KEVICC Key Stage 3 Curriculum Subject: Mathematics	Key Vocabulary and notation.

Spring Half-Term 2 Developing Number

Term: Year 8 Spring Term – Block Four	**Topic:** Fractions and Percentages

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

This block focuses on the relationship between fractions and percentages, including decimal equivalents, and using these to work out percentage increase and decrease. Students also explore expressing one number as a fraction and percentage of another. Both calculator and non-calculator methods are developed throughout to support students to choose efficient methods. Financial maths is developed through contexts of e.g. profit, loss, and interest. The higher strand also looks at finding the original value given a percentage or after a percentage change.

National curriculum content covered:

- Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics.
- Work interchangeably with terminating decimals and their corresponding fractions.
- Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%.
- Interpret fractions and percentages as operators.

We know that breaking the curriculum down into small manageable steps should help students to understand concepts better. As a result, for each block of content in the scheme of learning we have provided the following 'small step' breakdown for this unit as follows:

Lesson One - Convert fluently between key fractions decimals and percentages
Lesson Two - Calculate key fractions, decimals, and percentages of an amount without a calculator
Lesson Three - Calculate fractions, decimals and percentages of an amount using calculator methods
Lesson Four - Percentage decrease with a multiplier
Lesson Five - Convert between decimals and percentages greater than 100%
Lesson Six - Calculate percentage increase and decrease using a multiplier
Lesson Seven - Express one number as a fraction or a percentage of another without a calculator
Lesson Eight - Express one number as a fraction or a percentage of another using calculator methods
Lesson Nine - Work with percentage change
Lesson Ten - Choose appropriate methods to solve percentage problems
Lesson Eleven - Find the original amount given the percentage less than 100% (H)
Lesson Twelve - Find the original amount given the percentage greater than 100% (H)
Lesson Thirteen - Choose appropriate methods to solve complex percentage problems (H)

Interleaving/Extension of previous work
- Revisit fraction, decimal and percentage equivalence.
- Revisit formal methods for calculation, for integers and factions.
- Compare and use ratios in the context of fractions, decimals, and percentages.
- Finding the original given any percentage.

Key Vocabulary and notation.

Fraction	Multiplier
Decimal	Increase
Percentage	Growth
Equivalent	Express
Denominator	Factor
Numerator	Multiple
Fraction key	Round
Estimate	Integer Profit
Rounding	Loss
Conversion	Interest
Hundredth	Change
Tenth	Original
Reduce	Invest
Decrease	Reverse

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?	**How does this content link to future learning?**
- Multiply and divide a fraction by an integer. - Multiply and divide a fraction by a fraction. - Understand and use the reciprocal. - Multiply and divide mixed numbers. - Multiply and divide simple algebraic fractions.	- Convert between numbers in ordinary and standard form. - Compare numbers given in standard form. - Calculate with numbers given in standard form, with and without a calculator.

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. - Recognising patterns and relationships in mathematics.	- 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 students review the information learned?

End of block assessments.

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 covered.

A Core paper – it is envisaged that all students will take this paper, to provide a direct comparison with the performance of the rest of the cohort. All topics from each term will be covered, and the use of a calculator is expected.

End of term assessments.

A Foundation paper – students who are working below national expectations will have the opportunity to show their understanding of the material with more straightforward questions. Non calculator paper.

A Higher paper – students who are working at or above national expectations will have the opportunity to tackle more challenging questions on the same material, plus the extra objectives indicated as "Higher" in our scheme of learning. Non calculator paper.

How will feedback be seen?

Marked end of block and term assessments.

Personalised learning checklists for end of term 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.