



St. Ethelbert's Catholic Primary School

Mathematics Policy

"I serve Jesus with my body, heart, mind and soul."

Serviam means 'I serve'. Jesus Christ has taught us that it is more blessed to serve than to be served. At St Ethelbert's school, following our Catholic faith, we serve the whole person – mind, heart, body and soul.

Body – because we care for our wellbeing, our parish neighbourhood and our environment.

Heart – because we teach love and respect for all.

Mind – because we believe in excellent education.

Soul – because we learn to pray and become closer to God as his children.

Rationale

Mathematics provides a way of viewing and making sense of the world. It is used to communicate ideas and to tackle a range of practical tasks and real-life situations. Mathematics is not only taught because it is useful. It should also be a source of delight and wonder, offering pupils intellectual excitement and an appreciation of its essential creativity. Interactive whole class teaching means using lively questioning, explanation and illustration. It means expecting children to play an active part in lessons by using apparatus or 'manipulatives,' explaining and reasoning and demonstrating their methods to teaching staff and to their classmates.

Aims

The school's aim is for all pupils to have equality of opportunity:

- To develop a sound understanding of basic mathematical concepts through practical and investigative work.
- To acquire appropriate and necessary mathematical skills to apply them confidently and accurately.
- To enjoy mathematics, be successful and have a positive attitude to the subject.
- To be able to demonstrate their skills and knowledge and talk about their work using appropriate mathematical language and vocabulary.
- To develop thinking skills and logically apply their mathematical knowledge to solve problems.
- To use mathematics as part of their everyday life in school and at home.

Objectives

- To ensure that all pupils follow a broad and balanced mathematics programme based on the requirements of the New Mathematics National Curriculum.
- To ensure that all pupils are provided with interesting and challenging tasks that enable them to achieve standards according to their abilities and potential.
- To ensure that pupils can work individually, collaboratively in groups and within the whole class.
- To allow pupils to develop as independent learners, able to make decisions about their own work.

Principles of Teaching and Learning

Our teaching and learning strategy is based on the New National Mathematics Curriculum. This means knowing about numbers, number operations and other mathematical concepts. Specifically, it requires an ability and

inclination to solve mathematical puzzles and problems, including those involving number, algebra and place value, addition and subtraction, multiplication and division, fractions, measurement including standard measures, money and time, properties of shapes, position and direction and statistics. In order to master these areas, pupils will be given opportunities to experience different representations of the above concepts including the use of apparatus or ‘manipulatives,’ pictures, diagrams and images, words and sentences and abstract symbols. It is also our aim that every pupil achieves a deeper understanding in mathematics through thinking and reasoning; applying their skills, fluency and efficiency; arriving at accurate answers and using resources to aid their understanding.

When engaged in mathematical activities pupils should:

- Have a sense of the size of a number.
- Know by heart tables, doubles and halves.
- Figure out some of their workings answers mentally.
- Calculate mentally and with pencil and paper, including making jottings.
- Make sense of problems.
- Use effective strategies for checking.
- Explain methods and reasoning.
- Select appropriate apparatus to aid their understanding.
- Suggest suitable units for measuring.
- Make sensible estimates.
- Make predictions from graphs, charts and tables.

Differentiation and Additional Educational Needs

During lessons pupils may work in groups on tasks linked to the learning objectives of the lesson. Teaching is organised to enable pupils of all abilities access to the learning. All pupils in a class must be present at the beginning of the lesson for the introductory teaching part. Pupils with AEN are supported within the class by the teacher and learning support staff. Following the introduction of the lesson, groups of pupils may sometimes move outside the classroom to carry out practical work, to use technological aids or to work with support staff. These small groups should return to the classroom for the plenary session at the end of the lesson.

The most able, gifted and talented mathematicians are provided with appropriate work and activities to ensure that they are challenged, stretched a given deeper, more enriching tasks to achieve their maximum potential. Homework is also appropriately differentiated and set according to the range of mathematical ability within each class.

Lesson Structure

- Oral work and mental calculation
- Main learning activity
- Review – plenary session

This structure is flexible regarding content and timings and mini-plenary sessions may occur at relevant times during a lesson.

Throughout the week there will be a variety of approaches to maintain the enthusiasm and interest of the pupils. Resources such as digit cards, place value cards, number lines, 100 squares, multiplication grids, counters, base 10 apparatus, Numicon and Cuisenaire are available in every classroom. Each classroom is also equipped with an interactive whiteboard with the appropriate mathematical software.

