

## St. Michael's RC Primary Academy Mathematics Policy.

In formulating and applying this policy, the Directors and Staff of our Catholic Academy seek to promote and implement in relevant ways the aims and intentions of the mission Statement, "Praise the Lord in Work, Play and Prayer," that has been agreed by the whole school community.

### Rationale

Mathematics is a key life skill; it is a proficiency, which involves confidence and competence with numbers and measures. It is a whole network of concepts and relationships which provide 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. It requires an understanding of the number system, a range of computational skills and a willingness and ability to solve number problems in a variety of contexts. Mathematics also demands practical understanding of the ways, in which information is gathered by counting and measuring and is presented in graphs, diagrams, charts and tables.

Using the Programmes of Study from the National Curriculum and the National Numeracy Strategy Framework for Teaching Mathematics our aims are as follows:

- To enable pupils to become numerate.
- To provide each child with opportunities to develop the practical skills and understanding of concepts, facts and operations as outlined in the National Curriculum programmes of study and in the EYFS.
- To continue to raise standards in Mathematics by :-
  - 1) Enhancing and sustaining motivation and confidence by generating enthusiasm for mathematics.
  - 2) Promoting mental and oral mathematics
  - 3) Helping the children to achieve success by challenging appropriately to aid good progress.
  - 4) Using prior attainment to inform future planning.
- To encourage children to work both independently and collaboratively
- To enable children to select appropriate materials for the task set.
- To ensure that special needs in all areas of mathematics are recognized and that the children are provided with relevant and appropriate materials, tasks and experiences, be it extension or consolidation work.

- To help all children to experience pleasure, success and enjoyment in mathematical experiences in order to develop a confident attitude towards mathematics.

These aims will be achieved through the effective delivery of daily teaching and learning opportunities.

### **The Nature of Mathematics in St. Michael's**

Mathematics contributes to the social and intellectual development of the child by providing a stimulating environment for the acquisition of skills such as logical thinking, problem solving and calculation in order to understand real life situations. Learning activities should maintain a balance between mental / oral work, investigative work, practical problem solving and 'pure' mathematical activities.

At St. Michael's between 45 mins and 1 hour will be allocated a day for mathematics in Key Stages 1 and 2, in order to ensure that all parts of the National Curriculum Programme of Study are taught. Each lesson should include: -

- Mental / oral calculations
- Teacher input including new learning/extension
- Independent or collaborative work.
- Plenary time to evaluate, assess learning and identify next steps.

Each class teacher is responsible for the mathematics in their class in consultation with and with guidance from the mathematics coordinator.

Teachers of the Reception class base their teaching on objectives in the Early years framework. Mathematical development depends on becoming confident and competent in learning and using key skills. This area of learning includes counting, sorting and matching, seeking patterns, making connections, recognising relationships and working with numbers, shapes, space and measures. This can be achieved through - practical activities that are imaginative and enjoyable, observations and counting activities.

### **Planning**

There are three levels for the planning of mathematics at St. Michael's.

**Long Term Planning** - is the use of the Framework, which sets out the Yearly teaching programme ensuring continuity and progression throughout the school.

**Medium Term Planning** -follows the blocks and units of the revised Primary Framework. Particular objectives are identified that will be the main focus for each unit and links are made between units and intervention strategies (Overcoming Barriers, Springboard and Wave 3)

At the end of each block of learning, plans will be evaluated, based on short-term assessments. Termly moderation of APP will also inform and update Medium Term Planning.

**Short Term Planning-** The agreed proforma breaks down weekly planning lesson by lesson in terms of activities, differentiation, vocabulary, resources, outcomes and assessments made and the next steps to be taken.

The planning forms part of the monitoring process for the Senior Management team and the Mathematics co-coordinator.

Lessons are planned using a common planning format (see Appendix).

### **Teaching Styles and Mathematical Experiences.**

At St.Michael's mathematics is approached through a process of investigation, problem solving and questioning. Through careful planning and preparation we aim to ensure that throughout the school children are given opportunities for:

- √ practical activities and mathematical games
- √ problem solving
- √ individual, group and whole class discussions and activities
- √ open and closed tasks
- √ a range of methods of calculating e.g. mental, pencil and paper and using a calculator
- √ working with ICT as mathematical tools e.g. laptops, floor robots, digital scales

Mental and oral mathematics activities are a regular part of every child's mathematical experiences and are an integral part of every mathematics lesson. Times tables tests (based on the 55 club) or mental arithmetic tests will be given on a weekly basis.

### Cross Curricular links

Throughout the whole curriculum opportunities exist to extend and promote mathematics. Teachers seek to take advantage of all opportunities.

### The Role of the Co-ordinator

- To be familiar with the programmes of study for mathematics and have knowledge and awareness of relevant documents/ policies that may affect and inform good practice in school.
- To review, monitor and update the school policy and scheme of work for mathematics with the agreement of the staff.
- To provide guidance and support for the teaching staff and to identify inset needs.
- To attend in-service courses, to keep up to date with current trends and to cascade to the staff.
- To organise and maintain teaching resources.
- To monitor the quality of mathematics across the school.
- To be aware of the OFSTED inspectors findings about St.Michael's and to address them.
- To work with SENco to ensure access to mathematics for all children.
- To influence the development of mathematics teaching and learning throughout the school.
- To submit estimates for annual expenditure on apparatus and books for mathematics.

