

# Scheme of Learning: Year 9 Summer Term

## Topic Sequence: Representations and Revision

15	16
Probability	Algebraic Representations

### Topic Overview:

Students build on their learning in years 7 and 8 to calculate the probabilities of single and combined events. A key focus is the introduction of the idea of independent events and the use of the multiplication rule for these. Students also look at a variety of diagrams that support probability such as sample space diagrams, Venn diagrams and two way tables. Tree diagrams considering both with and without replacement are included as Higher steps

### Learning Sequence:

#### Single event probability:

Revision step reminding students that probabilities can be written as fractions, decimals (or percentage) but not in words or as a ratio. Students consider equally likely events and discuss bias

#### Relative frequency:

This step considers the relationship between relative frequency and probability, considering that relative frequency is based on experiments

#### Expected outcomes:

Students consider that the expected number of times an outcome will occur is a long-term average rather than a prediction. Students should be able to find the expected number of times a particular outcome will occur given the probability in any format, not just a fraction

#### Independent events:

Students need to find the probability of independent events, working with both fractions and decimals in order to support later work on tree diagrams. Students consider the difference between independent events when outcomes do not affect each other, and mutually exclusive events, where they cannot occur together

#### Using tree diagrams (H):

Students use tree diagrams to list the possible outcomes from a series of events and support finding their probabilities. They need to be confident with using the fact that the sum of all possible outcomes is 1, both for each pair of 'branches' and for the total of all the combined outcomes. Students can then quickly find eg the probability of at least one head by subtracting the probability of no heads from 1. They should also realise that they don't always need tree diagrams

#### Using tree diagrams to solve 'without replacement' problems (H):

The more complex tree diagrams where outcomes change depending on previous outcomes are explored here

#### Use diagrams to work out probabilities:

This step provides an opportunity to review other diagrams used to calculate probabilities so that students do not think they always have to use a tree diagram. Sample space / two way tables or Venn diagrams can also be used.

### Sequence of Learning:

1	Single event probability:
2	Relative frequency:
3	Expected outcomes:
4	Independent events:
5	Using tree diagrams (H):
6	Using tree diagrams to solve 'without replacement' problems:
	Use diagrams to work out probabilities:

### Topic Resources:

<b>Knowledge Maps:</b>	Basic Probability Further Probability
<b>Assessment</b>	
<b>Knowledge:</b>	End of Topic test
<b>Application of Knowledge:</b>	Termly mixed topic assessment
<b>Supportive Reading:</b>	
	Sparx Maths <a href="http://www.sparxmaths.co.uk">www.sparxmaths.co.uk</a>
	Corbett Maths : <a href="http://www.corbettmaths.com">www.corbettmaths.com</a>
	AQA Revision Guide