



St. Cuthbert's R.C.  
Primary School Hartlepool

## Mathematics Policy

Reviewed: - September 2020

Next review: - September 2021

Author: - J M Wilson / SLT

## Mathematics Policy

**Mission Statement** "Let the light of Christ shine in us all."

### **Nature of Mathematics**

Mathematics is a powerful and precise language of communication. It helps children order and make sense of the world around them. The skills developed in Mathematics enable children to solve problems and carry out investigations across the curriculum. It is relevant and a vital part of their present daily lives as well as important for their lives as adults. Mathematics is fun!

### **Aims of Mathematics**

Within our mathematics we aim to: -

- Apply the principles of DRICE (Deepening thinking, Role model learning, Impact on progress, challenging expectations and Engaging in learning).
- Teach in a manner which the children will find challenging, stimulating and relevant;
- Promote positive attitudes;
- Demonstrate the importance and relevance of mathematics;
- Encourage commitment and perseverance;
- Develop children's ability to solve problems and investigations;
- Develop children's mathematical language through oral, writing and reading skills;
- Develop all aspects of the National Curriculum: number, shape, measuring and statistics
- Ensure children are confident in the 4 rules of number and have fluent recall of the relevant facts

### **Range of Mathematical Experiences**

The teaching of mathematics will vary in order to meet the individual needs of the children. The experiences will encompass class, group and individual work.

The range of teaching and learning strategies will include: -

1. Exposition by teacher;
2. Discussion/interaction with child and teacher, or/and between child and child;
3. Practical tasks, to introduce, reinforce and practise skills and concepts;
4. Recording of work to consolidate, reinforce and practise skills and concepts;
5. Problem-solving which will be realistic, relevant or purely mathematical;
6. Investigations and Reasoning
7. Mental activities to develop strategies;
8. Short and extended pieces of work;
9. Mathematical games
10. ICT

Children will be encouraged to use a variety of strategies: -

- Trying a variety of approaches - including their own;
- Considering different strategies;
- Estimating and approximating;
- Reflecting on past experiences and knowledge which will aid problem solving and investigation;
- Checking their own work;
- Using apparatus - selecting apparatus appropriate to the task;
- Identifying patterns and similarities;
- Questioning, researching, recording, devising tables and drawing up diagrams
- Interpreting results;
- Data handling and/or databases.

### **Record of Children's Work**

Recording of work by children will take different forms depending on the activity and the learning objective.

The following methods will be in evidence: -

- Independent, child-based recording;
- Written;
- Verbal;
- Pictorial;
- Diagrammatic, graphic and tabular;
- Construction;
- Computer - data programs;
- Practically with teacher interaction;
- Symbols - algebra;
- Photographs (annotated for individual attainment)

Record of work will be used as evidence to inform future planning that will then ensure continuity and progression.

### **Assessment and Record Keeping**

Assessment is ongoing and is carried out in a variety of ways. The strategies we use are described in Appendix 1 - 'Elements of effective day-to-day assessment'.

As well as day to day assessment, pupils are also assessed against age related expectations, In addition, at least six children will be chosen to be assessed in team moderation and at senior leadership. The six children will each represent the different abilities of the class, upper, middle and lower.

Each term the teacher will be given time to review pupil's work using age related expectations to build a profile of their attainment.

This will allow the teacher to: -

- Analyse the child's strengths and weaknesses.
- Decide if a child is emerging, developing, secure or attaining greater depth against ARE

Progress to achieve ARE is shared with children. ARE are in the pupil's book and the teacher will highlight these the child has achieved the target.

Teachers will also give oral or written feedback in the form of next steps. Written feedback will be diagnostic comments made in the child's book. Where appropriate and advantageous the teacher or TA will give a challenge or next step to the child. The child will then do the challenge either straight away or at the start of the next lesson.

### **Resources**

Every classroom has a wide range of resources for mathematics. The resources are to be maintained and kept in good condition, which will encourage the children to handle equipment correctly. The school uses the National Curriculum for planning. All teachers use a wide range of IT based resources, via the Internet or school-based software. These include ActivPrimary, Testbase, White Rose Problems and Reasoning tasks, nrich and nctm mastery materials. The school's visual calculation policy is in staff shared and provides clear examples of progression in methods taught.

### **Subject Co-ordinator**

The school has a designated Mathematics Coordinator.

