Henlow Academy Maths Curriculum Information

Intent

- For students to enjoy mathematics and for every child to feel that they can achieve success in lessons.
- Creating a learning environment that will support our students to become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time.
- Developing and delivering a rich, sequential curriculum with a clear structure that offers variety and challenge in order to engage all students.
- Building positive rapport will our students and ensuring that their individual needs are met by adapting our teaching and curriculum to suit their needs.
- Creating a culture of curiosity by linking maths to real life scenarios and allowing opportunities in lessons to discuss mathematical concepts in a safe and secure environment where students are allowed to make mistakes and in turn learn from them.
- Offering a breadth of study that flows seamlessly from Key Stage 3 to Key Stage 4.
- For all students to gain grade 4 or above in GCSE maths.
- Prepare students for life beyond Key Stage 4, whether they are continuing with mathematical studies or applying the skills and knowledge learnt in a work place setting.

Implementation

At Henlow, we use the White Rose maths curriculum as our foundation and springboard. The 'small steps' covered by this scheme is sequential and offers ample opportunity to develop fluency and number whilst continually building understanding of more abstract mathematical concepts.

At every stage, students are presented with mathematical problems that will encourage them to apply their knowledge to a variety of routine and non-routine scenarios. ROMLs (reflecting on my learning) sheets give our students a clear map of their learning and ensures coverage of all the national curriculum expectations. Termly assessments throughout the year will also help us to assess their understanding and progress.

At GCSE we work towards the Edexcel GCSE qualification. The GCSE course incorporates all aspects of mathematics: number, algebra, ratio, proportion and rates of change, geometry and measures, probability and statistics.

At Henlow, you can expect to see the following in every maths lesson:

- 'Quality first' teaching; tailored to meet the needs of each individual student.
- Careful consideration of setting and seating arrangements taking into account classroom dynamics, SEND needs, ability and individual teacher strengths.
- Formative assessment methods to immediately address gaps or misconceptions in students' learning and using these to further deepen their understanding.
- High-quality questioning techniques to explore children's understanding and tailor lessons according to their needs,
- Teachers using a range of methods to explore key mathematical concepts which appeal to pupils' different styles of learning, employing concrete/pictorial/abstract representations of mathematical concepts.
- Giving students the opportunity to champion the learning of their peers.
- Encourage discussions in lessons that link to the British values and our wider community.

Impact

Our students will:

- become increasingly fluent in the fundamentals of mathematics working with increasingly complex problems so that conceptual understanding deepens alongside the ability to recall and apply knowledge accurately.
- reason mathematically by following a line of enquiry, exploring relationships and developing an argument or justification using mathematical language.
- develop resilience and a growth mindset with a 'Can do' attitude to mathematics, whatever their previous level of attainment.
- be highly motivated and successful, eventually leaving to go on to higher education with the mathematical skills to survive and thrive in an increasingly competitive and changeable world.

