**St Austin's Catholic Primary School**

# Mathematics Policy

Updated September 2019

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## 1.0 INTRODUCTION

This policy outlines the teaching, organisation and management of the mathematics taught and learnt at St Austin's RC Primary School. The school's policy for mathematics is based on 2014 National Curriculum. The implementation of this policy is the responsibility of all the teaching staff.

### 1.1 General Statement:

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them. Mathematics provides pupils with a means of making sense of the world in which they live. Building on experiences, it encourages thinking and reasoning skills to grow. It embraces natural curiosity and develops the confidence to tackle situations that arise in mathematics and other curriculum areas.

### 1.2 Aims

**To enable each child to:**

- Enjoy mathematics.
- Become a confident mathematician with the ability to use the correct vocabulary and to record appropriately.
- Acquire a firm base of knowledge and skills.
- Achieve quick recall of basic facts.
- Work flexibly and think clearly and logically.
- Work independently and collaboratively.
- Achieve at the highest level of which they are capable.
- Have access to appropriate and stimulating mathematical activities with a broad and balanced mathematics curriculum.
- Develop thinking skills and appropriate strategies to assist problem solving.
- Develop an awareness of the uses of mathematics in the world beyond the classroom.

**To enable parents to:**

- Be actively involved in their children's mathematical learning both in school and at home.
- Understand and support the school's mathematics and homework policy and scheme of work.

## 2.0 TEACHING MATHEMATICS:

### 2.1 Planning and Provision

2.1.1 From September 2014, St Austin's Primary School, has been developing a mastery approach in its teaching of mathematics. In September 2015 a Singapore approach to teach mathematics in was implemented in KS1 and has been introduced from September 2019 to Years 3 to 5. This involves utilizing the DfE recommended textbook scheme MathsNoProblem which has been adapted to suit the needs of our pupils. Year 6 - although following a mastery approach – will not follow one set scheme rigidly but will have access to a range of mastery resources within the school that can be tailored to suit the renewed curriculum.

2.1.2 All classes will follow the same lesson structure detailed in **2.4.1.** The Singapore method of teaching mathematics places great emphasis on: problem solving and comprehension, allowing students to relate what they learn to prior knowledge; careful scaffolding of core competencies of: visualisation (as a platform for comprehension), mental strategies (to develop decision making abilities) and pattern recognition (to support the ability to make connections and generalise) and more emphasis on the foundations for learning and not on the content itself so students learn to think mathematically as opposed to merely reciting formulas or procedures.

### 2.2 Teaching time

2.2.1 To provide adequate time for developing mathematics each class teacher will provide a daily mathematics lesson. This may vary in length but will usually last for about 45 minutes in Key Stage 1 and 60 minutes in Key Stage 2.

2.2.2 Reception work in the early stages will often be integrated with other areas of learning. By the end of Reception, children will have been prepared for the dedicated mathematics lesson that they will meet each day in Year One.

2.2.3 Links will also be made to mathematics within other subjects so pupils can develop and apply their mathematical skills.

2.2.4 Class Organisation: Within these lessons there will be a good balance between whole-class work, guided group work and independent work.

## 2.4 A typical lesson

2.4.1 A typical 45 to 60minute lesson in Year 1 to 6 will have the following components.

- Explore – At the start of the session children are presented with a problem. Using manipulatives on the table, children try and solve the problem.

- Structure – Children offer their methods to the teacher. The teacher models all methods on the board.

- Journal – Children choose their preferred method to journal in their books.

- Reflect and practise – Children are given the opportunity to review other methods given by their peers. Through guided practice, children become familiar with using their new skills to answer familiar problems.

- Apply – Children have the opportunity to use their new skills to answer an unfamiliar problem.

2.4.2 **Arithmetic Sessions**

Children will be given the opportunity to further develop mathematical skills and secure number facts and concepts through supplementary daily arithmetic sessions (approx. 20mins in Y2 – Y6). This will provide pupils the opportunity to develop a sound understanding of number and calculations as well as assist in the rapid recall of multiplication facts.

## 2.5 Recording Work

2.5.1 All mathematics work is completed in pencil and the agreed format of setting out determined in the calculation's guidance policy. Individual whiteboards are also to be used to record answers during mental or oral activities.

## 2.6 Links between mathematics and other subjects

2.6.1 Mathematics links with many subjects across the primary curriculum and opportunities are taken to draw mathematical experience out of a wide range of activities. This will allow children to begin to use and apply mathematics in real contexts and is an integral part of the mathematics curriculum.

## 3.0 SCHOOL AND CLASS ORGANISATION

Our expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will be based on the security of pupils' understanding and their readiness to progress to the next stage.

### 3.1 How we cater for pupils who are more able

3.1.1 Where possible more able pupils will be taught with their own class and stretched through differentiated group work and extra challenges. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Very occasionally special arrangements will be made for an exceptionally gifted pupil e.g. follow an individualised programme with more challenging problems to tackle or access computer based programmes to develop deeper understanding.

### 3.2 How we cater for pupils with particular needs

3.2.1 The daily mathematics lesson is appropriate for almost all pupils. Teachers will involve all pupils through differentiation. Specific Wave 2 intervention programmes are used when appropriate for identified groups of children who would benefit from this in order to achieve age-related expectations by the end of the year.

