

Scheme of Learning: Year 10 Spring Term

Topic Sequence: Proportions and Proportional change

8	9	10	11
Ratio and Fractions	Percentages and Interest	Probability	Rates

Topic Overview: Probability

This topic builds on KS3 and provides a good context in which to revisit fraction arithmetic and conversion between fractions, decimals and percentages. Tables and Venn diagrams are revisited and understanding and use of tree diagrams is developed. Conditional probability is a key focus for Higher tier students

Learning Sequence:

Know how to add, subtract and multiply fractions (R):

Students need a conceptual understanding of adding, subtracting and multiplying fractions before exploring probability and this is revisited in this small step

Find probabilities using equally likely outcomes: (R)

This step supports students to become conceptually fluent in using equally likely outcomes to find probabilities.

Use the property that probabilities sum to 1: (R)

Students use the fact that probabilities sum to 1 to calculate missing probabilities. This step also looks at set notation for probabilities

Using experimental data to estimate probabilities:

Students consider why experimental and theoretical probabilities are different. They learn that the more trials completed, the closer experimental probability is likely to be theoretical probability. They consider how they can use relative frequency to predict future events by calculating expected values.

Find probabilities from tables, Venn diagrams and frequency trees:

Student create and use Venn diagrams and frequency tree diagrams to find probabilities

Construct and interpret sample spaces for more than one event: (R)

Students construct sample spaces from different sources to be able to consider whether a list, or grid is most efficient. Students consider using systematic approaches

Calculate probability with independent events

Students consider that with independent events, the outcome of one event has no bearing on the outcome of the other, and relate this to sample space diagrams. They also use the rule $P(A \text{ and } B) = P(A) \times P(B)$ for independent events

Construct and interpret conditional probabilities (Tree diagrams) (H)

Students are introduced to using tree diagrams to be able to find probabilities. Students should also practice expressing probabilities algebraically and manipulating these

Construct and interpret conditional probabilities (Venn diagrams and two way tables) (H)

The key concept is understanding the at the term 'given' means that only one set of outcomes are relevant when selecting the event. Conditional probability applies to both dependent and independent events

Sequence of Learning:		Topic Resources:	
1	Know how to add, subtract and multiply fractions	Knowledge Maps: Fractions Basic Probability Further Probability	
2	Find probabilities using equally likely outcomes		
3	All probabilities sum to 1		
4	Using experimental data to estimate probabilities	Assessment:	
5	Find probabilities from tables, venn diagrams and frequency trees	Knowledge:	2x 20 mark end of topic assessment
6	Construct and interpret sample space diagrams	Application of Knowledge:	Termly summative assessment
7	Calculate probability with independent events	Supportive Reading:	
8	Construct and interpret conditional probabilities (tree diagrams)	Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
9	Construct and interpret conditional probabilities (Venns and two way tables)		Corbett Maths : www.corbettmaths.com
			AQA Revision Guide