Year 7 Curriculum Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Theme	**Algebraic thinking**	**Place value and proportion**	**Applications of number**	**Directed Number and Fractional Thinking**	**Lines and Angles**	**Reasoning with Number**
Key Concepts	• Sequences • Understand and use algebraic notation • Equality and equivalence	• Place value and ordering integers and decimals • Fraction, decimal and percentage equivalence • Fractions and Percentages of amounts	• Solving problems with addition and subtraction • Solving problems with multiplication and division	• Operations and equations with directed number • Addition and subtraction of fractions	• Constructing, measuring and using geometric notation • Developing geometric reasoning	• Developing number sense • Sets and probability • Prime numbers and proof
SMSC and British Values	As maths teachers, we aim to model all of the British values in our lessons and have high expectations of pupils to demonstrate these values. We strive to create learning opportunities for pupils to reflect upon and develop their own beliefs and conduct whilst respecting the views of others. Below are some of the ways in which we, as a maths team, incorporate the British values into our lessons: **Democracy**: Teamwork when doing groupwork activities. Taking turns to listen to everyone speak and give their answers and explanations. **Rule of Law**: Following rules when playing maths games. Applying rules in calculations, algebra and geometry. **Individual Liberty**: Being allowed to make mistakes and learn from them. Taking risks when challenged with more complex mathematical problems and encouraging students to come up with their own unique solutions for solving them. **Respect and Tolerance**: Teamwork when doing groupwork activities. Review each other's work respectively. Work collaboratively on projects/problems whilst supporting one another with learning. **Year 7 curriculum themes and how they link to careers:** Algebraic thinking - Presenting work clearly: IT Consultants, Teachers and Actuaries. Applications of number – Number skills: Nursing, Accountancy and Financial Trading. Fractional thinking - Joiner (working in inches fitting kitchens) and Engineering (gears and ratios). **Careers link** –To find out more about the types of jobs and career paths that mathematicians can enjoy explore www.mathscareers.org.uk					
Parental Support	Supporting your child in developing their maths skills doesn't have to mean complicated fractions or expert knowledge! Applying numeracy skills to real life situations is really important. You might want to try: Maths at meal times - Meal times provide a wealth of maths opportunities. Getting involved in food preparation, cooking, and serving can help children practise maths skills like counting, measuring, and using ratios. Talk about the weather - The weather is a great topic to bring maths into the real world. Why not watch and discuss weather reports together to see how maths can help to describe what is going on around us? **For helpful videos related to all topics covered at Henlow in Year 7 please see the link below:** https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=year-7 **Useful websites and links to support learning at home:** Edulink https://whiteroseeducation.com/parent-pupil-resources/maths/maths-with-michael https://www.bbc.co.uk/bitesize/subjects/zqhs34j					

Year 8 Curriculum Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Theme	**Proportional reasoning**	**Representations**	**Algebraic techniques**	**Developing number**	**Developing geometry**	**Reasoning with data**
Key Concepts	• Ratio and scale • Multiplicative change • Multiplying and dividing fractions	• Working in the Cartesian plane • Representing data • Tables and probability • Number sense	• Brackets, equations and inequalities • Sequences • Indices	• Fractions and percentages • Standard index form	• Angles in parallel lines and polygons • Area of trapezia and circles • Line symmetry and reflection	• The data handling cycle • Measures of location
SMSC and British Values	As maths teachers, we aim to model all of the British values in our lessons and have high expectations of pupils to demonstrate these values. We strive to create learning opportunities for pupils to reflect upon and develop their own beliefs and conduct whilst respecting the views of others. Below are some of the ways in which we, as a maths team, incorporate the British values into our lessons: **Democracy**: Teamwork when doing groupwork activities. Taking turns to listen to everyone speak and give their answers and explanations. **Rule of Law**: Following rules when playing maths games. Applying rules in calculations, algebra and geometry. **Individual Liberty**: Being allowed to make mistakes and learn from them. Taking risks when challenged with more complex mathematical problems and encouraging students to come up with their own unique solutions for solving them. Making own choices within data handling activities. **Respect and Tolerance**: Teamwork when doing groupwork activities. Review each other's work respectively. Work collaboratively on projects/problems whilst supporting one another with learning. **Year 8 curriculum themes and how they link to careers:** Developing number - Problem Solving skills: Software Testing, Operations Management and Tax Advisory. Reasoning with data - Statistical Sampling skills: Statisticians, Economists, Meteorologists. **Careers link** –To find out more about the types of jobs and career paths that mathematicians can enjoy explore www.mathscareers.org.uk					
Parental Support	Supporting your child in developing their maths skills doesn't have to mean complicated fractions or expert knowledge! Applying numeracy skills to real life situations is really important. You might want to try: Maths at meal times - Meal times provide a wealth of maths opportunities. Getting involved in food preparation, cooking, and serving can help children practise maths skills like counting, measuring, and using ratios. Talk about the weather - The weather is a great topic to bring maths into the real world. Why not watch and discuss weather reports together to see how maths can help to describe what is going on around us? **For helpful videos related to all topics covered at Henlow in Year 8 please see the link below:** https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=year-8 **Useful websites and links to support learning at home:** Edulink https://whiteroseeducation.com/parent-pupil-resources/maths/maths-with-michael https://www.bbc.co.uk/bitesize/subjects/zqhs34j					

