



Autumn Term 1 (8 weeks)

Basic number (1 week)

- Order positive and negative integers
- Use the symbols =, ≠, <, >, ≤, ≥
- Apply the four operations, including formal written methods, to integers - both positive and negative
- Understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals)
- Recognise and use relationships between operations including inverse operations (e.g. cancellation to simplify calculations and expressions)
- Estimate answers
- Check calculations using approximation and estimation, including answers obtained using technology

Factors and multiples (1 week)

- Use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation, and the unique factorisation theorem
- Apply systematic listing strategies

Angles (1 week)

- Use conventional terms and notations:
 - points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries
- Use the standard conventions for labelling and referring to the sides and angles of triangles

Autumn Term 2 (7 weeks)

Basic fractions (1 week)

- Order positive and negative fractions
- Apply the four operations, including formal written methods, to simple fractions (proper and improper) and mixed numbers - both positive and negative
- Calculate exactly with fractions

Coordinates and linear graphs (1 week)

- Work with co-ordinates in all four quadrants
- Solve geometrical problems on co-ordinate axes
- Plot graphs of equations that correspond to straight line graphs in the co-ordinate plane

Basic decimals (1 week)

- 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

Rounding (1 week)

- Round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures)
- Use inequality notation to specify simple error intervals due to truncation or rounding
- Apply and interpret limits of accuracy

Collecting and representing data (2 weeks)

- Interpret and construct tables, charts and diagrams



Assessment	<p>Progress Check 1 on the following topics: Basic number Factors and multiples Approximate Date of Assessment Week Beginning: 23/09/19</p>	<p>Progress Check 2 on the following topics: Basic fractions Coordinates and linear graphs Approximate Date of Assessment Week Beginning: 11/11/19</p>
	<p>MILESTONE 1 on the following topics: Basic number Factors and multiples Angles Scale diagrams and bearings Basic algebra Approximate Date of Assessment Week Beginning: 14/10/19</p>	<p>MILESTONE 2 on the following topics: Basic fractions Coordinates and linear graphs Basic decimals Rounding Approximate Date of Assessment Week Beginning: 02/12/19</p>



Topic	<p><u>Spring Term 1 (6 weeks)</u></p> <p>Sequences (1½ weeks)</p> <ul style="list-style-type: none"> • Generate terms of a sequence from either a term-to-term or a position-to-term rule • Recognise and use: <ul style="list-style-type: none"> ○ sequences of triangular, square and cube numbers ○ simple arithmetic progression ○ <u>Fibonacci type sequences</u> ○ <u>quadratic sequences</u> ○ <u>and simple geometric progressions (r^n where n is an integer and r is a rational number > 0)</u> • Deduce expressions to calculate the nth term of a linear sequence <p>Basic percentages (2 weeks)</p> <ul style="list-style-type: none"> • Define percentage as 'number of parts per hundred' • Interpret percentages and percentage changes as a fraction or a decimal and interpret these multiplicatively • Express one quantity as a percentage of another • Compare two quantities using percentages • Work with percentages greater than 100% • Interpret fractions and percentages as operators <p>Introduction to perimeter and area (1½ weeks)</p> <ul style="list-style-type: none"> • Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres • Calculate the perimeter of a 2D shape and composite shapes • Calculate the area of composite shapes • Know and apply formulae to calculate area of: <ul style="list-style-type: none"> • Triangles • Parallelograms 	<p><u>Spring Term 2 (6 weeks)</u></p> <p>Introduction to circumference and area (½ week of 1½ weeks)</p> <ul style="list-style-type: none"> • Identify and apply circle definitions and properties, including centre, radius, chord, diameter, circumference, <u>tangent, arc, sector and segment</u> • Know the formulae <ul style="list-style-type: none"> ○ circumference of a circle <p>area of a circle</p> <ul style="list-style-type: none"> • Calculate: perimeters of 2D shapes, including circles and composite shapes • Calculate areas of circles and composite shapes <p>Ratio and proportion (1½ weeks)</p> <ul style="list-style-type: none"> • Identify and work with fractions in ratio problems • Express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1 • Use ratio notation, including reduction to simplest form • Divide a given quantity into two parts in a given part:part or part:whole ratio • Express the division of a quantity into two parts as a ratio • Apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing and concentrations) • Express a multiplicative relationship between two quantities as a ratio or a fraction • Understand and use proportion as equality of ratios • Relate ratios to fractions and to linear functions <p>Basic probability (2 weeks)</p> <ul style="list-style-type: none"> • Record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency
-------	---	---



Assessment	<p>Progress Check 3 on the following topics: Collecting and representing data Sequences Basic percentages Approximate Date of Assessment Week Beginning: 3/02/20</p>	<p>MILESTONE 3 on the following topics: Collecting and representing data Sequences Basic percentages Introduction to perimeter and area Introduction to circumference and area Ratio and proportion Approximate Date of Assessment Week Beginning: 16/03/20</p>
-------------------	--	--

Topic	<p><u>Summer Term 1 (5 weeks)</u></p> <p>Equations (2 weeks)</p> <ul style="list-style-type: none"> Substitute numerical values into formulae and expressions, including scientific formulae <p>Solve linear equations in one unknown algebraically <u>including those with the unknown on both sides of the equation</u></p> <p>Scatter graphs (2 week)</p> <ul style="list-style-type: none"> Use and interpret scatter graphs of bivariate data Recognise correlation <u>and know that it does not indicate causation</u> <u>Draw estimated lines of best fit</u> <u>Make predictions</u> <u>Interpolate and extrapolate apparent trends whilst knowing the dangers of doing so</u> <p>Transformations (1 week of 2 weeks)</p>	<p><u>Summer Term 2 (6 (+1) weeks)</u></p> <p>Transformations (2nd week of 2 weeks)</p> <ul style="list-style-type: none"> Identify, describe and construct congruent and similar shapes, on co-ordinate axes, by considering rotation, reflection, translation and enlargement (<u>including fractional scale factors</u>) Describe translations as 2D vectors <p>Pythagoras' Theorem (2 weeks)</p> <ul style="list-style-type: none"> <u>Know the formula for Pythagoras' Theorem</u> <u>Apply it to find length in right angled triangles in two dimensional figures</u> <p>2D representations of 3D shapes (1 week)</p> <ul style="list-style-type: none"> <u>Construct and interpret plans and elevations of 3D shapes</u>
--------------	--	---

SUBJECT: Mathematics Year 9F 2019 2020



Assess	Progress Check 4 on the following topics: Basic probability Equations Approximate Date of Assessment Week Beginning: 27/04/20	End of Year Trial Exams Approximate Date of Assessment Week Beginning: 22/06/20
---------------	--	--



	Topic	Assessment
Autumn Term 1	Basic number Factors and multiples Angles Scale diagrams and bearings Basic algebra	Progress Check 1 w/c 23/09/19 *MILESTONE 1 w/c 21/10/19
Autumn Term 2	Basic fractions Coordinates and linear graphs Basic decimals Rounding Collecting and representing data	Progress Check 2 w/c 11/11/19 *MILESTONE 2 w/c 02/12/19
Spring Term 1	Sequences Basic percentages Introduction to perimeter and area	Progress Check 3 w/c 03/02/20
Spring Term 2	Introduction to circumference and area Ratio and proportion Basic probability	*MILESTONE 3 w/c 16/03/20
Summer Term 1	Equations Scatter graphs Transformations	Progress Check 4 w/c 27/04/20
Summer Term 2	Transformations Pythagoras' Theorem 2D representations of 3D shapes	Trial Exam w/c 22/06/20

***Please note that milestones include topics from the previous progress check.**