**Nurture Mathematics Curriculum Overview**

**Why we teach what we teach**The Heights Nurture curriculum is carefully designed to meet the needs of a wide range of students with SEMH barriers to learning and other SEND needs. The KS2 curriculum is planned to accommodate an 18 week placement whilst the KS3 is a one year curriculum. To continually develop key mathematical concepts, and address any Gaps in learning we complete a weekly numeracy lesson alongside our topic lessons this allows key concepts such as place value to be recalled regularly but also means that all new starters have access to these key areas. Topics have been chosen carefully to allow students to experience and investigate different areas of mathematics.

Our curriculum intends to give all learners the knowledge and skills they need in order to experience more success in their subsequent educational setting. As well as addressing gaps in learning and further developing a learner’s mathematical ability we aim to:

* Develop social skills including better communication
* Improve emotional well-being and to actively promote good mental health through learning
* Stimulate, engage and motivate reluctant learners
* Develop positive attitudes to learning
* Teach positive behaviours for learning
* Raise self-esteem by optimising opportunities for success
* Develop resilience through stretch and challenge
* Enable students to understand themselves, their place in the community and the wider world

**How we teach**

The students accessing the Heights Primary Nurture curriculum feel safe and supported in a small class environment. We aim to provide a memorable and rich learning experience inside and outside of the classroom. Frequent, ongoing formative assessment ensures gaps in learning are quickly identified and closed. We endeavor to teach using a personalised approach ensuring we meet the physical and emotional needs of our learners alongside academic needs. Where appropriate we support learning using manipulatives and encourage students to have a hands-on approach to learning.

Every pupil is assessed on entry using the Puma, Progress in Understanding Mathematics booklets, which identifies gaps in learning for each topic and gives each student a Math age. Each student will then be taught at a suitable level for their current ability and objectives will be followed progressively for each student for the topic being taught.

