



Intent for the Year 9 Mathematics Curriculum 2021-2022

All children will experience a well-balanced and comprehensive curriculum that enhances informed, intellectual, developmental and moral character. As a result, this will improve life chances, inter-personal relationships, social mobility and preparedness for employment. Our curriculum will encourage everyone to have a positive impact on society.

Intention:

Students develop knowledge, understanding and skills in all 6 strands of the Mathematics curriculum – number, algebra, proportional reasoning, geometry, probability and statistics, building upon their experience from year 8. All students will develop numeracy skills and be able to apply these to everyday and unfamiliar situations and acquire tools to help understand, interact and interrogate the world around them. They will develop a greater understanding of the importance maths in the world of work and begin to consider what careers the study of maths could lead to. Through the year students will develop problem solving strategies and enhance their creative thinking skills. They will be encouraged to develop an appreciation of the subject and understand that the study of mathematics is an intellectual endeavour in its own right. They will begin to develop an understanding of the importance of a qualification in Mathematics as a gateway to future learning and improved life chances.

Implementation:

Considering prior learning and stage of development students are taught in three ability pathways - Plus, Core and Star. Maths is delivered in 4 hour long lessons each week. The content for this year group, in all pathways, progresses on from year 8 and each unit provides opportunities to consolidate, retrieve and fill gaps in prior learning as well as introducing new learning. The maths curriculum has a spiral nature where students frequently re-visit and extend learning in all aspect of the curriculum, during the year and across all 5 years at Haygrove.

Curriculum adaptations as a result of the pandemic:

The results of the end of year assessments and content from year 8 scheme of work will form the basis of space retrieval starters which will be used to review, revise and practice key skills from year 8 and the current year 9 as the year progresses.

| Pathway | Term | Topics and skills: | Key Outcomes: | Character Education: | Assessment: | Vocabulary: | Home-Learning: |
|---------|------|---|--|--|--|---|---|
| Plus | 1a | <ul style="list-style-type: none"> •Percentage calculations •Plans and elevations •Inequalities – number line and solving •Pythagoras Theorem | Extend understanding of the number system, making connections between number, algebra and graphs | Through the delivery of our Maths curriculum we endeavour to | Interleaving every lesson will start with a spaced retrieval starter which aims to identify gaps in knowledge, aid memory | Tier 3 vocabulary (maths specific vocabulary) is taught in each | Students will have a weekly home learning task which will either consolidate or extend current learning, revise |



| | | | | | | |
|-------------|---|--|--|---|--|---|
| | <p>1b</p> <ul style="list-style-type: none"> •Laws of indices •Area and volume problem solving •Rearranging formulae | <p>Develop mathematical knowledge through solving problems and evaluation outcomes including multistep problems and financial mathematics</p> <p>Select appropriate concepts, methods and techniques and apply them to familiar and non-routine problems</p> <p>Reason deductively in geometry, number and algebra and begin to express arguments formally</p> | <p>develop the following character traits:</p> <ul style="list-style-type: none"> • Responsible • Curious • Respectful • Honest • Compassionate • Creative • Resilient • Confident • Reflective | <p>retrieval and to close learning gaps.</p> <p>Formative assessment takes every lesson as part of good quality teaching using a variety of assessment for learning techniques.</p> <p>End of unit questions are used to check understanding and application skills taught.</p> <p>Summative assessment - For the first 4 half terms students will have a written assessment covering the content of the preceding half term and will contain interleaving questions on prior learning. There will be an end of year exam which will assess all content and application of learnt maths skills.</p> | <p>individual unit of work. Tier 2 vocabulary is defined and explained to promote greater understanding of texts used in contextual questions.</p> | <p>prior learning (interleaving task) or be a flipped learning task.</p> <p>The home learning task may be a written task or may be a task completed on an online learning platform (e.g. Hegarty maths)</p> |
| | <p>2a</p> <ul style="list-style-type: none"> •Standard form •Analysing linear graph •Quadratic and cubic graphs •Angles in polygons | | | | | |
| | <p>2b</p> <ul style="list-style-type: none"> •Probability laws and tree diagrams •Forming and solving equations •Loci | | | | | |
| | <p>3a</p> <ul style="list-style-type: none"> •Frequency polygons •Quadratic algebra •Trigonometry | | | | | |
| | <p>3b</p> <ul style="list-style-type: none"> •Transformation geometry •Graphical solutions to equations •Averages - grouped frequency tables •Compound units – speed and density •Personal finance | | | | | |
| Core | <p>1a</p> <ul style="list-style-type: none"> • Percentage calculations •Set theory •Maps, scales and bearings •Ratio | <p>Consolidate their numerical and mathematical capability from year 8 and extend understanding of the number system and place value.</p> <p>Select and use appropriate calculation strategies to solve increasingly challenging problems</p> | <p>Through the delivery of our Maths curriculum we endeavour to develop the following character traits:</p> <ul style="list-style-type: none"> • Responsible • Curious | <p>Interleaving every lesson will start with a spaced retrieval starter which aims to identify gaps in knowledge, aid memory retrieval and to close learning gaps.</p> | <p>Tier 3 vocabulary (maths specific vocabulary) is taught in each individual unit of work. Tier 2 vocabulary is</p> | <p>Students will have a weekly home learning task which will either consolidate or extend current learning, revise prior learning (interleaving task) or be a flipped learning task.</p> |
| | <p>1b</p> <ul style="list-style-type: none"> •Significant figures and estimating •Standard form •Area, volume and surface area •Converting between metric units •Forming and solving linear equations | | | | | |



