KEVICC Key Stage 4 Curriculum Subject: Mathematics

Autumn Half-Term

Term: Year 9 Autumn Term – Block Six | **Topic: Fractions**

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 fractions	

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 simple fractions (proper and improper) and mixed numbers - both positive and negative

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.

N8	Calculate exactly with fractions

Students should be able to:
- identify equivalent fractions
- write a fraction in its simplest form
- simplify a fraction by cancelling all common factors, using a calculator where appropriate, for example, simplifying fractions that represent probabilities
- convert between mixed numbers and improper fractions
- compare fractions
- compare fractions in statistics and geometry questions.
- add and subtract fractions by writing them with a common denominator
- convert mixed numbers to improper fractions and add and subtract mixed numbers
- give answers in terms of π and use values given in terms of π in calculations.

Key Vocabulary and notation.

Fraction	Tenth
Decimal	Reduce
Number line	Decrease
Percentage	Shaded
Equivalent	Hundredths
Denominator	Tenths
Numerator	Hundred
Add	Fifth
Subtract	Quarter
Multiply	Thousandths
Divide	Eighths
Part	Equal parts
Whole	Three-
Equal	quarters
Fraction key	Order
Estimate	Negative
Rounding	Improper
Conversion	Mixed
Hundredth	number

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?
- Work with number lines.
- Order decimal numbers.
- Understand simple fractions.
- Find simple fractions of an amount.
- Cancel fractions to their simplest terms.
- Use rounding to find mental estimates for arithmetic calculations.

How does this content link to future learning?
- Order positive and negative decimals.
- Apply the four operations, including formal written methods, to decimals – both positive and negative.
- Understand and use place value (e.g. when calculating with decimals).
- Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 72 or 0.375 and 38) including ordering.

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.