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| **Maths Curriculum Overview: Key Stage 4**The mathematics curriculum for Key Stage 4 students follows the Edexcel Scheme of Work for the higher or foundation tier. All students will have the opportunity to undertake the Functional Skills assessment. Based on their proficiency level in Functional Skills, they will either sit for the higher-tier or foundation-tier Edexcel exam or continue progressing through the Functional Skills exams. For students who are home-schooled, they will adhere to their respective home-school curriculum while concurrently participating in the Functional Skills assessment.Post-16 students in Year 12 or 13 who are retaking mathematics will follow the Edexcel mathematics curriculum. Students who have passed GCSE mathematics will transition to the Edexcel A-level syllabus, supported by qualified teachers to facilitate their learning. Additionally, students who have passed their GCSE mathematics may opt to pursue a different mathematics qualification during their non-contact time instead of A-level mathematics, depending on their chosen career pathway. Qualifications such as financial money management will be available to students during non-contact time. |
| Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 |
| Pythagoras’ (**Unit 21**)*By the end of the unit, students should be able to:*21.1 Understand, recall and use Pythagoras’ theorem in 2D, including leaving answers in surd form and being able to justify if a triangle is right-angled or not.21.2 Calculate the length of the hypotenuse and of a shorter side in a right-angled triangle, including decimal lengths and a range of units.21.3 Apply Pythagoras’ theorem with a triangle drawn on a coordinate grid.21.4 Calculate the length of a line segment $AB$ given pairs of points. | Simultaneous Equations **(Unit 20)***By the end of the unit, students should be able to:*20.1 Write simultaneous equations to represent a situation.20.2 Solve simultaneous equations (linear/linear) algebraically and graphically.20.3 Solve simultaneous equations representing a real-life situation, graphically and algebraically, and interpret the solution in the context of the problem. | Transformations of shapes and vectors **(Unit 23)***By the end of the unit, students should be able to:*23.1 Find the center of rotation, angle and direction of rotation and describe rotations fully using the angle, direction of turn and center.23.2 Rotate and draw the position of a shape after rotation about the origin or any other point including rotations on a coordinate grid.23.3 Understand that translations are specified by a distance and direction using a vector.23.4 Translate a given shape by a vector.23.5Use column vectors to describe and transform 2D shapes using single translations on a coordinate grid.Identify two column vectors which are parallel.23.6 Calculate using column vectors, and represent graphically, the sum of two vectors, the difference of two vectors and a scalar multiple of a vector;23.7 Understand that distances and angles are preserved under rotations, reflections and translations, so that any figure is congruent under any of these transformations.23.8 Understand that reflections are specified by a mirror line.Identify the equation of a line of symmetry.23.9 Transform 2D shapes using single reflections (including those not on coordinate grids) with vertical, horizontal and diagonal mirror lines.23.10 Describe reflections on a coordinate grid.Enlarge a given shape using (0, 0) as the center of enlargement, and enlarge shapes with a center other than (0, 0). | Probability of combined events (Unit 26)By the end of the unit, students should be able to:26.1 List all outcomes for combined events systematically.Use and draw sample space diagrams.26.2 Work out probabilities from 26.3 Venn diagrams to represent real-life situations and also ‘abstract’ sets of numbers/values.26.4 Use union and intersection notation26.7 Compare experimental data and theoretical probabilities.26.8 Compare relative frequencies from samples of different sizes.26.9 Find the probability of successive events, such as several throws of a single dice.29.10 Use tree diagrams to calculate the probability of two independent events.26.11 Use tree diagrams to calculate the probability of two dependent events. | Trigonometry**(Unit 28)**By the end of the unit, students should be able to:28.1 Understand, use and recall the trigonometric ratios sine, cosine and tan, and apply them to find angles and lengths in right-angled triangles in 2D figures.28.2 Use the trigonometric ratios to solve 2D problems including angles of elevation and depression.28.3 Know the exact values of sin $θ$ and cos $θ$ for $θ$ = 0°, 30°, 45°, 60° and 90°; know the exact value of tan $θ$ for $θ$ = 0°, 30°, 45° and 60°. | Further Graphs **(Unit29)**By the end of the unit, students should be able to:29.1 Find the equation of the line through two given points;29.2 Recognise, sketch and interpret graphs of simple cubic functions; |
| The teacher will administer a number of assessments to measure if learning has taken place over the term, such as: **Formative Assessment**: This involves ongoing assessments during the learning process to provide feedback and guide instruction. Techniques include:*Observations*: Watch students as they solve problems or explain concepts.*Questioning:* Ask open-ended questions to probe understanding.*Quizzes:* Short quizzes or exit tickets to check comprehension.**Summative Assessment:** These assessments will be administered at the end of a unit to evaluate student learning. Examples include:*Tests:* Standardized or teacher-created tests covering the material taught.*Projects:* Assignments where students apply math concepts to real-world problems.*Presentations:* Students explain their understanding of a concept to the class.*Problem-Solving Tasks:* Provide students with math problems or scenarios that require critical thinking and application of concepts. Observe their approach and solutions.*Performance Tasks:* Assign tasks that require students to demonstrate specific math skills or processes, such as graphing data, solving equations, or interpreting graphs.**Self-Assessment:** Have students reflect on their own learning and progress. They can set goals, identify areas for improvement, and track their growth over time.**Accreditations from:** GCSE -Edexcel (higher or Foundation tier), Functional Skills ( Entry levels , level 1 & 2), A-Level |