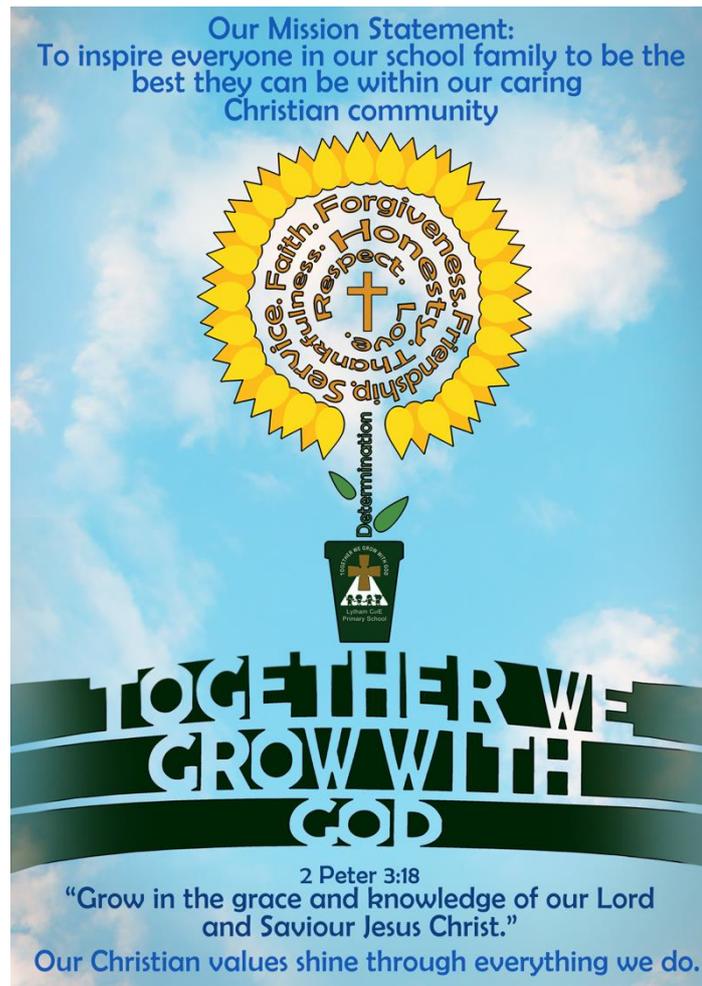


Lytham Church of England Primary School

Mathematics Policy



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Linked Governor:	Rev Ann Wood
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Together We Grow with God

Mission Statement

To inspire everyone in our school family to be the best they can be within our caring Christian community.

Introduction

This policy reflects the revised expectations for the National Curriculum 2014. It outlines the expectations in relation to the teaching and learning of Maths and focuses on the progression of key areas of development and subject specific skills. This policy reflects the views of all the teaching and support staff. The implementation of the policy is the responsibility of all the teaching staff and will be monitored by the head teacher, curriculum leader and subject leaders on a regular basis. The policy should be read in conjunction with the National Curriculum, Lancashire Key Learning documents, the scheme of work for Maths which sets out the key areas of learning in specific year groups and the key skills to be developed within the subject, and the Calculations policy.

Introduction to Maths

Mathematics is a creative and highly interconnected 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)

Subject Aims

Curriculum Organisation

The national curriculum for mathematics 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 develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- 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

Mathematics is an interconnected subject in which pupils need to be able 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. They should also apply their mathematical knowledge to science and other subjects.

The 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 should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

(National Curriculum 2014)

Key Skills to be developed in Maths

At Lytham C of E we follow the legal requirements of the National Curriculum when teaching Mathematics.

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the 4 operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Teaching and Learning of Maths

Pupils are entitled to a broad mathematics curriculum in which their learning needs are identified and met. Pupils should experience a range of practical and written activities on number, measurement, geometry and statistics. We operate the planning procedure agreed by the whole teaching staff based upon the National Curriculum Programmes of Study 2014 and the EYFS. Classrooms should be rich in discussion between pupils and between teacher and pupils. We aim to develop mathematical reasoning and understanding through exploration, problem solving and investigation. Our medium and long term planning is informed by these documents which map out the mathematics curriculum for each year group. We then develop weekly plans which give specific detail of learning objectives and appropriate differentiated activities. The pupils in each year group in KS1 and KS2 are taught in mixed ability classes and are provided with differentiated activities to ensure tasks are set according to their individual levels. All pupils in KS1 and KS2 use a pencil for mathematical calculations and are taught suitable setting out of work.

Maths Planning

The core objectives for teaching Mathematics follows the revised National Curriculum 2014. In order to ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, we plan for progression so that the children are increasingly challenged as they move through the school.

We carry out curriculum planning in three phases (long-term, medium-term and short-term). The long-term plan maps the Mathematics units of work studied in each specific year group in each term during both key stages and is devised by the curriculum leader and subject leader based on curriculum objectives and topics within the chosen scheme (White Rose Maths). Our medium-term plans give details of each unit of work for each term along with key objectives and skills developed. The class teacher devises the weekly plans using their curriculum pack and key skills for development needed to achieve the specific skills required. The class teacher keeps these individual plans, although both the subject leader and members of the SLT view samples of them on a regular basis. These plans list the specific learning objectives, expected outcomes for each lesson as well as reference to the development of specific skills and progression.

