

White Court School



Mathematics Policy

October 2018

Mathematics at White court Primary School

At White Court Primary School, we teach children that if they work hard they can all succeed in Mathematics. We have a 'Growth Mindset' approach, where we encourage children to recognise and understand that mistakes are part of the learning process.

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, related facts 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.

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. 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 in working with fractions, decimals and percentages.

Mastery Teaching

We teach children the mathematical skills and knowledge through a 'mastery' approach. This is where children are given the opportunity to fully explore concepts and are able to apply these in a range of contexts before they move onto something new. We allow children to be problem solvers and learn from each other as much as possible.

Please see the principles of maths mastery skills that we teach at White Court:

Maths Mastery Principles

- Maths teaching for mastery rejects the idea that a large proportion of people 'just can't do maths'.
- All pupils are encouraged by the belief that by working hard at maths they can succeed.
- Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time, as happens in Shanghai and several other regions that teach maths successfully. This ensures that all pupils can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.
- If a pupil fails to grasp a concept or procedure, this is identified quickly and early intervention ensures the pupil is ready to move forward with the whole class in the next lesson.
- Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.
- Procedural fluency and conceptual understanding are developed in tandem because each supports the development of the other.
 - It is recognised that practice is a vital part of learning, but the practice used is intelligent practice that both reinforces pupils' procedural fluency and develops their conceptual understanding.
 - Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained.
 - Key facts such as multiplication tables and addition facts within 10 are learnt automatically to avoid cognitive overload in the working memory and enable pupils to focus on new concepts.

Maths at White Court

We recognise that children will be working at a variety of levels and therefore different activities are planned for children at appropriate levels. Children that need more support than others are identified quickly and receive early intervention to help them maintain progress. The pitch and pace of the work is sensitive to the rate at which children learn, while ensuring that expectations are kept high and progress is made by all children.

In Years 1 to 5, there are weekly Mathematics' Clubs to extend the more able Mathematicians and another session for the children who need an extra boost. In Year 6, More Able Mathematics club takes place during 2 of the lessons (two hours a week) where even deeper fluency and mastery of the curriculum can be explored. A booster session for children on the cusp of achieving the expected end of year 6 expectations is held during an assembly, once a week.

Children in Foundation Stage follow the Early Years Foundation Stage Profile. Year 1 to 6 follow the guidance given by the 2014 New Curriculum. There are 5 lessons over the course of the week. When completing written methods of calculation, all year groups follow the guidance given in the 2014 New Curriculum (see written methods of calculation policy).

Magic Maths

Alongside Maths lessons, children have short, meaningful sessions to **consolidate, revise, extend or embed mathematical learning**. These lessons (lasting for 15-20 mins) take place 5 times a week in each Year Group. This maths needs to be evidenced but can be in the form of photographs or on planning. These sessions can take place in the following formats, using different resources:

- Practical activities
- Mental arithmetic skills (including practise questions)
- IWB – solving problems
- Revisiting and revising key skills
- TestBase questions
- MyMaths
- Times Tables activities including singing songs
- Place Value, Number Facts
- Building the foundations of number

Assessment

Assessment continually takes place to monitor each child's progress and to help teachers plan. A variety of assessment techniques are used. Children additionally use Self and Peer Assessment techniques to inform teachers of their understanding within their work. Also, each class uses Maths Target Cards to ensure pupils are fully aware of their current individual targets by displaying them prominently in their Maths Books. Teachers are expected to update these targets once they have been achieved at a **mastery level**. Regular reference to the targets, allows pupils to take ownership of their learning by discussing and self – assessing against their target. Teachers and LSAs observe how children tackle everyday Mathematical activities, assess children's written work and talk to them about what they have done. The outcome of this work may be used for moderation within teams and across the whole school.

Under the 2014 Curriculum, the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. 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 should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on. In order to track the progress of groups of children, a tracking file (showing their current band) is updated termly in Target Tracker.

Teachers keep records of the experiences and achievements of individual children, small groups and whole classes. Photographs may be taken of practical activities.

Each term, Target Tracker is used by Year Managers, class teachers and subject leads to track the progress of individuals and groups of children. These are used to identify groups of children who are making expected progress and those who need extra support or intervention to make the required progress. They are also used to inform the process of setting children's predicted levels.

When marking children's work it is in line with the marking policy of the school.

Children Recording Their Work

Children are encouraged to record their findings in a variety of written forms. They do this in order to:-

- Help clarify their own thinking through the use of jottings.
- Remember what they have done and think again about their work at a later time.
- Communicate with others.
- Be able to reflect on their achievements.

Cross-Curricular Links

Where appropriate, we integrate mathematics into class topics, with teachers capitalising on the many and varied opportunities that a topic presents. We also provide opportunities for children to develop Mathematical skills and strategies and apply them to everyday, real-life situations.

However, we also present mathematics as a subject in its own right, recognising that it is not possible to develop skills in all aspects of the subject through an integrated approach. We take care to demonstrate to children the links between aspects of Mathematics such as 'area' and 'multiplication.'

Resources

Individual teachers should consult the Mathematics Curriculum Co-ordinators for advice on resources and activities. Each classroom is equipped with a wide range of mathematical equipment, as well as Maths games. Larger and less frequently required items are available and stored in the Maths resource area. Reference and Activity books are kept in the Mathematics section of the staff room. Each year we are increasing our Numicon resources as it rolls out through the school in order for children to become confident in using it to support their learning.

Information Technology

Children use computers to develop their Mathematical skills and ideas, to help them solve problems, collate and classify information, explore ideas and model situations. The school subscribes to Purple Mash and My Maths, both of which are accessible to children from home as well as school.

Equal Opportunities

We aim to ensure that children achieve their full potential regardless of ethnicity, religion, gender or social grouping. The materials we use in class reflect a multi-cultural society of women and men so that children see Mathematics as relevant and interesting to everyone including themselves. Teachers ensure that no particular group or gender dominates the use of equipment or other aspects of teaching and learning situations. Whilst monitoring children's progress on Target Tracker, we highlight and annotate how these groups are performing.

Differing Needs

We recognise that children have different needs in their Mathematical learning, and cater for this by planning a variety of approaches. Children's progress is carefully monitored to ensure that suitably challenging work is given to individuals and groups. We encourage children, regardless of ability, to gain confidence in using their Mathematics in contexts which are meaningful to the children themselves.

With supervision, all pupils across White Court School are given the opportunity to select the level of challenge in all Maths sessions so they are able to suitably stretch themselves without fear of failing. Also, this allows teachers to push children on at an earlier opportunity to maximise learning and understanding as well as making sure the challenge is appropriate and achievable with independence.

Monitoring and Evaluation

The governing body, in partnership with the Headteacher and Mathematics Subject Leaders, determine the school policy for Maths. The Headteacher and Mathematics Subject Leaders are responsible for working with staff to devise, monitor, evaluate and review procedures for Mathematics.

Review

This policy will be reviewed as part of the policy review cycle and is reviewed annually. It will also be monitored for its effect on pupils with protected characteristics.

Policy discussed at the Meeting of the Curriculum Committee - Autumn Term 2018

Policy ratified at the Full Governing Body Meeting 15th November 2018