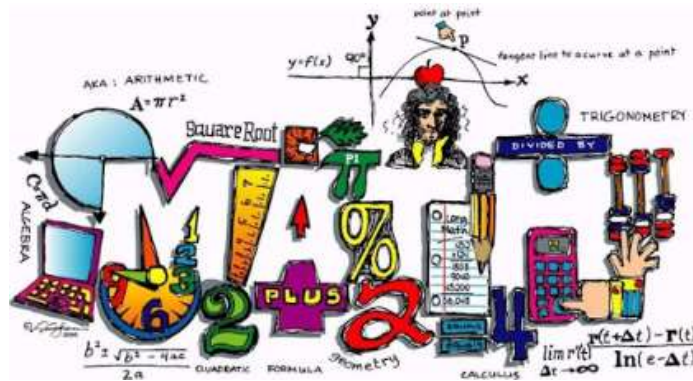
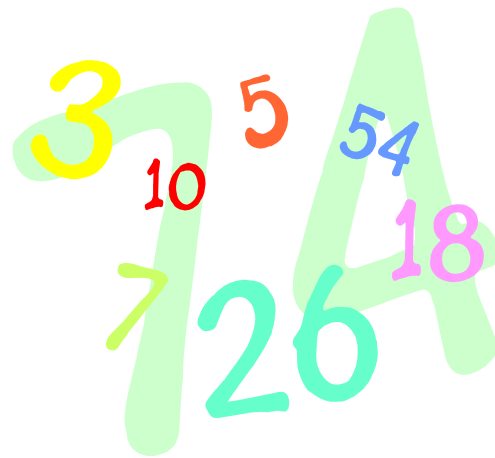




# St. Andrew's C. of E. Primary School Leasingham

## Mathematics Policy



St. Andrew's C. of E Primary School



## Mathematics Policy

### **CONTENT:**

#### **1. Curriculum Statement**

Including intent, aims and implementation

#### **2. Teaching and Learning**

2.1 Teaching for Mastery

2.2 Resources and Equipment

2.3 Key lesson Features

#### **3. EYFS**

#### **4. Computing**

#### **5. Homework**

#### **6. Assessment**

#### **7. Equal Opportunities**

#### **8. Inclusion**

#### **9. Role of the Subject Leader**

#### **10. Parents**

#### **11. Monitoring and Reviewing**



# **1. CURRICULUM STATEMENT**

At St. Andrew's C of E Primary School we have high expectations for all of our pupils and believe that all pupils can achieve highly and become confident and skilled mathematicians. We strive for all our pupils to be curious about mathematics and to understand the importance of mathematics in their everyday lives. It is a fascinating subject, dealing with the nature of number, space, pattern and relationships. Useful and creative, it requires not only facts and skills, but also understanding gained through exploration, application and discussion.

## **Intent**

The 2014 National Curriculum for Maths aims to ensure that all children:

- Become fluent in the fundamentals of Mathematics
- Are able to reason mathematically
- Can solve problems by applying their Mathematics

Further from the introduction of the National Curriculum 2014 we believe, a high-quality Mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of Mathematics, and a sense of enjoyment and curiosity about the subject (National Curriculum 2014).

## **Aims**

St. Andrew's aims to ensure that all pupils have access to a wide range of stimulating problems and activities, which will include the appropriate Programmes of Study of the National Curriculum 2014 and the new (2021) EYFS curriculum. In line with the aims of the National Curriculum for Mathematics (2014), at St. Andrew's Primary, we aim to ensure that our pupils gain:

- Deep and sustainable learning in mathematics which they are able to apply to a range of contexts.
- An ability to build on previous knowledge.
- An ability to reason mathematically about a concept and make connections.
- Sound procedural and conceptual understanding.
- To become fluent in the fundamental of Mathematics.
- An ability to solve complex problems by breaking them down into smaller steps and showing resilience.

