



Wallsend Jubilee Primary School

Maths Policy

Introduction

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore 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)

The aims of the 2014 National Curriculum are for our pupils to:

- become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time
- develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately
- reason mathematically; follow a line of enquiry, conjecture relationships and generalisations
- develop an argument, justification and proof by using mathematical language. problem solve by applying knowledge to a variety of routine and non-routine problems, breaking down problems into simpler steps and persevering in answering

The National Curriculum sets out year-by-year programmes of study for Key Stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS profile is a statutory assessment of children's development at the end of the early years foundation stage (known as a summative assessment) and is made up of an assessment of the child's outcomes in relation to the 17 early learning goals (ELGs). It is intended to provide a reliable, valid, and accurate assessment of each child's development at the end of the EYFS.

This is supported by the 'Development Matters' non statutory guidance as well as the White Rose Medium Term plans for EYFS Mathematics.

The Statutory Framework for the Early Years Foundation Stage states:

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

The Early Learning Goals (ELG) for mathematics are:

Early Learning Goals (ELG) Number

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts

Early Learning Goals (ELG) Numerical Patterns

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

The purpose of mathematics in our school is to develop:

- positive attitudes towards the subject and awareness of the relevance of mathematics in the real world
- competence and confidence in using and applying mathematical knowledge, concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- initiative and motivation to work both independently and in cooperation with others
- confident communication of mathematics where pupils ask and answer questions, openly share work and learn from mistakes
- an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and investigation

We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching and learning. In each classroom there will be a 'Maths learning journey' which key information, children's mathematical recording and ideas and key vocabulary will be added to on a week to week basis each term.

Breadth of study:

Careful planning and preparation ensures that throughout the school pupils engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper and using a calculator
- working with computers as a mathematical tool

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Teachers' planning and organisation

Long term planning

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals provide the long term planning for mathematics taught in the school.

Medium term planning

Years EYFS – 6 use the White Rose Maths schemes of learning as their medium term planning documents.

These schemes provide teachers with exemplification for mathematics objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum.

They support a mastery approach to teaching and learning and have numbers at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Short term planning

The above schemes of learning support weekly planning and are monitored at intervals by the mathematics subject leader. EYFS planning is based on the medium term plans and delivered as appropriate to individual pupils with thought to where the pupils are now and what steps they need to take next.

All classes have a daily mathematics lesson where possible. In Key Stage 1 lessons are 45-60 minutes in duration and in Key Stage 2 at least 60 minutes in duration. In addition to this, times tables are taught and practised on a daily basis for 15 minutes.

Teachers of the EYFS ensure the pupils learn through a mixture of adult led activities and pupil initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

Special Educational Needs & Disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, pupils' IEPs incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters and teachers keep these in mind when planning work.

These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Mathematics focused intervention in schools helps pupils with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the daily mathematics lesson, teachers have a responsibility to not only provide differentiated activities to support pupils with SEND but also activities that provide sufficient challenge for pupils who are high achievers. It is the teachers' responsibility to ensure that all pupils are challenged at a level appropriate to their ability.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all pupils, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. This policy is in line with the school's 'Racial Equality' policy.

The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all pupils including those for whom English is an Additional Language (EAL).

Differentiated questions are used in lessons to help pupils and planned support from teaching assistants and other adults.

Lessons

In all lessons, learning objectives, success criteria and key vocabulary are clearly displayed and discussed.

The emphasis in lessons is to make teaching interactive and lively, to engage all pupils encouraging them to talk about mathematics.

When teaching a new concept, children will have the opportunity to build competency using a Concrete, Pictorial, Abstract (CPA) approach:

- **Concrete**
Children should have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build understanding of what they are doing.
- **Pictorial**
Alongside concrete resources, children should work with pictorial representations, making links to the concrete. Visualising a problem in this way can help children to reason and to solve problems i.e. bar models, number lines.
- **Abstract**
With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods – writing number sentences ($5+3=$)

Children will access a range of fluency, reasoning and problem solving questions and tasks to help show understanding and develop mastery of (and within) objectives.

Reasoning and problem solving questions can be identified in pupils' books by use of 'Use your Head' image  or with **UYH** written next to the question.

Lessons involve elements of:

- Instruction – giving information and structuring it well
- Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays
- Explaining and illustrating – giving accurate and well-paced explanations
- Questioning and discussing – whole class, small group, peer to peer, maths meetings
- Consolidating, Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points
- Summarising – reviewing mathematics that has been taught enabling pupils to focus on next steps

Pupils' Records of work

Pupils are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient.

