



## **Mathematics Policy Introduction**

Mathematics teaches children how to make sense of the world around them through developing their ability to use number, calculate, reason and solve problems. It helps children to understand relationships and patterns in both number and space in their everyday lives. The Mathematics curriculum should be provide breadth and balance and be relevant and differentiated to suit the needs of all children in the modern world. It should be flexible, motivating all pupils, thus encouraging success at all levels.

## **Aims**

### **General**

- To ensure all staff, children, parents/carers and Governors are aware of the aims for learning and teaching Mathematics at Stokes Wood Primary School and that these are consistently applied.

### **School Staff**

- To promote a confident, positive attitude towards the learning and use of Mathematics making it an enjoyable experience;
- To promote confidence and competence with numbers and the number system;
- To promote the ability to solve problems through connecting ideas, decision-making and applying their mathematical skills in a range of contexts, including other subjects such as Science;
- To promote mathematical reasoning by following a line of enquiry, developing an argument and making justifications using mathematical language;
- To promote a practical understanding of the ways in which information is gathered, presented and used;
- To promote the exploration of features of shape and space and develop measuring skills in a range of contexts; and
- To understand the importance of Mathematics in everyday use, especially in relation to essential life skills, such as telling the time and understanding money.

### **Children**

To develop an enjoyment of learning through practical activity, investigation, exploration; mental exertion and discussion;

To develop confidence and competence with numbers and the number system;

To develop the ability to solve problems through connecting ideas, decision-making and applying their mathematical skills in a range of contexts, including other subjects such as Science;

To develop the ability to reason mathematically by following a line of enquiry, developing an argument and making justifications using mathematical language;

To develop a practical understanding of the ways in which information is gathered and presented;

To explore features of shape and space, and develop measuring skills in a range of contexts;

To understand the importance of Mathematics in everyday life, especially in relation to essential life skills such as telling the time and handling money; and

To foster positive attitudes towards Mathematics by developing pupils confidence, independence, persistence and co-operation skills.

### **Parents and Carers**

- To be understanding and supportive of our aims in learning and teaching Mathematics.
- To attend and contribute to Parent Consultation Meetings.
- To support their children with Mathematics homework activities (please refer to Homework Policy) including the importance of learning their number bonds and times tables .
- To praise their children for the good things that they do in Mathematics.
- To communicate and work with School whenever further support is needed to develop their children's mathematical skills and understanding.

### **Governors**

- To appoint a designated link governor who will:
  - a) Meet with the Mathematics Subject Leader at least once a year to find out about;
    - ❖ the school's systems for planning work, supporting staff and monitoring progress;
    - ❖ the allocation, use and adequacy of resources; and
    - ❖ how the standards of achievement are changing over time.
  - b) Visit School and talk to pupils about their experiences of Mathematics;
  - c) Promote and support the positive involvement of parents in Mathematics;
  - d) Attend training and other events relating to the Mathematics curriculum if possible.
  - e) Report jointly with the Subject Leader, both for the School Prospectus and to the governing body with recommendations, if appropriate, once a year.
- To be understanding and supportive of our aims in the learning and teaching of Mathematics and to review this policy annually.

### **Implementation of the Mathematics Policy**

#### **1. EYFS organisation**

- Our EYFS teachers use the Early Years Foundation Stage Curriculum and Maths No Problem to support their teaching of Mathematics in the Foundation Stage.
- The children have the opportunity to talk and communicate in a widening range of situations and to practise and extend their range of vocabulary and mathematical skills.
- The children explore, enjoy, learn about, and use Mathematics in a range of personalised situations.
- Mathematics is planned on a weekly basis. Learning is assessed using the criteria from the Early Learning Goals at the end of the year.
- Mathematics is taught both as a discrete subject and within the whole Early Years Curriculum to give children opportunities to use their mathematical skills in real life situations.

#### **2. The National Curriculum for Mathematics (Programmes of Study)**

Our KS1 and KS2 teachers use the Maths - No Problem! scheme, which is based on the mastery approach and aligned with the National Curriculum 2014, to support their planning and delivery of Mathematics teaching.

The Maths - No Problem! textbooks and workbooks are arranged in chapters and, over the course of the academic year, all units of the National Curriculum 2014 are covered.

The short-term planning is done weekly, listing the specific learning objectives that are to be covered in each year group class for each lesson that week.

