

St Mary's Kells

2020

Mathematics Policy



Mission Statement:

At St. Mary's School, we learn by walking in the footsteps of Jesus

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APPROVED BY:

Name:

Signed:

Position:

Date: April 2017

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Introduction

Mathematics is one of the core subjects of the National Curriculum. This document is a statement of purpose, nature and management of the teaching of mathematics at St Mary's Catholic Primary School.

Why teach Mathematics

Numeracy is one of the basic tools of learning and maths in the wider sense is a vital part of everyday life, with a multitude of applications in other subject areas. Mathematics is essential in everything we construct, everything we calculate and almost every problem we have to solve in our every day lives.

Statement of Intent

At St Mary's Catholic Primary School our aim in teaching mathematics is:

1. To develop in each child mathematical skills and knowledge accompanied by mental recall of basic facts.
2. To encourage each child to have an eager and positive attitude towards mathematics and to develop their curiosity.
3. To develop in each child the ability to think clearly, logically, independently and flexibly with increasing confidence.
4. To develop skills in reasoning and problem solving through setting out challenging goals and tasks.
5. To ensure that mathematical ideas are related to the everyday environment or linked to other curriculum areas wherever possible.
6. To encourage a mastery approach to teaching and learning.
7. To ensure that each child will experience the breadth and depth of mathematical activities as laid down by the National Curriculum matched to their individual abilities and previous experience.
8. To provide equal opportunities in mathematics for all groups of learners.
9. To positively encourage every child, regardless of physical or mental ability or ethnic background, to fully participate in every lesson.

How Mathematics is organised and taught throughout the school

Our approach

Mathematics is a core subject in the National Curriculum and we use the National Curriculum as the basis for implementing the statutory requirements of the programme of study for mathematics. The strategy ensures that there will be continuity and progression throughout the school.

Planning

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). Our model for mathematics teaching and learning is based around the 'White Rose Maths Blocks' approach.

Opportunities for problem solving and reasoning are to be integrated into planning as often as possible.

Coverage of the curriculum is managed and monitored by the class teacher and checked by the Subject Leader.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans, and the class teacher and subject leader can discuss these on an informal basis. The plans are edited versions of those published in the 'Small-Steps' planning from White Rose Maths. A suggested weekly planning format is given, however it must be made clear that planning for all classes is for the teacher.

Delivery

Maths lessons are taught daily for a minimum of 50 mins in KS1 and 1 hour in KS2.

An arithmetic slot should be on the timetable for all classes.

Children are taught in mixed ability classes appropriate to their age. Children should be grouped by ability. However, these groupings should not be a ceiling to their learning. The children may be moved to a different group depending on the class teacher's AfL.

The school uses a variety of teaching and learning styles in mathematics lessons and learning should be facilitated following the 'Concrete, Pictorial, Abstract' model. We do this through a daily lesson that has a high proportion of whole class and group direct teaching. During these lessons we encourage children to ask as well as answer mathematical questions. As well as formal maths lessons, the children also meet maths through times tables and division challenges (daily) and arithmetic tests (weekly).

During each lesson teachers should aim to spend as much time as possible in direct teaching and questioning of the whole class, a group of pupils or individuals. Good direct teaching is achieved by using a balance of the following different elements as set out by the National Curriculum: Directing, Instructing, Demonstrating, Explaining and Illustrating, Questioning and Discussing, Consolidating, Evaluating pupil's responses and Summarising.

They have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their work. Children and teachers use ICT in mathematics lessons where it will enhance their learning, and to assist with modelling ideas and methods. Wherever possible, we encourage the children to use and apply their learning in everyday situations.

Children at St Mary's follow a systematic approach to learning each of the 4 basic mathematical functions (addition, subtraction, multiplication and division), from expanded to compact methods. These are detailed in the school's Calculation Policy.

Work in Books

The work set out in the children's books should follow the presentation policy of the school. In Numeracy books the date should be written in the short form.

If the children are given numbered questions to complete they should write the number and circle it. Putting a dot after the number becomes confusing when the children start using decimal numbers.

The children also have 'Maths Jotters'. These are to be used in the shared section of the lesson for children to calculate and work out. This benefits the children as they have them to refer back to during the independent part of the session.

Assessment

We constantly assess and review children's work in mathematics. We make short-term assessments (AFL) which we use to help us adjust our daily plans. These 'short-term' assessments are closely matched to the teaching objectives.

Marking follows the School marking Policy.

At the end of each term, the children are all assessed using a formal test paper which is marked by the teacher.

