

























































<p><b>Block 1: Representing solutions of equations &amp; inequalities</b></p> <ul style="list-style-type: none"> <li>- Understand the meaning of a solution</li> <li>- R- Form and solve one-step and two-step equations</li> <li>- R- Form and solve one-step and two-step inequalities</li> <li>- Show solutions to inequalities on a number line</li> <li>- Interpret representations on number lines as inequalities</li> <li>- <b>Represent solutions to inequalities using set notation</b></li> <li>- <b>Represent inequalities graphically</b></li> <li>- R - Draw straight line graphs</li> <li>- Find solutions to equations using straight line graphs</li> <li>- <b>Represent solutions to single inequalities on a graph</b></li> <li>- <b>Represent solutions to multiple inequalities on a graph</b></li> <li>- R - Form and solve equations with unknowns on both sides</li> <li>- <u>Form and solve inequalities with unknowns on both sides</u></li> <li>- <u>Form and solve more complex equations and inequalities</u></li> <li>- <u>Draw and interpret quadratic graphs</u></li> <li>- <b>Draw other types of graphs (cubic, reciprocal and exponential)</b></li> <li>- <u>Solve quadratic equations by factorisation just <math>1x^2</math></u></li> <li>- <b>Solve quadratic equations by factorisation</b></li> <li>- <b>Solve quadratic inequalities in one variable by factorising</b></li> <li>- <b>Solving quadratics using the formula</b></li> </ul>		<p>Inverse operations Solving equations Multiplication and division Co-ordinates</p>
		<p>Solution Variable Equation Expression Identity Linear Inequality Quadratic Cubic Reciprocal Exponential Set</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Lower Attainer Guidance Higher Attainer Guidance</p>
<p><b>Block 2: Ratio and fractions</b></p> <ul style="list-style-type: none"> <li>- R - Compare quantities using a ratio</li> <li>- R - Link ratios and fractions</li> <li>- R - Share in a ratio (given total or one part)</li> <li>- Use ratios and fractions to make comparisons</li> <li>- R - Link ratios and graphs</li> <li>- Solve problems with currency conversion</li> <li>- R - Link ratios and scales</li> <li>- Use and interpret ratios of the form 1:n and n:1</li> <li>- Solve 'best buy' problems</li> <li>- <u>Combine a set of ratios</u></li> <li>- <u>Link ratio and algebra</u></li> <li>- <b>Ratio in area problems</b></li> <li>- <b>Ratio in volume problems</b></li> <li>- Mixed ratio problems</li> </ul>		<p>Division Fractions of amounts</p>
		<p>Ratio Equivalent Proportion Integer Origin Gradient</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Ratio and fractions block Lower Attainer Guidance Higher Attainer Guidance</p>
<p><b>Block 3: Percentages and interest</b></p> <ul style="list-style-type: none"> <li>- R - Convert and compare fractions, decimals and percentages</li> <li>- <b>Convert recurring decimals to fractions and vice versa</b></li> <li>- R – rounding and money sense</li> <li>- R - Work out percentages of amounts (with and without a calculator)</li> <li>- R - Increase and decrease by a given percentage</li> <li>- R - Express one number as a percentage of another</li> <li>- Calculate simple and compound interest</li> <li>- Repeated percentage change</li> <li>- R - Find the original value after a percentage change</li> <li>- <u>Solve problems involving growth and decay</u></li> <li>- <b>Understand iterative processes</b></li> <li>- Solve problems involving percentages, ratios and fractions</li> </ul>		<p>FDP Multiplication and division with decimals Calculator skills</p>
		<p>Exponent Compound interest Depreciation Growth Decay Multiplier Equivalent Iteration Recurring</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Percentages and interest block Lower Attainer Guidance Higher Attainer Guidance</p>

