



YEAR 8 2023-2024 Spring TERM 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning

10. Fractions and Percentages 11. Standard Index Form

12. Number Sense (1 week before Easter and 1 week after)

UNIT 10: Fractions and Percentages - (7 lessons)

Curriculum Intent

Previously met:

- Place value, integers and decimals (Year 7 Aut 2).
- Fractions, decimals and percentages (Year 7 Aut 2).
- Fractions and percentages of amounts (Year 7 Spr 1).
- Multiplying and dividing fractions (Year 8 Aut 1).

To be able to:

- Convert Fluently between key fractions, decimals and percentages (R)
- Calculate key fractions, decimals and percentages of an amount without a calculator (R)
- Calculate fractions, decimals and percentages of an amount using calculator methods (R)
- Convert between decimals and percentages greater than 100%
- Percentage decrease with a multiplier
- Calculate percentage increase and decrease using a multiplier
- Express one number as a fraction or a percentage of another without a calculator
- Express one number as a fraction or a percentage of another using calculator methods
- Work with percentage change
- Choose appropriate methods to solve percentage problems
- Find the original amount given the percentage less than 100% (H)
- Find the original amount given the percentage greater than 100% (H)
- Choose appropriate methods to solve complex percentage problems (H)

REMDINER – Strategies for teaching.

- Use ratio tables to find the original amounts

Links and interleaving

- Similarity- length, area and volume
- Real-life mathematics (pricing, sales etc)
- ratios

Skills/Assessment Objective Links

UNIT 11: Standard Index Form - (7 lessons)

Previously met:

- Indices (**Year 8 Spr 1**).

To be able to:

- Investigate positive powers of 10
- Work with numbers greater than 1 in standard form
- Investigate negative powers of 10
- Work with numbers between 0 and 1 in standard form
- Compare and order numbers in standard form
- Mentally calculate with numbers in standard form
- Add and subtract numbers in standard form
- Multiply and divide numbers in standard form
- Use a calculator to work with numbers in standard form
- **Understand and use negative indices (H)**
- **Understand and use fractional indices (H)**

REMINDER – Strategies for teaching.

- Relate to real life contexts wherever possible
- Start with integers before moving onto decimals
- Show the pattern when moving into negative indices to try to get them to come up with their own rules eg.

$$2^3 = 8$$

$$2^2 = 4$$

$$2^1 = 2$$

$$2^0 = 1$$

$$2^{-1} = \frac{1}{2}$$

$$2^{-2} = \frac{1}{4}$$

Links and interleaving

- Massive crossover with science. Try and use examples in a scientific context

UNIT 12: Number Sense - (1 week before Easter and 1 week after) - (7 lessons)

Previously met:

- Directed Number (**Year 7 Aut 1**).
- Number Sense (**Year 7 Sum 2**).

To be able to:

- Round to powers of 10, and 1 significant Figure (R)
- Round numbers to a given number of decimal places
- Estimate the answer to a calculation
- **Understand and use error interval notation (H)**
- Calculate using order of operations (R)
- Calculate with money

	<ul style="list-style-type: none"> • Convert metric units of length • Convert metric units of weight and capacity • Convert metric units of area (H) • Convert metric units of volume (H) • Solve problems involving time and the calendar <p>REMDINER – Strategies for teaching.</p> <ul style="list-style-type: none"> • Use a number line for introducing rounding. Which bound is it closest to? This strategy also works for error intervals • Picture representations of area and volume <p>Links and interleaving</p> <ul style="list-style-type: none"> • Similarity (length, area and volume) • Pressure and Density calculations • Any aspect of mathematics that requires a rounded solution (area, angles, Trigonometry, Pythagoras)
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	<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.
QFT/SEND Provision	
Implementation Curriculum Delivery	<p>Support (S), Core (C), Extension (E).</p> <p>Fractions and Percentages - small steps</p>

<p>Learning Outcomes (Most Powerful Knowledge)</p>	<ul style="list-style-type: none"> • Convert Fluently between key fractions, decimals and percentages (S) • Calculate key fractions, decimals and percentages of an amount without a calculator (S) • Calculate fractions, decimals and percentages of an amount using calculator methods (S) • Convert between decimals and percentages greater than 100% (S/C) • Percentage decrease with a multiplier (C/E) • Calculate percentage increase and decrease using a multiplier (C/E) • Express one number as a fraction or a percentage of another without a calculator (C/E) • Express one number as a fraction or a percentage of another using calculator methods (C/E) • Work with percentage change (S/C/E) • Choose appropriate methods to solve percentage problems (C/E) • Find the original amount given the percentage less than 100% (E) • Find the original amount given the percentage greater than 100% (E) • Choose appropriate methods to solve complex percentage problems (E) <p><u>Extension</u></p> <ul style="list-style-type: none"> • Simple and compound interest calculations <p>Standard Index Form - small steps</p> <ul style="list-style-type: none"> • Investigate positive powers of 10 (S/C) • Work with numbers greater than 1 in standard form (S/C/E) • Investigate negative powers of 10 (S/C) • Work with numbers between 0 and 1 in standard form (S/C/E) • Compare and order numbers in standard form (C/E) • Mentally calculate with numbers in standard form (C/E) • Add and subtract numbers in standard form (C/E) • Multiply and divide numbers in standard form (C/E) • Use a calculator to work with numbers in standard form (C/E) • Understand and use negative indices (E) • Understand and use fractional indices (E) <p><u>Extension</u></p> <ul style="list-style-type: none"> • Creating and solving equations involving powers <p>Number Sense- small steps</p> <ul style="list-style-type: none"> • Round to powers of 10, and 1 significant Figure (S/C) • Round numbers to a given number of decimal places (S/C) • Estimate the answer to a calculation (S/C/E) • Understand and use error interval notation (E) • Calculate using order of operations (S) • Calculate with money (S/C) • Convert metric units of length (S/C) • Convert metric units of weight and capacity (S/C) • Convert metric units of area (E) • Convert metric units of volume (E) • Solve problems involving time and the calendar (S/C) <p><u>Extension</u></p> <ul style="list-style-type: none"> • Upper and lower bounds • Upper and lower bounds with calculations
<p>Current learning to be developed in the future within:</p>	<p><u>Fractions and percentages</u></p> <ul style="list-style-type: none"> • Standard Index Form (Year 8 Spr 2). • Numbers (Year 9 Aut 2). • Using percentages (Year 9 Spr 1). • Maths and money (Year 9 Spr 1). • Congruence, similarity and enlargement (Year 10 Aut 2). • Ratio and fractions (Year 10 Spr 1). • Percentages and Interest (Year 10 Spr 2).

	<ul style="list-style-type: none"> • Non-calculator methods with number (Year 10 Spr 1). <p><u>Standard Index Form</u></p> <ul style="list-style-type: none"> • Indices and Roots (Year 10 Sum 2) <p><u>Number Sense</u></p> <ul style="list-style-type: none"> • Three dimensional shapes (Year 9 Aut 2) • Enlargement and Similarity (Year 9 Spr 2) • Congruence, Similarity and Enlargement (Year 10 Aut 2) • Rounding is met throughout so many aspects
Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.