Progress is recorded termly on Insight which show an average scaled score for each child. The subject leader tracks this data using tracking sheets and a 'Brick Wall', which shows the movement of the children through the scaled scores. Teachers will then use this information to inform teaching and intervention needs for the coming term. A Pupil Progress meeting is held with the Numeracy Subject Leader to discuss these results and further needs (termly).

We make the long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in year 6 and 2, plus the optional NFER tests for children at the end of years 1, 3, 4 and 5. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents and formally writing up for the end of term reports to parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year.

Teachers sometimes meet to review individual examples of work against national exemplification material and other classes to ensure high standards, progression and curriculum coverage which is age relevant.

Early Years Foundation Stage (EYFS)

Maths in the Foundation Stage is contained within the specific area of Mathematics within the Development Matters Framework. The Mathematics strand is split into two elements: Number and Shape, Space and Measure. Children should be encouraged to use their natural curiosity and to explore, enjoy, learn, practice and talk about all elements of mathematics.

The children are given the opportunity to experience numeracy in an informal, play-centred manner on first arrival in the setting, the term after they turn 3. This then progresses and evolves to more formal focussed tasks and eventually whole class teaching as the children progress and become developmentally ready. The exact timing of depends upon the needs on individual children and specific cohorts.

Much of the learning takes place themed around current topics within the department. The Nursery and Reception classrooms both have a specific 'Maths Area' for the children to access open ended resources to promote mathematical development appropriate for the ages and developmental stages of the children. Other indoor and outdoor classroom areas are also planned to be numerate and to promote all elements of the Mathematics area of learning, over the course of the year - in that they have some element of problem solving, reasoning and numeracy learning planned for in their purpose.

Learning objectives for all EYFS children are derived from the EYFS 'Development Matters' age bands for the duration of the Nursery and Reception years, with the aim for children to work towards and achieve, or exceed, the Early Learning Goal by the end of Reception.

In afternoon Nursery, mathematical development is promoted through the introduction of the daily routine, songs, games, adult supported play and access to mathematical provision within the indoor and outdoor classroom which can be both child led learning or supported, scaffolded and carefully modelled by the adult.

In morning Nursery, children build on the above and are also taught maths through a short, daily 'Number Time' session, where the children are split into smaller ability based groups with a key worker to lead their learning through a range of play based, practical tasks.

The current practice for teaching Reception age children is to teach maths each day through whole class, group and individual activities. Children are grouped according to ability and set play based, practical tasks to meet their needs.

The aim is for a full daily maths lesson to be evident from the summer term of the Reception year. By the end of the Foundation Stage children should be ready to follow the basic lesson format for KS1. EYFS and KS1 staff will liaise and work closely together within the summer term to ensure a smooth transition where EYFS staff can begin to implement elements of the KS1 lesson format as well as the Year 1 staff being able to build upon EYFS good practice.

Ongoing assessment is based on 'Development Matters' using a range of evidence; observation, work product, closed tasks, questioning etc. on a daily basis, which is then recorded on the Insight paper tracker and used to inform planning for next steps.

Evidence is recorded on the 'Tapestry' app for parents and other staff to see and as a means of documenting progress and attainment. This also forms the basis of evidence for moderation both internally and externally. Summative assessments are drawn from these and are recorded on the online Insight tracking system, on a termly basis.

Inclusion and Intervention

The teaching mathematics to children with special needs

We enjoy teaching mathematics to all children, whatever their ability. It is part of the school curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Work in mathematics takes into account the targets set for individual children in their Individual Education Plans (IEPs).

All children should have access to the mathematics curriculum whatever their educational ability or physical requirement.

Differentiation in all aspects of the delivery of the maths curriculum should be made so that all the variety of children's needs are met.

The Special Needs Code of Practice and the school's Gifted and Talented policy are followed to identify individuals in need of additional support and to provide the appropriate support to enable them to progress.

There is system whereby the staff leading these interventions can discuss the intervention scheme with the parents of the children involved. This may be a presentation to the parents or individual meetings with the parents. All parents will be informed of their child's participation in any of the following interventions by the child's class teacher and / or the teaching assistant leading the sessions.

Numbers Count

Numbers Count is a 1 – 1 intervention. It is delivered by a Senior Teaching Assistant to children who need a boost to aid their confidence and mathematical understanding. It helps them to get back on track and catch up with their peers.

Every child has a programme of Numbers Count lessons over 3 or 4 months, while continuing to take part in their normal class mathematics lessons. Teachers decide whether to teach each lesson individually or to 2 or 3 children together.