In Mathematics we aim to develop lively, enquiring minds encouraging pupils to become self-motivated, confident and capable in order to solve problems that will become an integral part of their future. Our curriculum aims to nurture a love



curiosity for maths through mastering number and fluency and providing children with skills to become confident at problem solving while exploring links to the world around us. We aim for our children to have a passion for learning and develop a deep thinking about mathematical world we live in.

### **Implementation**

To ensure whole consistency and progression, the children from Y1-Y5 use the DfE approved 'Maths No Problem' scheme. This is supported with the school's ongoing engagement with the DfE funded Maths Hubs programme which continues to ensure that staff at all levels understand the pedagogy of the approach. New concepts are shared within the context of an initial related problem, which children are able to discuss in partners. This initial problem-solving activity prompts discussion and reasoning, as well as promoting an awareness of maths in relatable real-life contexts that link to other areas of learning. In KS1, these problems are almost always presented with objects (concrete manipulatives) for children to use. Children will also use manipulatives in KS2. Teachers use careful questions to draw out children's discussions and their reasoning. The class teacher then leads children through strategies for solving the problem, including those already discussed. Independent work provides the means for all children to develop their fluency further, before progressing to more complex related problems. Mathematical topics are taught in blocks, to enable the 3 achievement of 'mastery' over time. Each lesson phase provides the means to achieve greater depth, with more able children being offered rich and sophisticated problems, as well as exploratory, investigative tasks, within the lesson as appropriate.

Many of the fundamental principles of MNP are taught throughout Y6 and EYFS but through their own schemes of learning and assessment. In the EYFS stage WHITE ROSE and NCETM schemes are implemented focusing heavily on the use of The Numberblocks to engage the children, developing a secure SENSE of number and developing a curiosity and explorative recognition of patterns and concepts.

In Y6, WHITE ROSE planning and NCETM schemes are again used to ensure the Y6 objectives are taught discretely to the children as well as allowing time to recap and securing of previous learning and preparing for secondary school also.



## 2. TEACHING AND LEARNING STYLE

At St. Andrew's Leasingham we will judge the success of our mathematical teaching by using data analysis, book and planning scrutiny, observations, teacher's self-evaluation and KS1/KS2 summative assessment results. In addition, the motivation and interest displayed by our pupils is very important and this will be used as a measure. You will typically see the following features to mathematics learning:

### Teaching for Mastery

We believe that teaching for mastery in mathematics is a term directly associated with quality first teaching. It is one of the techniques we use to impact on children's learning. We believe that Teaching for Mastery is supporting the children in acquiring a deep, long term, secure and adaptable understanding of any subject.

- The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention. The questioning and scaffolding individual pupils receive in class as they work through problems will differ and pupils who grasp concepts rapidly are challenged through more demanding problems which deepen their knowledge further.
- Practise and consolidation play a central role to mathematics learning. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and carry out ongoing AFL (assessment for learning) of pupils regularly to identify those requiring intervention so that all pupils keep up.
- Teachers use the CPA approach (concrete, pictorial, abstract) approach to ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understandings are developed simultaneously.
- Pupils are seated according to the professional judgement of the class teacher. This may be a specific ability group working together, mixed ability groups/ pairs. This will be in the belief that all pupils can attain highly in mathematics and every pupil will have different strengths and development areas. Therefore groupings within classes are flexible and pupils will work in different groups dependent on their need.

### Maths Planning

- **Whole class together** – we teach Maths to whole classes. In line with the expectations of the National Curriculum, we believe that all children, where



possible, should be exposed to the same curriculum content at the same pace and therefore allowing them full access. We believe that this will help to develop both a deep understanding and secure fluency of key mathematical concepts. At the planning stage, teachers consider the **scaffolding** that may be required for children struggling to grasp concepts in the lesson and **suitable challenge questions** for those who may grasp the concepts rapidly.

