Thurlaston CE (Aided) Primary School

Teaching and living the Christian way of life

Maths Policy

Approved: February 2022

Signed ……

Review Date: February 2025

Therefore everyone who hears these words of mine and puts them into practice is like a wise man who built his house on the rock. (Matthew chapter 7 verse 24, NIV)

Curriculum Intent

The aims of Thurlaston C of E Primary School reflect those of the 2014 National Curriculum for maths, which are that children:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Progression through the curriculum

By the end of year 6, children are expected to be 'secondary ready'. To achieve this, children not only need to be fluent in their knowledge and recall of mathematical facts, but they also need to be competent and confident to be able to reason with and investigate concepts and also be able to apply them to solve problems. Therefore, once children become fluent in concepts at their year group/ stage in maths, they will then apply these concepts across the curriculum and use them for reasoning and solving problems. When they are able to do this, it is then that they are considered by the teacher to be fully secure in their knowledge and understanding at that stage.

The intent is that the majority of children will move through the curriculum at broadly the same pace. However, decisions about when to progress should always be at the discretion of the teacher and based upon assessments regarding the security of pupils' understanding. Pupils who grasp concepts quickly should not be accelerated onto the next stage of maths curriculum content, but instead they should be challenged through rich and sophisticated problems in different contexts. Those who are not sufficiently fluent in earlier material should consolidate their understanding, including through intervention before moving on.

The National Curriculum 2014 is designed as a year by year programme of study.

We assess children using the content and concepts at each stage of the curriculum. We also assess children's skills at reasoning with these concepts and their ability to use them to investigate, solve problems and apply them across the curriculum.

We split each year into 4 sub-stages to assess where the children are working within the curriculum. Children can be working within a stage at either: emerging, developing, securing or masters. Children who are secure at their stage will have an understanding of the mathematical concepts and will be working on more complex problem solving and application of these skills and will be moving into mastery of maths at their stage.

Maths in the Foundation Stage:

The Early Years Foundation Stage applies to children from birth to the end of the reception year. At Thurlaston C of E Primary School, all children join full time in Foundation Stage 2.

Opportunities are provided for children to learn and develop their key mathematical knowledge, skills and understanding through purposeful play and learning experiences, with a balance of adult-led and child-initiated activities.

Through play our children explore and develop learning experiences, which help them make sense of the world. They practise and build up ideas, and have the opportunity to think creatively alongside other children as well as on their own. They communicate with others as they investigate and solve problems.

The Foundation Stage has free flow between the inside and the outside learning areas which has a positive effect on the children's development. Being outdoors offers opportunities for children to explore and apply mathematical concepts in practical ways through construction and gardening for example.

Staff involved with the EYFS aim to develop good relationships with all children, interacting positively with them and taking time to listen to them. Strong links have been developed with various feeder Pre-schools and Child-minders and the Foundation Stage staff meet with providers to discuss each individual child and their transition process into school.

Children are prepared for transition into Key Stage 1 with the introduction of some routine maths/ counting activities and a strong emphasis is placed upon the teaching of number and counting in preparation for the key stage 1 maths curriculum.

Foundation Stage staff use observations as the basis for planning. These observations then lead the direction of the planning. The staff use the children's interests to plan, the seasons of the year and key events noted on the Long Term Plan. In addition to this the children lead the short term activity planning on a day to day basis. This fostering of the children's interests develops a high level of motivation for the children's learning. The planning objectives within the Foundation Stage are from the Development Matters Statements from the Early Years Foundation Stage document. Staff make regular assessments of children's learning and we use this information to ensure that future planning reflects identified needs. Assessment in the Foundation Stage takes the form of both formal and informal observations and recorded on an online Learning Journey.

Maths in Key Stage 1

Following recommendations from the government, Key Stage 1 have introduced Inspire Maths to support the teaching of maths.

Inspire Maths is a detailed textbook scheme of work based upon the Singapore approach to teaching mathematics which ensures a deep understanding of mathematical concepts and understanding which underpins mastery. Inspire Maths uses a spiral progression to develop fluency, reasoning, problem solving and conceptual understanding of mathematics through a concrete - pictorial – abstract approach.

