

WHITEHILLS PRIMARY SCHOOL

"...putting children first...."



MATHEMATICS POLICY

Date reviewed: January 2021

Reviewed by: Amy Trusler

Ratified by *Governors*: January 2021

The importance of Maths

We strive to ensure every child has the opportunity to learn key mathematical concepts through concrete and pictorial representations at their own pace of learning, before moving onto abstract symbols.

We follow the core aims of the National Curriculum for maths by ensuring that all pupils:

- become fluent in the fundamentals of maths
- are confident to reason mathematically
- can apply their mathematical knowledge to solve problems
- Use accurate mathematical vocabulary consistently

Purpose

The purpose of this policy is to describe our practice in Mathematics and the principles upon which this is based.

Aim(s):

We aim to develop lively, enquiring minds that encourage pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future.

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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.
- can 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Children deserve:

- to be set appropriate learning challenges.
- to be taught well and be given the opportunity to learn in ways that maximise the chances of success.
- to have adults working with them to tackle the specific barriers to progress they face.

This is reflected in our school core values of respect, responsibility and hard work.

Outcomes:

In Mathematics at Whitehills Primary School we aim to sustain and develop in all children:

- confidence, understanding and enjoyment in mathematics.
- awareness of relationship and pattern, and how these can bring about a clearer understanding of a situation.
- an appreciation of mathematics as a means of communication through which they can analyse information and ideas.
- the ability to work systematically where the task requires a careful accurate approach, as well as the ability to show imagination, initiative and flexibility when appropriate.
- independence of thought and action as well as the ability to cooperate within a group.
- problem solving skills and strategies.
- the ability to use mathematics effectively as a tool in a wide variety of situations.
- sensible use of factual recall, mental and written methods, calculators, micro-technology and other mathematical aids.

School Curriculum – Programme of Study

In order for children to progress they need to have a firm understanding of maths skills. At all stages children are encouraged to use concrete, pictorial and abstract representations, in line with that in the calculation policy to scaffold learning. Teachers ensure that this understanding is secure before extending a child to a higher skill, which allows them to apply their embedded skills during investigations and problem solving activities. We follow the Whiterose scheme of work. This enables children to have a breadth of knowledge and, importantly, a great depth of understanding of Maths. Through careful planning of 'small steps' which sequentially build on each other, children achieve strong arithmetical, reasoning and problem solving skills which they can apply across different areas of Maths and subjects.

In Foundation Stage maths is one of the specific areas of learning. Children will be taught the required skills and be able to practise these within their play using resources from the continuous provision both inside and outside our Early Years Foundation Stage setting.

Children in Key Stage One and Key Stage Two are taught maths for at least 45 minutes per day every lesson will begin with the children completing their daily practice (Year 1 start daily practice in the summer term). In Year 6 maths lessons are for an hour, children work in flexible groupings that regularly change according to need. At the start of every lesson, each year group will have a Daily Practice starter to consolidate skills. This consists of a set of questions involving a range arithmetic skills that have previously been taught. The questions will focus on the big five (addition, subtraction, multiplication, division and fractions) but can also include other areas of maths that have been covered. Children focus on these particular skills over the week and master them before moving on.

Cross Curricular

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Children regularly apply their mathematical skills across the curriculum in areas such as science, geography and design and technology. Wherever there are opportunities for using computers, ipads or tablets in the teaching and learning of mathematics these will be explored. All children across the school are set Doodle Maths/Tables and children in Year 3- 6 also have TT Rock Stars (in line with that set out in the homework policy) using the school app to further consolidate and practice the skills they have learnt in school.

Teaching and Learning

The curriculum is delivered by class teachers. All work is scaffolded in order to give to support and extend learning. Our mathematics curriculum is delivered using Whiterose scheme of work as a tool to ensure appropriate pace, progression and coverage of the subject. This coverage is reviewed continually by class teachers who are responsible for the relevant provision of their own classes. Class teachers develop weekly plans,

give details of learning intentions and appropriate scaffolded activities. These plans are adjusted on a daily basis to better suit the arising needs of a class and individual pupils.

We believe quality first teaching encompasses teaching Mathematics to the highest possible standards following sequence of learning based on Rosenshine's principles:

- highly focused lessons that follow a sequence of learning which have specific learning intentions.
- every maths lesson starting with a daily practice which retrieves prior taught skills.
- appropriate use of teacher questioning, modelling and explaining.
- scaffolding appropriately through the use of concrete, pictorial and abstract representations to support learning, regardless of a child's ability.
- an emphasis on learning through dialogue, with opportunities for pupils to discuss their learning using specific mathematical vocabulary.
- having high expectations for all with no ceiling on learning.
- effective deployment of LSAs.
- assessment of the pupils both formative and summative (see assessment section).
- ensuring continuity and progression of children within year groups in line with that of the Calculation Policy and long term plans.

Calculation Policy

The calculation policy (see Calculation policy) has been updated in light of the new national curriculum programmes of study and training on using the specific strategies (concrete, pictorial and abstract representations) has been given to both class teachers and LSAs.

Inclusion and equal opportunities

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

Vulnerable children

We have a moral duty to provide for our vulnerable children and we strive to support them in making at least expected progress in comparison with other children. We receive funding for vulnerable pupils which is used to facilitate the progress and attainment of pupil premium children, looked after children and armed forces children.

We ensure that:

- we know who our vulnerable children are.
- our LSAs know who they are.
- when planning these children have adequate provision.
- we talk to these children about their learning frequently.
- we monitor the progress of these children frequently.

