers together, students to self assess Open book assessment done in silence	
Lesson 12: Feedback Lesson Students to highlight their traffic light sheet. Teacher to go through assessment and students to self-assess in green pen. Students to complete the NOW section of the WOW-HOW-NOW sheet.	

How will this help you in the future?	
KS4	**Beyond LHS**
• Builds on **KS4 GCSE Maths probability basics**, such as probability values between 0 and 1 and simple outcomes • Extends **KS4 Maths probability topics** including tree diagrams, independent/dependent events, and "AND/OR" rules • Applies **ratio and proportion (KS4 Maths)**: • Used in conditional probability and scaling probabilities in tree diagrams • Connects with **algebra (KS4 Maths)**: • Using variables for unknown probabilities • Solving probability equations • Builds on **data handling/statistics (KS4 Maths & Statistics)**: • Relative frequency as an estimate of probability • Comparing experimental vs theoretical probability • Links to **graphs, tables, and data representation (KS4 Statistics)**: • Interpreting data to predict probabilities • Using statistical diagrams alongside probability	• Provides a foundation for **A-level Maths and A-level Statistics**, where probability is studied in more depth • Supports progression into **university courses** such as mathematics, statistics, economics, data science, and engineering • Develops key skills for **data-focused careers**, including: Data analyst, data scientist, statistician • Essential for **actuarial careers**, where probability is used to assess risk in insurance, pensions, and finance • Links to **finance and business careers** (e.g. financial analyst, market research), where probability is used to predict trends and make decisions • Used in **science and healthcare careers**, such as: Biostatistics, epidemiology, medical research (estimating risk and treatment success) • Applies to **environmental and public sector jobs**, such as meteorology (weather forecasting using probability)