Staniland Academy

Mathematics Policy

Our Core Curriculum Intent

'Here at Staniland Academy, we are whole heartedly committed to creating an inclusive curriculum where every child has the opportunity to grow and flourish into a compassionate, resilient and responsible learners. Having high aspirations to be successful in life in any chosen community.

Our philosophy will ensure that your child becomes immersed and part of a supportive learning community where a sense of ambition and self-esteem is nurtured, allowing your child to thrive and flourish.'

We believe that all children can achieve in mathematics and we can do this by:

- Creating a lively, exciting and stimulating environment in which the children can learn maths.
- Promoting the concept that acquiring mathematical knowledge and skills provides the foundation for understanding the world around them.
- Making the maths relatable to the real world.
- Developing mental strategies.
- Encouraging children to use mathematical vocabulary to reason and explain.
- Challenging children to stretch themselves and take risks in their learning.
- Creating a sense of awe and wonder surrounding maths.
- Ensuring children in Key Stage 1 are secure in their understanding of number and number relationships.
- Ensuring our children have access to a high-quality Maths curriculum that is challenging, enjoyable and fosters a real sense of curiosity.

- Developing independent learners with inquisitive minds who have secure mathematical foundations and an interest in self-improvement.
- Developing fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- Providing our children with a variety of mathematical opportunities, which will enable them to make the connections in knowledge needed to enjoy a greater depth of learning.

We intend for our pupils to be able to apply their mathematical knowledge across all curriculum areas, bringing it to life. It is an essential subject which equips pupils with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. We want our children to understand that mathematics is important in everyday life. It is critical to science, technology and engineering and is also crucial in developing strong financial literacy.

As our pupils progress on their mathematical journey, we intend for them to be able to understand the world, have the ability to reason mathematically, have an appreciation of the beauty and power of mathematics and to develop a real sense of enjoyment and curiosity about the subject.

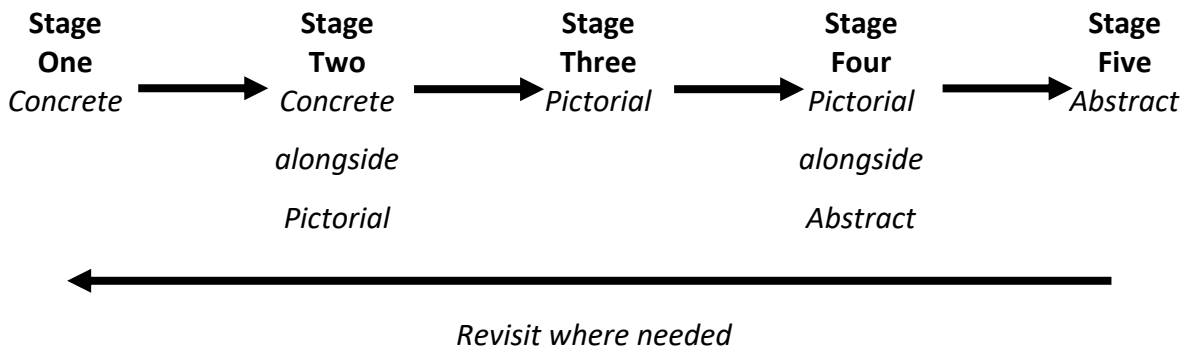
Vocabulary

Vocabulary development is a major contributor to overall comprehension in many content areas, including mathematics. We believe teaching and learning the language of mathematics is vital for the development of mathematical proficiency. Therefore, key mathematical vocabulary is always planned and referred to in every lesson. The children are encouraged to use the correct terminology and to explain the processes they have used to reach their answers, reasoning where required.

Concrete, Pictorial and Abstract

At Staniland, we adopt the CPA (concrete, pictorial, abstract) approach when teaching mathematics. This uses physical and visual aids to introduce and embed new mathematical ideas. Whenever a new concept is introduced, we use a range of manipulatives to aid the

pupils' understanding. When they are comfortable solving problems with physical aids, pictorial representations are used. As their confidence grows, the children will move onto more abstract methods.



*N.B The above diagram reflects the stage that the **majority** of the children will go through when learning a **new** concept, at any age. A child will not be moved onto the next stage until they are confident to do so. If a child is not secure with an abstract method, they will revisit one of the earlier stages.*

Calculation Policy

Our Calculation Policy explains the approaches that we have to teaching addition, subtraction, multiplication and division and it shows how the methods change as children progress through the school, each year building on from the one before. It is modelled on the concrete, pictorial and abstract approach.

Adopting a common Calculation Policy at Staniland ensures that calculations will be taught in progressive steps from EYFS-Y6, providing continuity, familiarity and allowing children to develop their understanding of the subject as they move up through school; it represents a stage (not age) of their learning journey.