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|  | **Term** | **KS2 Overview** | **KS3 Overview** |
| **AUTUMN TERM** | **HT1** | **Number and Place Value**  Students will begin this unit by developing their counting skills. This includes counting forwards and backwards in different step and for some students also includes considering negative numbers.  In this unit students will develop their understanding of place value and use this to compare and order a range of numbers at different levels. Some students will also consider how we can round numbers to different degrees of accuracy.  **Time**- Telling the time and Time keeping are essential skills to support everyday life. During this unit we will develop student’s ability to tell the time in both 12 and 24hour clock format. We will also consider using timetables and planning journey with time constraints. | **Number- Calculation**  Learners begin this unit by considering place value including how we can round and order different type of numbers  They then move on to the four operations and will be challenge to apply these skills at different levels, including with decimals. Students will also consider the correct order for multistep calculations. Ensuring learners are fluent at these skills underpins many of the mathematical content which is to be taught. As such, these skills will continue to be developed through mental math lessons each week. |
| **HT2** | **Addition and Subtraction**- Addition and subtraction are two of the four fundamental maths operations. And being able to add and subtract numbers confidently plays a key role in maths education. Understanding the importance of these operations, we spend time developing pupils understanding and abilities at all levels, including using both written and mental mathematics methods. Manipulative and pictorial representations will be used where appropriate.  **Data Handling** - Students will be encouraged to continue to used their number skills whilst considering how we can interpret and represent data. | **Geometric Reasoning- Angles**  Learners use a protractor to draw and measure angles. They then consider how to calculate missing angles using angle facts.  **Algebraic Thinking –Manipulation**  Learners are introduced to algebraic notation and consider how to simplify and manipulate expressions. |
| **SPRING TERM** | **HT3** | **Multiplication and Division**- The other two fundamental operations will be covered in depth here. A range of activities and real-life applications with be used to develop pupils understanding and abilities at all levels, including using both written and mental mathematics methods. Manipulative and pictorial representations will be used where appropriate.  **Fractions and Decimals**- Firstly students will consider how to manipulate fractions including considering equivalencies with decimals and percentages. This will be taught using a range of activities and real-life applications. Manipulative and pictorial representations will support learning where appropriate. Students will then consider how to calculate with fractions and decimals at different levels, with a focus on calculations with Money. | **Number-Fractions**  Learners consider how to manipulate fractions including discovering equivalent fractions, writing fractions in their simplest terms and changing between mixed numbers into improper fractions. They will then look at how to perform the four operations with fractions including finding a fraction of an amount.  **Algebraic Thinking- Solving Equations**  Learners will look at methods of solving missing number problems and function machines before moving on to formal methods of solving one and two step equations. |
| **HT4** | **Number and Place Value**  Students will begin this unit by developing their counting skills. This includes counting forwards and backwards in different step and for some students also includes considering negative numbers.  In this unit students will develop their understanding of place value and use this to compare and order a range of numbers at different levels. Some students will also consider how we can round numbers to different degrees of accuracy.  **Time**- Telling the time and Time keeping are essential skills to support everyday life. During this unit we will develop student’s ability to tell the time in both 12 and 24hour clock format. We will also consider using timetables and planning journey with time constraints. | **Ratio and Proportional Reasoning**  Learners will investigate unequal sharing using ratios and will consider how we calculate best value for money  **Geometric Reasoning**  Learners will read and plot coordinates in all four quadrants and consider how this skill can be used to find a location on a map from given coordinates. Learners will also investigate how shapes can be transformed using reflections, rotations and translations. |
| **SUMMER TERM** | **HT5** | **Addition and Subtraction**- Addition and subtraction are two of the four fundamental maths operations. And being able to add and subtract numbers confidently plays a key role in maths education. Understanding the importance of these operations, we spend time developing pupils understanding and abilities at all levels, including using both written and mental mathematics methods. Manipulative and pictorial representations will be used where appropriate.  **Data Handling** - Students will be encouraged to continue to used their number skills whilst considering how we can interpret and represent data. | **Number -Percentages**  Learners will consider simple FDP conversions and how to convert between any FDP. They will then consider both calculator and non- calculator methods for calculating percentages of amounts.  **Geometric Reasoning – Area, Perimeter and Volume**  Learners will consider the area, perimeter and volume of simple shapes and consider problems with real life applications. Some learners will be extended to consider the area and circumference of circles |
| **HT6** | **Multiplication and Division**- The other two fundamental operations will be covered in depth here. A range of activities and real-life applications with be used to develop pupils understanding and abilities at all levels, including using both written and mental mathematics methods. Manipulative and pictorial representations will be used where appropriate.  **Fractions and Decimals**- Firstly students will consider how to manipulate fractions including considering equivalencies with decimals and percentages. This will be taught using a range of activities and real-life applications. Manipulative and pictorial representations will support learning where appropriate. Students will then consider how to calculate with fractions and decimals at different levels, with a focus on calculations with Money. | **Geometric Reasoning – Area, Perimeter and Volume (Continued)**  **Statistics**  Learners will consider how we represent data using a range of different chart and graphs. They will then consider the different methods for calculate averages and how we can compare sets of data. |

