

WHITFIELD ST JAMES CE © PRIMARY SCHOOL

Policy for Mathematics and Numeracy 2015-

Autumn 2015



Involvement, Enjoyment, Achievement

Introduction

- This document is a statement of the aims, principals and strategies for teaching and learning of mathematics and numeracy at Whitfield -St James' C.E (C) School.
- It was developed during the spring of 2014, through a process of consultation with teaching staff and the maths link governor.
- It was approved by the governing body in Autumn 2014
- A schedule for the review of this, and all other, policy documents is set out in the School Development Plan. A further review will be undertaken in 2016.
- The mathematics taught and methods used reflect the recommendations as outlined in The New National Curriculum in England 2014 framework document.

What is Mathematics?

MATHEMATICS is a body of knowledge which provides a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. Mathematics also provides the means for children to solve problems and investigate mathematical concepts. It is through this exploration that new mathematics is created and current ideas are modified and extended.

What is Numeracy?

Numeracy is a proficiency, which involves competence and confidence with numbers and measures. It requires an understanding of the number system, a repertoire of computational skills and an inclination and ability to solve number problems in a variety of contexts. Numeracy also demands practical understanding of the ways, in which numerical information is gathered by counting and measuring and is presented in graphs, diagrams, charts and tables. The skill of numeracy is essential to take the full advantage of a complex modern society.

The aims of the national curriculum

The National Curriculum for mathematics aims to ensure all pupils will:-

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems...
- Pupils reason mathematically by following a line of enquiry, conjecturing relationships and generalizations, and developing an argument, justification or proof using mathematical language.
- Pupils can solve problems by applying their mathematics to a variety of routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Our aims in teaching Mathematics are that all children at Whitfield St James' will;

- have experience of mathematical activities, which enable them to make sense of their world and to discover how to analyse and communicate their ideas.

- enjoy the subject and study it with confidence and a sense of achievement
- achieve a high standard in numeracy and a range of other mathematical skills
- apply these skills with confidence and understanding when solving problems within school and subsequently in adult life.
- develop an ability to express themselves fluently, to talk about the subject with confidence using the correct vocabulary as detailed in the DFES Mathematical Vocabulary.

Principles of the Teaching and Learning of Mathematics in the Foundation stage

Mathematics is important because;

- it is widely used in society, both in everyday situations and in the world of work
- it can be used to represent or communicate ideas, to predict, to explain and to verify
- it is interesting and enjoyable providing intellectual challenge and aesthetic pleasure.

Maths is a specific area within the Development Matters framework for EYFS

Foundation Stage aims

To;

- Help our children develop a positive attitude to maths
- Encourage the development of mathematical language
- Facilitate the development of mathematical concepts
- Consolidate and extend the mathematical experiences with which the children enter the Foundation Stage, and meet the Early learning goals for this area of learning
- Ensure a smooth transition into KS1.

We will achieve this by:-

- Introducing children to opportunities for maths learning through structured play, e.g. play area, visiting shops, sand & water
- Providing readily available maths resources for both indoor and outdoor.
- Use the outdoor environment to explore mathematical concepts.
- Encouraging an awareness of maths through exploration of everyday materials and equipment
- Building on the children's own experience, encouraging an awareness of maths through exploration of everyday materials and equipment
- Building on the children's own experiences of number, shape and measure
- Develop the understanding of mathematical concepts through stories, songs and rhymes.
- Exploring patterns seen in the environment and life of each child
- Teaching names of specific numbers, shapes and symbols, and drawing them correctly.
- Developing a range of recording, appropriate to the KSF
- Providing opportunities for problem solving through play and real life situations.

