Year 9 Curriculum Overview

Rationale: The Year 9 curriculum is designed to develop, embed and master knowledge and skills from Year 7 and 8, introducing further depth to problem solving and critical thinking. Students will make explicit links between different concepts and topics within maths; Algebra, Number, Geometry and Measure, Probability and Statistics. This year will provide a solid foundation for GCSE as they complete Key Stage 3. This progress within each strand outlined above will be assessed both formatively and summatively across the year.

Term/Length of Time	Outline	Assessment/Teacher Feedback Opportunities	Homework and Literacy resources
Autumn term 7 lessons per fortnight for approximately 15 weeks. Approx 5 weeks	*When completing the course students also have regular review weeks to ensure cyclicity and recap of previously learnt materials.* **Module 1 Number** Students cover all of the basics of mathematics involving number, including: • Factors, Multiples and Primes • Highest Common Factors and Lowest Common Multiples • Prime factor form • The laws of indices • Use of directed numbers and recap of BIDMAS • Use of standard form and surds • Rounding and estimation Students will use these skills in later modules so it essential they have these basics covered.	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 1 Assessment** At the end of every module students sit an end of module assessment, covering all aspects taught and some prior learning from previous modules. All Year 9 students sit the Module assessments in exam conditions in their classrooms. Assessments are out of 50 marks. Assessments are marked by the class teacher, fed back to students, who have the opportunity to improve their work. A personalised checklist is then completed by the student on the front of the test for them to use in their future revision.	**Home learning is set weekly in Maths throughout Year 9** **Two/Three FAR** (Feedback, Action, Response) homework tasks to be set over the course of a module. **FAR homework** sheets in Year 9 will be following the design of the Y10 and 11 home learning to ensure greater work on previously learnt materials and prepare them for entering Key Stage 4. **MODULE :** Linked to the module students are currently working on in lessons **Context:** Title linked to the skill(s) included **Due Date:** **Literacy:** Students will be expected to write in full sentences in the literacy section. This also may require some research. **Revisiting:** This section includes a range of questions from previously taught topics in the GCSE course, this could be from Year 9 or Year 10. **Assessment Objective 1 (AO1) Key Knowledge:** This section includes a range of 1 or 2 mark questions which we call A01. These questions often require minimal methods. **AO2/AO3 Problem Solving:** This section includes questions that are often 2-6 mark questions that require students to include their methods and processes to gain full marks. These questions are often problem solving, real life and application style questions. **Non - FAR homework** will be set each week (when a FAR is not set). Types of Non FAR home work may include: • Worksheets – for consolidation or flipped learning purposes. • Revision • Research • Using websites/apps

		Revising for Maths: There are many ways students can revise for Maths: • Use a revision website such as MathsGenie or CorbettMaths • Create Flash Cards • Use a revision guide • Practice Exam Papers • Use websites listed above to watch videos, make notes and practice questions where answers are provided. • Learn all Maths formulae • Create mind maps/posters	*These may be marked by the teacher, self-marked by the student or if using a website/app or peer marked in lessons with teacher guidance.* **Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 1 Links to aid revision** **A/B Band:** Laws of indices with fractions and negatives **B/C Band:** Laws of indices **C/D Band:** Factors and multiples **Oak National Academy lessons and resources** Rules of Indices – (lessons 1-4) Surds – (lessons 1 – 4) **Recommended Reading** 50 Mathematical Ideas You Really Need to Know - Tony Crilly

Approx 5 weeks	**Module 2 Geometry Shape and Angles** Next is angles and properties of shape. Again, this builds and develops their work in Y7 and 8 and may include use of algebra. Topics include: • Angles in 2d shapes • Angle properties • Use of symmetry • Angles using polygons • The basics of Congruence and Similarity • Naming properties of circles and 2d shapes • The Circle Theorems	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 2 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 2** **Links to aid revision** **A/B Band** Circle theorems **B/C Band** Angles in polygons Bearings **C/D Band** Basic Angle properties Angles in parallel lines **Oak National Academy lessons and resources** Angles – (lessons 1 -4) Circle Theorems (all lessons)

Approx 4 weeks	**Module 3 Fractions, Decimals, Percentages and Ratio** Students now complete more of the number side of mathematics, broadening their knowledge from module 1 to incorporate fractions, decimals and percentages. Students by the end of this module should know how to: • Add, subtract multiply and divide with both decimals and fractions • Find fraction and percentage of amounts • Simplify and find equivalence with other fractions, decimals and percentages • Increase and decrease an amount by a given percentage • Use of simple and compound interest • The beginnings of ratio and how they link to fractions and decimals We will return to the theme of ratio and proportion in greater detail later in the course.	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 3 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development. This assessment is only sat by crossover and foundation students.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 3** **Links to aid revision** **A/B Band** Recurring decimals to fractions **B/C Band** Reverse percentages **C/D Band** Fractions, Decimal, Percentage conversion Fraction calculations **Oak National Academy lessons and resources** Fractions (all lessons) Algebraic Fractions (all lessons) **Recommended Reading** The Monty Hall Problem: Beyond Closed Doors - Rob Deaves