Children with special educational needs and disabilities (SEND)

At Whitehills Primary Maths is fully inclusive. We ensure this in a number of ways including:

- teachers adapting planning to meet the needs of all SEND children.
- teachers work specifically with SEND children.
- providing additional adult support in class so that SEND children are focused when learning.
- meeting regularly with staff to discuss provision and whether it needs to be adapted for individuals.
- liaising with outside agencies to receive the best advice on how to help SEND children learn.

Resources

Basic classroom equipment is stored in every classroom where it is readily available and is audited annually. Equipment that is used less frequently has been allocated to year group and it is the class teacher's responsibility to store this in a sensible manner.

Displays

Each classroom should have a maths display relating to current work. The maths display should be presented to the pupils as a 'maths working wall' in classrooms and as a 'maths area' for children in Early Years. Displays should be accessible to both teaching staff and the pupils and should be updated regularly to reflect pace of learning.

Assessment

Children's learning is continually assessed throughout lessons. Whilst the children are working on an aspect of learning, we provide rigorous feedback in line with our marking policy.

Summative assessment

At the end of every term, children from Years 1-5 will undertake PUMA tests and Year 6 use previous SATs papers. The results are then used to determine children's progress and attainment. These assessments create standardised scores. Years 2 and 6 are assessed using end of Key Stage statutory tests. Year 6 results are formally reported to parents. Other year groups will inform parents of whether the child is working at age related expectations, using both teacher assessment and PUMA data. EYFS children are assessed using the Foundation Stage Profile against the Early Learning Goal for number. Teachers will then use this data to influence their planning and ensure they are providing a mathematics curriculum that will allow each child to progress. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through interventions allowing additional practice, before moving on. Whereas Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content.

Additionally in Year 4, they will also undertake an on online times table test to check their ability to recall times tables fluently and accurately, which is essential for future success in mathematics. To support children's learning of multiplication, children in years 2 - 6 will have a login for Rockstars <https://play.ttrockstars.com/> which will be used in school and can be used at home.

Formative assessments

Throughout each lesson, formative assessment takes place and feedback is given during the lesson where possible through teacher, self or peer-assessment. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, prior to each new topic being taught, teachers will conduct an initial assessment from Whiterose to assess each child's existing knowledge and identify any gaps in learning. At the end of each topic, teachers will conduct a Whiterose end of block assessment, this allows them to ensure security of pupils' understanding and their readiness to progress to the next stage.

Alongside this, when children completed their Daily Practices, teachers adapt the questions daily to secure children's understanding and to further challenge them. The

children are able to choose between two/three scaffolded levels of questions to complete and can move between levels. At the end of each month, the children are given a Monthly Practice which includes questions from all the arithmetic skills covered during Daily Practice that month. This checks for retention in their long-term memory and to ensure children are secure. From this, any further intervention needed on a specific skill will be given and Daily Practice questions will be adapted accordingly. Each year group has an increasing number of Daily Practice questions to complete and this gradually increases for each year group over the year.

Marking and Presentation

Teachers are expected to adhere to the schools marking policy when marking books and presentation policy when guiding children as to how to present their work. Learning intentions are ticked to show if they have been met or not.

Monitoring and evaluating

The Maths subject leader, alongside SLT, are responsible for monitoring and evaluating curriculum progress. This is done through book scrutiny, planning scrutiny, lesson visits, pupil voices. The work of the Maths subject leader also involves supporting colleagues in the teaching of Maths and keeping informed about current developments in the subject.

The Maths subject leader analyses standardised scores from **summative assessments** three times a year, this data is used to inform next steps in learning; identify common areas for improvement and inform CPD for staff. Each teacher will then discuss data with the Head and SENCo teachers during Pupil Progress meetings which are held three times a year.

Developments in September 2020

Due to the Coronavirus, (COVID 19) pandemic and the impact this has had on children's progress and learning during 'lockdown' and partial school closure, there have been changes made to address the need for a 'recovery curriculum' of which mathematics has been identified as a crucial subject for consideration. Staff have undertaken further training during the first few weeks of the Autumn Term 2020 to assist them with their ongoing planning of a 'recovery curriculum' for mathematics, led by Mathematics subject leader. The training focused upon the non-statutory Guidance for Key Stages 1 and 2 published by the DFE in June 2020 as well as other recommendations set out by the Local Authority. The publication 'identifies the most important conceptual knowledge and understanding that pupils need as they progress from year 1 to year 6. These important concepts are referred to as ready-to-progress criteria and provide a coherent, linked framework to support pupils' mastery of the primary mathematics curriculum.' Teachers made informal, formative assessments of the pupils in their classes at the very beginning of the Autumn Term to identify any

'gaps' or 'rusty' areas of knowledge and understanding in the 6 key areas as set out by this non-statutory guidance. These ready-to-progress criteria for all year groups are provided at the end of the introduction in the document. (Ready-to-progress criteria), and each criterion is explained within the corresponding year-group chapter so teachers will have a good understanding of the 'starting points' for their children. In most cases it is anticipated that children will need to revisit mathematics objectives from their previous year group to ensure that they have achieved mastery of these key areas before moving forward successfully onto the next stage of their learning in the subject. These objectives are identified within Whiterose schemes of learning and follow objectives set out in the ready-to-progress criteria and within class teachers planning. The six areas of priority include: Number and Place Value; number facts; addition and subtraction, multiplication and division; Fractions; Geometry. Whilst we will be prioritising these areas and spending the necessary time required to secure children's learning and mastery of these 'ready to progress' criteria, we will continue to follow the whole curriculum for Mathematics, which remains a statutory requirement. Teachers and practitioners in the Early Years will continue to follow Whiterose schemes of learning while adopting the same philosophy and approach in their assessments and teaching during this 'different year.' Children will be taught to meet their needs and varying stages of development which will be driven by ongoing assessment in a range of contexts.

Review

The mathematics policy will be reflected in our practise. The policy will be reviewed January 2023.