Assessment

- Please refer to Development Matter's statements in age brackets. Baseline on entry to F1 (Nursery) Most of the children will be working in low 30-50 months. by the end of F2 children should achieve early learning goals in number, shape space and measures

New Mathematics Curriculum

Mathematics is a core subject and a Framework of objectives for Numeracy has been developed in the form of the National Numeracy Curriculum 2014. The purpose of the framework enables schools to interpret the National Curriculum Programmes of Study by giving more detail of what should be taught in each year. The fundamental skills, knowledge and concepts of the subject are set out in

“Mathematics in the New National Curriculum” where they are categorized into the following areas;

- Number Y1-6
- Measurement Y1-6
- Geometry Y1-6
- Statistics Y2-6
- Ratio Y6
- Algebra Y6

The emphasis on AT1 Using and applying is that it should permeate the whole of the national curriculum, as it is no longer a separate focus. Opportunities for Data handling are to be identified in other subjects eg science.

Strategies for the Teaching of Mathematics

The school uses a variety of teaching styles to cater for the variety of learning styles of pupils. Our principle aim is to develop children's knowledge, skills and understanding. We do this through a daily lesson that has a high proportion of whole class and focus teaching. During these lessons we encourage children to ask as well as answer questions. They have the opportunity to use a wide range of resources such as number lines, number fans, whiteboards, 100 squares, digit cards and small apparatus to support their work. Children are given the opportunity to use ICT in mathematics where it will support, enhance and extend their learning. The school's use of `block` and `unit` approach to planning as outlined in our schemes-Target your Maths, Ginn Abacus Evolve. Content is specified in each year group which, in turn, is grouped into two year phases: key stage 1, lower key stage two and upper key stage two. The requirement is to teach content by the end of the key stage in which it sits.

Each class has a designated numeracy area in the form of a working wall.

In all classes there are children of differing abilities and we provide suitable learning opportunities for all children by matching the challenge to the ability of the child. We achieve this through a range of strategies; in some lessons through differentiated group work, and in other lessons by organising the children to work in pairs on open-ended problems or games, In Key stage 2 children are split into ability groups, for 3 days, to ensure their learning remains appropriate and challenging.

We use teaching assistants to provide appropriate support to individuals or to groups of pupils. Teaching assistants at Whitfield St James are viewed as an important 'asset' to the school and as such, are appropriately involved in the planning and delivery of the mathematics curriculum. Interventions such as 1st Class at Number are delivered by teaching assistants.

Each week mathematics lesson includes opportunities for:-

- demonstration, explanation and instruction by the teacher to groups, individuals and the whole class
- whole class and group discussions
- practical activities to provide meaningful context
- practice activities to consolidate skills which have been learned
- the use of mental mathematics involving quick recall of simple mathematical facts
- problem solving and investigational activities
- the use of questioning to probe pupil's understanding and identify misconceptions
- developing skills in formal computation

Calculators are used throughout the school to enable children to develop investigational activities. In YrN – Yr4 they are used as a teaching aid to promote calculation and in Yr5-6 to support pupil's conceptual understanding and exploration of more complex number problems, if written and mental arithmetic is secure.

The framework for the National Numeracy Strategy provides a balanced mathematics curriculum, which allows for continuity and progression from Foundation to Year 6. (See also calculation policy)
The principal schemes in use in the school which support the curriculum are:-

- Ginn Abacus Evolve, Target your Maths and the New National Curriculum 2014. The schemes are made up of workbooks for Number, Shape, Space and Measure, Data Handling, textbooks and extension activities. This also provides resources for the maths work as outlined in the framework.
- Challenge materials support the more able : Spotlight, Heinemann and level 6 Collins booster material
- Numicon
- Intervention materials e.g. Wave, Springboard and 1st Class @ Number 1 and 2

Class teachers are responsible for appropriate differentiation of the curriculum for all pupils including those with Special Educational Needs (Springboard) and The More Able (Spotlight and Heinemann)

It is expected that all pupils will undertake activities at home, related to the mathematics taught through:-

- the learning of tables ,expected of all pupils from Year 1-4 and Y5-6 to be able to use and apply knowledge of times tables
- Specific tasks set weekly by teachers which may involve gathering data or learning facts and completing work started at school which will consolidate learning.
- Children are tested regularly , (Gobs are involved in testing) on our school's Times Tables Initiative. Results are published on the school website.

Excellence in mathematics is celebrated in display including

- geometric patterns
- graphs and charts based on data handling activities.
- Numeracy focus days
- We also celebrate success in our Good work assemblies.