| | | | | | | |
|-------------|---|---|---|--|--|---|
| | <p>2a</p> <ul style="list-style-type: none"> • Prime factors • Expanding brackets and factorising • Angles in polygons | Start to use algebra to generalise arithmetic and relationships, and begin to become confident in manipulating algebra and solve equation | <ul style="list-style-type: none"> • Respectful • Honest • Compassionate • Creative • Resilient • Confident • Reflective | <p>Formative assessment takes every lesson as part of good quality teaching using a variety of assessment for learning techniques.</p> <p>End of unit questions are used to check understanding and application skills taught.</p> <p>Summative assessment - For the first 4 half terms students will have a written assessment covering the content of the preceding half term and will contain interleaving questions on prior learning. There will be an end of year exam which will assess all content and application of learnt maths skills.</p> | defined and explained to promote greater understanding of texts used in contextual questions. | The home learning task may be a written task or may be a task completed on an online learning platform (e.g. Hegarty maths) |
| | <p>2b</p> <ul style="list-style-type: none"> • Probability – relative frequency • Sequences and nth term • Construction • Rearranging formulae | Develop mathematical knowledge through solving problems including multistep problems and financial mathematics | | | | |
| | <p>3a</p> <ul style="list-style-type: none"> • Proportion • Scatter diagrams and frequency polygons • Transformation geometry | Begin to move freely between different numerical, algebraic, graphical and diagrammatic representations | | | | |
| | <p>3b</p> <ul style="list-style-type: none"> • Graphs – linear and quadratic • Averages from grouped tables • Pythagoras • Compound units • Personal finance | | | | | |
| Star | <p>1a</p> <ul style="list-style-type: none"> • Rounding and Decimals • Set theory • Properties of circles • Expanding brackets • Simplifying expressions • Indices | Consolidate their numerical and mathematical capability from year 8 and extend understanding of the number system and place value. | Through the delivery of our Maths curriculum we endeavour to develop the following character traits: <ul style="list-style-type: none"> • Responsible • Curious • Respectful | <p>Interleaving every lesson will start with a spaced retrieval starter which aims to identify gaps in knowledge, aid memory retrieval and to close learning gaps.</p> <p>Formative assessment takes every lesson as part</p> | Tier 3 vocabulary (maths specific vocabulary) is taught in each individual unit of work. Tier 2 vocabulary is defined and | Students will have a weekly home learning task which will either consolidate or extend current learning, revise prior learning (interleaving task) or be a flipped learning task. |
| | <p>1b</p> <ul style="list-style-type: none"> • Percentage calculations • Area of 2D shapes • Forming expressions • Pie charts | Select and use appropriate calculation strategies to solve problems | | | | |



| | | | | | | |
|-----------|---|--|---|---|--|--|
| 2a | <ul style="list-style-type: none"> • Proportion – best buy and recipes • Substitution • Angle rules – parallel lines | relationships, and begin manipulating algebra and solve equations | <ul style="list-style-type: none"> • Honest • Compassionate • Creative • Resilient • Confident • Reflective | <p>of good quality teaching using a variety of assessment for learning techniques.</p> <p>End of unit questions are used to check understanding and application skills taught.</p> <p>Summative assessment - For the first 4 half terms students will have a written assessment covering the content of the preceding half term and will contain interleaving questions on prior learning. There will be an end of year exam which will assess all content and application of learnt maths skills.</p> | <p>explained to promote greater understanding of texts used in contextual questions.</p> | <p>The home learning task may be a written task or may be a task completed on an online learning platform (e.g. Hegarty maths)</p> |
| 2b | <ul style="list-style-type: none"> • Probability • Ratio • Construction • Coordinates | Develop mathematical knowledge through solving problems including multistep problems and financial mathematics | | | | |
| 3a | <ul style="list-style-type: none"> • Stem and leaf and scatter diagrams • Fraction calculations • Real life graphs | Use language and properties to analyse number, shape, algebra and statistics | | | | |
| 3b | <ul style="list-style-type: none"> • Averages from tables • Surface area and volume • Solving linear equations • Personal finance | | | | | |

Impact:

Students will have consolidated prior learning, closed gaps in lost learning and deepened their knowledge of mathematics. They will have experienced a variety of contexts showing where maths is used in the world around them including the workplace. They will have had the opportunity to apply their skills to both familiar and unfamiliar situations and improved their problem-solving skills. They will have begun to see the use of maths, and a qualification in maths, in enhancing their futures.