

# **King's Meadow Primary School**



## **Numeracy and Mathematics Policy**

Revised September 2013

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### **Numeracy and Mathematics Policy**

This policy is in accordance with the recommendations set out in experiences and outcomes detailed in A Curriculum for Excellence (CfE). It should be read in conjunction with our Learning and teaching, Assessment and Support for learning policies.

Our numeracy and mathematics curriculum is designed to ensure that all pupils experience a coherent, continuous and challenging programme of work regardless of age, aptitude or physical circumstances. Using a variety of approaches and meaningful contexts we aim to develop in each pupil an enquiring mind along with the necessary attitudes, skills and knowledge to succeed in this subject area.

#### **AIMS**

Through our approach to the learning and teaching of numeracy and mathematics we aim to:

- develop skills which children require for life, learning and work.
- develop a positive attitude to numeracy and mathematics as an interesting, useful and worthwhile subject.
- develop mental agility and problem solving capabilities.
- provide all pupils with a range of meaningful contexts and activities, which are practical, investigative, enjoyable and challenging.
- develop an ability to think clearly, logically and imaginatively with confidence, independence and flexibility
- work toward raising attainment in the area of numeracy and mathematics.

#### **OBJECTIVES**

Through the development of these aims pupils should have:

- an awareness of the usefulness of maths in the world beyond the classroom.
- a variety of mathematical skills and knowledge accompanied by quick recall of basic facts.
- an appreciation of the value of sharing maths through discussion, explanation and reporting.
- an awareness of the need for perseverance and the ability to work collaboratively.
- an appreciation of the usefulness of science, technology and information handling within a mathematical context.
- an appreciation of the usefulness of mathematics within the fields of science, technology and communication.
- confidence in using and applying mathematics in everyday situations and enjoyment of its qualities.

Children's experience of mathematics should enable them to develop:

- a secure understanding of the concepts and processes of mathematics
- the confidence to apply their skills in different contexts including the world of work
- essential numeracy skills which will allow them to participate fully in society
- an understanding of maths, its impact on our society, past and present and its potential for the future
- an understanding that successful independent living requires financial awareness, effective money management, using schedules and other related skills

- an ability to interpret numerical information and appropriately and use it to draw conclusions, assess risk, and make reasoned evaluations and informed decisions
- the confidence to apply their skills and understanding and creatively and logically to solve problems, within a variety of contexts.

## **ATTAINMENT OUTCOMES**

The basis for learning and teaching in numeracy and mathematics in King's Meadow will be the outcomes and experiences outlined in CfE. These will provide a pathway to ensure individual children will achieve their potential. The school will provide meaningful experiences whilst maintaining balance, breadth and depth with a secure foundation.

Outcomes to be covered in the learning and teaching of numeracy and mathematics are:

### **☐ Number Money and Measure:**

- Estimation and rounding
- Number and the number processes
- Multiple, factors and primes
- Powers and roots
- Fractions, decimal fractions and percentages
- Money
- Time
- Measurement
- Mathematics - its impact on the world - past, present and future
- Patterns and relationships
- Expressions and equations

### **☐ Shape, Position and Movement:**

- Properties of 2D shapes and 3D objects
- Angles, symmetry and transformation

### **☐ Information Handling:**

- Data and analysis
- Ideas of chance and uncertainty

These outcomes provide the content, across the range of aspects of numeracy and mathematics, through which children will learn the skills and strategies required to approach problem solving and enquiry activities.

## **LEARNING and TEACHING**

From the early stages onwards, children and young people should experience success in mathematics and develop the confidence to take risks, ask questions and explore alternative solutions without fear of being wrong. They should enjoy exploring and applying mathematical concepts to understand and solve problems, explaining their thinking and presenting their solutions to others in a variety of ways. At all stages, an emphasis on collaborative learning will encourage children to reason logically and creatively through discussion of mathematical ideas and concepts.

Through use of effective questioning and discussion, teachers will use misconceptions and wrong answers as opportunities to improve and deepen children's understanding of mathematical concepts.

The experiences and outcomes contained in a CfE encourage learning and teaching approaches that challenge and stimulate children and young people and promote their enjoyment of mathematics. To achieve this, teachers will use a skilful mix of approaches, including:

- planned active learning which provides opportunities to observe, explore, investigate, experiment, play, discuss and reflect
- modelling and scaffolding the development of mathematical thinking skills
- learning collaboratively and independently
- opportunities for discussion, communication and explanation of thinking
- developing mental agility
- using relevant contexts and experiences, familiar to young people
- making links across the curriculum to show how mathematical concepts are applied in a wide range of contexts, such as those provided by science and social studies
- using technology in appropriate and effective ways
- building on the principles of Assessment is for Learning, ensuring that young people understand the purpose and relevance of what they are learning
- developing problem-solving capabilities and critical thinking skills.

Activities should:

- be supported by a variety of teaching strategies. Approaches adopted will be an appropriate balance between exposition, interactive, discussion and enquiry methods.
- be balanced between tasks which develop knowledge, skills and understanding and those which develop the ability to tackle practical problems and carry out mathematical investigations.
- be balanced between those which are short in duration and those which have scope for development over an extended time.
- involve independent as well as collaborative work, where appropriate.
- develop pupils in the use of oral, mental and written forms of calculations.
- provide opportunities for pupils to select and use a range of mathematical resources with confidence.
- be set in a variety of contexts where mathematical skills and knowledge can be developed or practised within real-life situations.