- **Longer but deeper** - topics are taught in units of work that focus on key concepts and allow for children to gain a deep understanding. Supported by Maths No Problem, lessons and resources are crafted carefully to foster deep conceptual and procedural knowledge. Decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Therefore, where appropriate, teachers supplement Maths No Problem lessons with our own carefully crafted lessons to allow the children to learn the content more deeply. Learning is focused on one key conceptual idea and the steps in learning small in order to allow connections to be made. In turn, this will give an opportunity for every children to mastery a concept and allow some children to be challenged deeper through applying their skills to greater depth tasks.
- **Key learning points** – these are identified by teachers during planning and ensure they are drawing attention to the key mathematical concept. The use of stem sentences aid children's ability to talk maths confidently and provide scaffolding for children who need support to explain their thinking.
- **Questions** – teacher questioning is key to ensuring that all children are challenged at an appropriate level and that children's understanding or misconceptions can be addressed immediately. Open questioning with probe pupil understanding throughout taking some children's learning deeper. We insist on children responding using the precise mathematical vocabulary. This is supported through their work with a mastery partner where they are required to explain their mathematical thinking throughout the lesson.

### Resources/manipulative

Within all lessons, teachers will utilise practical resources to ensure that concepts are represented to the pupils to gain depth of understanding. It is acknowledged that a great deal of time is required for teachers to provide the visual reinforcement and varied practice activities to facilitate intelligent practice and support the learning. We have several resources that can support teachers with this planning.



## Key Features of a Lesson

Following the Maths No Problem approach across Yea 1-5, we aim for children to receive a consistent approach to maths every day. Each lesson is divided into 4 distinct parts; an anchor task, let's learn, guided practice and independent work.

- **In Focus/Anchor task** - an introductory activity for pupils that relates to the lesson objective. It may be a question or problem, but it allows the children to think with their maths partner (or as a class in some KS1 classes) about methods they have previously been taught which they could apply to help them solve this task.
- **Let's Learn** – learning linked to the in-focus task is explained and demonstrated by the class teacher. This puts new learning into a context.
- **Guided practice** - gives the children time to consolidate what they have just learnt before moving on to the independent task. It also allows for immediate evaluation of the pupils learning and understanding. During this time, teachers will identify those pupils needing further assistance and then support appropriately.
- **Independent Workbook** - when ready, children work independently in workbooks (in KS1 this is supported accordingly). Tasks and activities are designed to be easy for pupils to enter while still containing challenging components. For advanced learners, the textbooks also contain non-routine questions for pupils to develop their higher-order thinking skills.
- **Using Manipulatives** - carefully chosen practical resources and pictorial representations are used to explore concepts. We believe it is important that key concepts are introduced using a variety of concrete, pictorial and abstract representations. It is also crucial that throughout the lesson, children will see all representations alongside one another to help expose the different underlying structure of mathematics. Rather than seeing the C-P-A approach as separate stages of learning, we believe it is important that children go back and forth between them to help support their learning and deepen their understanding of a concept.
- **Questions** to challenge thinking – teachers use questioning throughout every lesson to check understanding – a variety of questions are used, but you will hear the same ones being repeated: How do you know? Can you prove it? Are you sure? Can you represent it another way? What's the value? What's the same/different about? Can you explain that? What does your partner think? Can you imagine?