The textbooks are designed to support teaching through providing children with repetition and consolidation through variation and ensuring a seamless progression between concrete, pictorial and abstract models for maths.

Teachers apply a 'ping pong' style of teaching in the lessons, ensuring that there is a balance between teacher modelling, group and independent work. Children are

encouraged to challenge themselves and explain their mathematical thinking through teacher questioning and problem solving activities.

Teachers enhance the Inspire Maths programme with their own knowledge and expertise to further challenge the more able and to support children with SEND. Same day intervention and feedback underpins the Singapore approach to ensure children progress and gaps in knowledge and understanding do not emerge or widen.

Maths in Key Stage 2

Inspire maths is being used in Key Stage 2. Teachers employ the Singapore Approach to teaching maths as in Key Stage 1 with the implementation of a ping pong lesson design incorporating teacher modelling, group and independent work. Teachers use same day intervention to ensure that children catch up quickly and gaps in attainment do not widen and are quickly closed. More able children are set challenges through same day intervention to broaden their mathematical thinking and experience.

Use of resources in maths

Children of all ages and abilities should be encouraged to use resources/manipulatives to develop and explain their mathematical understanding. Some examples of these used across the school include: Base 10, counters and Cuisenaire Rods. Such manipulatives support with the concrete representations and understanding of concepts throughout all key stages.

Development into the pictorial representations across the school is achieved through Bar Modelling. This supports children with visualising concepts and problems at all ages and stages.

Finally, children should be encouraged to develop their abstract, written representations of mathematical concepts and the calculation policy should be followed to ensure consistency throughout all key stages.

Children in all stages should apply their knowledge and understanding of maths across the curriculum to solve problems.

ICT in maths

Calculators should not be used as a substitute for good written and mental methods of calculation. Therefore they should only be introduced to support pupils' conceptual understanding and exploration of more complex number problems when written and mental arithmetic are secure.

Children at Thurlaston C of E Primary from Year 2 upwards have access to Times Tables Rockstars. We also use Numbots to help enhance younger children's number skills. All such resources are used by pupils and teachers to strengthen fluency and enjoyment of maths.

Differentiation and support

As previously stated, the expectation is that the majority of children will move through the curriculum at broadly the same pace. More able pupils who grasp concepts are challenged through rich and sophisticated problems in different contexts and across the curriculum and are challenged through peer mentoring. SEND children and those who are not sufficiently fluent in earlier material will consolidate their understanding through same day intervention and appropriate intervention group programmes before moving on. Details of specific children and interventions are available on the whole school provision mapping document.

Assessment in Maths – Foundation Stage

At the end of their Foundation year, children's progress is recorded on to the Early Years Foundation Stage Profile. Each child's level of development is recorded against the Ages and Stages. Ongoing assessments are made using an online learning profile in the Foundation Stage.

Assessment in Maths – Key Stages 1 and 2

Children are assessed at the end of each Key Stage (year 2 and year 6) against the National Curriculum expectations through tests provided by an external testing and assessment board.

Teacher assessments are ongoing throughout Key Stages 1 and 2. They are supported by the Inspire Maths assessment materials. NCETM Assessment of Mastery materials, Ready to Progress assessment questions and Headstart termly or area-specific tests. This allows the class teacher to monitor the progress of groups of children and individuals to inform planning and to set targets for children.

Homework

Maths homework is set regularly in Key Stages 1 and 2. Children should also be set weekly times table homework via Times Tables Rockstars from Year 2 (late Autumn term) to Year 6. To support teachers in providing children with varied and engaging homework tasks appropriate to their stage of learning.

Marking and feedback

Children receive same day marking and feedback. Children are provided with same day intervention to close gaps or to challenge the more able.. Evidence of intervention and/or challenge should be in each child's book and the SEND maths intervention register folder.
Marking should adhere to the school marking and feedback policy.