### **Classroom Organisation**

The classroom organisation employed throughout the school will take account of the aims for mathematics and supporting content and skills detailed within CfE. To achieve this classroom organisation needs to remain flexible in order to provide opportunities for:

- direct, interactive teaching of whole class, group and individuals.
- plenary sessions where teachers and pupils have the opportunity to discuss learning and teaching.
- opportunities for discussion and practice of mathematical ideas.
- pupils to access mathematics in a variety of contexts detailed in CfE.
- the adoption of relevant approaches in tackling/managing mathematical contexts as independently as is possible, eg recording and presenting work clearly and with care.
- use of a variety of instruments to measure with accuracy, care and confidence.
- use of structured material, calculators and computing skills.
- use of a variety of text and reference books.

## **Planning**

Appropriate contexts should be devised in collaboration with the pupils. A child will be ready to move on to another level when they can demonstrate that they have experienced breadth, depth and challenge within their current level - How well? And How much?

Effective learning and teaching requires thorough long and short term planning thus ensuring continuity, pace and progression.

In King's Meadow, we plan Numeracy and Mathematics:

- using CfE to ensure breadth, balance and progression
- developing clear and concise long, medium and short term plans which highlight what is being taught
- collaboratively with colleagues to allow continuity and progression experiences which build on skills and knowledge which have been previously acquired
- by organising resources and personnel in order to achieve the best learning and teaching possible
- by making meaningful contexts through cross-curricular links wherever possible
- using homework opportunities which enhance learning in Maths and keep parents informed and involved in supporting and extending their child's learning. (Please see Homework Policy for further details.)

## **Recording and Presenting**

- The core programme will provide material for pupils to gain experience in a range of mathematical skills.
- Pupils are expected to achieve a high level of presentation and are to be encouraged to be thorough and well organised.
- Pupils should be taught, and encouraged, to show "working" wherever possible/desirable.
- Pupils will be offered a variety of ways to record their work (eg using ICT, models, concrete materials, jotters, photographs, video and audio recordings, etc)

## **The use of ICT**

Key areas of maths are supported by the use of ICT (eg computers, Senteo)

For example:

- databases
- graph drawing
- spreadsheets
- use of programmable toys e.g. Bee Bop and Turtle
- shape, position and movement - pathways, routes etc.
- activities in shape and angles.

## **Cross-curricular links**

There are many opportunities to develop mathematical concepts in all other areas of the curriculum. Patterns and symmetry are fundamental to art and music; time, money and measure regularly occur in modern languages, home economics, design technology and various aspects of health and wellbeing; graphs and charts are regularly used in science and social studies; scale and proportion can be developed within social studies; formulae are used in areas including health and wellbeing, technologies and sciences; while shape, position and movement can be developed in all areas of the curriculum.

King's Meadow has adopted an interdisciplinary approach to planning and the implementation and delivery of lessons. Pupils will develop a deeper understanding of numeracy and mathematics by transferring their skills to real life contexts across the curriculum and beyond.

### **Support for Learning**

It is the duty of each class teacher to provide appropriate support for pupils who may have additional support needs. This could be through the provision of differentiated materials/levels of expectation, scribing, supported reading of texts etc.

If it is felt that a particular child's needs cannot be addressed through routine class procedures a referral form should be submitted to the School Advisory Group (SAG). These forms will be reviewed on a twice termly basis and support allocated according to resources available and the level of need.

### **ASSESSMENT, RECORDING and REPORTING**

*' a young person's progress should be assessed in ways and at times appropriate to that person's learning needs. Judgements made about this learning should be based on evidence from a broad range of sources, both in and out of school and by reference to a learner's progress over time, across a range of activities.'* (Building the Curriculum 3)

Assessment in the area of numeracy and mathematics will involve evidence about the range and quality of pupil understanding and attainment. This knowledge will inform next steps for learning and teaching within the planning cycle. It is important to provide feedback to the pupils, the parents and other teaching staff on the progress.

### **Assessment Procedures**

In King's Meadow, to ensure progression and continuity, we have adopted a range of assessment procedures including:

1. Formal assessments:
  - P5 and P7
  - Diagnostic testing - where appropriate.
  
2. Informal assessments:
  - Pre and Post tests
  - Challenge week activities
  - Observation
  - Video evidence
  - Models
  - Modelling
  - Questioning / interviewing
  - Questionnaires
  - Senteo
  
3. Ongoing formative assessment, including:
  - sharing learning intentions and success criteria
  - effective questioning
  - self and peer assessment

- feedback.
4. Record keeping:
- Forward planning
  - Staged Assessment and Intervention paperwork
  - Hand on notes.

By giving children the opportunity to evidence their knowledge through what they say, write, make or do we are able to gain a better picture of what stage they are at in their learning. (See Assessment Policy for further information.)

### **Reporting**

Progress is reported to parents/carers in October and April during Parents' Meetings. Summative reports are completed in the spring term and shared with parents/carers early in June. These will give an indication of a child's progress through a level.

### **RESPONSIBILITIES**

The Senior Management Team (SMT) will:

- support the policy by allocating time and resources
- review the policy regularly
- monitor the policy through established monitoring procedures.

Teachers will:

- plan for reading in accordance with school policy and guidelines
- record, assess and evaluate individual, group and whole class progress using school, authority and national guidelines
- share and discuss progress with pupils, parents, management and other partner agencies.

Parents' Role

Working in partnership we aim to:

- encourage parents to use their knowledge and skills for enhancement of learning and teaching
- foster home/school links through homework, the school website, parent consultations, written reports and parental involvement in class.

### **MONITORING AND EVALUATION**

The responsibility for the implementation of this policy lies with all staff. However, promoted staff will, through routine quality assurance procedures seek to ensure that it is put into practice. All staff will be involved in evaluating the effectiveness of this policy.