- **Discussion and feedback** – Depth of understanding is developed through pupils' being able to **communicate** using the correct mathematical language. We ask pupils to explain, justify and prove their ideas so that they are deepening their understanding of a concept. The use of a mastery partner is therefore crucial to our lesson design.
- **Jotters** – jotters are used across the school, where appropriate, to act as an aid for children to record their thinking. This may include, photos of work with concrete equipment, pictorial representations or abstract work. The children may also be required to write written responses to explain their thoughts and show their mathematical thinking. The jotter will act as a useful point of reference for children to refer to as it is their way of recording their learning.
- **Rapid intervention** - those who are not sufficiently fluent with earlier material will consolidate their understanding, including through additional practice, before moving on. This may be through support during the guided practice or out with of the maths lesson. As new learning is built upon previous understanding, so in order for learning to progress and to keep the class together pupils need to be supported to keep up and areas of difficulty must be dealt with as and when they occur. Ideally this would happen on the same day but this is not always possible so it may be the following morning but will be before new learning is introduced.
- **Differentiation** will be seen by pupils working on differing complexities of problems within the same objective, called 'Intelligent Practice'. 'Rapid graspers' will have challenging problems to solve to ensure that they continue to make progress. There will be some pupils who are using practical equipment for longer in order to support learning. While our aim is that the gap between mathematical attainments in our classes is closed, we accept that in some Key Stage 2 classes there is already a large gap in the attainment of groups of pupils. There will, therefore be a need to give some pupils in these year groups separate mathematical activities. **Supporting rapid graspers** - pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Teachers use a variety of resources to ensure appropriate challenges that link to the lesson objective, including NCETM Mastery materials, NRich, White Rose and MNP Teasers.
- **SEND pupils** – may be supported by additional adults, different resources, differentiated activities. They may also complete additional activities outside of the mathematics lesson.





- **Marking** – our current marking policy is that learning is ticked with green to show correct responses or green dot or cross to show where children need to correct their work. Other symbols are also used to show where children have needed support (S), been provided with intervention (I) or used equipment (E) verbal feedback given (V). A comment is made if/when a teacher feels this is necessary which maybe to support the learning to move forward or praise effort and perseverance. Tabs or symbols across school will be added to maths journals to demonstrate where extensions or additional challenges have been added.



### **3. CURRICULUM - EYFS**

Mathematics within the EYFS is developed through purposeful, play based experiences and will be represented throughout the indoor and outdoor provision. The learning will be based on pupils' interests or current themes and will focus on the expectations from Development Matters / Early Years. Use of concrete apparatus will be embedded in the EYFS where children will experience learning in maths. As stated earlier WHITE ROSE and NCETM form a major part of the support in planning for deep learning in Mathematics and the use of the NUMBERBLOCKS as a huge area to develop number sense, number concepts and pattern spotting.

As the pupils progress through, more focus is placed on representing their mathematical knowledge through more formal experiences. Pupils will be encouraged to record their mathematical thinking when ready and this will increase throughout the year.

- Mastery of mathematics in the Early Years will mostly be evident when the pupils initiate their mathematics successfully. They will use their maths consistently and without overt adult support when they are secure with a concept.
- Direct teaching could be with whole class or smaller groups and will be adult led and successful learning should be observed and assessed independent of this.
- The mastery approach to mathematics also embraces the Characteristics of Effective Learning as stated in Development Matters document.
- Children should apply their mathematics into a variety of contexts and play situations to make connections. Pupils should use an appropriate and relevant vocabulary and should be actively encouraged to discuss their maths and reason mathematically. Children should use well-chosen concrete, pictorial and iconic representations.
- They should recognise and be encouraged to use abstract symbols alongside less formal jottings and recordings.

#### **Maths across the Curriculum**

Mathematics teaches children how to make sense of the world around them through developing their ability to calculate reason and solve problems. It is a core subject with a range of cross-curricular links but most often, is best taught discretely, using opportunities from other subjects to rehearse skills in a context. Mathematics involves developing confidence and competence in number work; geometry, measure and handling data and then using and applying these skills in other subject areas e.g. data handling within science, mathematics skills should be applied to this subject and used to evidence the pupils' depth of understanding.



## **4. Computing**

Computing can enhance and support the teaching of Mathematics significantly. It has ways of impacting on learning that are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. A range of software and resources are available to support work with the computers. In addition, the children also have access to **Purple Mash, Mathletics, Numbots** and **Times Tables Rockstars**, online computer programs, which can be accessed online both in school and at home. The program supports children at their mathematical level and provides them with support for all mathematical concepts in line with the national curriculum.

