

## TEMPLE EWELL C. E. PRIMARY SCHOOL

### Policy for Mathematics

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Approved by governing Body:

Date:

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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*

## Aims

Mathematics teaching at Temple Ewell aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **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.

## Purpose of Study

Mathematics is an interconnected subject in which pupils need to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

Pupils should apply their mathematical knowledge to science and other subjects; where possible mathematics will be linked to other areas of the curriculum to ensure a depth of understanding and an ability to apply mathematical concepts.

Applying mathematics and problem solving form an integral part of mathematics teaching at Temple Ewell and all domains will include this element of maths. Mathematics lessons will include practical, investigational, problem solving, oral activities and real life applications. Where possible cross curricular links will be made; for example, measuring accurately could be linked to Design and Technology and making a real item, time might be linked to Athletics within PE lessons, place value to Time lines in History.

The way that calculations are taught within mathematics lessons is outlined in a separate Calculation Policy. This is followed by all staff to ensure a consistent and cohesive approach through the school.

## Expectations

In line with the expectations of the 2014 National Curriculum there is an expectation that the majority of pupils will move through the programmes of study at broadly the same pace.

Decisions about when to move children to new skills or concepts are always based on the security of pupils understanding and their readiness to progress to the next stage.

Pupils who grasp new concepts rapidly are challenged through being offered rich and sophisticated problems to ensure mastery of key skills and understanding before any acceleration through new content occurs.

Pupils who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

### **School Curriculum**

The mathematics curriculum at Temple Ewell follows the National Curriculum 2014 expectations and programmes of study. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

(Appendix B outlines the progression of each mathematical domain across year groups, the majority of pupils will be working on age expected objectives within this providing they have the prerequisite understanding)

### **Organisation**

Though there are mixed age classes at Temple Ewell the majority of pupils will be working on age appropriate expectations, for example a year 1 child in a 1 /2 split year class will work on year 1 programmes of study.

### **Assessment**

By the end of each key stage, pupils are expected to know, apply and understand matters, skills and processes specified in the relevant programme of study. (See appendix C for end of Key Stage performance descriptors)

Teachers are expected to make regular assessments of pupils' progress. Children's work is assessed against age appropriate expectations and programmes of study. Assessments are moderated within staff meetings each term to again ensure a consistent approach.

- Informal testing of mental recall and mental calculation, given orally
- Assessments against key objectives for each year group
- Evaluation of group progress against termly aims
- Assessment and recording of each pupil's progress against National Curriculum level descriptions at the end of each term
- Formal assessments at the end of each key stage

### **Marking and feedback to children**

Marking and the provision of feedback form an integral part of assessment at Temple Ewell. Pupils work will be reviewed by staff as part of the assessment process, findings from this will be used to inform future lessons. Feedback will be given to children, as is deemed appropriate by staff, to ensure their understanding is clarified and moved forward. (See the marking policy for specific guidance on this)

## **Monitoring and evaluation**

Mathematics is monitored throughout the year by senior management and the Subject Leader. Monitoring will take the form of:

- Lesson observations
- Book monitoring by senior leaders, the subject leader and governors as appropriate
- Pupil voice
- Work scrutiny
- Data reviews through out the year
- Pupil Progress meetings

## **Use of ICT**

ICT is used as a learning tool within Mathematics lessons.

Calculators should not be used as a substitute for good written and mental arithmetic. They are therefore introduced near the end of Key Stage 2 to support pupils' conceptual understanding and exploration of more complex number problems.

## **Spoken Language**

"The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum - cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions." (National Curriculum 2014)

Spoken language is seen as a key aspect of Mathematics learning at Temple Ewell, children are encouraged and provided opportunities to discuss and explain their reasoning in every mathematics lesson throughout the school.

(Appendix E provides lists of key vocabulary for each year group)

## **Homework**

Homework activities are set by class teachers. This takes the form of Problem solving and the learning of timetables or key facts.

(See the Homework Policy for further information)

## **Resourcing**

An annual review of resourcing needs is overseen by the mathematics leader. The distribution and purchasing of resources is undertaken with the impact on learning as a key focus.

## **Review**

This policy will be reviewed by the mathematics subject leader, following discussions with the head teacher and other colleagues. Resources, teaching methods and developmental needs will be evaluated. Priorities for in service training and support will be established.

Information from this evaluation will form the basis for an action plan which will be fed into the School Improvement Plan.

**Appendices:**

Appendix A - Calculation Policy

Appendix B - End of Key Stage performance descriptors

Appendix C - expectation guidance for teachers