Strategies for Ensuring Progress and Continuity

Planning in Mathematics is a process in which all teachers are involved, wherein;

- the foundation for curricular planning is the Whole School Development Plan, developed through a process of collaboration between staff, and approved by governors
- the National Curriculum 2014 provides the scheme of work for mathematics, which allows for progression and continuity throughout the classes extra mathematical activities integrated with the topic cycle are developed by the class teachers where appropriate
- The National Numeracy Curriculum provides the framework of objectives for Medium Term Planning, and is interpreted through the Abacus evolve planning. Children are assessed against

these objectives throughout the year through marking, tests and teacher assessment using APP grids and the Ginn Abacus Evolve (ICT is also used to support assessment)

- termly staff meetings will be used to discuss the mathematics curriculum and ensure consistency of approach and of standards
- Work plans (including detailed lesson plans) are drawn up by individual teachers on a weekly basis and monitored by the head teacher, Key Stage or subject coordinators, or the SLT.

The Role of the Mathematics Coordinator is to:-

- take the lead in policy development and the production of schemes of work designed to ensure progression and continuity in mathematics throughout the school
- support colleagues in their development of detailed work plans and implementation of the scheme of work and in assessment and record keeping activities
- monitor progress in mathematics and advise the head teacher on action needed
- take responsibility for the purchase and organization of central mathematical resources
- Keep up-to-date with developments in mathematics education and disseminate information to colleagues as appropriate.
- Identify pupils requiring intervention strategies
- Monitor marking and APP grids.

Feedback to pupils about their own progress in mathematics is achieved through the marking of work. Effective marking (see marking policy)

- aims to be encouraging and supportive
- includes ticks and written comments with errors clearly indicated
- may be done by pupils marking their own work to provide immediate feedback and to identify focus group
- identify misconceptions and develop further understanding

Assessment has two main purposes:-

- Assessment of learning (summative assessment)
- Assessment for learning (formative assessment)

Summative assessment

Is any assessment that summarises where learners are at a given point, it provides a snapshot of what has been learned. It will provide a level at the end of KS1/2 (SATS) and also at the end of years 3-5 (optional sats)

Formative Assessment is used to guide the progress of individual pupils in mathematics. It involves identifying each child's progress in each aspect of the subject, determining what each child has learned and what therefore should be the next steps in his/her learning. Formative assessment is mostly carried out informally by teachers in the course of their teaching. Suitable tasks for assessment may include:-

- Small group discussions perhaps in the context of a practical task
- specific assignments for individual pupils
- individual discussions in which children are encouraged to appraise their own work and progress with a smiley face.
- Focused questioning to check against the learning objective
- Regular checks throughout the lesson will be made by the teacher to determine the impact of their teaching

Recording and Reporting

Records of progress in Mathematics kept for each child contain

- an ongoing record of progress on weekly marking grid
- Tracking of pupils (termly) Orange files
- APP grids (to pass on to next teacher)

Reporting to parents is done on a termly basis in a mini report in both Autumn and Spring terms and an end of year report in July. Reporting in mathematics will focus on each child's

- attitude to mathematics
- competence in basic skills
- ability to apply mathematical knowledge to new situations.

Resources

Classroom resources in mathematics include:-

- mental maths tape
- sets of books and work cards
- a variety of equipment for measuring and data handling activities
- a variety of equipment for work on number, shape and space
- mathematical games and puzzles.
- Number fans and white boards (individual)
- ICT programs- Ginn abacus YrR-Yr6
- Interactive Whiteboards
- Excellence in word problems
- Word problems (Heinemann)
- Wide range of mathematical games
- Stories to enhance numeracy
- Numicon
- Abacus Evolve Scheme
- Target your Maths

These resources are kept in classrooms or centrally stored in the Mathematics cupboards in the main corridor. (See attached list of resources)

There is also a selection of stories with a mathematical theme.

It is the responsibility for all class teachers to ensure the close supervision of pupils and to take reasonable steps to ensure their health and safety when undertaking mathematical activities. It is the responsibility of all staff to ensure that resources are maintained and stored correctly

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