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| **Assessment** | **Baseline and Gap analysis**  Puma Mathematics Assessments are used as an initial Gap Analysis to highlight any weaker areas and give an indication of overall mathematical ability.  **Lesson by lesson (Formative)**  Class teachers use a range of assessment methods during lessons. These include;  Progress Checks  Use of whiteboards  Skillful Targeted Q&A  Multiple choice quizzing  Live marking throughout the lesson  Individual discussions  Maths Games and Bingo  **Summative Assessment**  End of topic – “Show me what you know” low stakes assessments are completed at the end of each unit of work. The learners then have the opportunity to self-assess and reflect on their own learning.  All assessment is use to inform future planning. Due to the nature of our school we ensure that assessment is completed in a way which causes least anxiety to our learners. We also ensure that assessments are accessible to all and that all learners have the opportunity to be successful. |
| **Language & Reading** | **Talk/Write/Read like a specialist**  Teachers use subject specific terminology when explaining to students and provide the wider context in order that students are able to clearly understand the meaning. Students will be challenged to use correct terminology at every opportunity.  Teacher will model for all pupils how mathematical problems should be presented and written. Students are encouraged to write their working out in a coherent order when solving multistep problems.  Teacher models reading for students and encourages wider reading to develop student’s fluency, especially when problem solving. When reading students are challenged to pronounce mathematical terms correctly. |
| **Careers** | Activities used in Maths lessons link to different careers where appropriate. For example we might link estimating to a farmer estimating the number of cows in a field, or for addition and subtraction we will use questions regarding money and profit/loss or the cost of buying specific items. We encourage learners to consider how being numerate will have a positive impact on employability, health and lifestyle. |
| **SEND** | The curriculum has been designed to secure and deepen pupils understanding and confidence within each topic. Students who are not sufficiently fluent with earlier materials we consolidate their understanding through recall and additional lessons.  We aim to:  ● Raise numeracy levels of all students  ● Inspire an enjoyment and love of math  ● To stimulate, engage and motivate reluctant learners  ● To teach positive behaviours for learning  ● To raise self-esteem by optimising opportunities for success  ● To develop resilience through stretch and challenge  ● To set high expectations of attainment in relation to student’s starting points  All students are assessed on entry using the Puma Maths Assessment this supports our planning.  Strategies used for SEND students:  ● Small steps, lots of repetition and practise to master skills being taught. Eg TT Rockstars  ● Math mats  ● Hundred squares, Timetable squares, Cubes and other concrete resources  ● Mini White Boards  ● TA support given  ● Timers  ● Short activities  ● Maths games |
| **Links to:**  **SMSC**  **Careers**  **British Values** | ***British Values***  Democracy - Pupils are encouraged to speak openly within their lessons and express their views and opinions positively. We have class discussions where pupils are encouraged to discuss different strategies to solve a problem, and the advantages and disadvantages of using the different strategies.  Rule of Law – Pupils are expected to listen and engage positively whilst others share ideas and answers. If pupils disagree with each-others answers or methods pupils are challenged to have academic discussions of their different point of views. Pupils are also challenged to follow the school rules in lesson.  Respect and Tolerance – A positive learning environment where learners feel safe to share ideas and get things wrong is always encouraged in maths. Good working relationships and mutual respect for each other is key to ensuring their learning experience is productive and effective.  Individual Liberty - Pupils are actively encouraged to make good life choices. All learners are given advice, guidance and career choices and teachers will link learning to pupils interests where appropriate.    **SMSC**  In Maths lessons pupils are encouraged to delve deeply into their understanding of Mathematics and how it relates to the world around them. Our Maths teaching actively encourages risk taking which enables pupils to explore and try new ideas without the fear of failure. This is fundamental to building pupils’ self-esteem within Mathematics. Throughout history, the study of Mathematics stems from intrigue and curiosity, with people’s desire to pose and solve problems relating to the real world or purely within mathematics itself. We aim for our students to appreciate this and use their own Maths to explore and question the way the world works and also to apply their reasoning to puzzles for their personal satisfaction.  Spiritual  ·   Developing deep thinking and questioning the way in which the world works promotes the spiritual growth of our students.  ·   We are sensitive to students’ individual needs, backgrounds and experience.  ·   We promote a sense of wonder in the exactness of mathematics in the exploration of concepts such as infinity or sequences in nature.  ·   We encourage the students to appreciate the enormity of the world of Mathematics as it has developed through time.  Moral  ·   Within the classroom, we encourage respect and reward good behaviour.  ·   We value listening to others views and opinions on problem solving.  ·   We promote discussion about mathematical understanding and challenge assumptions, supporting students to question information and data that they are presented with.  ·   We show the students that we are on a quest for truth by rigorous and logical argument whilst discouraging jumping to conclusions.  ·   We explore and evaluate the use of Statistics to inform or mislead us in our current data-obsessed society.  ·   We ensure learners understand that it is acceptable to make mistakes as long as the correct methodology to obtain the otherwise correct answers is then learned and remembered.    Social  ·   In classrooms, we look for opportunities for pupils to use mini-whiteboards to promote self-esteem and build self-confidence.  ·   We encourage collaborative learning in the classroom – in the form of listening and learning from each other as well as paired discussion / working partners.  ·   We help pupils develop their mathematical voice and powers of logic, reasoning and explanation by offering explanations to each other.    Cultural  ·   We share the appreciation with that mathematics, its language, symbols and methods have developed from many different cultures around the world: e.g. Egyptian, Indian, Islamic, Greek and Russian roots.  ·   We refer to different Mathematicians contribution to the progression of the subject as we teach topics. |