



Welholme
Academy

Maths Policy

Definition

Mathematics, is the study of numbers, shapes and patterns and how they are related to each other and to the real world. It is about being able to recall knowledge and facts so that they can be applied in problem solving situations.

Date produced – April 2022

Intent

Purpose of Study

At Welholme Academy, our intent for mathematics is to teach a rich, balanced and progressive curriculum using maths to reason, problem solve and develop fluent conceptual understanding in each area. Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. By adopting a Mastery approach, it is also intended that all children, regardless of their starting point, will maximise their academic achievement and leave Welholme Academy with an appreciation and enthusiasm for Maths, resulting in a lifelong positive relationship with number.

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Implementation

Organisation

At Welholme Academy, EYFS-Y6 follow White Rose teaching for mastery maths scheme which has been written to support teachers in all aspects of their planning and curriculum design whilst delivering a teaching for mastery approach. Teachers have received high-quality training from White Rose through CPD sessions at school which have covered a number of topics: Exploring the schemes, Exploring EYFS, Mathematical talk and thinking through variation and Concrete, pictorial, abstract sessions.

Key features of our mastery approach:

- **Concrete, Pictorial and Abstract Learning:** Children engage with a wide and varied range of concrete manipulatives, pictorial representations and abstract methodologies within each session. Cohesive use of CPA is a fundamental part of mastery in mathematics for all learners, not just those pupils with SEND. Concrete and pictorial references scaffold and strengthen understanding and are widely used as a teaching and learning tool from Foundation Stage to Year 6.
- **Fluency, Reasoning and Problem Solving:** Every learning session includes the opportunity to develop fluency skills, construct chains of reasoning using relevant

knowledge alongside relevant terminology and solve increasingly complex problems in a systematic and coherent way.

- **Mathematical Vocabulary:** Sessions include explicit reference to vital mathematical vocabulary and talk phrases. In EYFS and KS1, the use of stem sentences, to support and encourage all children to communicate their ideas with mathematical precision and clarity. These sentence structures often express key conceptual ideas or generalities and provide a framework to embed conceptual knowledge and build understanding.
- **Fluent Recall:** We are committed to ensuring that pupils secure their knowledge of Times Tables and Related Divisional Facts by the end of Year 4. Our pupils engage in regular low stakes testing through Times Tables Rock Stars to practice fluent recall. We also use Numbots for recall of number facts in KS1 and there are daily opportunities within our daily arithmetic activities to develop recall.
- **Environment:** Every classroom has an area dedicated to their current mathematical learning. In EYFS there are areas within their continuous provision. In KS1 and KS2 every classroom has a working wall that is updated regularly to link with the children's' current learning and specific vocabulary is displayed.
- **Development of Early Number:** In EYFS and KS1 children are participating in the NCETM Mastering number program. It aims to develop solid number sense, including fluency and flexibility with number facts, which will have a lasting impact on future learning for all children. We also use Numberstacks intervention in KS2 for further support to fill gaps that some children may have.

EYFS

At Welholme we understand the importance of early experiences of maths. This approach places a significant emphasis on developing a strong grounding in number – understanding that this is a necessary building block for children to excel in the subject.

The two key ELG's for mathematics are:

1. Number: Number composition, subitising, recall of bonds to 5 and 10 and doubling
2. Numerical Pattern: Verbally count beyond 20, Compare quantities, explore and represent patterns.

Practitioners provide creative and engaging opportunities for children to ignite their curiosity and enthusiasm for the subject, while focusing on the three prime areas of: Communication and Language, Physical Development and PSED. Activities and experiences are frequent and varied, and allow children to build on and apply understanding of Numbers to 10. Concrete manipulatives are a key focus within sessions, as is the use of pictorial representations including Tens Frames and Part/Whole Models. Children are actively encouraged to use mathematical terminology within their understanding, with a focus on developing positive attitudes and interest in the subject

Children in FS1 have a short daily maths teaching session where they begin to develop their understanding of simple mathematical concepts. This is done through a range of appropriate and engaging story books following a mastery approach. Children in nursery are exposed to mastery style lessons which have been carefully planned to link to texts using White Rose Maths resources. Children are taught these concepts using physical resources, pictorial resources, songs, games and role-play. The children also have access to continuous provision stations that are updated daily to link with the day's skill.

Children in FS2 have daily maths sessions where they follow the White Rose teaching sequence alongside the NCETM Mastering Number Programme. The NCETM Mastering Number Programme aims to develop solid number sense, including fluency and flexibility with number facts, which will have a lasting impact on future learning for all children. The White Rose teaching sequence encourages children to use concrete resources daily to ensure a secure understanding before moving onto pictorial and abstract approaches. Children have access to a maths area within their continuous provision which is updated weekly to link with their current learning.

