Subject Curriculum Overview for Academic Year 2022/2023

Subject: Mathematics	Subject Leader: Mr S Card	Year 11 Foundation	AUTUMN TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Block 1 – Area and perimeter of circles	• Find the radius or diameter of a circle from its circumference • Find the radius or diameter of a circle from its circumference • Know and use the formula for the area of a circle • Calculate the area of quadrants and semi circles • Know the formula for sector area and use it to solve problems • Find area of compound shapes involving circles	Circumference Radius Semi-circle Quadrant Sector	Blocks 1-2 will be assessed before the Autumn half term holiday
Block 2 – Volume and surface area	• Know the formula for the volume of a cuboid and be able to apply it • Know the formula for the volume of a prism and be able to apply it • Know the formula for the volume of a cylinder and be able to apply it • Find the surface area of cuboids • Find the surface area of basic prisms • Find the surface area of cylinders	Volume Prism Cylinder Surface area	
Block 3 – Percentage change	• Use a multiplicative method to calculate percentages • Solve reverse percentage problems • Use multipliers to solve percentage change problems • Solve repeat and compound percentage problems • Solve reverse percentage change problems • Know and use the formula for percentage change	Multiplier Simple interest Compound interest Percentage change	Blocks 3-4 will be assessed before the Christmas holiday
November mock exams	• Preparation for mock exams including learning of key knowledge and formulae • Students sit a full set of GCSE paper at higher level • Feedback and evaluation		
Block 4 – Indices and standard form	• Know the laws of indices • Simplify expressions using the laws of indices • Understand the meaning of negative indices • Write numbers in standard form and take numbers out of standard form • Add and subtract numbers given in standard form • Multiply and divide numbers given in standard form	Coefficient Index/Indices Standard form	

Subject Curriculum Overview for Academic Year 2022/2023

Subject: Mathematics	Subject Leader: Mr S Card	Year 11 Foundation	SPRING TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Block 5 – Inequalities and expressions	• Write inequalities to represent given information • Represent inequalities on number lines • List the integer values that satisfy an inequality • Solve linear inequalities • Solve inequalities that require multiplying or dividing by a negative • Expand double brackets	Inequality Integer Linear	Blocks 5-6 will be assessed before the Spring half term holiday
Block 6 – Pythagoras theorem	• Know Pythagoras theorem and how it relates sides in right angled triangles • Use Pythagoras theorem to find the length of hypotenuses • Use Pythagoras theorem to find shorter sides of triangles • Calculate areas of non-right-angled triangles using Pythagoras • Solve problems involving multiple triangles using Pythagoras • Identify whether a triangle is right angled using Pythagoras	Hypotenuse Pythagoras' theorem	
Mock exams	• Preparation for mock exams including learning of key knowledge and formulae • Students sit a full set of GCSE paper at higher level • Feedback and evaluation		
Block 7 – Compound measures	• Convert between different units of time • Know the formula for speed and understand its different units • Find distance travelled and time taken when given a speed • Draw distance time graphs to represent journeys • Know the formula for density and use it to solve problems • Know the formula for pressure and use it to solve problems	Compound measure Speed Density Pressure Population density Force	
Block 8 – HCF, LCM and prime factorisation	• Find multiples and common multiples by listing • Find factors and common factors by listing • Know and use the definitions of prime and composite numbers • Find prime factors and write prime factor decomposition of numbers • Calculate the lowest common multiple using prime factors • Calculate the highest common factor using prime factors	Factor Multiple Common Composite Prime Prime factor	

Subject Curriculum Overview for Academic Year 2022/2023

Subject: Mathematics	Subject Leader: Mr S Card	Year 11 foundation	SUMMER TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Block 9 – Probability and similar shapes	• List outcomes systematically to help find probabilities • Use sample space diagrams to find probabilities • Construct tree diagrams to show how events can be combined • Calculate probabilities of independent events using tree diagrams • Enlarge shapes using integer and fractional scale factors • Solve problems involving similar shapes by finding scale factors	Sample space diagram Tree diagram Enlargement Centre of enlargement Scale factor Similar	
GCSE exam preparation	Using analysis from both recent and November mock exams class teachers of individual classes will identify topics required to study in further detail.		Summer 2023 GCSE exam dates Paper 1 – Non-calculator TBC Paper 2 – Calculator TBC Paper 3 – Calculator TBC

Subject Curriculum Overview for Academic Year 2022/2023

How parents can support learning in the subject this academic year

At the beginning of each new block of work, students will stick a **Knowledge Checklist** into their orange book. This contains a list of the learning objectives for the block (given above), key vocabulary which has been carefully defined and important facts that the students need to know. Helping students to learn the vocabulary and key knowledge will be hugely beneficial to their progress. The objectives are referenced to a Mathswatch video clip which will explain the work, give examples and practise questions. These can be used for pre-learning to gain an insight into what is coming up, consolidation of understanding or catching up on work missed.

Practice is important so please encourage students to complete homework on a weekly basis, suggest they attend Maths Club (Monday after school) which allows them to work on any aspect of their maths with support from several teachers or develop their interest in other areas of maths. Talking and using maths at home is a great way to link maths to everyday situations, for instance scaling up or down ingredients for a recipe, discussing time or money, estimating costs, looking at best value products in the supermarket, converting between units of measure etc.

Due to the hierarchical structure of Mathematics, it is vital that students catch up on any work missed through absences. If a student is absent they are expected to use their Knowledge Checklist to locate a video clip which will explain the work. Students should copy down the examples and work through the questions given. When they return they will need to copy up the missed notes from another student. If they need support with the work then please encourage them to attend Maths Club where staff will be there to help and support.

Recommended Reading

Humble Pi – A comedy of maths errors – Matt Parker
The man who knew infinity – Robert Kanigel
Flatterland – Ian Stewart
Can you solve my problems – Allex Bellos
The number Mysteries – Marcus du Sautoy
Math with bad drawings: Illuminating the ideas that shape our reality – Ben Orlin

Points to note

Students are expected to bring a scientific calculator to every maths lesson. The model we currently recommend is the Casio Classwiz FX-83GTX-S. This calculator can be purchased through the school via parentpay.