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**Thingwall Primary School’s Mathematics Policy**

At Thingwall Primary School our mathematics policy reflects the aims of the new curriculum: for children to be fluent in the fundamentals of maths; to be able to reason logically using maths vocabulary and to be able solve problems using their developing mathematical skills. We see mathematics as a vital life skill and a way of communicating ideas to others. We recognise that each child is different and may learn in different ways, and that technology has a useful part to play in teaching and learning.

**Aims**

It is our aim for our children to become confident mathematicians with the skills, knowledge, understanding and reasoning to use mathematics in later life whilst fostering a real love for the subject.

We aim to help our pupils to:

* Understand the nature and purpose of mathematics in everyday life
* Promote confidence and competence with number and the number system.
* Develop the ability to solve problems through decision-making and reasoning in a range of contexts
* Develop practical understanding of the ways in which information is gathered
* Explore the features of shape and space and develop measuring skills in a range of contexts
* Develop confidence in using an applying mathematics and to learning to enjoy its challenges.
* To assist in their own learning and that of others, by self and peer evaluation.
* Recognise and use pattern and make connections between mathematical ideas as well as to those of other areas.

 **Knowledge, Skills and Understanding**

Through careful planning and preparation, we aim to ensure that throughout the school children are given opportunities for

* Practical activities and mathematical games
* Problem solving
* Individual, group and whole class discussions and activities
* Open and closed tasks
* A range of methods of calculating eg. mental, jottings using pencil and paper
* Working with computers as a mathematical tool.

**Teaching Mathematics: Daily Mathematics Lesson**

**Planning**

To provide adequate time for developing numeracy skills, each class teacher provides a daily mathematics lesson. This may vary in length but usually lasts for about 45 minutes in Key Stage 1 and 60 minutes in Key Stage 2. Reception children have a daily mathematics lesson that is more flexible in its organisation and is in line with the Early Learning Goals.

**Short term planning**

Staff will use the agreed short-term planning format to record their lesson plans. The planning process begins with the teacher having a thorough understanding of the children's needs by using assessment data (Target Tracker) prior learning and assessment for learning activities. The teacher then uses the whole-school planning materials to support them in constructing a logical sequence of learning for a lesson and will adapt and supplement these materials according to their class needs-this sequence will include a Learning Intention (LI) and success criteria.

**Long and Medium-Term Planning**

Teachers will be provided with a set of long-term plans, complete with steps to be taught for each mathematical concept. These plans and steps may be adjusted considering key assessment information from fluency sessions (Fluent in Five, Flashback 4) that take place daily, bi-weekly arithmetic assessment for learning activities and half termly assessments (White Rose Materials). Medium term plans will be monitored, to ensure curriculum coverage and adaptation according to children's needs.

**Fluency and Arithmetic**

In Key Stage One and Key Stage Two, additional maths sessions take place each day and last between 5 and 15 minutes depending upon the stage of development of the children. The purpose of these sessions is to support children in becoming fluent in the fundamentals of mathematics, something that will enable them to use and apply their mathematics across a range of different concepts and contexts. These sessions will provide children with the opportunity to practise their basic skills of arithmetic, recap previously taught concepts and recall strategies. Theses sessions will follow a similar format; be progressive; be matched to long-term planning; and be adjusted considering pupils strengths and weaknesses.

**Basic Skills Assessment**

A further lesson of 1 hour will focus upon children's development of arithmetic skills. The lesson will provide children with the chance to consolidate strategies for and learn new strategies for a range of mathematical concepts. Teachers will spend approximately 30 minutes of this session addressing areas of weakness within the class and developing efficient methods to build both confidence and fluency. These sessions will subsequently allow children to use and apply these new strategies and enable teachers to address any areas of weakness.

**Daily Maths Lesson: A Typical Lesson**

A typical 45 to 60 minute lesson in Year 1 to 6 is structured like this:

**Discussion of Prior Learning and Introduction to New Learning (5 to 10 minutes)**

At the start of a lesson, teachers will assess pupils’ prior learning and connect this learning to the new learning they are about to teach. Pupils will be given the opportunity to discuss their maths and will provide their initial thoughts on the area of maths being delivered. Teachers will use questioning skills to identify pupils’ strengths and weaknesses and make the necessary adjustments to the lesson to ensure maximum progress is made.

