KEVICC Key Stage 4 Curriculum Subject: Mathematics

Autumn Half-Term

Term: Year 9 Autumn Term – Block One | **Topic: Basic Number**

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

	Specification content	Specification notes
N1	Order positive and negative integers • Use the symbols =, ≠, <, >, ≤, ≥	including use on a number line
Students should be able to: • know and use the word integer and the equality and inequality symbols • recognise integers as positive or negative whole numbers, including zero • order positive and/or negative numbers given as integers, decimals and fractions, including improper fractions.		
N2	Apply the four operations, including formal written methods, to integers – both positive and negative Understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals)	including questions set in context (knowledge of terms used in household finance, for example profit, loss, cost price, selling price, debit, credit and balance, income tax, VAT, interest rate)
Students should be able to: • add, subtract, multiply and divide integers using both mental and written methods • add, subtract, multiply and divide decimals using both mental and written methods • add, subtract, multiply and divide positive and negative numbers • interpret a remainder from a division problem • recall all positive number complements to 100 • recall all multiplication facts to 12 × 12 and use them to derive the corresponding division facts • perform money and other calculations, writing answers using the correct notation • apply the four rules to fractions with and without a calculator • multiply and divide a fraction by an integer, by a unit fraction and by a general fraction • divide an integer by a fraction.		
N3	Recognise and use relationships between operations including inverse operations (e.g. cancellation to simplify calculations and expressions)	
Students should be able to: • add, subtract, multiply and divide using commutative, associative, and distributive laws • understand and use inverse operations • use brackets and the hierarchy of operations • solve problems set in words.		
N14	Estimate answers • Check calculations using approximation and estimation, including answers obtained using technology	including evaluation of results obtained
Students should be able to: • make sensible estimates of a range of measures in everyday settings • make sensible estimates of a range of measures in real-life situations, for example estimate the height of a man • evaluate results obtained • use approximation to estimate the value of a calculation • work out the value of a calculation and check the answer using approximations.		

Key Vocabulary and notation.

Integer	Column
Odd	Method
Even	Rounding
Total	Significant
Sum	figures
Difference	Estimate
Number line	Overestimate
Addition	Underestimate
Subtraction	Product
Multiply	Mental
Divide	Calculator
Associative	Formal
Factors	Negative
Place value	Order
Estimate	Greatest
Tenths	Least
Hundredths	Difference
Thousandths	Equal
Whole	Not equal
Equivalent	Greater than
Calculation	Less than

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?

- Knowledge of multiplication facts to 12 × 12.
- Use mental and formal written methods of addition with integers and decimals, including choosing the most appropriate method.
- Use mental and formal written methods of multiplication and division.
- Order directed numbers, both in contextualised and abstract situations.
- Use their knowledge of the order of operations to carry out calculations involving the four operations.
- Mental arithmetic strategies.
- Use a calculator with directed number.

How does this content link to future learning?

- Identify multiples, factors, and prime numbers from lists of numbers.
- Write out lists of multiples and factors to identify common multiples or common factors of two or more integers.
- Write a number as the product of its prime factors and use formal (e.g. using Venn diagrams) and informal methods (e.g. trial and error) for identifying highest common factors (HCF) and lowest common multiples (LCM).
- Work out a root of a number from a product of prime factors.
- Identify all permutations and combinations and represent them in a variety of formats.

Reading: *Where in the unit are students supported to read complex academic text?*	**Writing:** *Independent writing tasks and how they are structured*
• 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.	• 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.