

	Developing	Good	Strong
<p>YEAR 11 FOUNDATION — AUTUMN 1 Construction, Loci, real life graphs, 3D shapes and volume</p>	<ul style="list-style-type: none"> • Uses a ruler and protractor accurately • Converts between simple units • Rounds values and has some understanding of accuracy and bounds • Reads values from graphs • Recognises 3D shapes 	<ul style="list-style-type: none"> • Constructs standard geometric figures accurately using a ruler and compass. • Accurately constructs perpendicular bisectors and angle bisectors using ruler and compass. • Identifies and describes simple loci based on given conditions • Converts between common metric units and works with basic compound units • Uses rounding appropriately and identifies upper and lower bounds in routine contexts • Reads and interprets information from real-life graphs, including straight-line graphs • Uses scale factors to find missing lengths • Calculates volumes of common solids using given formulae • Constructs and interprets plans and elevations of 3D shapes accurately 	<ul style="list-style-type: none"> • Solves loci problems involving distance and angle conditions, including regions satisfying multiple constraints • Converts confidently between units, including compound units, and compares measures fairly • Applies upper and lower bounds and limits of accuracy correctly to judge precision in real-world contexts • Interprets real-life graphs, linking gradient to rate of change and recognising reciprocal relationships • Applies scale factors correctly to lengths, areas and volumes • Calculates volumes of prisms, cylinders, cones, spheres and composite solids, including exact values using π

What you need to know before this half term

- Properties of angles, including angles in triangles and parallel lines
- Accurate use of **ruler, protractor and basic measuring tools**
- Place value and rounding to decimal places
- The four operations with decimals
- Basic unit conversions within the metric system
- Plotting and reading values from straight-line graphs
- Calculating area of basic 2D shapes
- Substituting values into simple formulae

Career links this half term

Civil Engineer

Uses geometric methods, scale drawings and trigonometry to design roads, bridges and buildings, calculating distances and angles precisely rather than estimating visually.

Quantity Surveyor

Uses measurement, bounds and scale to calculate material quantities and costs accurately, ensuring building projects stay within budget and specifications.

Tier 3 - Key Vocab

Perpendicular bisector – A line that cuts a line segment in half at 90°

Angle bisector – A line that divides an angle into two equal angles

Locus – A set of points that satisfy a given condition

Compound unit – A unit made by combining two units, such as metres per second

Upper bound – The greatest possible value of a rounded measurement

Lower bound – The smallest possible value of a rounded measurement

Limit of accuracy – The range of values a rounded measurement could represent

Gradient – How steep a graph is, showing rate of change

Reciprocal graph – A graph showing an inverse relationship between variables

Rate of change – How one quantity changes compared to another

Plan and elevation – 2D drawings showing different views of a 3D object

Scale factor – The multiplier used to enlarge or reduce a shape

Composite solid – A 3D shape made from two or more simple solids

Retrieval practice: Area of rectangles and shapes made from rectangles (Y9 HT5), Reverse percentages (Y8 HT4), Substitution into expressions, including negatives and fractions. (Y8 HT2) + Class assessment gaps

	Developing	Good	Strong
YEAR 11 FOUNDATION — AUTUMN 2 Congruency and similarity, Rearrange equations and Quadratics	<ul style="list-style-type: none"> Recognises basic triangle properties Identifies similar shapes Identifies congruent triangles using given criteria Expands single brackets Substitutes into formulae 	<ul style="list-style-type: none"> Applies congruence criteria (SSS, SAS, ASA, RHS) accurately to prove triangles are congruent Uses similarity to find missing lengths with a given scale factor Expands brackets and factorises linear and simple quadratic expressions Rearranges simple formulae to change the subject Recognises quadratic graphs and describes their general shape Solves quadratic equations by factorising in straightforward cases Uses graphs to find approximate solutions 	<ul style="list-style-type: none"> Manipulates algebraic expressions confidently, including expanding binomials and factorising quadratics Distinguishes clearly between identities and equations Rearranges formulae accurately to change the subject Recognises, sketches and interprets quadratic graphs, identifying roots and turning points Solves quadratic equations by factorising and checks solutions graphically

What you need to know before this half term

- Properties of triangles and basic angle facts
- Understanding of ratio and proportional reasoning
- Collecting like terms and expanding single brackets
- Solving linear equations
- Substituting values into expressions and formulae
- Plotting and reading straight-line graphs accurately

Career links this half term

CAD Technician (Computer-Aided Design Technician)

Uses geometric reasoning and algebra to create accurate technical drawings, ensuring measurements and proportions are correct rather than estimated.