## **5. HOMEWORK**

Mathematics homework is set for children in Years 1-6 each week. Homework provides opportunities for children to: practice and consolidate their skills and knowledge; develop and extend their techniques and strategies; and prepare for their future learning throughout of class activities and homework. Homework activities are varied, interesting and set to support children's development and engagement with mathematics.

## **6. ASSESSMENT**

All of the elements of assessment mentioned below, collaboration with the statements in the children's individual Learning Journeys, are used on an ongoing basis to support and make our professional teacher judgement about whether a pupil is on track to achieve age-related expectations will be made at the end of the term. This information will all be recorded in each individual's Learning Journey and discussed at termly Pupil Progress Meetings.

### **6.1 Formative Assessment**

- To develop learning, pupils will be continuously assessed using a variety of strategies - observation, questioning, marking in accordance with our school marking policy.
- In KS1 and KS2 children are tested using a range of set tasks designated as appropriate to test individual pupils, groups or a whole class on an individual or range of attainments.
- At the end of each unit for MNP from Y1-Y5, teacher use the 'End of Chapter' reviews and continuous opportunities for children to apply their skills to allow teachers and the learning support assistant to assess for mastery. Teachers track



how pupils gain in progress over the course of a topic, and identify gaps in knowledge that may need to be addressed.

- Children also receive effective feedback through teacher assessment, both orally and through written feedback, and AfL is integral to the design of each lesson:
- The structure of the teaching sequence, ensures that children know how to be successful in their independent work. Guided practice, which takes place within the part of the less, providing further preparation for children to be able to apply the skills, knowledge and strategies taught during the 'Let's Learn' phase. Common misconceptions are addressed within the teaching sequence and key understanding within each 'small step' is reviewed and checked by the teacher and the children before progression to further depth.
- At the end of the lesson, the children have opportunities to review their work and self and peer assessment can be used outline by the school's 'Marking and Feedback Policy'. The children then indicate how confident they feel about their learning.
- The confidence scale is reviewed by the teacher during review of the children's work to inform where consolidation might be required. Opportunities for additional practice and correction are provided by the teacher, as appropriate, during marking, with a focus on promoting and achieving a growth mindset within the subject.
- Short term assessment is a feature of each lesson. Observations and careful questioning enable teachers to adjust lessons and brief other adults in the class if necessary. The lesson structure of MNP is designed to support this process. Children carry out unit reviews to help assess pupils understanding from across a series of lessons. This also informs dialogue with parents and carers during open evenings, as well as the judgements made at the end of the term as to the extent that each child has demonstrated mastery of each 'fundamental' objective.

## 6.2 Summative Assessment:

- Teachers administer a large termly arithmetic paper and reasoning and problem-solving paper which specifically links to the coverage for the specific year group. The results of these papers are used to identify children's ongoing target areas, which are communicated to the children, as well as to parents and carers at Parents Evening. They are also used alongside the end of unit assessments and outcomes of work, to inform the whole school tracking of attainment and progress for each child in line with each 'fundamental' objective. Children will also take an online **STARMATHS** assessment which allows a 'snapshot' of children's progress within all strands of maths. It also allows teachers to identify gaps in learning to support interventions.
- Assessment data in maths is reviewed throughout the year to inform interventions and to also ensure that provision remains well-informed to enable optimum



progress and achievement. This data is used to inform whole school and subject development priorities for the next school year.

- The Class Teacher, Mathematics Co-ordinator, SENDCo and Head Teacher keep records of assessments.
- Statutory Assessment Tasks (SATs) will be administered in accordance with the law at the end of KS1 and KS2.

### **6.3 Assessment in EYFS**

- Formative and summative assessment are continuous and ongoing within EYFS. The children are measured at the end of Foundation stage against the Early Learning goals criteria for the Mathematics specific area of development.
- The EYFS team collect evidence of children's learning through work completed in their learning journey book, observations, photos, and videos which are shared with parents weekly using the 'Tapestry' online system. This means that parents can engage with children regularly about their learning and can contribute to the knowledge we have of the child in school. Parents are active and many use 'Tapestry' to record the milestones children make at home during the year.
- We provide effective and focused intervention for those children who are finding learning challenging and are not on track to meet expectations at the end of the year. This will be provided in an inclusive way and support from parents is also enlisted at an early stage to ensure that the children have every chance to achieve the Early Learning Goals.