Lessons take place in a dedicated teaching area where children can use a wide variety of resources. The STA begins by making a detailed diagnostic assessment of what each

child knows and then plans an individualised programme to help each one to move forward. Lessons focus on number and calculation, follow a set routine and are rigorous and active. The STA aims to help each child to become numerate and confident, to enjoy actively learning mathematics and to develop the skills and positive attitudes needed to continue to make good progress in normal class mathematics lessons after completing Numbers Count.

Springboard KS2

Springboard is a catch-up programme for children in Years 3, 4, 5 and 6. The materials focus on key areas of number. The class teacher works in conjunction with the HLTA delivering the sessions to ensure that the children receive pre-teach or consolidation work to eradicate misconceptions. They provide additional tuition for small groups of children outside the daily mathematics lesson. It runs in the autumn, spring and summer terms.

Children are chosen to participate in the Springboard intervention according to teacher assessment of data, discussed with the maths leader during Pupil Progress Meetings. It is intended to move children who have dropped just below the expected for their age group.

Springboard is reviewed half termly and children are moved in and out as appropriate.

Springboard aims:

- To support the identified children and to remedy particular weaknesses in mathematics so that they are in a better position to access and benefit from the teaching programme in their Year and beyond;
- To set the expectation that these children catch up with their peers;
- To help teachers prepare a teaching programme enabling children to benefit fully from the main teaching programme for their Year as soon as possible.

Teachers are expected to liaise carefully with the springboard provider to ensure the appropriate coverage.

Contribution of mathematics to teaching in other curriculum areas

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. They often write explanations and rules to accompany strategies. Younger children

enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

Science

During science lessons, children are able to use and apply their data handling skills when creating tables and graphs of scientific measurements. Whole class discussion of data also highlights the importance of clear recording of information. Children are also able to use a wide range of measuring devices in a real-life context. Children are required to read the scales on Newton meters, measuring cylinders, weighing scales and a variety of other instruments. They also work out averages during experiments.

Computing

Children use and apply mathematics in a variety of ways when solving problems using ICT. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. All pupils use the online programme 'Times Tables Rockstars' to consolidate their knowledge in this area.

Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of personal, social and health education and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present older children with real-life situations in as many areas of the curriculum as possible.

Spiritual, moral, social and cultural development

Spiritual Education

Use imagination and creativity to explore ideas while learning mathematics by: identifying and applying patterns and rules to everyday problem-solving; writing own problems and challenges that use those patterns or rules.

Moral Education

Understanding the consequences of actions: Eg. If you perform a particular action to one number, will the same outcome apply to other numbers? Is it always the case? 'Sometimes, always, never' statements.

Social Education

Developing personal qualities and using social skills: Working in pairs or groups to solve problems; Perseverance when struggling to answer questions; not being afraid to try – it's ok to be wrong, it's not ok not to try; taking turns when playing maths games.

Participating, co-operating and resolving conflicts: as above, but also 'X thinks ____, Y thinks ____, who is right?' type questions.

Cultural Education

Understanding and appreciating personal influences: taking into account other people's views and understanding how to express own views. Eg. How to explain to someone where they may have gone wrong in a question.

British Values

Democracy

Take into account the views of others in shared activities. Voting when collecting data.

The Rule of Law

Undertake safe practices, following class rules during tasks and activities for the benefit of all. Understand the consequences if rules are not followed.

Individual Liberty

Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities.

Tolerance of those with different faiths and beliefs

Use maths to learn about different faiths and cultures around the world. Eg. looking at patterns/shapes within Islam / Hindu religions.

Mutual Respect

To behave appropriately, allowing all participants the opportunity to work effectively. Take turns and share equipment. Review each other's work respectfully. Work collaboratively on projects/problems, help and advise others.

Monitoring and review

Monitoring of the standards of children's work and of the quality teaching in mathematics is the responsibility of the Senior Management Team and the Numeracy Subject Leader. A named member of the school's governing body is briefed to oversee the teaching of Numeracy. This governor meets regularly with the subject leader to review progress.

Promoting Maths

A list of 'non-negotiables' should be displayed, for each class, on the school website showing what all children must be able to do by the end of each academic year.

There will be a display board in the school to promote and celebrate mathematics. The children can be named 'Mathematician of the Week' during assembly and wear a special t-shirt/jumper.

The school website contains a 'Useful Websites' link, which is there to help parents in sharing their children's learning.