<p><b>Block 4: Surds (Higher only)</b></p> <ul style="list-style-type: none"> <li>- R - Understand rational and irrational numbers</li> <li>- R – Squares and square roots</li> <li>- Law of surds (Expressing <math>\sqrt{ab}</math> as <math>\sqrt{a}\sqrt{b}</math>)</li> <li>- Calculate with surds (addition, subtraction, multiplication, division...)</li> <li>- Simplify surds / Express surds as a product of an integer and a surd</li> <li>- Expand and simplify double brackets involving surds</li> <li>- Rationalise a denominator (<math>\sqrt{a}</math> and <math>\sqrt{a} \pm b</math>)</li> <li>- Calculate with surds involving algebra</li> </ul>		<p>Roots and indices Operations with algebra Expanding and simplifying brackets</p>
		<p>Rational Irrational Surd Rationalise</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Lower and higher Guidance for surds in year 9 higher block but no full document as Surds is a non-Whitrose block.</p>
<p><b>Block 5: Probability</b></p> <ul style="list-style-type: none"> <li>- R - Know how to add, subtract and multiply fractions</li> <li>- R - Find probabilities using equally likely outcomes</li> <li>- R - Use the property that probabilities sum to 1</li> <li>- Using experimental data to estimate probabilities</li> <li>- Find probabilities from tables, Venn diagrams and frequency trees</li> <li>- R - Construct and interpret sample spaces for more than one event</li> <li>- Calculate probability with independent events</li> <li>- Use tree diagrams for independent events</li> <li>- <u>Use tree diagrams for dependent events</u></li> <li>- <b>Construct and interpret conditional probabilities (Tree diagrams)</b></li> <li>- <b>Construct and interpret conditional probabilities (Venn diagrams and two-way tables)</b></li> </ul>		<p>Addition &amp; subtraction of fractions Multiplication of fractions</p>
		<p>Probability Event Outcome Union Expected Value Universal Set Systematic Product</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Probability block Lower Attainer Guidance Higher Attainer Guidance</p>
<p><b>Block 6: Congruence, similarity and enlargement</b></p> <ul style="list-style-type: none"> <li>- Enlarge a shape by a positive integer scale factor</li> <li>- <u>Enlarge a shape by a fractional scale factor</u></li> <li>- <b>Enlarge a shape by a negative scale factor</b></li> <li>- Identify similar shapes</li> <li>- Work out missing sides and angles in a pair given similar shapes</li> <li>- Use parallel line rules to work out missing angles</li> <li>- <u>Establish a pair of triangles are similar</u></li> <li>- <b>Explore areas of similar shapes</b></li> <li>- <b>Explore volumes of similar shapes</b></li> <li>- <b>Solve problems with similar triangles</b></li> <li>- <b>Solve mixed problems involving similar shapes</b></li> <li>- <b>Understand the difference between congruent triangles</b></li> <li>- <b>Prove a pair of triangles are congruent</b></li> </ul>		<p>Multiplicative relationships inc. by fractions and negatives Area of simple 2D shapes</p>
		<p>Enlarge Scale factor Centre of enlargement Similar Congruent Corresponding Parallel</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Congruency block Lower Attainer Guidance Higher Attainer Guidance</p>

<p><b>Block 7: Angles and bearings</b></p> <ul style="list-style-type: none"> <li>- R - Use cardinal directions and related angles</li> <li>- R - Draw and interpret scale diagrams</li> <li>- Understand and represent bearings</li> <li>- Measure and read bearings</li> <li>- Make scale drawings using bearings</li> <li>- R – Angles in parallel lines</li> <li>- <u>Calculate bearings using angles rules</u></li> </ul>		<p>Basic angle knowledge. Addition and subtraction of angles Proportion and multiplicative change</p>
		<p>Cardinal directions Angle Bearing Perpendicular Parallel Clockwise Construct Scale</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Angles and bearings block Lower Attainer Guidance Higher Attainer Guidance</p>