Construction Estimator

Uses algebra and area calculations to estimate material quantities and costs accurately, checking results rather than relying on guesswork.

Tier 3 - Key Vocab

Congruence – Shapes that are identical in size and shape

Similarity – Shapes with equal angles and proportional sides

Scale factor – The multiplier that links corresponding lengths

Identity – An equation that is true for all values of the variable

Binomial – An algebraic expression with two terms

Factorise – Write an expression as a product of its factors

Quadratic function – A function involving an x^2 term

Root – A value where the graph crosses the x-axis

Turning point – The maximum or minimum point on a quadratic graph

	Developing	Good	Strong
<p>YEAR 11 FOUNDATION — SPRING 1 Simultaneous equations. Collect and represent data. Average and spread.</p>	<ul style="list-style-type: none"> Solves single linear equations Reads information from bar charts and pictograms Calculates averages from a list of discrete data 	<ul style="list-style-type: none"> Begins to solve simultaneous equations using a given method with support Interprets solutions to simultaneous equations in simple contexts Constructs and reads frequency tables, bar charts, pie charts and line graphs Interprets scatter graphs, describing strength and type of correlation and using a line of best fit appropriately Calculates average and spread accurately from discrete data, including problem solving, reverse and combined means. Compares data sets using a single average or measure of spread 	<ul style="list-style-type: none"> Solves simultaneous linear equations accurately using substitution, elimination and graphical methods Forms simultaneous equations from contextual problems and interprets solutions meaningfully Selects and constructs appropriate statistical diagrams for different data types Calculates and compares averages and spread from continuous data to draw justified conclusions about data sets Evaluates the reliability of conclusions, recognising the impact of sampling and outliers

What you need to know before this half term

- How to solve linear equations with one unknown
- How to substitute values into algebraic expressions
- How to plot and read linear graphs in four quadrants
- How to read values accurately from tables, charts and graphs
- Understanding of mean, median and mode from KS3
- Secure use of basic arithmetic, including totals and frequencies

Tier 3 - Key Vocab

Simultaneous – Two equations that must be satisfied at the same time
Coefficient – The number multiplied by a variable
Solution – The pair of values that makes both equations true
Variable – A quantity that can change or be measured
Correlation – The relationship between two variables
Frequency – The number of times a value occurs
Mean – The total of values divided by how many values there are
Range – The difference between the highest and lowest values
Quartile – Values that divide data into four equal parts

Career links this half term

Market researcher

A market researcher collects and presents data about customer behaviour, turning survey results into graphs and reports.

Sports Performance Analyst

A sports analyst uses averages and spread to evaluate player performance and identify patterns in match data.

	Developing	Good	Strong
YEAR 11 FOUNDATION — SPRING 2 Transformations, vectors, Direct and inverse proportion	<ul style="list-style-type: none"> Recognises and draws basic transformations Can plot and read coordinates Understands vectors as movement 	<ul style="list-style-type: none"> Identifies, describes and draws reflections, rotations, translations and enlargements Uses integer scale factors for enlargement Represents vectors using arrows and column notation Adds vectors in straightforward cases Describes translations precisely using column vectors Recognises direct and inverse proportion in familiar contexts 	<ul style="list-style-type: none"> Identifies, describes and applies single and combined transformations accurately Uses coordinates and vectors to justify congruence and similarity Adds, subtracts and scales vectors confidently to represent movement Identifies whether relationships show direct or inverse proportion Forms, rearranges and interprets equations involving proportional relationships Links algebraic equations, graphs and contexts to justify proportional reasoning

What you need to know before this half term

- Coordinates in all four quadrants
- Properties of 2D shapes, including angles and parallel lines
- Basic understanding of scale and proportion
- Confident addition and subtraction of integers
- Interpreting straight-line graphs
- Rearranging simple algebraic equations

Career links this half term

Graphic Designer (Digital / Motion Design)

A graphic designer uses translations, rotations, reflections and enlargements to create logos, layouts and animations, transforming shapes and images accurately rather than by guesswork.

Games Developer

A games developer uses **vectors** to control movement, direction and speed of characters and objects, ensuring motion behaves realistically in 2D and 3D environments.

Tier 3 - Key Vocab

Enlargement – A transformation that changes the size of a shape using a scale factor

Centre of rotation – The fixed point around which a shape is rotated

Vector – A quantity that has both direction and magnitude

Column vector – A vector written in vertical form using two numbers

Magnitude – The size or length of a vector

Scalar multiplication – Multiplying a vector by a number to change its size

Direct proportion – A relationship where one variable is a constant multiple of another

Inverse proportion – A relationship where the product of two variables is constant

Constant of proportionality – The number that links two proportional variables