### Differentiation

This should always be incorporated into all mathematics lessons and can be done in various ways:

- Stepped Activities which become more difficult and demanding but cater for the less able in the early sections.
- Common Tasks which are open ended activities/investigations where differentiation is by outcome.
- Resourcing which provides a variety of resources depending on abilities e.g. counters, cubes, 100 squares, number lines, mirrors.
- Grouping according to ability so that the groups can be given different tasks when appropriate. Activities are based on the same theme and usually at no more than three levels.

## **SEN**

All children will have access to a broad and balanced mathematics curriculum and all SEN pupils are fully included in Mathematics lessons. For those children who have been identified as having special educational needs their IEP's might include a mathematics target/s, discussed with the SENco. The teacher will be aware of the child's areas of learning which can be built on and they will also be aware of the areas of mathematics where the child may need to consolidate learning. Teachers will also be aware that certain pupils may need additional support or intervention strategies and may require access to a range of differentiated materials as outlined below.

Where children do have a specific mathematics target identified in their IEP progress will be reviewed in line with the school SEN policy and targets will be adapted or new targets will be set for the child to attain.

Appropriate use will be made of the outcomes of assessment to inform the next stage of the pupils learning and new targets set.

Where a child has been identified as being an able mathematics student the teacher will make full use of the differentiation strategies referred to above and set suitably challenging targets.

## **Resources**

The delivery of the Primary Framework for Mathematics across the school is supported and enriched by varied sources and activities including materials from a range of published schemes.

Practical apparatus is regularly used and is accessible to the children. A whole school practical resource called Numicon is used as a tool for developing and consolidating number skills. Wherever possible, the children themselves are encouraged to select the materials appropriate to the task. Children in Key Stage 1 and EYFS have access to a range of equipment they can choose to utilise during each mathematics lesson. Each class has access to basic resources i.e. interactive whiteboard software, number lines, bead strings, number cards and fans. Shared practical resources are located in the quad area. We aim to foster respect in the use and care of apparatus.

An audit of mathematical equipment was carried out in 2013. New resources were purchased to support teaching and learning within mathematics across the school. Teachers should ensure that full use is made of a variety of resources when planning activities, including calculators, games, ICT software, books, schemes, home and the environment

Deficiencies in resources, report of any breakages or suggestions for future purchases should be made to the coordinator. Resources are audited yearly.

### **Calculations Policy**

The calculations policy agreed and implemented across the school was amended and agreed June 2009. All teachers have a copy of the calculations policy which has been embedded to ensure consistency in teaching methods across year groups and key stages.

### **Calculator Policy**

In St.Michael's we believe that children should have access to calculators at an appropriate stage in their mathematical progression i.e. when they have an understanding of the operations they are performing. The Calculators main role within the lesson is not as a calculating tool but as a way of learning about numbers and number systems. (See mathematics guidance)

### **ICT in Mathematics**

The computer is a useful tool for developing mathematical ideas. ICT should be seen as a way to extend or expand the work being done on a particular topic, not as a tool for drill and practice exercises. The Laptops can be used to help support and extend mathematics and allow the children to explore and experiment. A range of software is available for use on the networked machines. (See mathematics guidance)

### **Homework**

Homework is set in line with the homework policy. The work set should enhance and support the children's learning. Times tables to support the 55 club or mental mathematics tasks are be set and tested weekly.

### **Monitoring**

Monitoring within mathematics is undertaken in line with the school monitoring policy. The monitoring process involves staff with paid posts of responsibility and takes two forms:

- In class observations- where quality of teaching and learning is monitored and feed back given to the member of staff involved.
- Pupils books and work is monitored to;
  - 1) Match the work undertaken to the learning objective
  - 2) Look for differentiation and ensure appropriate challenge for individuals
  - 3) Match planning to delivery.

- Planning- Medium and short term planning used to monitor progression, continuity and coverage as well as a means for tracking individuals or groups of pupils.

### **Assessment, Recording and Reporting.**

In line with the school assessment policy assessment should be an integral part of the teaching and learning process. It should be used to evaluate our teaching programme and to plan the next steps in a child's learning. When assessing we focus on performance and look for evidence of achievement or attainment. In addition to the daily formative assessment of children's understanding, practical assessment weeks are held in school to enable the children to demonstrate new learning and current attainment in order to confirm accurate assessment across the areas of mathematics. The children are involved in discussing their own work and needs for future progress as targets are reviewed and set during assessment weeks.

A range of assessment techniques are used in the on-going formative assessment of pupil's progress including: -

- marking ( see Marking policy )
- task assessment
- pupil self and peer assessment
- observation
- questioning
- short tests both written and oral.
- formal standardised tests including QCA's end of year assessments, Pitch and Expectation and Testbase questions.

•  
Appropriate use will be made of the outcomes of assessment to inform the next stage of the pupils learning and new targets set.

Termly formal assessments are carried out during assessment week and the work produced used for staff moderation sessions. Six children of varying ability will be assessed using APP for Mathematics. Evidence and work will be moderated across the school.

### **Parental Involvement**

Parents are informed of their child's progress at the termly parents evenings where the individual targets for the child are shared and agreed. A formal written report to parents is made in the Summer Term.

Parents are invited into school twice yearly to look at their children's work.

### **Transfer and Transition**

Effective recording and communication systems will ensure that teachers are aware of the achievement and potential of all of the pupils they are going to teach. Assessment data and question by question test analysis are passed on to the next teacher as part of the school's aim to aid smooth transition between year groups. This information will be shared in staff discussions as well as the sharing of documentation.

Reviewed and updated Feb 2014 P.Kay	