

WHITCHURCH PRIMARY SCHOOL

MATHS POLICY

1. Intent - What do we aspire for our children?

1.1 Three key aims rest at the heart of our mathematics curriculum:

- For children to be fluent in the fundamentals of mathematics,
- For children to reason mathematically,
- For children to solve routine and non-routine problems with increasing independence.

1.2 By achieving these aims, our children will leave Year 6 as knowledgeable, skilful and confident mathematicians ready for the next phase of their learning. _At Whitchurch Primary School, we provide an ambitious and inclusive Maths Mastery curriculum which is progressive across all year groups. Centred around Concrete Pictorial Abstract (CPA) approach, we embed our teaching through real life contexts making appropriate links across the curriculum. During each lesson all children may use apparatus as visual aids. As they make progress in the lesson, they move towards using

pictorial and abstract representations for Mathematical concepts.

1.3 Pupils learn to think mathematically, using a wide range of methods to ensure deep thinking and confidence in problem solving. Children explore and investigate. Communication is key as they work alongside peers to reason, explain and justify their thinking using mathematical vocabulary. Teachers carefully plan open ended, challenging questions which enable our children to make connections, identify patterns and draw conclusions about Mathematical concepts and problem solving.

1.4 Misconceptions are addressed as they arise and teachers actively engage children in proving their ideas.

1.5 Emphasis is placed on number fluency to aid recall of facts so they can be as efficient as possible when working mathematically.

1.6 We are confident that this mastery-based approach and spiral curriculum enthuses children about Maths. It ensures they can master Mathematical skills and concepts which enable them to continue learning as they progress through school.

2. Implementation - How will we deliver the curriculum?

2.1 The majority of pupils will move through the programmes of study at broadly the same pace.... 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 (NC 2014 p3).

2.2 Key Features of Our Approach:

- The large majority of pupils progress through the curriculum content at the same pace.
- Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.
- Pupils are taught through whole-class teaching, where the focus is on all pupils working together on the same lesson content at the same time.
- Teaching is underpinned by a small-steps curriculum design philosophy and supported by carefully crafted lessons and curated resources to foster deep conceptual and procedural knowledge.
- Differentiation is achieved by emphasising deep knowledge and/or through individual support and intervention.
- If a pupil fails to grasp a concept or procedure, this is identified within the lesson structure and timely intervention ensures the pupil is best placed to move forward.
- Key facts such as multiplication tables and addition facts within 10 are learnt through intelligent practice to develop automaticity; this avoids cognitive overload in the working memory and enables pupils to focus on new concepts.

2.3 High Quality Text Books: The text book scheme 'Maths - No Problem!' is used to support the implementation of our curriculum. However, to ensure that children have an enriching mathematics curriculum, teachers carefully select other resources to support their teaching. Through the use of 'Maths – No Problem!' we ensure:

- Teachers introduce new concepts in a logical sequence.
- Concepts are taught through high quality mathematical models and images.
- Mathematical models are consistently used through school.
- Teachers are supported with their subject knowledge.
- Our calculations policy is consistently applied.

2.4 Maths is taught daily in KS1 and KS2. We prioritise the development of basic skills and arithmetic alongside problem solving and reasoning.

2.5 Maths teaching in Reception involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers; calculating simple addition and subtraction problems; and describing shapes, space, and measures. Children will develop their understanding through planned, purposeful play and through a mix of adult-led and child-initiated activity.

2.6 From Year 1, lessons are typically broken into four parts:

2.7 In Focus/ Anchor Task

The entire class spends time on a question guided by the teacher. Pupils discuss and explore a range of methods to solve the problem. They discuss and reason as they explain their thinking. As they progress through the school they evaluate more. The

journals provide pupils with opportunities to show their understanding of the mathematical concepts learnt.

2.8 Lets Learn

This introduces new concepts through a Concrete, Pictorial, Abstract approach with the use of engaging pictures and manipulatives. Guided examples are provided for reinforcement. Teachers reinforce non-negotiable learning objectives through direct teaching. Children may be presented with a second version of the infocus task at this stage to work on independently.

2.9 Guided Practice

This comprises of questions for further consolidation and for the immediate evaluation of pupils' learning. Children complete tasks either independently, with a peer or collectively as a class. Discussion follows to encourage reasoning and mathematical fluency to be shown.

2.10 Workbooks & Journals

Pupils independently answer a range of questions directly related to the National Curriculum learning objective. These are arranged in a non- uniform way to allow for children to evidence their mastery of the mathematical concept being taught. Through journaling, we provide the pupils with the opportunity to deepen their conceptual understanding and reflect on the maths taught.

