Ormiston Horizon Academy

BLOCK 1: Straight line graphs

By the end of this unit of learning all students will be able to
- Plot and identify lines in the form of $y = a$, $x = b$, $y = x$ and $y = -x$
- Complete and use a table of values to plot a straight-line graph
- Identify the gradient from the equation $y = mx + c$
- Identify the y-intercept from the equation $y = mx + c$
- Identify the gradient of a given line
- Understand and use $y = mx + c$
- **Write an equation in the form $y = mx + c$**
- Find the equation of a line from a graph
- Interpret gradient and intercepts of real-life graphs
- **Model real-life graphs involving inverse proportion**
- **Explore perpendicular lines**

Co-ordinates
Substitution

Origin
Coordinates
Gradient
Intercept
Linear

End of block assessment
Knowledge Organiser

Straight line graphs block
Lower Attainer Guidance
Higher Attainer Guidance

BLOCK 2: Forming and solving equations

By the end of this unit of learning all students will be able to
- Solve one and two step equations (including brackets)
- Solve one and two step inequalities (including brackets)
- Inequalities with negative numbers
- Solve equations with unknowns on both sides
- Solve inequalities with unknowns on both sides
- Substitute into formulae and equations
- Rearrange simple formulae
- **Rearrange formulae (two-step)**
- **Rearrange complex formulae including brackets and squares**

Inverse operations

Inverse
Inequality
Substitute
Solve

End of block assessment
Knowledge Organiser

Forming and solving equations block
Lower Attainer Guidance
Higher Attainer Guidance

BLOCK 3: Three-dimensional shapes

By the end of this unit of learning all students will be able to
- Identify and name 2-D and 3-D shapes
- Identify prisms from a selection of 3-D shapes
- Find area of 2-D shapes
- Calculate the volume of cubes and cuboids
- Calculate the surface area of simple 3-D shapes (cube, cuboids)
- Draw plans and front/side elevations of 3-D shapes
- Surface area of triangular prisms
- **Surface area of a cylinder**
- **Explore volumes of cones, pyramids and spheres**

Naming shapes
Edges/vertices/faces of shapes

Prism
Cross-section
Edge
Vertex

End of block assessment
Knowledge Organiser

Three-dimensional shapes block
Lower Attainer Guidance
Higher Attainer Guidance

Progress Point 1		
Block 5: Numbers - Integers, real and rational numbers - **Understand and use surds** - Work with directed number - Solve problems with integers - Solve problems with decimals - Product of primes - HCF and LCM - Adding and subtracting fractions - Multiplying and dividing fractions - Solving problems with fractions - Convert numbers to and from standard form		Ordering numbers Working with negatives including temperatures Factors Times tables Squares, cubes and primes
		Integer Rational Irrational Product Factor
		End of block assessment Knowledge Organiser
		Numbers block Lower Attainer Guidance Higher Attainer Guidance
Block 6: Using percentages - FDP equivalence - Calculate percentages of amounts - Calculate percentage increase and decrease - Express a change as a percentage - Solve reverse percentage problems - Recognise and solve percentage problems (non-calc) - Recognise and solve percentage problems (calc) - **Solve problems with repeated percentage change**		Fractions of amounts Simple percentages of amounts
		Percent Equivalent Original amount Multiplier Profit
		End of block assessment Knowledge Organiser
		Using percentages block Lower Attainer Guidance Higher Attainer Guidance
Block 7: Maths and money - Solve problems with bills and bank statements - Calculate simple interest - Calculate compound interest - Solve problems with VAT - Calculate wages and taxes - Solve problems with exchange rates - Solve unit pricing problems		Calculate with money Percentage increase and decrease Unitary problems
		Credit Debit Per Annum Unitary Deposit
		End of block assessment Knowledge Organiser
		Maths and money block Lower Attainer Guidance Higher Attainer Guidance

Block 8: Deduction
- Identify and name types of angles
- Draw and measure angles
- Construct and interpret scale drawings
- Construct a perpendicular bisector
- Construct an angle bisector
- Construct triangles from given information
- Identify congruent figures
- Explore congruent triangles
- Identify congruent triangles
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       - Basic angle facts and missing angles in 2D shapes
       - Angles in parallel lines
       - Solving angles problems (using chains of reasoning)
       - Angles problems with algebra
       - Conjectures with angles
       - Conjectures with shapes
       - **Link constructions and geometrical reasoning**
		Naming angles and shapes
		Simple missing angles