Alongside this, mental strategies are taught throughout as they are the foundations for most of the areas of mathematics that use numbers. Without efficient mental strategies, children are often unable to quickly and fluently calculate. Such strategies are the foundations of any written or formal method in mathematics.

At Staniland, we also recognise the importance of fluent recall of multiplication and their associated division facts. To assist with the development of this, we explicitly teach each

multiplication table at the age-appropriate stage and embed this through our daily teaching. Times Table Rockstars is used as an incentive-based programme to increase speed of recall.

What the Statutory Framework for the Early Years Foundation Stage (EYFS) says:

EYFS

- Within the EYFS classroom each area of learning and development must be implemented through planned, purposeful play and through a mix of adult-led and child-initiated activity. Play is essential for children's development, building their confidence as they learn to explore, to think about problems, and relate to others. Children learn by leading their own play, and by taking part in play which is guided by adults.
- The principle focus of mathematics teaching in the Early Years is to ensure pupils develop their knowledge of numbers, learning to count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.
- The EYFS curriculum also develops pupils understanding of shape, space and measures, teaching children to use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

What the National Curriculum says:

Key Stage 1 – Years 1 and 2

- The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place

value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

- At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3 and 4

- The principal focus of mathematics teaching in Lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.
- At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw, with increasing accuracy, to develop mathematical reasoning so they can analyse shapes and their properties, confidently describing the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.
- By the end of Year 4, pupils should have learned their multiplication tables up to and including the 12 multiplication tables and use them to show precision and fluency in their work.
- Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2 – Years 5 and 6

- The principal focus of mathematics teaching in Upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers and decimals. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.
- At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.
- By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and confidently be working with fractions, decimals and percentages.
- Pupils should read, spell and pronounce mathematical vocabulary correctly.

Planning

Mathematics is a core subject in the National Curriculum. We use the 2014 maths National Curriculum as the basis for implementing the statutory requirements of the programme of study for mathematics. Alongside this, we use the progression document and provided by White Rose to develop a consistent whole-school approach to the subject.

We carry out the curriculum planning in English in two phases (long-term and medium-term)

Long term planning – here the National Curriculum expectations are mapped against the blocks published by White Rose. They identify which units are taught and when. However flexibility is given to staff members to spend longer if need depending on the cohort.

Medium-term planning – here teachers create sequences of lessons which build on prior knowledge and develop new learning at an age appropriate level. During the planning process teachers carefully consider: How to break down certain objectives, possible misconceptions, key mathematical vocabulary, possible manipulatives to be used, cross curricular links, key questions and assessment opportunities. These plans are then referred to and reviewed weekly by teachers in order to ensure all learners needs are being met.

Cross Curricular

The National Curriculum for Mathematics states '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.'
Therefore, at Staniland we endeavour to make appropriate and meaningful cross curricular links when it is suitable and beneficial to the children.

Assessment

Ongoing assessment of Maths is completed on the Maths Assessment Records (spreadsheets) which feeds directly to Progresso. The short-term assessments that teachers make, as part of every lesson, helps them to adjust their daily resources. They match these short-term assessments closely to the teaching objectives. Written or verbal feedback is given to help guide pupils' progress. Pupils are also encouraged to make judgements about how they can improve their own work.

Teachers use the maths key objectives to assess every term. Assessments measure progress against the key objectives and allows a judgement to be made against Age Related Expectations (ARE). These assessments are used to help teachers plan for the next unit of work.

Teachers make long-term assessments towards the end of the school year, and they use these to assess progress against school and national targets. With the help of these long term assessments, they are able to set targets for the next school year, and to summarise the progress of each child before discussing it with the child's parents or carers. The next teacher then uses these long-term assessments as the planning basis for the new school year.

Moderation takes place termly to validate teacher judgements. The moderation takes place with other schools as part of the Voyage Trust with the support of the Trust's Maths Lead. Teachers meet regularly to review individual examples of work against the national exemplification material produced by the STA and DfE.

Monitoring and Review

The leadership of the Mathematics curriculum is the responsibility of the subject leader, who:

- supports colleagues in their teaching, by keeping them informed about current developments in English and by providing a strategic lead and direction for this subject
- provides an action plan linked to the Academy Development Plan to the Headteacher and provides regular updates to the Senior Leadership Team evaluating strengths and weaknesses in English and identifying areas for further improvement
- uses specially allocated regular management time to review evidence of the pupils' work, and to observe English lessons across the school
- will provide guidance and support on the implementation of policy
- will stay up to date on developments
- will ensure staff are aware of resources that may support the teaching of Maths.
- will monitor implementation and planning
- will monitor the standards in books
- will liaise with outside agencies and other Maths Leaders