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| Year 11 Maths | Intent | Students are to be able to “work mathematically” throughout the curriculum by embedding the essential skills of fluency, reasoning and problem solve into each subtopic. Students will now develop the knowledge gain, at Key Stage 3, into more complex and new understanding. Through careful interleaving of topics, students will readily make links between each subtopic, hence strengthening their understanding and mastering the course. |
| Assessment strategy | Students will be assessed the three key points throughout the year, the start, halfway through and at the end. These major assessment points will form the composite testing for the year group in form of two full mock exams, all three papers, and Year 11 component test of their learned knowledge to date. This will allow students to see their progress, considering the full GCSE spectrum, from the start of Year 11 to the end and provide teachers with the opportunity to support areas for development more effectively.  At the end of every two weeks of teaching students will undertake a component, check-in, test based solely upon the knowledge they have gained during that topic. This provides both students and teachers with the opportunity to regular evaluate strengths and areas for development on these specific topics.  Students will also participate in a composite test comprising of a past paper. This past paper will allow students to be regularly tested on more areas of the GCSE exam, gaining exam confidence and increasing retention of more key skills and knowledge throughout the year. |

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|  |  | Half Term 1 | Half Term 2 | Half Term 3 | Half Term 4 | Half Term 5 | Half Term 6 |
| Year 11 Maths | Disciplinary knowledge | The laws of indices and their formulae will feature heavy this half term. Understanding how fractional and negative indices work will also be paramount. Students will then be taught how to correct transform shapes using tracing paper, on and off graphs. | Formulae for compound and simple interest will be taught, building on the KS3 concept of place value and finding percentages of amounts. Students will also recap the methods for calculating averages. | Students will use the skill of multiplication to expand and factorise. They will then be taught the method of solving equations separately, through inverse operations, and simultaneously through addition and subtraction of like terms. We will then proceed to adapt this skill onto graphs and solve through plotting the graphs.  Students will also be explicitly taught the formulae for compound measures. | We will revisit the process of calculating area and perimeter of shapes. We will use inverse operations to apply to certain questions and methods. Students will be explicitly taught the formulae for circles and volume of 3D shapes so that we use the method of substitution to calculate the answers.  We will then move onto triangles where we will again use substitution to calculate missing sides and angles using Pythagoras and Trigonometry. | Students will be show how to represent bivariate data on a selection of differing graphs. Recalling on their ability of plotting graphs from their algebra topic, we will ensure accuracy by compare data and drawing conclusions and averages.  Students will be shown on to calculate probability and link back to divisors, simplifying fractions and converting between F.D.P. | Revision and exam ruberic |
| Substantive knowledge | * Powers and indices * Transformations | * Rounding and error intervals * Prime factor decomposition * Factors and multiples * Fractions and ratios * Best buys * Percentages * Averages | * Expanding brackets * Compound measures * Substitution * Factorizing * Linear graphs * Equations – linear, quadratic and simultaneous equations | * Area and perimeter of 2D shapes * Area and circumference of circles * Volume of 3D shapes * Pythagoras * Trigonometry * Angles in parallel lines, around a point and on a straight line | * Scatter diagrams * Pie charts * Cumulative frequency graphs * Histograms * Probability * Venn diagrams | Revision |
| Justification | Following on from the scheme of learning for Year 10 and covering content that we can build on for the rest of the year | Ensuring all students have a recap of all the number topics. This will allow us to bridge any gaps in knowledge and provide a solid foundation before moving onto algebra. | After students have grasped the basics of number they will then be able to consolidate this understanding with the abstract algebra. | Once students have grasped both the concepts of number and algebra we can begin to introduce shape and formulae and interweave the pervious two concepts into this. | Students will then finish with learning about statistical diagrams, reasoning and evaluations and probability. As they have learned all the previous topics in the right order, we can now explore using this skills to interpret data. | Revision |
| Keystone vocabulary | Power, fractional ,indices, centre of enlargement, rotation, translation, reflection, invariant, origin | Round, estimate, intervals, bounds, accuracy, factors, multiples, prime factors, simple, compound, value for money | Term, variable, expand, factorise, linear, quadratic, simultaneous, origin, substitute | Area, perimeter, units, circumference, radius, diameter, units, parallel, transversal, alternate, co-interior, corresponding | Bivariate data, cumulative, probability, frequency density, cumulative frequency, intersection, compliment | Revision |
| Links to prior learning | * Applications of number in Y7, Y8 and Y9 * Transformation of shape in Y9 | * Applications of number in Y7, Y8 and Y9 | * Forming and solving equations in Y8 * Expanding and factorizing in Y8 and Y9 * Number properties in half term 2 | * Circles in Y9 and Y10 * Angles on parallel lines in Y8 * Substitution in half term 3 | * Statistical diagrams and calculations in Y10 * Averages in half term 2 | Revision |
| Cross-curricular and careers links | Art – transformation of shapes | Business studies – calculating financial statement  Art – sharing in a ratio mixing paint and other mediums | Science – compound measures | Art and design – calculating shapes and angles for symmetrical purposes | Science – reading and interpreting data  Geography – plotting graphs and interpreting data | Revision |
| Links to future study | Exam preparation | Forming and solving equations through inverse operations. Expanding and factoring expressions. Exam preparation | Substitution into formulae on the shape unit. Exam preparation | Exam preparation | Exam preparation | Revision |
| Assessment | * Year 11 Assessment week * MAP for individual topics | * Autumn mock exams * MAP for individual topics | * Component testing on individual units (at the end of a block of eight lessons) units * Composite testing – half a past paper | * Component testing on individual units (at the end of a block of eight lessons) units * Composite testing – past paper | * Year 11 Spring Mock Exam * Component testing on individual units (at the end of a block of eight lessons) units * Composite testing – past paper |  |
| Homework | Sparx homework – baseline on what they have learned in Y10 and using it to support any haps in knowledge | Sparx – based on half term one and two content | Sparx – based on half term two and three content | Sparx and past paper revision | Sparx and past paper revision |  |