Khalsa
VA Primary School

Maths Policy

together we shine

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Our School Vision

We will ensure that our children have the best educational experience it is possible to have and, as a result, are fully prepared for life beyond our school. We want our children to understand their faith, to articulate their values and to be able to act in a way, which reflects these. Our school is at the heart of the community which it serves; we create children who are ready to contribute and improve themselves, those around them and the places we live.

This policy describes how we ensure that teaching and learning in maths enables us to progress towards our school vision. This policy sets out a framework within which teaching and non-teaching staff can work, and gives guidance on planning, teaching and assessment. It has been developed through a process of consultation with school staff, children and governors.

Subject Aims

The National Curriculum for maths aims to ensure that children:

- become fluent in the fundamentals of mathematics
- reason mathematically
- can solve problems by applying mathematics.

In addition to the above aims and to support our school vision through our maths curriculum, we aim for our children to:

- work with others to solve problems
- be able to demonstrate their reasoning in a methodical and presentable way
- communicate using mathematical vocabulary, including challenging technical vocabulary and phrases
- appreciate the value and use of mathematics in life.

Early Years Foundation Stage Provision

Teachers in EYFS plan according to the Development Matters goals. The Early Years is a time for exploration and investigation in maths and the learning environment promotes mathematical thinking. Children develop their understanding through a rich variety of activities both self-selected and adult led. Adults encourage the children to explore, enjoy, learn, practise and talk about their developing understanding using the correct mathematical vocabulary to solve problems, generate questions and make connections across other areas of learning.

Key Stage 1 & 2 Curriculum

Our maths curriculum uses the White Rose scheme as a basis for teachers' planning. Teachers are generally expected to follow the sequence of learning across the year; the short term planning resources are available for each unit, however teachers should use these as a foundation, adjusting their planning as they see fit and according to the needs of their class.

Key Stage 1

In Key Stage 1 the focus of Maths is to ensure the children develop confidence and mental fluency with whole numbers, counting and place value. This often involves working with numerals, words and the four operations (+ - x ÷). The children should be precise in using and understanding place value and know number bonds to 20. The children also develop their ability to recognise, describe, draw, compare and sort different shapes. The children use a range of measures to describe and compare different quantities (such as length, mass, capacity/volume, time and money). Our Y2 pupils are also prepared for KS1 SATs.

Key Stage 2

During Key Stage 2 the focus is to ensure the children become increasingly fluent with whole numbers and the four operations (including number facts and place value). Pupils begin to develop efficient written and mental calculations with increasingly large whole numbers. They begin to develop their ability to solve a range of problems, including simple fractions and decimal place value. The children develop mathematical reasoning to help them analyse shapes and their properties and confidently describe their relationships. By the end of Year 4, children should have memorised their multiplication tables up to and including the 12 times table and be able to show precision and fluency in their work. Our pupils in Year 4 are prepared for the Multiplication Tables Check (MTC).

In Years 5 and 6, the focus of Maths is to ensure that children extend their understanding of the number system and place value to include larger integers. Pupils should be able to

make connections between multiplication and division with fractions, decimals, percentages and ratios. Children should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems that demand the use of efficient written and mental methods of calculation. Children are introduced to algebra as a means for solving a variety of problems. The children's understanding and knowledge in geometry and measures consolidates and extends the knowledge they have developed in number; children should be able to classify shapes with increasingly complex geometric properties, using the vocabulary they need to describe them with accuracy and confidence. Our Y6 pupils are prepared for KS2 SATs.

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Teaching and Learning

Planning

To ensure whole school consistency and progression, the school uses the nationally recognised White Rose Maths scheme in years 1-6. The White Rose curriculum is a cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. For example, place value is revisited in addition and subtraction and multiplication and division. The curriculum is designed to have an emphasis on numbers, with a large proportion of time spent reinforcing numbers to build competency. Lessons are planned to provide plenty of opportunities to build reasoning and problem solving elements into the curriculum. When introduced to a new concept, children have the opportunity to use concrete objects and pictorial representations as these support children's understanding of abstract methods. Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. These teaching blocks are broken down into smaller steps, to help children understand concepts better. This approach means that children do not cover too many concepts at once which can lead to cognitive overload.