Inclusion

2.11 We aim to provide a broad and balanced education to all children where Quality First Teaching is considered an entitlement, regardless of gender, race or ability. Effective pupil tracking enables identification of pupils who may benefit from intervention at an appropriate level.

2.12 In all classes, children have a wide range of mathematical abilities. Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is no differentiation in content taught, but the questioning and scaffolding that individual pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content. Whilst practical materials are always available in the classes, some pupils will be supported in their learning by staying at the practical stage for longer while others may move onto pictorial or abstract methods.

2.13 Pupils who need additional support are given targeted interventions including pre teaching, 1 to 1 tuition and well as catch-up sessions on the day wherever possible.

2.14 We encourage deep thinking through challenging problems from a wide range of resource, such as: NRiCH, Mathsteasers, White Rose Hub, NCETM and I-See Reasoning. Pupils from Y2 upwards also have the opportunity to take part in local and national challenges in SUMDOG and TTrockstars.

2.15 On occasions, those working well below the expected standards for their year group may be working towards related objectives chosen from the relevant progression strand

from an earlier year. Lower attaining pupils have access to a wide range of practical resources to support the development of mathematical thinking and understanding.

2.16 Intervention through Special Educational Needs Support will lead to the creation of an Pupil Profile for children with special educational needs. The Pupil Profile may include, as appropriate, specific targets relating to Mathematics. It also details strengths, weaknesses and provisions made in class.

2.17 Children who are learning English as an Additional Language (EAL) may need support in developing mathematical language and concepts. Care is taken to ensure that pupils are grouped according to their mathematical ability rather than their stage of language acquisition. Through the use of appropriate support and differentiation, EAL pupils experience the same level of cognitive challenge as their peers

2.18 Marking and Feedback

2.21 Teachers will try to mark workbooks during lessons when possible in order to give instant feedback to children and to assess those that may need additional support or challenge. Marking is visual with the use of coloured highlighters to mark correct and incorrect answers so that children can immediately return to questions that they have initially got wrong in order to have another try using their purple pens. This supports teachers' ongoing assessment since they have a visual record of how successful a child has been in each lesson throughout a unit of work.

2.22 In children's journals, teachers' may comment on the child's choice of method to solve a problem and may give a suggestion to support them to move their learning forwards if this is necessary; however, this is not an expectation for every child. This may be done verbally or with a written comment. Any misconceptions should be addressed, either in written form or through discussion with the pupil.

2.23 We provide parents with details of attainment three times a year.

3. Impact - How do we know our Mathematics Curriculum is effective?

3.1 When pupils leave the school, their learning in Maths will have enabled them to be fluent at manipulating number; able to reason confidently and solve routine and nonroutine tasks, using an appropriate and efficient method. Using their high-quality maths education, they will have a strong foundation for understanding the world, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

3.2 What do we expect to achieve through our Maths curriculum?

By the end of KS1 our pupils will:

• Be confident and mentally fluent with whole numbers, counting and place value.

- Recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
- Describe and compare different quantities such as length, mass, capacity/volume, time and money.
- Recall the number bonds to 20
- Be precise in using and understanding place value.
- Read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge.

By the end of KS2 our pupils will:

- Be able 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.
- Use the language of algebra as a means for solving a variety of problems.
- Classify shapes with increasingly complex geometric properties and correctly apply the vocabulary they need to describe them.
- Be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.
- Read, spell and pronounce mathematical vocabulary correctly.

3.3 Assessment

3.4 Assessment of Maths is ongoing. It should continuously be used to inform teaching. Rapid marking and questioning during lessons enable teachers to make assessments. Rapid intervention takes place to address misconceptions, any gaps in pupils' knowledge and conceptual understanding.

3.5 Each unit of work ends with a short test that assesses children's learning and identifies any gaps there may be. The outcome of these assessments then informs future planning for the following unit of work.

Summative teacher assessments are recorded for each child termly using our online Assessment tools. Children take termly snapshot assessments to benchmark them against other similar pupils nationwide. Staff use these as another tool to help them identify pupils who require additional support.

4. Role of Subject Leader

4.1 The Subject Leader sets priorities for the development of maths in an action plan which forms part of the School Improvement Plan. Standards are monitored throughout the year and the action plan is annotated to reflect achievements and further development areas.

4.2 The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in the subject, and providing a strategic lead and direction for mathematics in the school.

4.3 The Subject Leader is responsible for achieving value for money with the allocated budget.

Status of this Policy: Final Date approved by Governing Body: FEBRUARY 2021 Lead contributions from: Dawn Chesters & Gavin Jones Governors: Curriculum Committee & Sarah Hanfry (Maths Lead)