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| **Year 11 – Maths Higher Set 2** |
| **Curriculum intent** | We believe that students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for everyday life and future employment. Our mathematics curriculum will give students the opportunity to:* become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
* reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
* can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and preserving in seeking solutions.
* can communicate, justify, argue and prove using mathematical vocabulary.
* develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.
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| **Term** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Knowledge** | * Interest and Growth
* Reverse Percentages
* Subject of a Formula
* Speed
* Compound Measures
* Sampling
* Pie Charts
* Plans and Elevations
* Constructions
* Congruence
* Similarity
* Vectors
 | * Forming and Solving Equations
* Simultaneous Equations
* Direct and Inverse proportion
* Recurring Fractions
* Fractional and Negative indices
* Bounds
* Expanding and Factorising
* Quadratics
* Cumulative Frequency
* Histograms
* Circle Theorems
 | * Individual personalised revision topics identified by the teacher from a range of sources.
* ½ exam papers each week to build confidence and boost exam skills.
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 | Exam Preparation |  |
| **Skills** | * To use multiples to calculate compound interest/depreciation.
* To make/interpret calculations involving repeated percentage change.
* To find the original amount following an increase/ decrease. To be able to change the subject of varying formulae including when powers and roots are involved.
* To know and use the formulae for speed, density and pressure to solve problems.
* To convert between different metric speed measures.
* To understand and use different methods of sampling to solve problems.
* To construct and interpret pie charts in varying contexts.
* To understand and draw plans and elevations of 3D object.
* Sketch 3D objects when given the plans and elevations.
* To be able to constructs shapes accurately including the use of bisectors.
* To use constructions to solve loci problems.
* To solve angle problems involving congruence.
* Identify scale factors and use these to calculate missing lengths, areas or volumes.
* To be able to calculate resultant vectors from diagrams.
* To be able to use vectors to solve geometric problems involving ratios.
 | * To be able to solve linear equations including when unknowns are on both sides of the equation.
* To be able to form and solve equations in varying contexts including area, perimeter and angles
* To be able to solve simultaneous linear equations.
* To solve problems involving direct and inverse proportionality.
* To convert between recurring decimals and fractions.
* Use index laws to simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, fractional and negative powers,
* Calculate the upper and lower bounds of an expression involving the four operations to varying degrees of accuracy;
* To expand and simplify linear and quadratic expression
* To solve quadratic equations using the 4 methods.
* To draw/interpret box plots/cumulative frequency graphs to find statistical data.
* To be able to draw/interpret histograms and calculate estimates.
* To understand and use circle theorems in context with other angle facts to solve problems.
 | * Individual personalised revision topics identified by the teacher from a range of sources.
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 | * To understand the various command words for maths questions.
* To understand how to pick out the key information from the question.
* How to check accuracy of answers.
* How to use a calculator effectively.
* What to write down for working out.
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| **Assessments** | * Baseline
* Regular exam practice
 | * Autumn Assessment (exam paper)
* Regular exam practice
 | * Mock exams
* ½ weekly exam papers
 | * Regular exam practice
* ½ weekly exam papers
 | * Regular exam practice

½ weekly exam papers |  |
| **Curiosity** | * Try a mini exam paper <https://www.onmaths.com/mock_exams/mini-mock-1-higher-calculator/>
* Visit the oak national academy website to view lessons and videos of the above topics.
* What is your average speed? Practice running the same distance and record your speed each time. Use this video to help you calculate your average speed - <https://tutors.com/math-tutors/geometry-help/average-speed-formula> .
* What am I looking at? can you identify the various elevations of these shapes? <https://www.transum.org/Maths/Activity/Plans_and_Elevations/>
* Apply your loci skills to exact scale drawings in this goat problem <https://www.transum.org/Software/SW/Starter_of_the_day/starter_March6.ASP>
* <https://tutors.com/math-tutors/geometry-help/average-speed-formula> .
* Test your knowledge of vectors with this interactive activity

<https://www.transum.org/software/SW/Starter_of_the_day/Students/VectorsB.asp> * Have a go at this interactive activity around rearranging equations. How many levels can you progress through? <https://www.transum.org/software/SW/Starter_of_the_day/Students/Changing_The_Subject.asp?Level=6>

Weekly revision sessions | * Try a mini exam paper <https://www.onmaths.com/mock_exams/mini-mock-2-higher-calculator/>
* Visit the oak national academy website to view lessons and videos of the above topics.
* How good are you at balancing? Can you you’re your balancing skills here <https://www.transum.org/software/SW/Starter_of_the_day/Students/Equations.asp>
* How does the recipe change? Here are some online questions to help you - <https://www.transum.org/Maths/Exercise/Ratio/Recipe.asp> . Alternatively, pick a recipe from a cookbook at home and practice changing the measurements based on how many people you would cook for?
* Histograms practice
* <https://www.mathsisfun.com/data/histograms.html>
* Practice your quadratics skills with this interactive activity:<https://www.transum.org/software/SW/Starter_of_the_day/Students/Quadratic.asp?Level=1>

Weekly revision sessions* Black history month
* Maths challenge Date tbc
 | Weekly revision sessions | Weekly revision sessions | Weekly revision sessions |  |