<p><b>Block 8: Working with circles</b></p> <ul style="list-style-type: none"> <li>- R - Recognise and label parts of circle</li> <li>- R – Work with area and circumference of a circle</li> <li>- Calculate fractional parts of a circle</li> <li>- <u>Calculate the length of an arc</u></li> <li>- <u>Calculate the area of a sector</u></li> <li>- ALL the above require leaving in terms of pi as well as exact answers</li> <li>- <b>Circle Theorem: Angles at the centre &amp; circumference</b></li> <li>- <b>Circle Theorem: Angles in a semicircle</b></li> <li>- <b>Circle Theorem: Angles in the same segment</b></li> <li>- <b>Circle Theorem: Angles in cyclic quadrilateral</b></li> <li>- Understand and use the volume of a cylinder <u>and cone</u></li> <li>- <u>Understand and use the volume of a sphere</u></li> <li>- <u>Understand and use the surface area of a sphere</u></li> <li>- <u>Understand and use the surface area of a cylinder and cone</u></li> <li>- <b>R - Solve area and volume problems involving similar shapes</b></li> </ul>		<p>Knowledge of angles around a point Area and circumference of a circle Algebraic formulae</p>
		<p>Circumference Area Diameter Radius Segment Arc Chord Tangent Hemisphere Surface area Volume</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Working with circles block Lower Attainer Guidance Higher Attainer Guidance</p>

<p><b>Block 9: Number sense</b></p> <ul style="list-style-type: none"> <li>- R - Understand the difference between factors and multiples</li> <li>- R - Understand primes and express a number as a product of its prime factors</li> <li>- R - Find the HCF and LCM of a set of numbers</li> <li>- R - Square and cube numbers</li> <li>- Calculate higher powers and roots</li> <li>- R - Powers of ten and standard form</li> <li>- R - The addition and subtraction rules for indices</li> <li>- Understand and use the power zero and negative indices</li> <li>- Work with powers of powers</li> <li>- <b>Understand and use fractional indices</b></li> <li>- R - Calculate with numbers in standard form</li> <li>- R - Rounding to decimal places and significant figures</li> <li>- R - Estimating answers to calculations</li> <li>- Understand and use limits of accuracy</li> <li>- <b>Upper and lower bounds</b></li> <li>-</li> </ul>		<p>Fact families Factors Multiples Primes, squares, cubes Rounding</p>
		<p>Standard (index) Form Commutative Base Power Exponent Indices Significant figures Round Truncate</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Lower Attainer Guidance Higher Attainer Guidance</p>
<p><b>Block 10: Sequences</b></p> <ul style="list-style-type: none"> <li>-</li> <li>- Describe and continue arithmetic and geometric sequences</li> <li>- Explore other sequences</li> <li>- <b>Describe and continue sequences involving surds</b></li> <li>- <b>Review - Find the rule for the nth term of a linear sequence</b></li> <li>- <b>Find the rule for the nth term of quadratic sequence</b></li> </ul>		<p>Algebraic expressions Nth terms Term to term sequences Surds</p>
		<p>Factor Multiple HCF LCM nth term Linear Non-linear Arithmetic Geometric Sequence</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Lower Attainer Guidance Higher Attainer Guidance</p>
<p><b>Block 11: Simultaneous equations</b></p> <ul style="list-style-type: none"> <li>- Understand that equations can have more than one solution</li> <li>- Determine whether a given <math>(x, y)</math> is a solution to a pair of linear simultaneous equations</li> <li>- Solve a pair of linear simultaneous equations by substituting a known variable</li> <li>- Solve a pair of linear simultaneous equations by using graphs</li> <li>- <u>Solve a pair of linear simultaneous equations by subtracting equations</u></li> <li>- <u>Solve a pair of linear simultaneous equations by adding equations</u></li> <li>- <u>Review - Use a given equation to derive related factors</u></li> <li>- <u>Solve a pair of linear simultaneous equations by adjusting one equation</u></li> <li>- <u>Solve a pair of linear simultaneous equations by adjusting both equations</u></li> <li>- <u>Form a pair of linear simultaneous equations from given information</u></li> <li>- <b>Determine whether a given <math>(x, y)</math> is a solution to both a linear and quadratic equation</b></li> <li>- <b>Solve a pair of simultaneous equations (one linear, one quadratic) using graphs and algebraically</b></li> <li>- <b>Solve a pair of simultaneous equations involving a third unknown</b></li> </ul>		<p>Solving equations Substitution</p>
		<p>Equation Simultaneous Substitute LCM Eliminate Expression Coordinate Intersection</p>
