Upperwood Academy Approach to teaching of Mathematics

Intent

At Upperwood Academy, we endeavour to teach Maths so children are taught to apply their knowledge and skills to a range of practical, real life contexts, to ensure their learning is both purposeful and meaningful. Underpinning this is the requirement for fluency, which is a whole-school focus. Skills are linked and taught together to maximise teaching and learning time to give context to learning.

Our teaching is based on the recommended National Curriculum, which has been personalised to meet the needs of our learners. 'Maths Year on a Page' has been developed for each individual year group to ensure pace and progression across school. Sitting behind these are our 'Curriculum Guides', which aim to support key subject knowledge, address common misconceptions as well as make links with other maths concepts to support an integrated approach.

Implementation

The Accelerated Learning Cycle, based on the work of Alastair Smith, is applied in all lessons. It stems from the idea of a supportive and challenging learning environment. Implementation of accelerated learning, supported by EEF metacognition research, has ensured the pace of learning is appropriate and has enabled pupils to secure rapid and sustained progress which has improved outcomes and standards within each lesson.

Within maths sessions, adaptation is effective through the use of progressive opportunities. Activities are adapted to meet the needs of each individual child, with scaffolds and challenges available for children to use to guide their own learning journey. Through this adaptive approach, we aim to support pupils to take ownerships of their learning and develop independence.

Impact

Formative assessment is ongoing throughout each lesson. It judges progress and enables the teacher to make flexible adaptations to their planned teaching.

Effective formative assessment, daily marking and feedback and adult interaction within lessons is firmly embedded into our approach when teaching maths. All pupils are supported to develop, progress and move their learning forward through support, questioning and feedback. Pupils demonstrate the impact this has on improving their learning through editing and response.

The use of clear learning objectives and success criteria ensures pupils to understand their learning and become self-regulated learners who aspire to achieve to their full potential

Maths is assessed by teachers who use the HCAT trackers for their year groups to allocate a level and next steps for each pupil. Cross moderation occurs in school to ensure moderation is carried out correctly. Cross Trust Moderation and the LA support this process.

Adaptations

At Upperwood Academy our curriculum is ambitious for all pupils, including those children with SEND. Curriculum designers and teachers have high expectations of what SEND pupils can achieve and the curriculum is not diluted or unnecessarily reduced for SEND pupils. Every pupil is different and so what works for each pupil varies. Pupil's individual needs are carefully considered and adaptations are planned to ensure the success of pupils. The way that our curriculum is designed ensures that chunks of learning are sequenced in a coherent way to enable all pupils, including those with SEND, to build on prior knowledge. Cognitive overload can be a barrier to learning which is one of the reason why we have chosen half termly curriculum drivers.

Where pupils are identified with having complex needs it may be appropriate to provide a personalised curriculum which will be based on individual needs and will retain ambition for the pupil. Where working memory is an issue for pupils, including those with SEND, we look to reduce extraneous load as much as possible as well as identifying key information when teaching. Adaptations to support individual pupils will be recorded on personal school support plans.

At Upperwood academy we do not assume that pupils with SEND learn content better through practical work as this can cause distraction and cognitive overload rather than increase clarity or accessibility. The curriculum is not narrowed for any pupils. Knowledge is taught and then pupils are provided with opportunities for scientific enquiry to test and investigate the knowledge taught. Pupils' specific needs determine the types of adaptations which are required. These adaptations are in how the subject is taught rather than the content pupils are expected to learn. Where appropriate, learning will be chunked into smaller steps and pre learning and consolidation time in planned in to support need. Time is also planned to ensure pupils with SEND are pre taught vocabulary to support their understanding. Adaptations may include supporting pupils to pay attention to key aspects as well as reducing excessive or unhelpful demands on working memory.

Example HCAT Tracker

Name		Class of	
Mathematics: Assessment Year 3			
Statements	5-10	11-22	23-33	34+
Attainment	**Year 3 Emerging**	**Year 3 Developing**	**Year 3 Secure**	**Year 4 Emerging (GDS end of year)**

Year 3: Maths Assessment: 43 Statements	
Number & Place Value	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
	Compare and order numbers up to 1000.
	Identify, represent and estimate numbers using different representations.
	Read and write numbers up to 1000 in numerals and in words.
	Solve number problems and practical problems involving these ideas.
Addition & Subtraction	Add and subtract numbers mentally, including: a three-digit number and ones;
	Add and subtract numbers mentally, including: a three-digit number and tens;
	Add and subtract numbers mentally, including: a three-digit number and hundreds.
	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.
	Estimate the answer to a calculation and use inverse operations to check answers.
	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
Multiplication & Division	Recall and use multiplication and division facts for the multiplication tables: x3
	Recall and use multiplication and division facts for the multiplication tables: x4
	Recall and use multiplication and division facts for the multiplication tables: x8.
	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
	Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
Fractions	Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
	Recognise and use fractions as numbers: unit fractions (numerator of 1) and non-unit fractions with small denominators.
	Recognise and show, using diagrams, equivalent fractions with small denominators.
	Add and subtract fractions with the same denominator within one whole [for example,5/7 + 1/7 = 6/7].
	Compare and order unit fractions, and fractions with the same denominators.
	Solve problems that involve all of the above.