## **7 INCLUSION**

Inclusion is about every child having educational needs and the School meeting these diverse needs in order to ensure the active participation and progress of all children in their learning. Successful inclusive provision at St. Andrew's Leasingham is seen as the responsibility of the whole school community. Inclusive practice in Mathematics should enable all children to achieve their best possible standard; whatever their ability, and irrespective of gender, ethnic, social or cultural background, home language or any other aspect that could affect their participation in, or progress in their learning.

## **8 ROLE OF SUBJECT LEADER**

- The subject leader will raise the profile of Maths at St. Andrew's C. of E. Primary School (Leasingham) through best practice. They will model lessons, as appropriate to new staff, NQTs and peers to support continued professional development. They



will ensure the high quality of Maths displays around the school, present certificates of achievement during end of term assemblies and involve the school in 'celebrations' of Maths, including participation in events such as 'World Maths Day' and NSPCC Numberday. The subject leader will support staff in providing opportunities for learning outside the classroom in Maths and will identify and organise opportunities which enable this, as appropriate.

- The subject leader will monitor progression and continuity of Maths throughout the school through lesson observations and regular monitoring of outcomes of work in Maths exercise books.
- The subject leader will ensure that all staff have access to year group plans and the relevant resources which accompany them.
- The subject leader will monitor children's progress through the analysis of whole school data. They will use this data to inform the subject development plan which will detail how standards in the subject are to be maintained and developed further.
- The subject leader will, on a regular basis, organise, audit and purchase central and class-based Maths resources.
- The Subject Lead will attend regular cluster meetings, will keep up to date on current developments in Maths education and disseminate information to colleagues.
- The subject leader will extend relationships and make contacts beyond the school.
- The subject leader will develop opportunities for parents/carers to become more involved in Maths education.
- The subject leader will ensure that all staff have access to professional development including observations of outstanding practice in the subject where possible.

## **9 PARENTS**

- The school recognises that parents and carers have a valuable role to play in supporting their child's mathematical learning. An overview of the Maths curriculum is available on the school's website, as well as guidance in the progression in calculation methods used by the school. Paper copies of these documents are also available on request and the curriculum letter, sent home by each year group, also outlines the Maths topics to be covered.
- Activities which link to each Maths topic are suggested for parents and carers to try at home with their child. Links to some of these specific programs can be found on our school webpage.
- Children are given Maths homework at least once a week from Reception to Year 6. Throughout the unit of work, maths homework task will focus on developing number fluency.



- Parents are informed of their child's progress at Parents Evenings and this is also communicated in written school reports and termly through our Profile books where targets are set and parents are given up-to-date information.
- Parents and carers are encouraged to speak to their child's teacher at any point during the year, either informally or by making a specific appointment. Information about their child's standards, achievements and future targets in Maths is shared during parent/carer meetings, as well as ways that parents/carers may be able to assist with their child's learning.
- The school also provides a number of opportunities for parents/carers to learn about what their child is learning and the way their child is being taught through parent workshops.
- Parent's consultations are held each full term (except the summer term where reports are sent out) where the teacher discusses children's targets and progress in Mathematics.

## 10 MONITORING AND REVIEW

The maths subject leader alongside the SLT is responsible for having an overview of standards. This information can be gained in a number of ways – book sampling, pupil interviews, planning scrutiny, monitoring displays and visiting lessons. Information gained is collated by the subject leaders and used to highlight areas of strength and weakness. Appropriate action is then taken depending upon the outcome.

We will continue to review this policy and our maths milestones to ensure continual improvements in attainment and progress in Maths for all of our children.

**Policy Status and Review Written by:** Maths Lead Morag Coote  
**Approval date:**  
**Review date:**

