

Westfield Academy - Curriculum Information

Building on the knowledge and skills developed throughout Key Stage 3, your child will begin to secure and apply GCSE-level mathematical concepts across a wide range of topics. They will develop fluency in algebra, geometry, trigonometry, probability and statistics, and apply these skills to increasingly complex and unfamiliar problems. Students will strengthen their ability to reason mathematically, interpret diagrams, graphs and data representations, and make connections between different areas of mathematics. They will also continue to develop their mathematical literacy by using precise mathematical language, explaining their reasoning clearly and constructing well-justified solutions in preparation for their GCSE examinations.

Maths

Head of Department	C. Okemadu	
Head of Department email	cho@westfield.academy	
Lessons per 2 week cycle	8	
Specification/Board details/Key stage	Edexcel	

Term by term

Autumn 1	Autumn 2	Spring 1
<p>The six index laws (including roots)</p> <p>Solving equations involving indices</p> <p>Surds: simplifying, brackets</p> <p>Surds: expressions involving fractions</p> <p>Calculating with rounded numbers</p> <p>More complex proportional relationships</p>	<p>Review of Pythagoras and trigonometry</p> <p>Reflection, rotation and translation</p> <p>Enlargement by fractional and negative scale factors</p> <p>Combining transformations</p> <p>Vector algebra</p> <p>Bearings</p> <p>Research Project</p>	<p>Probability</p> <p>Venn diagrams</p> <p>Two-way tables</p> <p>Relative and exclusive frequency</p> <p>Mutually exclusive, dependent and independent events</p> <p>Conditional probability</p> <p>Student Research</p>
Spring 2	Summer 1	Summer 2

<p>Graphs</p> <p>Quadratic graphs</p> <p>Solve Simultaneous Equations</p> <p>Research Project</p>	<p>Sine rule</p> <p>Cosine rule</p> <p>'Solve' triangles using the sine and cosine rules</p> <p>Angles inside circles</p> <p>Trigonometry in three dimensions</p> <p>Similar Shapes, congruence and proof</p> <p>Area/volume of similar shapes</p> <p>Algebraic fractions</p> <p>Quadratic Simultaneous equations</p> <p>Equation of a circle</p> <p>Vector geometry</p> <p>Graphs of trigonometric functions</p> <p>Student Research</p>	<p>Construct and use a range of statistical diagrams</p> <p>Student research / problem solving</p>
<p>Key Skills developed</p>	<p>Algebra and Indices – Applying and manipulating the laws of indices, solving equations involving powers, and simplifying and rationalising surds in algebraic and numerical contexts.</p> <p>Geometry, Transformations and Vectors – Using and describing transformations including reflection, rotation, translation and enlargement, working with vectors in two dimensions, and solving geometrical problems using vector notation.</p> <p>Trigonometry and Circular Measures – Applying trigonometric methods including sine and cosine rules, solving problems in right-angled and non-right-angled triangles, and exploring circle theorems and related geometric properties.</p> <p>Graphs and Functions – Interpreting and sketching linear, quadratic, cubic and reciprocal graphs, solving equations graphically, and finding equations of straight lines and circles.</p> <p>Algebraic Methods and Simultaneous Equations – Solving simultaneous equations algebraically and graphically, including elimination methods, and working with</p>	

	<p>algebraic fractions and related expressions.</p> <p>Ratio, Proportion and Mathematical Modelling – Solving complex proportional relationships, using scale factors in area and volume, and applying proportional reasoning to real-world contexts.</p> <p>Probability and Statistical Reasoning – Calculating theoretical and experimental probability, using Venn diagrams, complementary probability and expected outcomes, and interpreting statistical data including histograms, box plots and cumulative frequency.</p> <p>Problem Solving, Reasoning and Mathematical Communication – Applying multi-step strategies to unfamiliar problems, interpreting mathematical representations, and justifying methods using precise mathematical language.</p>
Useful Websites	<p>https://maths.sparx-learning.com/teacher/school-settings/su_bscription</p> <p>https://corbettmaths.com/</p> <p>https://mathsgenie.co.uk/</p>
Reading/Literacy requirements /Key Words	<p>Index</p> <p>Solve</p> <p>Surd</p> <p>Reflect</p> <p>Rotate</p> <p>Enlarge</p> <p>Bearing</p> <p>Relative</p> <p>Frequency</p> <p>Probability</p> <p>Quadratic</p> <p>Simultaneous</p> <p>Angles</p> <p>Scale Factor</p>
Homework requirements	Once a week
Personal Development Links	<p>https://corbettmaths.com/5-a-day/gcse/</p> <p>https://sites.google.com/westfield.academy/ks3maths/home</p>
Trips/Visits (If applicable)	<p>University Visits: Our Yr. 10 students are given an insight into further academic pathways. Visiting a university offers students a glimpse into higher education, inspiring academic</p>

ambition and future planning. It exposes them to diverse fields of study, campus life, and potential career paths. Such visits encourage goal-setting, enhance motivation, and provide valuable insights into the opportunities and challenges of university life.

Robotic Project: The mission is to develop future Space scientists and AI Engineers. We joined the National Robotics & STEM Project, organised by First Tech Challenge UK and Ireland (<https://firstuk.org/>), designed to equip our students with hands-on experience in engineering, coding, problem-solving, teamwork, and innovation.

UKMT Challenge: The mission is to develop confident, high-level mathematical thinkers through participation in the nationally recognised UK Mathematics Trust Challenge. This prestigious national competition attracts students from schools across the UK, providing an opportunity to compete at a recognised national standard.

Students tackle rigorous, non-routine problems that strengthen logical reasoning, precision, and resilience under timed conditions, raising aspirations and celebrating mathematical excellence.