Teaching and learning are differentiated to best match the needs of the class and the individuals within it, and where possible, it is set within the context of the Big Idea that is being taught.

If the needs of the children are best met following an alternative plan, which deviates from the National Curriculum 2014, then the class teacher, the Phase Leader and SENDCO discuss this and decide on a way forward.

#### **3. KS1 organisation**

Children in KS1 are taught Mathematics daily in mixed ability class groups.

In years 1 and 2, pupils are taught maths using the MathsNo problem scheme. In addition to this, they use the NCETM Mastering Number resources to embed subitising and knowledge of known facts.

#### **4. KS2 organisation**

Children in Years 3, 4, 5 and 6 are taught Mathematics in mixed ability class groups and are taught for approximately 1 hour daily.

Mathematics lessons include a range of activities, including mental arithmetic, practical investigations, thinking and discussion activities as well as independent computation activities.

Year three continue to embed subitising and known facts using Number sense.

Year four and five use the NCETM Mastering Number resources to embed unitizing and known multiplication facts.

#### 5. Planning formats

The school uses the Maths - No Problem! series for long and medium-term planning and this informs our teachers' weekly short-term planning.

Short-term planning is based on each year group's Maths – No Problem! textbook which details the expectations set within the National Curriculum 2014.

Examples of planning are available on the teacher drive and on the online Maths -No Problem! resource.

#### 6. Calculation Policy

Our teachers are asked to follow the models set out in Maths – No Problem! textbooks and the school's Calculation Policy when teaching calculation.

Our Calculation Policy explains the key written and mental methods that need to be taught in each year group, to support the planning, delivery and assessment of learning and teaching in Mathematics and to ensure consistency and progression across the school.

#### 7. Cross curricular

Opportunities are used to draw mathematical experiences out of a range of activities in other subjects, such as in PE, Science and other subjects studied to enable children to apply and use Mathematics in both real life and academic contexts.

#### 8. In each year group; **rapid graspers** are identified and, using key principles of the mastery approach, learning is extended in order to deepen their understanding of Mathematics.

#### 9. Resources

The use of Mathematics resources is integral to the concrete – pictorial – abstract approach and thus planned into our learning and teaching.

We have a wide variety of good quality equipment and resources, both tangible and ICT based, to support our learning and teaching.

These resources are used by our teachers and children in a number of ways including:

- a) Demonstrating or modeling an idea, an operation or method of calculation, e.g.: a number line; place value cards; dienes; money or coins; measuring equipment for capacity, mass and length; bead strings; the interactive whiteboards and related software; 3D shapes and/or nets; Numicon and related resources and software; multilink cubes; clocks; protractors; calculators; Numicon, dice; number and fractions' fans; individual whiteboards and pens; and 2D shapes and pattern blocks, amongst other things;
- b) Enabling children to use a calculation strategy or method that they couldn't do without help, by using any of the above or other resources as required; and
- c) Providing a context, where possible linked to the Big Idea, for the application and practise of calculation strategies and number skills.

Standard resources, such as number lines, multi-link cubes, dienes, hundred squares, shapes, etc. are located within individual classrooms

Resources within individual classes are accessible to all pupils who should be encouraged to be responsible for their use.

Further resources (often larger items shared by the whole school) are located in the Mathematics cupboards.

A range of Mathematics related software is also available and this is accessible via the shared server, which children can access when projected onto the Interactive Whiteboards in each classroom; by using individual class-based laptops;

Teachers are encouraged to use the school playgrounds, Woodland Walk and Buttercup Garden as an outdoor classroom when possible, for example, when teaching length, area or perimeter.

Teacher's resources are largely based on the Maths - No Problem! series, which can be accessed online.

#### **10. Homework** (please refer to the school's Homework Policy)

Mathematics homework is set for children in Years 4-6. Pupils take home their weekly skills tests to work on the questions that they found difficult with their parents.

Homework provides opportunities for children to: practise and consolidate their skills and knowledge; develop and extend their techniques and strategies; and prepare for their future learning through out of class activities and homework.

In years four and six, pupils that need extra support are invited to join an after- school Maths club.

#### **11. Parents/Carers**

The school aims to involve parents/carers in their children's learning as much as possible and to inform them regularly of their child's progress in Mathematics.

Parents/carers have the opportunity to meet with child's class teacher at least twice a year at parent consultation meetings and receive written reports and reviews during the year.

