KEVICC Key Stage 4 Curriculum Subject: Mathematics

Summer Half-Term

Term: Year 9 Summer Term – Block Two | **Topic: Basic Probability**

What is the essential knowledge from this unit?
What do students need to remember and understand?

	Specification content	Specification notes
P1	Record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees	probabilities should be written as fractions, decimals or percentages

Students should be able to:
- design and use two-way tables
- complete a two-way table from given information
- complete a frequency table for the outcomes of an experiment
- understand and use the term relative frequency
- consider differences, where they exist, between the theoretical probability of an outcome and its relative frequency in a practical situation
- complete a frequency tree from given information
- use a frequency tree to compare frequencies of outcomes.

P4	Apply the property that the probabilities of an exhaustive set of outcomes sum to one Apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one

Students should be able to:
- understand when outcomes can or cannot happen at the same time
- use this understanding to calculate probabilities
- appreciate that the sum of the probabilities of all possible mutually exclusive outcomes must be 1
- find the probability of a single outcome from knowing the probability of all other outcomes.

P7	Construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities

Students should be able to:
- list all the outcomes for a single event in a systematic way
- list all the outcomes for two events in a systematic way
- design and use two-way tables
- complete a two-way table from given information
- design and use frequency trees
- work out probabilities by counting or listing equally likely outcomes.

Key Vocabulary and notation.

Outcomes	Sample
Sample space	Denominator
Set	Intersection
Probability	And / Or
Systematic	Union
Chance	Region
Probability	Total
Event	Possibilities
Equally likely	Product
Unbiased	Table
P(event)	Order
Two-way table	Theoretical probability
Probability	Mutually exclusive events

Mathematical questioning should be designed to unpick the structure of the maths and deepen the student's understanding. When students talk about mathematical concepts, they should develop the vital mathematical language that helps them explain their ideas fully.

Students are expected and encouraged to use terminology during all discussions, verbal feedback and in written content.

What prior learning supports understanding of this content?
- Order decimal numbers.
- Cancel fractions to their simplest form.
- Add and subtract fractions and decimals.
- Change fractions of an amount.
- Change fractions to decimals.
- Understand and use the language of probability.
- Calculate the probability of a single event.
- Use the sum of probabilities of an event as 1.
- Understand and use set notation.
- Draw and interpret Venn diagrams.

How does this content link to future learning?
- Apply ideas of randomness, fairness, and equally likely events to calculate expected outcomes or multiple future experiments.
- Understand that empirical unbiased samples tend towards theoretical probability distributions with increasing sample size.
- Enumerate sets and combinations of sets systematically using tables, grids, Venn diagrams and tree diagrams.
- Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions.

Reading: *Where in the unit are students supported to read complex academic text?*
- Reading and understanding mathematical questions and problems' – teacher input.
- Decoding complex examination questions - explain what they are asking the student to do' – teacher input.
- Following instructions to solve problems - break down the tasks – teacher input.
- Recognising terminology, numbers, and symbols.

Writing: *Independent writing tasks and how they are structured*
- Using the correct subject specific terminology for numbers and symbols – examination papers, class books.
- Responding to questions that ask for an explanation or a reason – examination papers, class books.
- Self-evaluation, reviewing, reflecting and analysis of own work – class books, personalised learning checklists and analysis.
- Creating notes that can be used later for revision purposes - class books, revision cards, mind maps etc.

Key assessments:

How will do students review the information learned?

End of block assessments.

AQA end of block assessments provide a quick progress check at the end of each block of learning to make sure students have understood the content being covered. These are available for both foundation and higher tiers.

End of term/year assessments and mock examinations.

End of term assessments assessing the students' progress towards targets and provide diagnostic information to modify future teaching.

End of year 9 and 10 examinations assessing the students' progress towards targets and provide diagnostic information to modify future teaching.

Two mock examinations seasons take place during year 11 using previous years AQA 8300 examination papers. Students to experience the full suite of papers at both Foundation and higher tiers using Non-calculator and Calculator requirements.

All examinations will explore the three examination papers at both foundation and higher tiers using non-calculator and calculator requirements.

How will feedback be seen?

Marked end of block, term assessments and mock examinations.

Personalised learning checklists for all assessments identifying strengths and areas of development.

Written teacher feedback and marking in compliance with faculty and College Marking Policies. Student responses to marking. Students self-mark using purple pen. Verbal feedback given every lesson from teacher and peers as appropriate. Teacher and student self-assessment of presentation of class books will be completed to ensure written work is of high standard and students are achieving their potential.