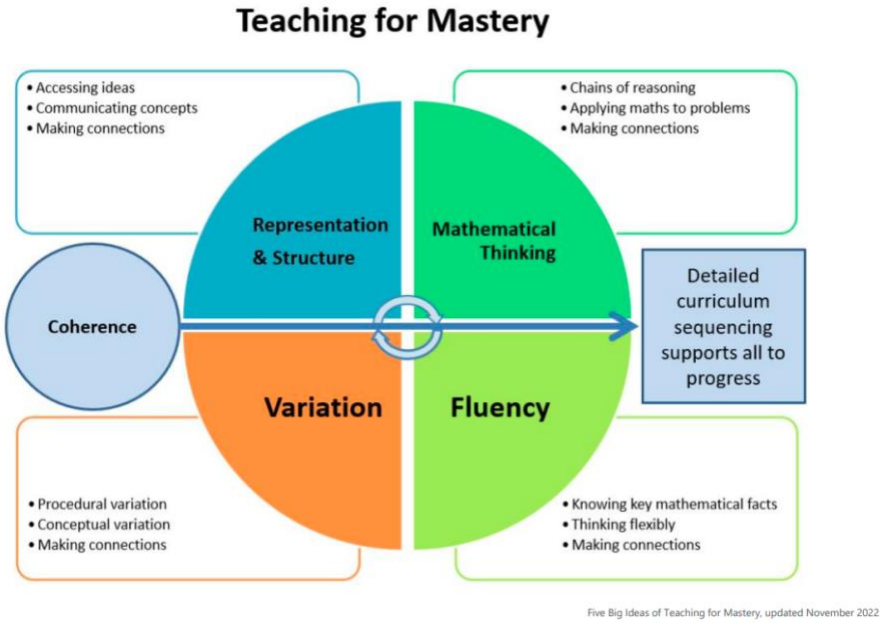
A typical Maths lesson provides the opportunity for all children, regardless of their ability, to become confident and capable learners. We are committed to building on prior learning and enabling our children to demonstrate a deep, conceptual understanding of each topic that they can develop over time. They are encouraged to develop fluency in their recall of key facts and a whole school approach to the teaching of calculation strategies is deployed across the school. This ensures a consistent and progressive approach and prepares our children for the upper key stage 2 curriculum. Reasoning and problem-solving skills are explicitly taught to enable children to become independent learners who are prepared to take risks.

The school's status as a Journey to Mastery specialist school, as part of the DfE funded Maths Hubs programme, continues to ensure that staff at all levels understand the pedagogy of the approach.

Implementation

To provide adequate time for developing key skills in fluency, reasoning and problem solving, each class teacher should provide at least five daily mathematics lessons per week. This may vary in length but will usually last for about 45 to 60 minutes. Additional mathematics may be taught within other subject lessons when appropriate.
Class teachers provide high quality maths lessons based on the key principles of effective teaching and learning, as set out in our Teaching and Learning Policy. Staff are expected

to teach and model correct mathematical language, which scaffolds children's reasoning and explanation skills – sentence stems are used to develop this.
At Khalsa, we teach for mastery. That means that teachers should not move onto new subjects without ensuring that children are able to demonstrate their understanding of a skill with a deep understanding. Effective teaching for mastery is underpinned by five big ideas, first published by the National Centre for Excellence (NCETM) in mathematics in 2017:



In order to deepen children's understanding of what they are being asked to do, we generally plan a concrete-pictorial-abstract (CPA) approach to mathematical concepts:

Using this approach, staff should ask children to demonstrate their understanding of a concept using manipulative objects first. If children can do so, pictorial representations may be next and then they should solve problems using mathematical symbols on paper. Similarly, children who are confident in solving problems in the abstract can be asked to demonstrate their understanding using pictures to ensure they have a deep understanding before moving on.

Teachers should ensure that, throughout the school, children have the opportunity to explore their understanding of mathematical concepts using the CPA approach.