Parents/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 Mathematics is shared with parents/carers at these times and also ways that parents/carers may be able to assist with their child's learning.

Parents/carers are encouraged to support their children with homework and are invited to attend the Maths clubs.

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 school open days, parents' evenings and curriculum meetings. Information is on the website in the prospectus Key Stage handbooks and policy documents.

#### **12. Subject Leader**

The role of the Subject Leader is to provide professional leadership and management in Mathematics in order to secure high quality teaching, effective use of resources and high standards of learning and achievement for all pupils.

They will achieve this by affecting the following key areas: strategic direction and development; learning and teaching (including planning and marking and presentation); leading and managing staff; and efficient and effective deployment of staff and resources.

The role of the Subject Leader is detailed further in the Subject Leader job description.

The Subject Leader has regular discussions with the Head Teacher and other senior leaders about learning and teaching in Mathematics and provides a report an annual about their work as Subject Leader and an evaluation of the strengths and areas for development for the subject.

During the academic year the Subject Leader has specific allocated time for subject self-evaluation activities during directed time after school and time-tabled management time.

### **The Mathematics Lesson: Good Practice**

The Learning and Teaching Policy identifies the aims, principles and strategies for promoting effective learning and teaching at Stokes Wood Primary School. These apply to learning and teaching in Mathematics as well as every other curriculum subject areas.

In Mathematics the overall structure of the lesson will generally be the same and consist of a review of previous learning, an explore task, guided practice, independent tasks and mini-plenaries and reviews to check for understanding. Weekly times tables tests are undertaken at an appropriate time in the day, not necessarily in Mathematics lessons.

## **Journaling**

### **Key Stage One.**

This department all follow the Maths No Problem scheme.

The maths journal is used for the following:

- Recording children's chosen method after concrete or in Explore tasks are done on whiteboards or mentally, using equipment and pair talk.
- Written explanations of understanding/recording thinking and self-reminders. (Adults may scribe pupil's explanations.
- Guided practice - Teacher or TA assisted and pair work - marked for AfL.
- Mind workout challenges by more- able pupils – Independent work.
- Extension tasks that encourage pupils to reason, problem solve and explain their thinking.

### **Key Stage Two**

This department all follow the Maths No Problem scheme. All classes use the weekly skills and arithmetic booklets system to ensure regular visitation of key objectives and accurate tracking of independent progress. A copy of the weekly skills is sent home so that parents are aware of the coverage in the curriculum and can support learning at home.

### **Year 3 and 4**

#### **Maths Journaling**

The maths journal is used for the following:

- The recording of children's chosen method after concrete or in focus tasks is done in journals, using equipment and pair talk.
- Written explanations of understanding/recording thinking and self-reminders.
- Guided practice - Teacher or TA assisted and pair work - marked for AfL.
- Mind workout challenges by more able pupils – Independent work.
- During each Maths No Problem chapter of work, children are assessed using the Rising Stars diagnostic resources. Children are assessed at the end of each unit using the Rising Star medium term test. Journals are also used to identify gaps and inform judgements for AfL.
- Further to this, children complete both times table and general maths booklets to consolidate learning, as revision of learning throughout the year.

### **Year 5**

#### **Maths Journaling**

The maths journal is used for:

- Further practice of maths skills using other resources
- Written explanations or diagrams of understanding.
- Guided practice when children need a physical copy in front of them.

Concrete materials are used for introductory lessons to do a unit wherever possible and are continued to be used by those who need it throughout. 'Explore' activities are completed in pairs, and ideas are recorded on their whiteboards and then discussed alongside the slides. After discussions, guided practice is then also completed on whiteboards unless the children need a physical copy in front of them. A Key skills test is given weekly and answers are worked through. Results are recorded and answers are 'ticked or dotted' on a progress sheet which helps inform judgements for Target Tracker. Each week, a copy is then also sent home with a homework sheet attached so parents can support their children.

## **Year 6**

In Year 6, the pace of teaching is much quicker than in other year groups as pupils have to complete all their learning before the end of the spring term, shortly after which the SATs take place in May. Therefore, we are selective in the Maths No Problem worksheets we complete and we often complete more than one worksheet in a single lesson.