3.2.2 Intervention programmes include:

- Numicon intervention programme
- Mastery intervention
- Pre-teach sessions

### 3.3 Pupils with special educational needs and individual education plans

3.3.1 Teachers will aim to include all pupils fully in their daily mathematics lessons. All children benefit from the emphasis on oral and mental work and participating in 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.

### 3.4 How we work in Foundation Stage

3.4.1 In early years, the curriculum is guided by Early Learning Goals, which mirror the Reception Learning Objectives in the Renewed Framework.

### 3.5 Resources

3.5.1 The central store found in the KS2 block contains a range of mathematical equipment to be used across all age groups. Classrooms are then equipped with resources that are frequently used.

### 3.6 Web-based programmes

3.6.1 As well as freeware that can be accessed online the school annually subscribes to a web-based sites that can be used by children at home or in school:

- www.matheletics.com

3.6.2 Individual staff and pupil User Names and Passwords are needed for access and can be obtained from the Mathematics Co-ordinator.

### 3.7 Information and Communication Technology

3.7.1 ICT will be used in various ways to support teaching and motivate children's learning. ICT will involve computers, calculators, Smart Technologies, Learning Apps via iPads and audio-visual aids. They will however only be used in a daily mathematics lesson when it is the most efficient and effective way of meeting the lesson objectives.

### 3.8 Environment

**3.8.1** The school will aim to provide a mathematically stimulating environment:

- Through displays that promote mathematical thinking and discussion.
- Through displays of pupils' work that celebrate achievement.
- By providing a good range of resources for teachers and pupils to use.
- Through celebrating successes in award assemblies, Mathletics awards, and levelling up in Big Maths assessments.

### 3.9 Homework

3.9.1 We recognise the importance of making links between home and school and encourage parental involvement with the learning of Mathematics. Homework should provide opportunities for children to:

- Practice and consolidate their skills and knowledge.
- Develop and extend their techniques and strategies.
- Share their mathematical work with their family.
- Prepare for their future learning.

### 3.10 Target Setting

3.10.1 Analysis of pupil's performance helps the school to identify and set curricular targets for groups of pupils. Pupils easily access these as they

are kept as reference inside their Mathematics books.

### 3.11 Assessment

3.11.1 Assessment is regarded as an integral part of teaching and learning and is a continuous process. At St Austin's, we are continually assessing our pupils and recording their progress, allowing us to match the correct level of work to the needs of the pupils and to identify children who are in need of additional / targeted support. Assessment will take place at three connected levels: day to day, periodic and transitional. These assessments will be used to inform teaching in a continuous cycle of planning, teaching and assessment.

3.11.2 Day to day assessment will be an informal part of every lesson to check children's understanding and give information, which will help to adjust day-to-day lesson plans. Effective AFL practice is integral to this.

3.11.3 Periodic assessment will take place from Y1-Y6 in two key forms. Firstly, fluency based assessments focusing on automaticity of number facts and key arithmetic skills using Big Maths resources such as 'Learn Its' or 'CLIC' tests may be used. Secondly, termly written assessments (WhiteRose/TestBase) will be carried out to gage pupil progress throughout the curriculum and against Key Assessment Criteria. This information will be recorded on the schools online tracking system 'Otrack'.

3.11.4 Transitional assessments will take place towards the end of the school year to assess and review pupils' progress and attainment and inform teachers decision making to determine whether a pupil is working towards ARE, Secure in ARE or Exceeding ARE. Tests and tasks from national sources may be used. Accurate information will then be reported to parents and the child's next teacher.

3.11.5 Specifically:

- Statutory end of Key Stage assessments and Key Stage 2 SATs are administered in Y2 and Y6.
- Y1 - White Rose Summer Assessment
- Y3, Y4, Y5 - Test Base Optional end of Year tests

### 3.12 Marking

**3.12.1** Work will be marked on a regular basis and this includes self-marking of work in KS2, where possible with the child concerned. This informs part of the on-going teacher assessment. Comments are to be made on the pupil's books when there is a clear misunderstanding –see St Austin's RC Primary Marking policy for further details.

### 3.13 Target Setting

**3.13.1** Pupils will be given Key Assessment Criteria targets each half term to focus their learning. In KS2, pupil's will be given specific arithmetic targets linked to their Big Maths assessments. Targets will be displayed within their Maths/Arithmetic books.

## 4.0 MANAGEMENT OF MATHEMATICS

### 4.1 Role of the Subject Leader

- Promote mathematics throughout the school.
- Provide help and advise to colleagues
- Lead inset and staff meetings
- Attend relevant courses and keep the school informed.
- Liaise with LA staff and outside agencies.
- Evaluate and obtain resources.
- Monitor and evaluate mathematics teaching and learning.

### 4.2 Subject monitoring

To ensure consistency the teaching of mathematics will be monitored in a variety of ways throughout the school year in accordance with the SLT timetable. This will include:

- Planning scrutiny
- Assessment data
- Work and Book Scrutiny
- Lesson observation or Drop-in sessions
- Liaising with staff
- Pupil survey
- Pupil focus groups