KS1/2

In KS1 and KS2 children start their lessons with a daily arithmetic activity to develop their recall and fluency. This is followed by a DNA (Do it now activity) which is designed to revisit and recall previous learning. All children have access to high quality manipulatives, which they are familiar with, and are encouraged to use and access independently where necessary. The children use stem sentences and mathematical talk with talk partners to consolidate and deepen their understanding. At Welholme Academy, every lesson follows the White Rose Maths teaching sequences. WRM is a blocked scheme, which allows for depth and breadth of learning within each strand of mathematics. Further challenge questions are provided to consolidate and deepen understanding with further reasoning and problem-solving activities. Children are constantly encouraged to reason verbally with precise questioning to test conceptual and procedural knowledge. When a child struggles within a lesson they are supported where necessary and then picked up in a same day intervention or within the next lesson to ensure they understand and don't fall behind.

SEND

All children at Welholme Academy will access quality first maths teaching and are taught age appropriate objectives which are set out in the subject overview document. To enable all children to achieve their potential in maths, scaffolding and support is used appropriately. At Welholme Academy we follow a CPA approach which ensures children have access to a range of quality manipulatives to build a secure concrete understanding before moving onto pictorial and abstract concepts.

All children at Welholme Academy have access to quality first teaching in all areas of the curriculum which enables them to take part in a broad and balanced curriculum. Teachers have high expectations of all children. Inclusive and high-quality teaching is delivered to the whole class in maths with bespoke support and interventions carefully planned for groups or individuals where needed.

In order to develop knowledge and skills in maths some children may need extra intervention or provision. Interventions, additional support, resources and scaffolds are put in place to ensure the children reach their goals and learn in the best possible environment and any barriers to maths are minimised.

Support in maths can be in the form of one to one or small group but the needs of the child and how they learn best are always considered first and foremost. Working closely with peers in mixed ability groups enables the children to work inclusively and to support each other. Parallel to this we believe firmly that a child should develop independence skills in maths as soon as possible. Opportunities are provided to enable this and any support given to a child/children will be short term and reviewed regularly.

In KS2 children who need more support are identified and receive 1:1 intervention following Numberstacks intervention program. This is delivered 15 minutes at a time and is pitched at each child's specific needs and covers 69 key skills from EYFS – Y6. In EYFS and KS1 all children are participating in Mastering Number sessions. Mastering Number is a new programme offered in 2021/22 by the National Centre for Excellence in the Teaching of Mathematics (NCETM) and

the Maths Hubs Network. It aims to develop solid number sense, including fluency and flexibility with number facts, which will have a lasting impact on future learning for all children.

Impact

At Welholme, the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. We aim for each child to be confident in each yearly objective and develop their ability to use this knowledge to develop a greater depth understanding to solve varied fluency problems as well as problem solving and reasoning questions. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly are challenged through rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material consolidate their understanding, including through additional practice, before moving on.

Assessment

Formative assessment is carried out constantly, within lessons, through questioning and discussion to check children's understanding and address misconceptions. Daily arithmetic questions and DNA's are used to revisit and consolidate past learning. Marking in maths books is done during or after the lesson so misconceptions can be addressed during a same day intervention or within a group in the next lesson.

There are opportunities for the children to assess their own learning and identify targets for their future work. In turn this supports teachers in providing feedback for children's work.

Summative assessment is carried out at the end of each teaching block using the White Rose Maths end of block assessments. The PUMA is also used at the end of each term to check progress and to help indicate if a child is working towards, at or above age-related expectations. The data gathered from these assessments is then used to inform future planning for DNA's and daily arithmetic activities.

Children are assessed against the relevant National Curriculum statements for maths which are listed in the subject overview document.

Safeguarding & Child Protection

Miss Glasby is the Designated Lead teacher with responsibility for Safeguarding, Child Protection and Looked After Children. Mr Chamberlain is the Deputy. If anyone has any concerns about the care or welfare of a child, they should refer to Welholme Academy's Child Protection Policy on our school website www.welholmeacademy.com or speak to one of the Pastoral Team.

Equalities

At Welholme Academy we value all children and adults equally. The ethos of our school supports the development of self-respect and self-esteem in all children, staff and the community it serves. School and Trust staff are committed to running an equitable and inclusive school in which every individual matters, irrespective of ability, age, beliefs, culture, disability, ethnicity, gender, health, language, race, religion, sexual orientation and social circumstances.

Monitoring and Evaluation

Maths is monitored using a termly cycle of planning, teaching and book scrutiny. Following this, feedback is given to all teachers so that good practise can be shared across school. Questions are posed to highlight areas for development and if necessary changes to practise are made. This is constantly reviewed in lessons and future enquiries. Any findings and suggestions are

shared with the Senior Leadership Team with the aim of improving teaching and learning in maths throughout the school, and the maths Subject lead will work in conjunction with year groups to ensure areas for development are highlighted and acted upon.

Produced by: Leah Robinson and Sophie Broughton

Date for review: April 2023