



Maths Policy

Contents

1. Rationale	2
2. Aims	2
3. Pupils' Mathematical Experiences.....	3
4. Curriculum.....	4
5. SEND.....	4
6. Homework.....	5
7. Planning and Assessment.....	5
8. Cross-Curricular.....	5
9. Equal Opportunity.....	5
10. Staff Development.....	6
11. Role of the Maths Leader.....	6
12. Monitoring and Evaluation.....	6

Attenborough Maths Policy

(1) RATIONALE

'Mathematics is a creative and highly interconnected 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 mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics and a sense of enjoyment and curiosity about the subject.' (DfE 2013)

At Attenborough School, we have high expectations of all our children and encourage all our pupils to have a growth mindset so they can achieve highly. In line with the National Curriculum and EYFS Development Matters, our policy hopes to instill an enjoyment in the subject by supporting children to engage with it and build upon their own understanding and promote further learning. Learning skills are an important aspect of maths but such skills are only a means to an end. They should be taught and learned in a context that provides purpose and meaning.

(2) AIMS

- To encourage a **growth mindset** – all teachers and children believe everyone can learn maths at high levels
- To promote children's **curiosity** about mathematics and see maths as an unexplored puzzle
- That the classroom is a **risk-taking and mistake valuing** environment
- To deepen children's **conceptual understanding** by representing concepts using objects and pictures (Concrete and Pictorial representations)
- To develop children's conceptual understanding further by making **connections** to previous learning, their peers ideas, objects and pictures, events in their lives and the world
- To foster **mathematical thinking** through sorting, comparing, investigating, identifying patterns and rules
- To develop **fluency*** in the fundamentals of mathematics
- To **reason** through using **cooperative learning strategies**, where they can explain, justify and prove their thinking using mathematical language and CPA
- To promote **problem solving** and **solution finding**. This is not only true in mathematical learning but in all aspects of school life.

*Fluency does not just focus on number, although this is a significant part of the mathematics curriculum. Pupils can demonstrate fluency, in the flexibility of the methods they choose and through producing accurate answers efficiently.

(3) PUPILS' MATHEMATICAL EXPERIENCES AND LEARNING

The majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support, resources 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.

Differentiation using manipulatives (objects, pictures, diagrams or symbols) can be used in a variety of ways: -

- *The same manipulatives being used with different examples eg. Lower attaining pupils may be representing examples that have already been modeled as a whole class, while higher attainers are working out how to represent new examples*
- *The same examples being used with different manipulatives: eg lower attaining pupils may be representing examples using the same manipulative that was used as a whole class, while higher attaining pupils work out how to use a new manipulative*
- *The same manipulatives and examples being used, but the task presented in a different way eg lower attaining children might be given expressions and their representations using manipulatives, and asked to match them, while higher attainers are given only the expressions and asked to represent them with manipulatives, or vice versa.*

(Mastering Mathematics by Dr Helen Drury)

For those children whom need to revisit their thinking before they move onto the next steps in their learning, smaller group or one-to-one learning opportunities may be provided where possible.

Teachers use the CPA approach (concrete, pictorial, abstract) to ensure that concepts are modelled to pupils using multiple representations. The use of concrete objects allows pupils to visualize, model and internalize abstract mathematical concepts. This ensures that procedural and conceptual understanding are developed simultaneously.

Resources will be openly accessible to encourage pupils to take responsibility for their thinking and learning in maths. This will encourage the selection of appropriate materials. Each classroom has resources, which are located and labelled to make them easily accessible to children. There will also be a dedicated maths display that operates as a working wall and is used to consolidate key areas of mathematics during the Maths Meeting.

Teachers use precise questioning in class to test conceptual and procedural knowledge, such as 'Why does that method work?', 'How is that method connected to others?' or 'How can that idea be represented in different ways?' Pupils are assessed throughout the lesson to identify those requiring further support so that all pupils make progress.

A daily **Maths Meeting** at the beginning of the mathematics lesson is an important aspect of the mastery approach. It is a five minute whole class

session used to consolidate key areas of maths. The session enables teachers to reinforce and check pupils' growing knowledge. It is conducted at pace, with all children engaged at all times. It includes singing, whole-class call and response together with questioning where any child can be selected to give an answer. This is a 'no hands up' session.

The **Maths Dialogue** aspect of the lesson provides the opportunity for children to develop their reasoning strategies where they can explain, justify and prove their thinking using mathematical language and CPA. The children are seated in mixed ability groups, which enables all learners to have equal participation within an environment that promotes the importance of mistake making, in order to develop and learn further. Maths dialogue through cooperative learning is based on the belief that learning occurs through doing and interacting.