Pupils are encouraged to use mental strategies and their own jottings before resorting to more formal written methods.

Pupils' own working out and jottings to support their work is encouraged throughout all year groups.

Where tasks are practical, the class teacher or teaching assistant may take photographic evidence, which is then stuck in the child's book as evidence of learning.

Pupils RAG own work during or at the end of the lesson to self-assess how well they understand the learning that has taken place.

Marking

Marking of pupils' work is essential to ensure they make further progress. Work is marked in a green pen, in line with the school marking policy. Pupils will often be part of the marking process and will mark their own work with the teachers support and immediate feedback and intervention can be carried out to support the pupil when mistakes or misconceptions have taken place.

Use your Head reasoning and problem solving questions will be marked with a green or orange highlighter.

The learning objective will be highlighted with either a green or orange highlighter by the teacher to identify how the teacher/TA assess pupil understanding of the learning objective (green – understood, orange – need more time, support or intervention).

Pupils will put a green, orange or red dot/square next to the date in the form of self assessing understanding of the learning objective.

Corrections will be identified and given as needed and pupils will use a green pencil to complete any corrections given.

Responses to marking are made as close to the work as possible, ideally by the start of the next lesson.

Assessment, record keeping and target setting

Assessment is an integral part of teaching and learning and is a continuous process.

From Year 1 to Year 6, pupils complete pre and post unit assessments at the start and end of each unit of work. In Years 1 and 2, these may be undertaken in small group situations or through open-ended tasks and discussions and judgements made by the class teacher.

The pre-assessments will inform the class teacher of which areas the pupils need to be explicitly taught within a unit of work and which areas the pupils can be consolidated through reasoning and problem solving tasks.

Teachers make assessments of pupils daily through:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments.

Medium term

Assessments are carried out across the school at three times during the year using White Rose end of term assessments. These materials used alongside judgements made from class work support teachers in making an assessment for each pupil which in line with the assessment policy they enter onto Target Tracker.

Teachers in Years 1 to Year 6 track the detailed progress of pupils in mathematics against Target Tracker statements. The statements cover the mathematics objectives for the year group. This helps teachers form an assessment for each pupil and a gap analysis to identify gaps in pupils' learning.

Teachers also use the assessments to perform a gap analysis of what the majority of pupils can and can't do. This gap analysis will then be used to support the teacher in planning lesson starters to recap learning and fill the gaps where the majority of the children are showing lack of understanding.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

Long term

In EYFS children are measured at the end of Foundation stage against the Early Learning goals criteria for the Mathematics specific area of development and are graded as emerging, have met or exceeded the goals for number and shape, space and measure.

Years 2 and 6 complete the national tests (SATs) in May. Year groups 1, 3, 4 and 5 will use a combination of teacher assessment and formative assessments (post assessments, White Rose Assessments, PUMA tests) which will help to accurately create a final judgement for each child in each year group.

Resources

Each class has a stock of core resources that are age appropriate. Children have access to table boxes with a range of mathematical equipment, which they can access as required. Additional mathematical equipment and resources are stored centrally in the maths cupboard.

Homework

Homework will be set in line with the homework policy.

Homework will focus on times tables at an appropriate level for each year group and learner - All pupils from Year 2 to Year 6 have access to Time Table Rock Stars to support them in learning the relevant times tables facts for their year group.

Pupils and parents will also be directed to the school website where age-related counting, times table and multiplication maths games and tasks can be found.

Year 5 and Year 6 pupils may receive homework tasks to support revision for the KS2 tests.

Parental Involvement

Parents will be invited to attend year group meetings, where they will be informed of the calculations used in the particular year group, how maths teaching is delivered in the school and any new developments in the subject relevant to the children, as well as how they can support their children at home.

Parents/Carers are informed on a termly basis of the progress their children are making and where concerns arise, parents/carers are kept up to date with those concerns and any interventions that may be required.

Parents/Carers are invited into lessons throughout the year to join their children for maths themed activities, such as ChristMaths.

Parents/Carers are directed towards and encouraged to access their child's year group page on the school website, where Maths activities and times table games are available, which can be accessed at home.

Role of the Mathematics Subject Leader

- To lead in the development of mathematics throughout the school
- To monitor the planning, teaching and learning of mathematics throughout the school
- To help raise standards in mathematics

- To provide teachers with support in the teaching of mathematics
- To provide staff with CPD opportunities in relation to mathematics within the confines of the budget and the School Improvement Plan
- To monitor and maintain high quality resources
- To keep up to date with new developments in the area of mathematics