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Assessment and Recording

Use of maths books in Key Stage 1 & 2

We expect maths to be recorded in books at least three times per week. Maths books should be a recorded evidence of a child's ability to solve maths problems. Children are expected to show not only the answer, but the method used to come to that answer. Sometimes, it is more appropriate to use a worksheet or other resources that can be stuck in books. Where possible however, children should learn to present their explanations and reasoning in a neat, systematic and methodical way by writing in books. Teachers in Key Stage 1 should teach children how to record and present their work in books, creating opportunities to do so as often as possible. By Key Stage 2, children should only record on sheets where necessary.

Please refer to the Maths Presentation Policy for more details on how children should be recording work in books.

Maths Data Tracking

Maths is assessed and tracked as part of the school's core assessment data, in every year group. Teachers are expected to track attainment throughout the year and to discuss attainment and progress at pupil progress meetings with senior leaders. Teachers also set targets and report to parents at parent meetings and in end of year reports.

Both formative and summative assessment is used to assess whether or not pupils have mastered core concepts.

Formative assessments are ongoing and take place in and out of the lessons; end of topic tests and end of term tests inform teachers whether children have grasped and retained the objectives from the lessons. Teachers are expected to adapt their teaching as a result of these assessments.

Summative assessments take place at the end of each term and inform the school's internal data tracking. Use of standardised materials allows staff to ensure that data is reliable and accurate. The following resources are available to KS1 & 2 teachers to assess progress and attainment in maths:

White Rose end of term assessment – written tests with an arithmetic and reasoning component. These test children's understanding of the concepts and strategies taught across the term and include topics form more than one unit e.g. addition, subtraction, place value.

White Rose end of unit assessment – short written paper which is focussed only on the topic taught in that unit e.g. addition.

NFER written assessment – SATS style tests which cover all of the topics taught in a term. To be taken in Years 1, 3, 4&5.

SATS arithmetic and reasoning papers – Past arithmetic and reasoning papers to be taken in Year 2 & 6.

For more details on when these should be administered, please see the assessment schedule.

Statutory Assessments

As required by the DfE, the following tests are taken by the applicable year groups:
Statutory Multiplication Tables Check – Online multiplication test to be taken in Year 4
Statutory Assessment Tests – Arithmetic and reasoning papers to be taken in Year 2 and Year 6

Assessment of SEND Pupils

Pupils identified on the SEND register are assessed against National Curriculum Age related expectations in the year group in which they are in or from an earlier year group. Some children are assessed using the Pre–National Curriculum Levels Engagement Model.

Home Learning

In KS1 and 2, we use Mathletics, an online maths resource, to support children's home learning. Teachers are expected to set activities linked the objectives being taught every week. Where children are unable to access the internet to use the platform, we provide homework clubs where they can do so. In some year groups, children will be expected to learn times tables up to 12, in preparation for tests in class.
Every year, we provide workshops for parents so they are able to better support their children with maths at home.

Mathematics and Inclusion

At our school, we teach mathematics to all children, whatever their ability and individual needs. Every child can succeed in maths, and the majority of children in the class should move at the same pace. Children who have mastered concepts or skills quickly are challenged through activities and investigations that deepen their understanding of that idea, rather than moving on to new content. Children who do not master a concept as quickly as the rest of the class are supported to enable them to keep up in order to grasp the learning. Our planning is structured in a way that supports all children to learn the curriculum objectives at their own pace and we regularly recap previous learning and visit the content previously taught. All Pupils are provided opportunities to discuss their views about teaching and learning mathematics. Children are also encouraged to take part in whole school activities to support Charity such as Number day, World Maths day, London Maths week as part of their enrichment.

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Roles and Responsibilities

The subject is led by the subject leader, whose role is to monitor curriculum provision, assess outcomes and ensure training and resources are up to date. Subject leaders work alongside the Senior Leadership to monitor the intent, implementation and impact in Maths through reviewing planning, book looks and pupil voices. The purpose of monitoring enables everyone to achieve consistency in planning, effective teaching and learning across the school which can be reviewed regularly and can be adapted to deliver our vision.