Year 9 Curriculum Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Theme	**Reasoning with algebra**	**Constructing in 2 and 3 dimensions**	**Reasoning with number**	**Reasoning with geometry**	**Reasoning with proportion**	**Representations and revision**
Key Concepts	• Straight line graphs • Forming and solving equations • Testing conjectures	• Three-dimensional shapes • Constructions and congruency	• Numbers • Using percentages • Maths and money	• Deduction • Rotation and translation	• Pythagoras' theorem • Enlargement and similarity • Solving ratio and proportion problems	• Rates • Probability • Algebraic Representation
SMSC and British Values	As maths teachers, we aim to model all of the British values in our lessons and have high expectations of pupils to demonstrate these values. We strive to create learning opportunities for pupils to reflect upon and develop their own beliefs and conduct whilst respecting the views of others. Below are some of the ways in which we, as a maths team, incorporate the British values into our lessons: **Democracy**: Teamwork when doing groupwork activities. Taking turns to listen to everyone speak and give their answers and explanations. **Rule of Law**: Following rules when playing maths games. Applying rules in calculations, algebra and geometry. **Individual Liberty**: Being allowed to make mistakes and learn from them. Taking risks when challenged with more complex mathematical problems and encouraging students to come up with their own unique solutions for solving them. **Respect and Tolerance**: Teamwork when doing groupwork activities. Review each other's work respectively. Work collaboratively on projects/problems whilst supporting one another with learning. **Year 9 curriculum themes and how they link to careers**: Constructing in 2 and 3 dimensions – Landscape gardening and Architecture Reasoning with number – Number skills: Data Analysis, Finance and Marketing. **Careers link** –To find out more about the types of jobs and career paths that mathematicians can enjoy explore www.mathscareers.org.uk					
Parental Support	Supporting your child in developing their maths skills doesn't have to mean complicated fractions or expert knowledge! Applying numeracy skills to real life situations is really important. You might want to try: Maths at meal times - Meal times provide a wealth of maths opportunities. Getting involved in food preparation, cooking, and serving can help children practise maths skills like counting, measuring, and using ratios. Talk about the weather - The weather is a great topic to bring maths into the real world. Why not watch and discuss weather reports together to see how maths can help to describe what is going on around us? **For helpful videos related to all topics covered at Henlow in Year 9 please see the link below:** https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=year-9 **Useful websites and links to support learning at home:** Edulink https://corbettmaths.com/contents/ https://www.mathsgenie.co.uk/gcse.html https://www.bbc.co.uk/bitesize/subjects/zqhs34j					

Year 10 Curriculum Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Theme	**Similarity**	**Developing Algebra**	**Geometry**	**Proportions and Proportional Change**	**Delving into data**	**Expressions**
					Using Number	
Key Concepts	• Congruence, similarity and enlargement • Trigonometry	• Representing solutions of equations and inequalities • Simultaneous equations	• Angles and bearings • Working with circles • Vectors	• Ratios and fractions • Percentages and interest • Probability	Collecting, representing and interpreting data	Manipulating expressions
					(Using Number) • Non-calculator methods • Types of number and sequences • Indices and roots	

SMSC and British Values	As maths teachers, we aim to model all of the British values in our lessons and have high expectations of pupils to demonstrate these values. We strive to create learning opportunities for pupils to reflect upon and develop their own beliefs and conduct whilst respecting the views of others. Below are some of the ways in which we, as a maths team, incorporate the British values into our lessons: **Democracy**: Teamwork when doing groupwork activities. Taking turns to listen to everyone speak and give their answers and explanations. **Rule of Law**: Following rules when playing maths games. Applying rules in calculations, algebra and geometry. **Individual Liberty**: Being allowed to make mistakes and learn from them. Taking risks when challenged with more complex mathematical problems and encouraging students to come up with their own unique solutions for solving them. Making own choices within data handling activities. **Respect and Tolerance**: Teamwork when doing groupwork activities. Review each other's work respectively. Work collaboratively on projects/problems whilst supporting one another with learning. **Year 10 curriculum themes and how they link to careers:** Geometry – Bearings: Armed Forces, Ship Captains and Pilots. Similarity - Pythagoras/Trigonometry: Construction and Architecture – ensuring structures are stable and measured correctly. Crime scene investigators. Delving into data – Data analysis skills: Retail, Medical Research and Data Science. **Careers link** –To find out more about the types of jobs and career paths that mathematicians can enjoy explore www.mathscareers.org.uk
Parental Support	Supporting your child in developing their maths skills doesn't have to mean complicated fractions or expert knowledge! Applying numeracy skills to real life situations is really important. You might want to try: Maths at meal times - Meal times provide a wealth of maths opportunities. Getting involved in food preparation, cooking, and serving can help children practise maths skills like counting, measuring, and using ratios. Talk about the weather - The weather is a great topic to bring maths into the real world. Why not watch and discuss weather reports together to see how maths can help to describe what is going on around us? **For helpful videos related to all topics covered at Henlow in Year 10 please see the link below:** https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=year-10 **Useful websites and links to support learning at home:** Edulink https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=year-10 https://corbettmaths.com/contents/ https://www.mathsgenie.co.uk/gcse.html https://www.bbc.co.uk/bitesize/subjects/zqhs34j