While we teach for mastery (the intention for all pupils to acquire a good understanding of the mathematical concepts taught), we do not have the time to show mastery discretely in maths journals. Because of the quicker pace of learning, in-focus activities and guided practice are completed on whiteboards so that teachers can spot and address misconceptions straight away. Through pupil-teacher dialogue and partner talk, children are encouraged to provide full, reasoned verbal explanations. Children in Year 6 do not tend to use concrete materials unless absolutely required as, by this time, they are expected to have moved to an abstract level.

Higher-ability pupils show their greater confidence by completing the more complicated, problem-solving-based questions in Maths No Problem! We support less confident pupils by providing one-to-one coaching with an adult; working in small groups with adults in maths lessons; inviting pupils to attend the weekly maths club; and encouraging pupils to come in to school half an hour early each morning, when they are able to receive individual tuition from an adult.

To close gaps in pupils' learning, we practise arithmetic in two morning sessions, complete weekly maths skills worksheets and set maths homework each week, with feedback provided to pupils individually to help them close gaps in their knowledge.

Children are assessed after each maths topic, using Rising Stars materials, which inform summative teacher judgements and track pupils' progress throughout the year.

During the second half of the spring term, Year 6 begin a programme of revision which is supported by the use of past SATs papers, with feedback provided to individual pupils to consolidate core knowledge and develop reasoning skills.

## **Assessment, Record Keeping and Reporting (please refer to the School's Assessment and Teaching and Learning Policies)**

- Children's standards and achievements in Mathematics are assessed in line with the School's Assessment Policy. Assessment in Mathematics for Years 1-6 includes:
  1. On-going Assessment for Learning (AfL) practices within class and group sessions, including the sharing of and reference being made to Learning Goals and Next Steps and self and peer assessments of understanding, outcomes and progress;

2. Marking of children's work; against the shared Learning Goal and for accuracy of answer (for all written work) and diagnostically (regularly in line with School expectations) including clear next steps to consolidate or progress the child's Mathematical understanding;
  3. Teachers use daily formative assessment to inform their planning and next steps for each child. Progress is recorded on the qualitative assessment (statements) on Target Tracker as appropriate. Overall assessments on the quantitative assessment (Steps) on Target Tracker are recoded in January and July and targets set in October.
  4. Teachers use formal assessments to support their teacher assessment in January and in the Summer term as at other times as appropriate. Materials used: Rising Stars, White Rose, NFER, Maths No Problem, SATS materials and any other appropriate material which provide information on the pupils' attainment and progress. Pupils are assessed as being at National Standard, above National Standard, below National Standard or well below National Standard. Pupil progress is tracked, recorded and acted upon. Pupils' effort in Mathematics lessons is also recorded.
- Early Years Foundation Stage Mathematics development involves providing children with opportunities to practise and improve their skills in counting numbers, calculating simple addition and subtraction problems, and to describe shapes, spaces, and measures. The EYFS profile summarises and describes children's attainment at the end of the EYFS, in relation to the (ELG) early learning goal descriptors.
  - Assessments are used diagnostically by teachers to evaluate learning and inform teaching and by teachers and senior leaders within the accountability process to evaluate individual and groups of children's standards and achievements and provision and to inform future provision and school development.
  - All children in Years 1-6 have Mathematics Targets both in terms of National Standards expectations and within on-going AfL and diagnostic marking practices. The class teachers, the Subject Leader and other senior leaders review progress against these targets regularly through pupil progress meetings, performance management, lesson observations and book scrutinies. This information is used by each of these to affect provision and potentially school development.
  - Assessment information for Mathematics, both standards and achievements, are shared with parents/carers at parent consultation meetings. Mathematics is reported on in detail in each child's school report; which includes information about the next steps for learning in the subject.

#### **Inclusion (please refer also to the School's SEND Policy)**

- Inclusion in Mathematics means that every child, what every their ability and/or educational special need is supported to access the lessons, are supported through appropriate scaffolding and adapted teaching and are challenged to enable them to achieve their full potential in Mathematics.
- Successful inclusive provision at Stokes Wood is seen as the responsibility of the whole school community, permeating all aspects of school life and applicable to all our pupils. It is in this way that we will turn the rhetoric into reality.
- 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.

#### **Monitoring and Review**

- The Head teacher, Senior Leadership Team and Mathematics Subject Leader will monitor the effectiveness of this policy on a regular basis. The Head teacher and Mathematics Subject Leader will report to the governing body on the effectiveness of the policy at least annually and, if necessary, makes recommendations for further improvements and review as necessary.