Spring Term 7 lessons per fortnight for approximately 12 weeks Approx 5 weeks	**Module 4 Algebra – Manipulation** Now is the time for more abstract mathematics. Algebra can and will be used in a variety of ways for their maths exam and students must know how to effectively manipulate and use it effectively. Topics will include: • Simplifying expressions, including use of brackets • Expand brackets, 2 sets of brackets and 2 or 3 sets of brackets touching. • Factorise an expression into brackets • Rearranging an equation or formula • Factorising quadratics, including the basics of why we do this • Substitution into an expression or formula • Use of algebraic fractions and how to simplify with whole number terms as well as fractional terms This can be a challenging topic and will push student's skills and reasoning. Extra practice will be needed to ensure full mastery of all topics.	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 4 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 4** **Links to aid revision** **A/B Band** Algebraic Fractions **B/C Band** Expanding and factorising quadratics Rearranging formulae **C/D Band** Substitution Expanding and factorising single brackets **Oak National Academy lessons and resources** Quadratics – (all lessons) Rearranging Formula – (all lessons)

Approx 4 weeks	**Module 5 Probability** Moving back into more 'real life' style maths, this topic goes into great detail of all the various techniques required to answer questions involving relative frequency and theoretical probability. Topics covered include: • Probability of single events • Relative frequency of single events • Probability involving 2 events using sample space diagrams or two way tables • Recognising probability terminology, including knowledge of the various parts of a Venn diagram • Use of tree diagrams • Use of Venn diagrams • Use of prior learning from previous modules involving fractions, decimals, percentages and use of algebra. This module pushes student's knowledge and they will be expected to analyse questions to a greater depth. Exam style questions will strecth knowledge considerably, requiring careful reading and interpretation.	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 5 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 5** **Links to aid revision** **A/B Band** Probability using equations **B/C Band** Tree Diagrams Venn diagrams **C/D Band** Basic Probability **Oak National Academy lessons and resources** Probability (all lessons) Set Notation – session 3 in particular. **Recommended Reading** The Penguin Dictionary of Curious and Interesting Numbers – David Wells

Summer Term 7 lessons per fortnight for approximately 12 weeks Approx 3 weeks	**Module 6 Pythagoras, Trig, Area and Volume 1** Mixing together use of shape with use of algebra, this topic introduces new concepts and combines prior learning. The course is definitely now requiring plenty of recap skills and students must ensure they are fully prepared. This unit will cover the following: • Pythagoras' theorem and finding solutions in a range of contexts, including use of fractions, decimals and use of a calculator • Introducing trigonometry for right angled triangles only – finding angles and lengths, combining with Pythagoras • Finding the area of 2d shapes, including compound shapes and different types of 2d shapes (non – rectilinear) We will return to this topic, recapping material and pushing into greater depth use of trigonometry and similarity in year 10.	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 6 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 6** **Links to aid revision** **A/B Band** Exact Trig Values 3d Pythagoras and Trigonometry **B/C Band** Pythagoras Trigonometry **C/D Band** Area of compound shapes **Oak National Academy lessons and resources** Pythagoras (all lessons) Trigonometry (all lessons)

Approx 2-3 weeks	**Module 7 Real Life Graphs 1** Beginning to show models of algebra and how they can be used in a real life context. A beginners start to graphs which will become more abstract when we revisit this topic in year 10. Topics include: • Conversion graphs • Distance time graphs • Velocity time graphs • Knowing coordinates and the basic properties of a graph, including accurate use of scales	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 7 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 7** **Links to aid revision** **A/B Band** Velocity Time Graphs **B/C Band** Distance Time Graphs Solving Simultaneous Equations Graphically **C/D Band** Coordinates **Oak National Academy lessons and resources** Real Life Graphs **Recommended Reading** The Great Mathematical Problems – Ian Stewart

	End of year exam preparation The end of year exam will be a summative assessment of all topics and modules covered throughout year 9. Key areas of weakness identified by the class teacher will be revisited and students will have plenty of revision time for preparation of this end of year exam.	**End of Year Maths Exam** **This is a summative assessment of all topics learnt throughout Year 9 and will be used to determine setting for year 10. Students will receive detailed feedback, a PLC and will have opportunities to improve their learning in lessons.**	End of year revision requires students to look back on their work and practice exam style questions. Students will attempt these in class as well as practice papers. Excellent revision materials can be found here: Past Papers Graded Revision Materials with Videos and Worksheets, with solutions Individual Topic List – students should use their Personal Learning Checklists to identify topics in need of revision

Approx 3 weeks	**Module 8 Sequences** Students need to know how to find sequences, and if given a sequence, be able to find the nth term and manipulate numbers in the sequence. Topics will cover: • Term to term rules • Generate a sequence or part of a sequence • Nth term of a linear sequence • Quadratic Sequences • Being able to spot a geometric sequence and special sequences	FAR Homework will be marked by the teacher where feedback will be provided, an action will be given for students to improve and the teacher will check the response to feedback is completed. **Module 8 Assessment** 60 minutes in lesson. Students will receive strengths and areas for development.	**Optional homework tasks and literacy resources** **Module Instruction Sheets** will be uploaded by teachers that include videos, exam questions and answers linked to the module being taught in lessons. Module Instruction sheets are colour coded and represent the following: Foundation topics/concepts – Orange – Relate to C/D Band Cross over topics/concepts – Yellow = Relate to B/C Band Higher only content –Green – Grade = Relate to A/B Band All module instruction sheets can be found on the Digital Learning Hub. **Module 8** **Links to aid revision** **A/B Band** Quadratic Sequences **B/C Band** Sequences – nth term **Oak National Academy lessons and resources** Sequences Quadratic Sequences **Recommended Reading** Can you Solve my Problems? – Alex Bellos