		Parallel Perpendicular Transversal Polygon
		End of block assessment Knowledge Organiser
		Deduction block Lower Attainer Guidance Higher Attainer Guidance
Block 9: Rotation and translation - Identify the order of rotational symmetry of a shape - Compare and contrast rotational symmetry with line symmetry - Rotate a shape about a point on a shape - Rotate a shape about a point not on a shape - Translate points and shapes by a given vector - Compare rotation and reflection of shapes - **Find the result of a series of transformations**		Worded translations
		Rotate Symmetry Horizontal Vertical Vertex
		End of block assessment Knowledge Organiser
		Rotation and translation block Lower Attainer Guidance Higher Attainer Guidance
Block 10: Pythagoras' Theorem - Squares and square roots - Identify the hypotenuse of a right-angled triangle - Determine whether a triangle is right angled - Calculate the hypotenuse of a right-angled triangle - Calculate missing sides in right-angled triangles - Use Pythagoras' theorem on coordinate axes - Explore proofs of Pythagoras' theorem - **Use Pythagoras' theorem in 3-D shapes**		Square numbers Substitution
		Square number Square root Hypotenuse Opposite Adjacent
		End of block assessment Knowledge Organiser

		[Pythagoras' theorem block](#) Lower Attainer Guidance Higher Attainer Guidance
Progress Point 2		
Block 11: Enlargement and similarity - Recognise enlargement and similarity/congruence - Enlarge a shape by a positive integer scale factor - Enlarge a shape by a positive integer scale factor from a given point and when co-ordinate plotting is needed - Enlarge a shape by a positive fractional scale factor - **Enlarge a shape by a negative scale factor** - Work out missing sides and angles in a pair of given similar shapes - Solve problems with similar triangles - **Explore ratios in right-angled triangles**		Using scale factors Identifying similar shapes
		Enlarge Similar Congruent
		End of block assessment Knowledge Organiser
		[Enlargement and similarity block](#) Lower Attainer Guidance Higher Attainer Guidance
Block 12: Solving ratio and proportion problems - Solve problems with direct proportion - Direct proportion and conversion graphs - Solve problems with inverse proportion - **Graphs of inverse relationships** - Share a given amount into a ratio - Solve ratio problems given the whole or part - Solve 'best-buy' problems - **Solve problems ratio and algebra**		Sharing into ratios Unitary problems Recipes
		Proportion Ratio Direct Proportion Inverse proportion
		End of block assessment Knowledge Organiser
		[Solving ratio and proportion problems block](#) Lower Attainer Guidance Higher Attainer Guidance
Block 13: Rates - Solve speed, distance and time problems without a calculator - Solve speed, distance and time problems with a calculator - Use distance/time graphs - Solve problems with density, mass and volume - Solve flow problems and their graphs - Rates of change and their units - **Convert compound units**		
		Convert Mass Origin Volume Substitute
		End of block assessment Knowledge Organiser

		Rates block Lower Attainer Guidance Higher Attainer Guidance
Block 14: Probability - Single event probability - Relative frequency - include convergence - Expected outcomes - Independent events - Complete and find probabilities using tree diagrams for independent events - **Complete and find probabilities using tree diagrams for dependent and conditional events** -		Probability scale
		Probability Independent Chance Event Biased
		End of block assessment Knowledge Organiser
		Probability block Lower Attainer Guidance Higher Attainer Guidance
Block 15: Algebraic Representations - Draw and interpret linear graphs including plotting two linear graphs and understanding where they cross is the solution - Draw and interpret quadratic graphs - Interpret graphs, including cubic, reciprocal and distance-time graphs - Represent inequalities graphically		Plotting co-ordinates Tables of values Solving equations
		Linear Quadratic Cubic Origin
		End of block assessment Knowledge Organiser
		Algebraic representations block Lower Attainer Guidance Higher Attainer Guidance
Progress Point 3		