Lessons will have clear learning objectives that are communicated to the pupils. The focus is on direct teaching that is oral and interactive. It will involve different elements:

- Demonstration – showing how to do something.
- Explanation – giving examples.
- Questioning – challenging understanding.
- Discussion and evaluation – talking about methods, errors and possible misconceptions.
- Direction – taking the learning forward in purposeful steps.

Pupils in a class do mathematics together. The aim is to secure good progress in the class as a whole. A new unit of work normally begins with an introductory session with the whole class. This may be followed by group, paired or individual work on tasks linked to the topic, at levels appropriate to their abilities.

All lessons end with a short review of the learning that has taken place in the lesson and should engage all the pupils in the class.

Relevance

The New Mathematics Curriculum offers pupils opportunities to use and apply their mathematical skills and knowledge to solve problems and puzzles. Mathematics will often be presented in everyday situations that are relevant to primary pupils. The work set provides sufficient coverage of basic skills in number, shape, measurement and statistics to support pupils' studies in other curricular areas. Computing will be used to support the mathematics curriculum and displays may also be used as learning aids and to celebrate and illustrate good work.

Cross-Curricular Skills and Links

Cross-curricular links are developed through mathematics which identify topics across the curriculum that can provide mathematical ideas and activities. Examples include measuring in design and technology, statistics, charts and graphs in science and geography, time and dates in history, handling and saving money in PHSE and citizenship, shape and pattern in art, music and dance, scoring and counting in physical education and spreadsheets and databases in computing.

Continuity and Progression

Each teacher will keep a record of the achievements of pupil progress on Pupil Asset. The attainment of groups or individual pupils will be recorded where it is markedly different from the rest of the class. Records are handed on to the next teacher. Teachers use the New Mathematics Curriculum for long term planning. Medium term plans indicate an outline of the units of work and their main teaching objectives. Weekly lesson plans identify activities, tasks, groupings and teaching strategies.

Parental and Community Links

Parents will be informed of their child's mathematical progress through discussion at parent consultation evenings, a half-yearly report and the annual written report towards the end of the academic year. The mathematics subject leader may also inform parents of recent developments through news letters and inviting them into school for a presentation.

Efforts will also be made in reaching further out into the community through, for example, booking guests or shows related to mathematics to come into school, pupils attending mathematical events, challenges or workshops and liaising with other schools.

Equal Opportunities

There is a school equal opportunities policy which is applied to mathematics. Teaching materials are chosen to reflect the cultural and ethnic diversity of our society. We try to avoid stereotyping through gender or race. Pupils' performance is monitored to ensure that no group of pupils is disadvantaged. In lessons, the full participation of both boys and girls is encouraged and care is taken to ensure that the emphasis on whole class teaching does not disadvantage any gender group.

Health and Safety

In line with the school's health and safety policy, children are instructed in the safe use of all equipment. In particular, extra care should be taken when using heavy weights and balances. Care also needs to be taken when younger children are using small apparatus such as counting objects. Children working outside the classroom will be appropriately supervised by a member of staff.

Assessment, Recording and Reporting

Teachers make assessments of pupils' progress and record them systematically in the following ways:

- Informal testing of mental recall and mental calculation.
- Mathematics test papers.
- Ongoing assessment of pupils' everyday work and performance.
- Assessment and recording of each pupil's progress using the Pupil Asset objectives.

The Role of the Subject Leader

The subject leader will:

- Take the lead in policy development.
- Co-ordinate the overall long term planning of work designed to ensure progression and continuity in mathematics throughout the school.
- Support colleagues in their development of medium and short term planning and the implementation of assessment and record keeping.
- Monitor teaching, learning, pupils' work and assessment.
- Order and purchase mathematical resources.
- Be responsible to the Head teacher for ensuring that mathematics practice within the school is consistent with this policy.
- Keep up to date with developments in mathematics and disseminate information to colleagues as appropriate.
- Be responsible to the Head teacher to ensure the maintenance and improvement of the standard of mathematics in the school.
- Liaise with the Head teacher regarding pupil performances and progress.

Resourcing

An annual review of resources is overseen by the subject leader for mathematics.

Review

This policy will be reviewed by the mathematics subject leader, following discussions with the Head teacher, Governing Body and other colleagues. Any amendments will be presented to the whole staff.