		<p>End of block assessment Knowledge Organiser</p>
		<p>Lower Attainer Guidance Higher Attainer Guidance</p>

<p><b>Block 12: Trigonometry</b></p> <ul style="list-style-type: none"> <li>- Explore ratio in similar right-angled triangles</li> <li>- Work fluently with the hypotenuse, opposite and adjacent sides</li> <li>- Use the tangent ratio to find missing side lengths</li> <li>- Use the sine and cosine ratio to find missing side lengths</li> <li>- Use sine, cosine and tangent to find missing angles</li> <li>- Calculate sides in right-angled triangles using Pythagoras' Theorem</li> <li>- <u>Select the appropriate method to solve right-angled triangle problems</u></li> <li>- <u>Work with key angles in right-angled triangles (Exact values)</u></li> <li>- <b>Use trigonometry in 3-D shapes</b></li> <li>- <b>Use the formula <math>\frac{1}{2}ab\sin C</math> to find the area of a triangle</b></li> <li>- <b>Understand and use the sine rule to find missing lengths</b></li> <li>- <b>Understand and use the sine rule to find missing angles</b></li> <li>- <b>Understand and use the cosine rule to find missing lengths</b></li> <li>- <b>Understand and use the cosine rule to find missing angles</b></li> <li>- <b>Choosing and using the sine and cosine rules</b></li> <li>- <u>Solve bearings problems using Pythagoras and trigonometry</u></li> <li>- <b>Solve bearings problems using the sine and cosine rules</b></li> </ul>		Solving equations Substitution Square numbers and square roots
		Hypotenuse Opposite Adjacent Theta / $\theta$ Constant Inverse Bearing
		End of block assessment Knowledge Organiser
		Trigonometry block Lower Attainer Guidance Higher Attainer Guidance
<p><b>Block 13: Vectors</b></p> <ul style="list-style-type: none"> <li>- Understand and represent vectors</li> <li>- Use and read vector notation</li> <li>- Draw and understand vectors multiplied by a scale</li> <li>- Draw and understand addition of vectors</li> <li>- Draw and understand addition and subtraction of vectors</li> <li>- <b>Explore a vector journey in shapes</b></li> <li>- <b>Explore quadrilaterals using vectors</b></li> <li>- <b>Understand parallel vectors</b></li> <li>- <b>Explore collinear points using vectors</b></li> <li>- <b>Use vectors to construct geometric arguments and proofs</b></li> </ul>		Multiplication Addition Parallel lines Chains of reasoning
		Vector Direction Magnitude Scalar Column vector Parallel
		End of block assessment Knowledge Organiser
		Lower Attainer Guidance Higher Attainer Guidance
<p><b>Block 14: Collecting and representing data</b></p> <ul style="list-style-type: none"> <li>- Understanding populations and samples</li> <li>- <b>Construct a stratified sample</b></li> <li>- Primary and secondary data</li> <li>- Construct and interpret frequency tables and frequency polygons</li> <li>- R - Construct and interpret two-way tables</li> <li>- Construct and interpret line and bar charts (including composite bar charts)</li> <li>- R - Construct and interpret pie charts</li> <li>- Criticise charts and graphs</li> <li>- <b>Construct histograms</b></li> <li>- <b>Interpret histograms</b></li> <li>- R - Find and interpret averages from a list</li> <li>- R - Find and interpret averages from a table</li> <li>- <b>Find and interpret averages from a grouped data table</b></li> <li>- R - Construct and interpret time series graphs</li> <li>- Construct and interpret stem-and-leaf diagrams</li> <li>- <b>Construct and interpret cumulative frequency diagrams</b></li> <li>- <b>Use cumulative frequency diagrams to find measures</b></li> <li>- <b>Construct and interpret box plots</b></li> <li>- <b>Compare distributions using charts and measures</b></li> <li>- <b>Compare distributions using complex charts and measures</b></li> <li>- R - Construct and interpret scatter graphs</li> <li>- R - Draw and use a line of best fit</li> <li>- Understand extrapolation</li> </ul>		Averages Data Interpreting data from charts and tables
		Population Sample Representative Random sample Bias Primary data Secondary data Outlier
		End of block assessment Knowledge Organiser
		Data block Lower Attainer Guidance Higher Attainer Guidance