



YEAR 8 2023-2024 SUMMER TERM 1

'An ambitious curriculum that meets the needs of all'

Medium Term Planning

12. Number Sense (1 week before Easter and 1 week after) 13. Angles in parallel lines and polygons 14. Area of trapezia and circles

Curriculum Intent

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
- 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

Skills/Assessment Objective Links

REMDINER – Strategies for teaching.

- 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

Links and interleaving

- Similarity (length, area and volume)
- Pressure and Density calculations
- Any aspect of mathematics that requires and rounded solution (area, angles, Trigonometry, Pythagoras)

UNIT 13: Angles in parallel lines and polygons - (10/11 lessons)

Previously met:

- Constructions, measuring and angles (**Year 7 Sum 1**)
- Angles and Polygons (**Year 7 Sum 1**)

To be able to:

- Understand and use basic angles rules and notation (R)
- Investigate angles between parallel lines and the transversal
- Identify and calculate with alternate and corresponding angles
- Identify and calculate with co-interior, alternate and corresponding angles
- Solve complex problems with parallel lines
- Construct triangles and special quadrilaterals (R)
- Investigate the properties of special quadrilaterals
- Identify and calculate with sides and angles in special quadrilaterals
- **Understand and use the properties of diagonals and quadrilaterals (H)**
- Understand and use the sum of exterior angles of any polygon
- Calculate and use the sum of the interior angles in any polygon
- Calculate missing angles in regular polygons
- **Prove simple geometric facts (H)**
- **Construct an angle bisector (H)**
- **Construct a perpendicular bisector of a line segment (H)**

REMDINER – Strategies for teaching.

- Use full mathematical reasons and definitions.

Links and interleaving

- Angles/shape and algebra problems
- Loci
- Area and perimeter

UNIT 14: Area of trapezia and circles - (7 lessons)

Previously met:

- Problems with multiplication and division (**Year 7 Spr 1**).

To be able to:

- Calculate the area of triangles, rectangles and parallelograms (R)
- Calculate the area of a trapezium
- Calculate the perimeter and area of compound shapes (1)
- Investigate the area of a circle
- Calculate the area and parts of a circle without a calculator
- Calculate the area and parts of a circle with a calculator
- Calculate the perimeter and area of compound shapes (2)

REMDINER – Strategies for teaching.

- Always get students comfortable calculating areas of circles in terms of pi before using calculators
- Visual representations should be used throughout and students encouraged to annotate diagrams.
- Trapeziums should be taught as the average width x height

	<u>Links and interleaving</u> <ul style="list-style-type: none"> • Similar shapes • Volume of prisms • Unit conversions
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>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)
Learning Outcomes (Most Powerful Knowledge)	

	<ul style="list-style-type: none"> • 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>Angles in parallel lines and polygons- small steps</p> <ul style="list-style-type: none"> • Understand and use basic angles rules and notation (S) • Investigate angles between parallel lines and the transversal (S/C) • Identify and calculate with alternate and corresponding angles (S/C) • Identify and calculate with co-interior, alternate and corresponding angles (C/E) • Solve complex problems with parallel lines (C/E) • Construct triangles and special quadrilaterals (C) • Investigate the properties of special quadrilaterals (S/C/E) • Identify and calculate with sides and angles in special quadrilaterals (S/C/E) • Understand and use the properties of diagonals and quadrilaterals (E) • Understand and use the sum of exterior angles of any polygon (C/E) • Calculate and use the sum of the interior angles in any polygon (C/E) • Calculate missing angles in regular polygons (C/E) • Prove simple geometric facts (E) • Construct an angle bisector (E) • Construct a perpendicular bisector of a line segment (E) <p><u>Extension</u></p> <ul style="list-style-type: none"> • Loci problems <p>Area of Trapezia and Circles-small steps</p> <ul style="list-style-type: none"> • Calculate the area of triangles, rectangles and parallelograms (S/C) • Calculate the area of a trapezium (C/E) • Calculate the perimeter and area of compound shapes (S/C) • Investigate the area of a circle (S/C) • Calculate the area and parts of a circle without a calculator (C/E) • Calculate the area and parts of a circle with a calculator (C/E) • Calculate the perimeter and area of compound shapes (C/E) <p><u>Extension</u></p> <ul style="list-style-type: none"> • Surface area and volume of cylinders, spheres and cones
Current learning to be developed in the future within:	<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 <p><u>Angles in parallel lines and polygons</u></p> <ul style="list-style-type: none"> • Construction and congruency (Year 9 Aut 2) • Angles and deduction (Year 9 Spr 1) • Angles and Bearings (Year 10 Aut 2) • Geometric Reasoning (Year 11 Spr 1) • Transforming and constructing (Year 11 Spr 2) <p><u>Area of trapezia and circles</u></p> <ul style="list-style-type: none"> • 3D shapes (Year 9 Aut 2) • Working with circles (Year 10 Spr 1) • Geometric Reasoning (Year 11 Spr 1)
Assessment	Refer to assessment maps for formative and summative assessment opportunities.
Impact	Attainment and Progress – Refer to assessment results / data review documentation.