### **Role of the Co-ordinator**

- Review and update, when necessary, maths policy and scheme;
- Monitor the implementation of the policy and scheme;
- Devise and monitor assessment procedures and record-keeping for staff;
- Ensure continuity and progression and ensure resources are available/catalogued and in good condition;
- Ensure equal opportunities for all;
- Provide INSET considering and identifying areas of need;
- Promote positive attitudes to Mathematics and encourage a growth mindset
- Encourage displays involving Mathematics which are informative and stimulating;
- Be an innovator and a catalyst;
- Be a good example in developing own skills and remaining up-to-date with current mathematical work;
- Support colleagues both formally and informally.
- Conduct learning walks and monitor the use of Working Walls to support current maths learning

### **Special Educational Needs**

Mathematics in our school is accessible to all children, whatever their ability. Activities are planned, implemented and evaluated so that every child will achieve success in mathematics and reach their full potential. Each class has a classroom assistant whose role is to support both the children and the class teacher. A Teaching Assistant may work with different ability groups depending on where the teacher has planned the support to be. PIVATs materials may be used in KS2 and KS1 where appropriate.

## Homework and Working with Parents

Workshop sessions are planned for parents to attend. These enable parents to learn about the work their child is doing in mathematics and reinforces current methods. Specific maths homework is given out in Y6. In all other classes homework consists of learning times tables for a weekly test. Children are rewarded with Gold, Silver and Bronze Certificates by their teacher and each class celebrates the times tables learnt.

**Effective day-to-day assessment includes:** -

- Using questions and sharing comments with children;
- Making observations of children during teaching and while they work;
- Holding discussions with children;
- Analysing work, reporting to children and guiding their improvements;
- Conducting tests with children and giving quick feedback;
- Engaging children in the assessment process.

**Questioning**

- Prompting questions with supporting comments that assess the extent children are able to engage in the work being taught and the tasks being set.
- Probing questions with follow-up comments that assess children's understanding during and following the teaching and the tasks.
- Promoting questions with guiding comments that assess the extent to which children can go on to use and apply what they have learned.

**Observing**

- Making conscious observations of particular children, watching them and listening to their discussions to assess their responses and behaviour during teaching or while they work.
- Making considered observations of particular children, which have been planned and based on earlier assessments, to gather additional information about their achievement.
- Making confirmatory observations of particular children as part of ongoing assessment that focuses on children's attainment and progress.

**Discussing**

- Holding brief, impromptu discussions to follow up any surprises at children's responses or behaviour when they were being taught.
- Holding illustrative discussions to assess children's understanding, to diagnose the reasons for any misunderstanding or misconceptions and resolve difficulties.
- Holding informed discussions to follow up earlier assessment and diagnoses, to discuss progress, targets and any peer or self-assessments that have been made.

**Analysing**

- Marking and assessing written work without the children, to identify common errors or misconceptions, and to guide children on how they can improve and progress.
- Discussing with the children their responses to the tasks, to identify and correct any errors and misconceptions, to assess their achievement against the learning objectives, to monitor their progress and to make sure the children understand how they can improve and what they need to do next.

## Checking Understanding

- Conducting short and sharp recall tests with planned or spontaneous questions, to assess immediately with the children their knowledge and speed of recall, involving, for example, addition or multiplication facts or spellings.
- Introducing brief review tests that draw upon what has been taught previously to assess what might need revision, or what might need reteaching quickly and to guide the lesson and future planning.
- Setting rehearsal tests that assess quickly how well children can use and apply what they have been taught, giving children practice at tests and providing the opportunity to take stock and guide targets.

## Engaging

- Self-review where the children identify their own achievements and progress and think about what they need to do next to improve or plug any gaps.
- Supported review where pairs or small groups of children, with or without the teacher, determine what they know and can do, what they still find challenging and the next steps for them.
- Sustained review with individuals or groups of children to identify the progress that has been made over time, reviewing and setting targets, planning future learning and the next review.

These six elements of day-to-day assessment (questioning, observing, discussing, analysing, testing and engaging) should not be seen to be generating extra workload for teachers but should become part of ongoing teacher practice. The six elements are neither exhaustive nor exclusive: questioning may be part of and lead to discussion; analysing may direct observation or lead to testing; deciding when and how to engage children in assessment may be informed by each of the other elements.

Furthermore, the gathering of day-to-day assessment information, while often informed and unrecorded, will support and guide longer term assessments.

The crucial feature of any day-to-day assessment is that it helps to inform and improve teaching and learning. While each of the six elements may be employed at different times and for different purposes, the overarching purpose is to determine what children have learned so informed decisions can be taken about teaching and determining the next steps in children's learning.