**The main teaching activity (about 30 to 40 minutes)**

This includes both teaching input and pupil activities and a balance between whole class, grouped, paired and individual work. Teachers will model and discuss key strategies; misconceptions will be discussed, and vocabulary developed. Children will then engage in tasks that will allow them the opportunity to apply their skills in different activities appropriate to their age group. During this part of the lesson, teachers will ensure that pupils are provided the opportunity to use and apply their understanding.

**A plenary (about 10 to 15 minutes)**

This involves work with the whole class to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps. Plenaries may also be undertaken during the lesson, mini plenaries, to ensure that misconceptions are being addressed throughout the lesson, and that children are given the opportunities to develop their reasoning skills. Children will also be given the opportunity to assess their own learning and understanding of different concepts.

**Reception**

In Reception, the class is organised to promote social skills and the development of mathematical language and understanding. Baseline assessments, information from play-school/nursery provide indicators of a child’s performance in relation to the Early Learning Goals. Planning for mathematical experiences is built upon this information. Lessons include, or are based upon, well-planned opportunities for children’s play and practical work, sometimes recording informally with objects or drawings. The main emphasis is on different aspects of counting with little or no reading or writing. Children are prepared in the Summer Term for readiness towards the daily Mathematics lesson.

**Assessment**

Assessments take place at three connected levels: short-term, medium-term and long-term. These assessments are used to inform teaching in a continuous cycle of planning, teaching and assessment.

**Short-Term** assessments are an informal part of every lesson, to check understanding and give information, which help teachers to adjust day-to-day lesson plans. Formative assessment of children will take many forms, including the following:

-through talk

-traffic lights

-drawing faces

-thumbs up

-success criteria grids

-through talk

Teachers will also use fluency sessions and arithmetic assessment to further identify any misconceptions, strengths and weaknesses.

**Medium-Term** assessments take place at the end of each term. These assessments are built into the school’s planning timetable and accurately reflect the expected standards at each point of the year. Children will be assessed against these expectations and the outcomes will be recorded and will inform teacher judgments. Assessment records will then be used to make relevant adjustments to medium-term planning, identify those children who need stretching and those children who need further support. Children will be set half-termly targets relevant to their needs and teachers will use a mixture of the child’s prior learning, assessment for learning information, and more formal assessment data when making these decisions. Teachers will use a range of strategies to ensure that children are aware of their targets and how to meet them:

-visual prompts in the classroom

-reflection time during lessons

-regular discussion of targets

**Long-Term** assessments take place towards the end of the school year to assess and review pupils’ progress and attainment. These are made through compulsory National Curriculum mathematics tests for pupils in Years 2 and 6 and supplemented by in-school assessments in both Key Stage One and Key Stage 2. Teachers also draw upon their class record of attainment against key objectives and supplementary notes and knowledge about their class to produce a summative record. Accurate information is then reported to parents and the child’s next teacher.

Other Key Stage One and Two children's mathematical skills and understanding will be assessed against national expectations using in-school assessment materials and optional SATs. Teachers will use this test information, formative assessment learnt through class discussions, work in books and children's reasoning/understanding of concepts to establish whether children are working at age related expectations, working within age related expectations or working securely at age related expectations. All assessment data will be collated in blue folders and will be passed on to the next teacher at the end of the year. All data will be entered into Target Tracker to assess progress.

**In Reception** children's mathematical skills and understanding are assessed regularly against the developmental steps in the Early Years framework. This is recorded through focussed observations and submitted electronically through the Tapestry APP. Children’s progress is monitored on a termly basis to ensure that children are meeting the standards for Early Years and the learning environment is adjusted considering these outcomes.

**Inclusion and Intervention**

When planning, teachers will modify as necessary, their long and medium-term planning to provide all pupils with relevant and appropriately challenging work at each key stage in order to provide a more inclusive curriculum which; sets suitable learning challenges; responds to pupils diverse needs; overcomes potential barriers to learning and assessment for individuals and groups of pupils. Teachers will show these adaptations within their short-term planning materials. Where pupils require additional support, they will be provided pre-teaching sessions that will help to build their confidence of concepts before a lesson, and will enable them to share their misconceptions in open dialogue.