Year 11 Curriculum Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Theme	**Graphs**	**Algebra**	**Reasoning**	**Revision and Communication**	**Revision and Recap until start of GCSE Examinations**
Key Concepts	• Gradient and lines • Non-Linear graphs • Using graphs	• Expanding and factorising • Changing the subject • Functions	• Multiplicative reasoning • Geometric reasoning • Algebraic reasoning	• Transforming and constructing • Listing and describing • Show that…	
SMSC and British Values	As maths teachers, we aim to model all of the British values in our lessons and have high expectations of pupils to demonstrate these values. We strive to create learning opportunities for pupils to reflect upon and develop their own beliefs and conduct whilst respecting the views of others. Below are some of the ways in which we, as a maths team, incorporate the British values into our lessons: **Democracy**: Teamwork when doing groupwork activities. Taking turns to listen to everyone speak and give their answers and explanations. **Rule of Law**: Following rules when playing maths games. Applying rules in calculations, algebra and geometry. **Individual Liberty**: Being allowed to make mistakes and learn from them. Taking risks when challenged with more complex mathematical problems and encouraging students to come up with their own unique solutions for solving them. Making own choices within data handling activities. **Respect and Tolerance**: Teamwork when doing groupwork activities. Review each other's work respectively. Work collaboratively on projects/problems whilst supporting one another with learning. **Year 11 curriculum themes and how they link to careers:** Reasoning: Growth and decay: Biologists, Financial advisors and Scientists – population change. Geometric reasoning – Engineering and Architecture **Careers link** –To find out more about the types of jobs and career paths that mathematicians can enjoy explore www.mathscareers.org.uk				
Parental Support	Supporting your child in developing their maths skills doesn't have to mean complicated fractions or expert knowledge! Applying numeracy skills to real life situations is really important. You might want to try: Maths at meal times - Meal times provide a wealth of maths opportunities. Getting involved in food preparation, cooking, and serving can help children practise maths skills like counting, measuring, and using ratios. Talk about the weather - The weather is a great topic to bring maths into the real world. Why not watch and discuss weather reports together to see how maths can help to describe what is going on around us? **For helpful videos related to all topics covered at Henlow in Year 11 please see the link below:** https://whiteroseeducation.com/parent-pupil-resources/maths/home-learning?year=year-11 **Useful websites and links to support learning at home:** Edulink https://corbettmaths.com/contents/ https://www.mathsgenie.co.uk/gcse.html https://www.bbc.co.uk/bitesize/subjects/zqhs34j				

Assessment Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	GL Baseline assessment	Autumn term assessment	In class formative assessment Diagnostic tests	Spring term assessment	GL assessment	Summer term assessment
Year 8	In class formative assessment Diagnostic tests	Autumn term assessment	In class formative assessment Diagnostic tests	Spring term assessment	GL assessment	Summer term assessment
Year 9	In class formative assessment Diagnostic tests	Autumn term assessment	In class formative assessment Diagnostic tests	Spring term assessment	GL assessment	Summer term assessment
Year 10	In class formative assessment Diagnostic tests	Autumn term assessment	GCSE Mocks	In class formative assessment Diagnostic tests	GCSE Mocks	In class formative assessment Diagnostic tests
Year 11	In class formative assessment Diagnostic tests	In class formative assessment Diagnostic tests	GCSE Mocks	In class formative assessment Diagnostic tests	GCSE Exams	