Learning Stops (LS) occur at appropriate times during the lesson, where a visualiser/IPad stop, a teaching point or cooperative feedback is used to identify a misconception or highlight a good example. Please read the Attenborough Marking Policy for more information.

Weekly **Mental Maths** assessments take place in classes from Y1 to Y4. The results are recorded and the teacher uses this information to plan further lessons.

(4i) CURRICULUM – EYFS

In the EYFS we understand that all children can be successful with mathematics when they have opportunities to explore mathematical ideas in ways that make meaningful sense to them and purposeful opportunities to develop mathematical concepts and understanding. The staff are aware that children need to know that adults are interested in their thinking, respect their ideas, are sensitive to their feelings and value their contributions.

Mathematics skills and concepts are taught discretely on a daily basis and opportunities to practise and apply these skills are developed through purposeful, play based experiences and will be represented throughout the indoor and outdoor provision. The learning will be based on pupils' interests and schemas or current themes and will focus on the expectations from Development Matters / Early Years Outcomes. 2

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.

(4ii) CURRICULUM – Y1 to Y4

From Year 1 to Year 4, we follow the National Curriculum using a structured curriculum map. However this is flexible to the needs of the pupils and can be adapted.

(5) SEND

Please read the Attenborough SEND Policy.

(6) HOMEWORK

Teachers will set homework that includes key concepts relating to number and times tables.

(7) PLANNING AND ASSESSMENT

Teachers will work in their year group teams to plan and deliver lessons, with reference to the Calculation Policy. They will use their own judgement and use of formative assessment (AfL) to ensure a flexible approach is adopted, which recognises the pace of learning within the classroom.

Children will be provided with feedback, either verbal or written following the school Marking and Feedback Policy

Assessment in mathematics will reflect the overall school Assessment Policy. Assessment will include formative, diagnostic, summative and evaluative elements to enable effective planning. In Foundation Stage, children will be assessed using the EYFS Assessment procedures.

(8) CROSS-CURRICULAR

Mathematics is a subject that has links with a wide range of subjects. By adopting a cross curricular approach mathematics can have a real relevance to everyday life.

Approaches to cross curricular work include:-

- A mathematics event for parents/ carers and children to share
- ICT involves many mathematical concepts
- Use of mathematical concepts in Science lessons
- IPC e.g. Food involves sorting and classifying
- Art involves shape and pattern
- Dance and PE develops spatial awareness, sequences and pattern
- Music involves counting, patterns and rhythms
- Measuring is often linked to Geography and Science outdoor work
- Many mathematical concepts are developed in the Foundation Stage outdoor classroom such as counting, measuring when working with structures, shapes and space when building and constructing materials
- Forest Schools

At Attenborough School every effort is made to ensure that learning is meaningful and makes sense to the child. Whenever possible we promote cross-curricular learning.

(9) EQUAL OPPORTUNITY

All work is planned to ensure equal access and opportunity for all children.

(10) STAFF DEVELOPMENT

Each teacher is responsible for the delivery of mathematics in their class. The maths leader will organise training opportunities and provide support to all teaching and learning staff.

(11) THE ROLE OF THE MATHS LEADER

The role of the Maths Leader includes:

- Organise in-service maths training for staff
- Ensure that appropriate resources are available
- Provide 'expertise' to assist staff in the delivery of the curriculum
- Provide support for NQT's and Teaching Students in Mathematics
- Develop strong links with other primary schools in BFG
- Ensure continuity and progression from FS1 to Year 4
- Know and understand how children become numerate and communicative
- Evaluate on a regular basis the policy and scheme of work and ensure they form the basis of practice of Mathematics within the school
- Keep updated in Mathematical developments
- Keep a Coordinator's file which is informative and relevant
- Prioritises improvements for the teaching and learning of mathematics across the school and contributes to the school improvement plan
- Monitors the teaching of mathematics
- With the Head Teacher, track the progress of identified groups of children and be involved in a thorough evaluation of Mathematics looking at trends over time, value added from baseline predictions to end of Key Stage Assessment results

(12) MONITORING AND EVALUATION

Mathematics will be monitored through learning walks, lesson observations, book trawls, planning and assessment. Evaluation of this policy will be ongoing and will be carried out through team meetings, planning meetings and lesson observations.

This Maths Policy should be read in conjunction with Attenborough Calculation Policy.

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Written by: Jules Todd