

Policy for Mathematics.

Introduction

This document is a statement of the aims, principles and strategies for the teaching and learning of mathematics at Skelton Primary School.

It was developed following the amalgamation of Skelton Infant and Junior in 2003 through a process of consultation with teaching staff.

What is mathematics?

Mathematics is not just a body of knowledge and a collection of skills, it is a way of thinking. It lies at the core of scientific understanding, and of rational and logical argument

Aims.

Our general aims in teaching mathematics are;-

1. To comply with the statutory requirements of “The National Curriculum for Mathematics” based on “The Framework for Teaching Mathematics, The National Numeracy Strategy”.
2. To develop a positive attitude to mathematics as an interesting and attractive subject. We aim to challenge all of our pupils mathematically but feel it is also necessary for all of our pupils to gain a sense of achievement. Therefore it must be an experience from which pupils derive pleasure and enjoyment, not a feeling of anxiety or apprehension.

3. To develop an awareness of the uses of mathematics in the world beyond the classroom so that the children realise that mathematics will frequently help them to solve problems that they meet in everyday life.
4. To develop an attitude of independent learning and an ability to think logically and clearly.
5. To develop mathematical skills and strategies.
6. To develop an awareness that mathematics is about relationships and to develop an appreciation of mathematical pattern.
7. Relate mathematics, whenever possible, to other areas of the curriculum. (See Numeracy Strategy, Section 1, Pages 16/17)

Objectives

Facts and Knowledge

Pupils need to know and remember some basic facts at each level if progress is to be made with confidence. Memory demands in mathematics can be reduced, but not removed, through a sound conceptual understanding of the subject.

Skills

Children need to learn not only facts but also mathematical skills:-

- Performing basic operations both mentally and with pencil and paper
- Learning to estimate and approximate
- Appropriate use of the calculator
- Practical skills in measurement of length, time, weight, volume, capacity
- Of spacial awareness
- Use of the computer as a tool

Conceptual Structures

Conceptual structures include

- Understanding basic concepts
- Recognising and understanding the relationship between concepts
- The ability to select appropriate data
- Using mathematics in context
- Interpreting results

General Strategies

To teach children the appropriate strategies to use when working with numbers, solving a problem or carrying out an investigation.

- Using known facts to derive others
- Approximation
- Estimation
- Trial and error
- Looking for patterns
- Reasoning

Organisation of Teaching and Learning

The organisation of teaching and learning follows the recommendations of the National Numeracy Strategy. It is based on four key principles;-

- Dedicated mathematics lesson each day
- Direct teaching and interactive oral work with the whole teaching group
- An emphasis on mental calculation
- Controlled differentiation, with all pupils engaged in mathematics relating to a common theme.

Years 2 - 6 are taught in ability groups for their daily mathematics lesson, with group 1 (higher ability) having the greatest number of children. Eg. In a year group of 80 children, the groupings would be approximately 38, 24, 18.

(NB Years 4 & 5 are researching a different grouping system, the higher ability group are taught as in other year groups. The other 2 groups are parallel groups of approximately 17 children each. The impact of this organisation is being monitored and is being reviewed termly.)

Foundation stage and Year 1 are taught in their class groups.

The daily mathematics lesson for all year groups is between 45 and 60 minutes long. It will generally be taught during the morning session. (Timetabling for activities such as swimming, ICT and PE will, at times, make this impossible.)

The structure of the mathematics lesson follows the recommendations of the National Numeracy Strategy, i.e. a three part lesson. Activities completed by the children may be individual, paired or grouped.

The three ability groups in each years 2 – 6 work on a common theme at the same time, thus enabling transfer of children between the groups as and when it is deemed to be appropriate. Foundation stage and Year 1 follow a similar policy of having a common theme.

Teaching will show a range of strategies used to ensure the needs (both of ability and gender) of all pupils are met.

The Role of the Co-ordinator

The role of the mathematics co-ordinator is to:-

- Take a lead in policy development
- Support colleagues in their development of planning and implementing schemes of work, assessment and record keeping
- Support colleagues by offering demonstration lessons and team teaching
- Monitor whole school development and ensure continuity of progression
- Provide support for other teachers by keeping up to date with local and national information and legal requirements, then disseminating this through INSET.
- Liase between year groups and identify INSET needs.
- Report to the Head on issues relating to mathematics teaching and learning.
- Monitor and order resources.

The Role of Parents

Parents are invited into school on a regular basis and assist in the supervising/ playing of mathematical games and a variety of practical tasks as requested by the teacher.

We ask that parents support their children by assisting with homework activities when appropriate. To support parents in this role, they are invited into school to take part in Maths workshops.

Health and Safety

Teachers endeavour to ensure that where games/ apparatus contain small parts, the younger children are made aware of their dangers. Equipment is stored with regard to Health and Safety requirements and instructions are given in the use of scissors and pairs of compasses. Other issues are in line with our School Health and Safety Policy.