In the Foundation Stage, we teach Maths in reception classes as an integral part of the topic work covered during the year. As the reception class is part of the Foundation Stage of the National Curriculum, we relate the computing side of the children's work to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five.

Cross Curricular Links

Basic skills (English, Reading and Mathematics)

The teaching of Maths contributes to children's basic skills in English, Reading and Mathematics in a number of ways. This links are actively encouraged so that children are able to apply their skills and knowledge in a range of contexts.

Christian Values

Here at Lytham C of E we feel it is vital that learning opportunities are provided which support and nurture the whole child. The children across the school experience activities which help them to socially interact with others and develop emotional intelligence. Our school curriculum is underpinned by a set of Christian Gospel Values which are delivered over a two year programme, linking strongly with our PSHCE curriculum.

British Values

At Lytham C of E Primary School, we take pride in promoting a range of British Values in line with the 2011 Prevent Strategy of:

- Democracy
- The rule of law
- Individual liberty
- Mutual respect
- Tolerance of those of different faiths and beliefs

Spiritual, moral, social and cultural development

SPIRITUAL – The awe and wonder of mathematics is shared with the children and helps to explain the world and the mathematical patterns that occur such as the symmetry of snowflakes or the stripes of a zebra. We talk about the wow factor when the pupils make connections in maths. Examples are when we investigate different number sequences and in particular the Fibonacci sequence which is evident in nature all around us. Further mathematical ideas consider the idea of infinity. There is also a sense of wonder in the exactness of mathematics as well as a sense of personal achievement in solving problems

MORAL – We look at the use of statistics and how people manipulate them to promote their own (biased) opinions.

SOCIAL In lessons we aim to engage pupils and to show how maths is used in the real world.

Social education in Maths gives the greatest opportunity for pupils to work together collaboratively during experimental and investigative work.

CULTURAL – We encourage the pupils to appreciate the wealth of mathematics in all cultures throughout history. We look at the history of maths and its development. Examples of this are how the different number and measuring systems have evolved. Pupils also look at the number systems used by other countries such as how Roman numerals are used particularly on clocks. Pupils discuss the use of Mathematical language and how it is a universal language used worldwide.

Technology enhanced learning within the subject

The effective use of ICT can enhance the teaching and learning of mathematics when used appropriately. When considering its use, we take into account the following points:

- ICT should enhance good mathematics teaching. It should be used in lessons only if it supports good practice in teaching mathematics;
- Any decision about using ICT in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons;
- ICT should be used if the teacher and/or the children can achieve something more effectively with it than without it;

Inclusion

At our school we teach Maths to all children, whatever their ability and individual needs. This matches with the school's curriculum policy of providing a broad and balanced education to all children. Through our teaching of Maths we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this.

Assessment for learning and Assessment without levels

Measuring progress and the effectiveness of the taught curriculum is crucial and at the heart of learning and teaching. Assessment for Learning is a crucial part of our day to day teaching in Maths this is supplemented by on-going assessment against the Lancashire Key Skills and Progression Documents. As Lytham C of E are on a journey of choosing an alternative way to assess without levels, children are currently given a best fit against the National Curriculum expectations and the key indicators of performance (KLIPS). Children in Year 2 and Year 6 undertake SATs tests in Mathematics.

Resources

Lytham C of E acknowledges the need to continually maintain, update and develop its resources. Pupils should engage in activities from a variety of sources –practical apparatus, worksheets, textbooks and the environment. Through regular and frequent access to computers they will experience the fascination of mathematical exploration and investigation. Each classroom has a variety of teaching aids to support mathematics. All classes have access to a wide variety of equipment including, multilink, base ten and number lines as well as measuring and weighing equipment. Resources are kept in classes with shared resources kept in central areas. Pupils are encouraged to choose resources which are relevant to their work, take care of and return them.

Monitoring and Review

Monitoring of the standards of children's work and of the quality of teaching in Maths is the responsibility of the Maths subject leader, in conjunction with the curriculum leader and SLT. Refer also to the Subject Leader Policy and Job Description, and the school's cycle of monitoring and evaluation.

Communication with parents

Technology is an integral part of communication for parents. All school information, policies, curriculum information and class development is shared with parents online. Lytham C of E have various methods of communicating with parents which allows parents to follow their child's progress. The progress within this subject area is communicated through termly reports and the end of year pupil report.

Subject and Staff Development

The role of the Subject Leader in providing CPD for staff is outlined in the Subject Leader Policy.

Equality and Diversity

As a school community, Lytham C of E is committed to promoting equal opportunities for all those involved within the school community, whether staff, students, visitors, contractors or clients. This commitment is to ensure that people's individual qualities are recognised and celebrated; and that people are treated with dignity and respect. Lytham C of E recognises that discrimination, harassment and victimisation may be experienced by some protected characteristics in a number of ways, including day-to-day interaction with colleagues, peers, visitors, pupils and staff. Lytham C of E will ensure that equality of opportunity is promoted by recognising and celebrating diversity, continuing our proactive equality strategies and plans and complying with the requirements of the Equality Act 2010 and its associated duties. This policy applies to all irrespective of:

- age,
- disability
- gender reassignment
- marriage and civil partnership
- pregnancy and maternity
- race
- religion or belief
- sex, and sexual orientation

(Protected characteristics, equality and human rights act 2010)

This policy will be reviewed annually.

Date: Reviewed November 2018

Next review: November 2019

