



YEAR 10 Spring TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Units 9 & 10

Ratio and fractions

Percentages and interest

Probability

Curriculum Intent

UNIT 9: Percentages and Interest **F & H (8 lessons)**

Previously met: Y9 repeated percentage change, reverse percentages (Y7 & Y8 percentages)

To be able to:

- Interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%.
- Solve problems involving percentage change, including percentage increase, decrease and original value problems and simple interest in financial mathematics.

Set up, solve and interpret the answers in growth and decay problems including compound interest **(and work with general iterative processes)**.

Links and interleaving

- Interchange between fractions and decimals below 1. Explore fractions above 1.
- Express one number as a fraction of another.
- Explore calculator and non-calculator methods.
- Find fractions of amounts.
- Interchange between fractions, decimals and percentages up to 100%.
- Percentage increase and decrease.
- Using multipliers.
- Express one quantity as a percentage of another, compare two quantities using percentages.
- Work with percentages greater than 100%.
- Finding the original after percentage change.
- Reverse percentages.
- Financial maths.
- Repeated percentage change.

Skills/Assessment Objective Links

UNIT 10: Probability **F & H (8 lessons)**

Previously met: Y9 summer block 4 (H-tree diagrams)

To be able to:

- Apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one.
- Use a probability model to predict the outcomes of future experiments; understand that empirical unbiased samples tend

	<p>towards theoretical probability distributions, with increasing sample size.</p> <ul style="list-style-type: none"> • Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions. • (Calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams). <p><u>Links and interleaving</u></p> <ul style="list-style-type: none"> • Use the language of probability. • Calculate simple probabilities. • Use the probability scale. • Construct sample spaces (for more than one event). • Use sample spaces to find probabilities. • Understand and use set notation, including Venn diagrams. • Know the sum of probabilities is 1. • Complement of a set. • Use the product rule for finding total number of outcomes. • Compare experimental and theoretical probability. • Use frequency trees to find probabilities. • Simple tree diagrams.
Spiritual, moral, social, and cultural development	<p>SMSC: Making choices, looking for patterns which may reflect the natural world, supporting and collaborating with each other, realisation that mathematics is an international language and making cultural links as we explore the history of mathematics.</p> <p>PSHE/British Values: Working collaboratively, being respectful during discussion and valuing contributions made by others</p> <p>Skills Builder: Key skills in numeracy used in all topic areas.</p>
Numeracy	Focus on key skills.
Literacy	<p>Vocabulary Tier 2: Command words displayed in the classroom and italicized/bold font used in shared resources/presentations. These are a constant focus in discussion and questioning,</p> <p>Vocabulary Tier 3: Title slide in all shared resource presentations show the key vocabulary for each topic.</p> <p>Reading: Underlining command words,</p> <p>Writing: Modelling solutions</p> <p>Oracy: Think, pair, share, discussion, verbal feedback (peer to peer), questioning, student modelling</p>
Becoming future ready	<p>Personal Skills: As a Mathematics student you will learn many skills: you will gain opportunities to listen to others supportively and to use questioning to develop your own understanding, you will learn how to cope with challenging questions and how to build up your resilience, you will get the chance to work on your own and with others. You will develop problem solving skills and you will learn how to break a problem down into smaller more manageable steps. You will learn how to collaborate with others when solving problems and you will learn how to articulate your solution to a problem.</p> <p>Employability: Mathematical skills are invaluable in the workplace. There are many transferable skills which are much valued by employers. Specific career paths for each topic are discussed at the beginning of each unit of work.</p>
Adaptation	

QFT/SEND Provision	<ul style="list-style-type: none"> • By progressive questioning: exploring pupils' understanding through interactive dialogue. • By outcome: different learners will produce different outcomes. • By resource: worksheets are clearly presented and accessible. • By intervention: by providing different levels of supervision and support. • By grouping/setting: according to prior attainment, gender, social preference, preferred learning style. • By offering optional activities: In class or as homework, to extend learning.
Implementation Curriculum Delivery	<p><u>Unit 9 Percentages and interest</u></p> <p>Pre-requisites</p> <ul style="list-style-type: none"> • Compare fractions, decimals, and percentages. • Indices • Place value/non-calculator methods <p>Foundation Tier (up to Grade 5)</p> <ul style="list-style-type: none"> • Percentage of an amount • One number as a percentage of another • Percentage increase and decrease. • Simple and compound interest • Repeated percentage change • Reverse percentages <p>Additional content for Higher Tier (up to Grade 9)</p> <ul style="list-style-type: none"> • Iterative processes <p><u>Unit 10 Probability</u></p> <p>Pre-requisites</p> <ul style="list-style-type: none"> • Fraction arithmetic • Probability scale • Venn diagrams • Frequency trees <p>Foundation Tier (up to Grade 5)</p> <ul style="list-style-type: none"> • Simple probability • Sum to one • Estimating probability from data • Sample space diagrams • Probability from tables, Venn diagrams and frequency trees. • Tree diagrams for independent and dependent events <p>Additional content for Higher Tier (up to Grade 9)</p> <ul style="list-style-type: none"> • Conditional probability • Problem solving with ratio and algebra
Learning Outcomes (Knowledge)	
Current learning to be developed in the future within:	<p>Y11 Spring 1: multiplicative reasoning</p> <p>Y11 Spring 2: Listing and describing</p>
Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.