**Pupils with special educational needs and individual education plans**

Teachers aim to include all pupils fully in their daily mathematics lessons. All children benefit from watching and listening to other children demonstrating and explaining their methods. However, a pupil whose difficulties are severe or complex may need to be supported with an individualised programme in the main part of the lesson. Children who may require further support will be identified by the class teacher and Maths Intervention Leader in unison. Children will be provided with the necessary intervention, outside of the classroom, to bring them back in line with age related expectations. The progress of these children will be closely monitored to ensure that gaps in understanding are closed as quickly as possible.

**How we cater for pupils who are more able**?

Pupils who are more able are taught with their own class and stretched through differentiated group work and extra challenges. When working with the whole class, teachers direct targeted questions towards the more able to ensure they are able to verbalise their mathematical thoughts clearly and explain themselves accurately. More able pupils often move on to more complex reasoning and problem-solving activities whilst their peers consolidate basic skills, and they are encouraged to develop a more investigative approach to their learning. Very occasionally, special arrangements are made for an exceptionally gifted pupil and they may be taught alongside an older age group.

**Role of Additional Adult Support**

The developing role of Learning Support Assistants and Support Assistants is integral to the support of the mathematics curriculum. Such adult support requires that they will:

* know the objectives of each lesson;
* have a clear role in support of the lesson;
* agree ground rules with the teacher;
* be actively engaged in the lesson;
* **feedback any significant observations.**

**Homework**

The daily mathematics lesson provides opportunities for children to practise and consolidate their skills and knowledge, to develop and extend their techniques and strategies, and to prepare for their future learning. These are often extended through homework, as described in the Thingwall Schoo's Homework Policy. These activities are short and focused and are referred to and valued in future lessons.

Furthermore, children will have the opportunity to practise and consolidate recall of number facts and times tables as these are fundamental to children’s mathematical development, knowledge and understanding.

**Resources**

There are two central resource areas located in appropriate Key Stage departments. Larger apparatus such as weighing scales etc. are kept in these areas and are returned on completion of lessons. Each classroom has its own designated resource area with appropriate mathematical equipment, models and images. All classrooms will have the necessary basic resources available and clearly labelled, thus enabling children to be resourceful and responsible for their learning. Teachers also have access to a range of interactive resources and internet links to support them in their planning of mathematics lessons.

**Information and Communication Technology**

ICT is used in various ways to support teaching and motivate children’s learning. ICT involves the computer, ipads, calculators (to model concepts such as place value) and audio-visual aids. Teachers have access to SMART boards and these should be utilised in bringing maths to life, providing visual images and stimulating mathematical thinking. Teachers will consider and use new technologies to effectively support children’s learning of mathematics both inside and outside of school.

**Management of Mathematics**

Role of the Coordinator:

* ensure teachers are familiar with planning procedures and help them to plan lessons;
* ensure that all aspects of the planning and expectations are being consistently implemented
* ensure that the expectations of the curriculum are being sufficiently covered in each year group to ensure continuity and progression;
* lead by example in the way they teach in their own classroom;
* prepare, organise and lead INSET, with the support of the Head teacher
* work co-operatively with the SENCO;
* observe colleagues from time to time with a view to identifying the support they need;
* evaluate the teaching and learning across both key stages through sampling work, interviewing children and moderating for consistency in marking and assessment;
* attend INSET provided by LEA numeracy consultants and other relevant courses;
* inform parents;
* discuss regularly with the Head teacher and the Maths Governor the progress of implementing new initiatives in the school;
* identify and organise resources and materials;
* meet with link inspectors to assess progress

**Role of the Head teacher**

* support, manage and monitor the implementation of the new planning materials, including monitoring teaching plans and the quality of teaching in classrooms;
* with the co-ordinator and Maths Governor, keep the Governing Body informed about the progress of Maths planning and Curriculum;
* ensure that mathematics remains a high profile in the school’s development work;
* deploy support staff to maximise support for the implementation of new initiatives.

**Health and Safety**

It is the responsibility of all teachers to make pupils aware of health and

safety issues within their classrooms and around the school. Accessibility and storage of mathematical equipment should have safety in mind and children should be encouraged to be responsible and careful when handling objects such as compasses and scissors. All issues related to the subject are covered by the School’s Health and Safety policy

**Review Strategy**

Mathematics is included in the School Development Plan. The subject is audited once a year and targets are set for the next financial year. All staff will contribute information and ideas in the light of their teaching experiences during the previous year. All members of staff will agree changes.