Recording of Work

Good presentation of work in mathematics is to be encouraged at all levels. Techniques of recording need to be taught, but a balance must be struck such that children who experience persistent difficulty with presentation are not hindered in the development of their mathematical understanding.

Exercise Books

In Foundation Stage, pupils will use an A4 size unlined book for any recorded work.

Years 1-3 use a book with 10mm squares.

Years 4-6 use a book with 7mm squares.

All year groups make regular use of individual white boards.

Years 2-6 also have an A4 size plain book to use as a Maths working book, this is to encourage informal jottings and the use of illustrations to solve problems.

Purposes for children recording work

Children should be provided with opportunities to record their work in different formats, all of which may be appropriate in different situations.

The purposes for which they record their work include;-

- Helping to clarify their own thinking
- Acting as notes for future reference
- Communicating their ideas to themselves, other children, teachers and parents
- Providing evidence of their work in mathematics
- Helping the teacher to assess their ability and achievements and to plan future programmes that will be appropriate.

Forms of Recording

Recording will take different forms depending on the nature of the mathematical task/activity. Formats may be;-

- Symbolic
- Written
- Graphical
- Pictorial
- Technological – computer/calculator print outs and displays.

Marking of Work

Marking of work in mathematics should be in accordance with the School Marking Policy.

A particular feature of marking in mathematics is the looking for evidence of logical thinking and understanding. We are not merely marking answers but need to check methods of working. In doing so we should judge whether a non-standard method of working is appropriate for a particular child.

Comments at the end of a piece of work should assist the child in developing their thinking and move them on to the next stage of learning. There are times when it is beneficial for the children to mark their own work.

Assessment

Assessment in mathematics will reflect the overall School Assessment Policy and will incorporate teacher assessments and SATs in accordance with National Curriculum guidelines. PIPs are used in all year groups as an indicator of performance and potential.

Foundation Stage complete the Foundation Stage Profile.

Formal summative assessment for Years 3, 4 and 5 is carried out in May through the use of QCA Optional tests, recording raw scores, standardised scores and National Curriculum levels for each child. Year 1 children receive a National Curriculum Level based on teacher assessment.

Years 2 and 6 complete National SATs testing in the Summer Term. Self assessment is encouraged, children draw one of 3 faces at the end of a piece of work to indicate how confident they are with a learning objective.

Reporting to parents is undertaken on a termly basis through interviews and annually through a written report. Teachers can also contact parents at other times if they have a concern over their child's progress or if they wish to report improved performance.

Equal Opportunities

All work is planned to ensure equal access and opportunity for all children.

Special Needs

The National Numeracy Strategy caters for children of all ages and abilities. Those with special mathematical needs will be provided for with IEPs at their own level of ability. Having determined the child's needs, appropriate learning steps will be presented and achievement of these will ensure that steady progress is made. The Document - Small Steps in Mathematics - is used in the development of such programmes.

Children who have a special talent in mathematics will be catered for within their ability group where extension work will be given in order to present suitable challenges.

Children with IEPs will be given additional adult time whenever available to help them with the understanding of concepts and support them in the recording of their work.

Special needs resources available for use across Years 3-6

- Breakaway Maths Level 2.
- Starmaths, Orbits 1 – 6
- Small Steps in Maths

Year 6 have copies of Oxford Maths, Key Stage 3, Levels 4 – 7 for the use of children of higher ability who are working towards Level 6.

Schemes of Work and Planning

Planning in mathematics is a process in which all teachers are involved. All planning, long, medium and short term, is planned co-operatively in year group teams. It is planned in such a way that teaching groups can be flexible, enabling children to move between groups if and when that is necessary.

Long term planning is in accordance with the Numeracy Framework.

Medium term planning is completed on a half termly basis. Planning grids from the Framework or from the Cambridge scheme are used. The sample plans for each year group are available for use, but year groups may develop their own if this is more appropriate.

Short term plans are drawn up on weekly basis using a standard format. The NNS Unit Plans are available for use where appropriate.

Commercially available schemes of work are available for use in supporting the teaching and learning of mathematics. The main schemes in use in school are:-

- Cambridge Maths
- Abacus
- Letts Numeracy

Such schemes are continually monitored for effectiveness and are updated when necessary.

In Year 1, work is generally based on National Curriculum Levels 1, 2.
Year 2 is based on levels 2, 3.
Year 4 is based on levels 2, 3, 4.
Year 5 is based on levels 3, 4.
Year 6 is based on levels 3, 4, 5.

Calculators.

Calculators provide a fast and efficient means of calculation, freeing us from excessive concentration on pencil and paper methods when appropriate. In order to be able to use the calculator in this way, we must teach the children the technical skills they will require.

Following the recommendations of the Framework for Mathematics, developing calculator skills and the effective use of a calculator will be taught mainly in years 5 and 6, although some calculators will be available in years 3 and 4. (See Framework, Section 6, page 71.)

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