Kirk Smeaton EC Primary School

 Maths Policy

**June 22**

**RATIONALE.**

This policy describes our values and philosophy in relation to meeting the needs of all mathematical learners at Kirk Smeaton CV Primary School. It outlines the framework within which all staff work and gives guidance on planning, teaching and assessment.

The new National Curriculum states that:

*“Mathematics is a creative and highly inter-connected 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.”*

It is our belief that all pupils, regardless of ability, race or gender, should be encouraged and helped to realise their full potential in Maths. We want the children to see Mathematics as being relevant to their world and applicable to everyday life as well as being something that they will need as they move on through their school life and ultimately to the world of employment. To that end, a high-quality, inter-related and creative Maths experience should be one that develops the children’s ability to think mathematically and one which allows them to apply the tools to which they have been exposed in a variety of ways. We place a strong emphasis on teaching Mathematical skills and concepts in concrete and practical contexts. Teachers should use models and practical activities which enable the children to use and apply skills, knowledge and understanding.

**Aims/Objectives**

Using the Programmes of Study from the National Curriculum the aims of mathematics are:

* To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
* To create a lively, exciting and stimulating environment in which all children can learn Maths
* Ensure the delivery of Maths is filled with cross curricular opportunities
* To promote confidence and competence with numbers and the number system and to use mathematical vocabulary to reason and explain
* To develop the ability to solve problems through decision making and reasoning in a range of contexts
* To develop a practical understanding of the ways in which information is gathered and presented.
* To explore features of shape and space and develop measuring skills in a range of contexts
* For children to challenge and stretch themselves and take risks in their learning
* To promote the concept that acquiring mathematical knowledge and skills provides the foundation for understanding Maths in everyday life.

**Strategies and teaching**

It is important that children are allowed to explore Maths and present their findings not only in a written form but also visually; to that end the school will adopt the CPA approach: concrete, pictorial, abstract. This will allow the children to experience the physical aspects of Maths before finding a way to present their findings and understandings in a visual form before relying on the abstract numbers.

We carry out curriculum planning in mathematics in three phases (long-term, medium-term and short-term(.See Plan B yearly POS and NCETM.) Our mathematics curriculum is delivered using the new Early Years Learning goals and Plan B schemes of work with Reasoning and Problem Solving through ENRICH, Test Base and other schemes teachers find appropriate, to ensure appropriate pace, progression and coverage of the subject. This coverage is reviewed continually by class teachers and planning is adjusted accordingly to ensure appropriate coverage of all mathematical strands.(see calculation policy) Once pupils understand a mathematical concept, they are then required to solve problems and carry out investigations- deepen their conceptual understanding while also becoming more sophisticated in their Mathematical approach.

 At Kirk Smeaton School we teach the National Curriculum, supported by a clear skills and knowledge progression. This ensures that skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children.

**EYFS** Teachers and other adults working in EYFS are fully trained in supporting early mathematical development, helping our youngest learners to acquire early number sense. This is achieved through practical and engaging activities, which children can access, alongside adults or independently with peers, to practise their maths skills. They use Mission maths to aid the teaching and learning of maths fluency.All children in the Foundation Stage have daily opportunities to develop their mathematical understanding, primarily through play, as well as some discrete teaching and practical group activities, to meet the expectations of Development Matters. The two strands of Mathematics taught in the EYFS are Number and Numerical Patterns. Children are also taught about measure, shape and spatial thinking.

**Scheme In key stages 1 and 2** our maths lessons are delivered with the support of the Plan Bee maths scheme. This scheme supports teachers to plan and deliver lessons which teach pupils essential skills, gives them time to develop their fluency and apply their knowledge in order to practise mathematical reasoning and solve problems. Teachers promote and encourage pupils to work collaboratively, as well as independently, and provide excellent modelling of all mathematical processes and concepts as part of everyday teaching. Extra Reasoning and Problem- solving questions are taken from other resources such as: Twinkl, Test Base, CPG and White Rose schemes.

**Investigations** are taught half termly in ks1 and ks2, whereby pupils can work collaboratively, in order to solve puzzles and open- ended investigations to aid their process of thinking mathematically and develop their prediction and pattern seeking skills. Resources such as Enrich/NCETM are used to support planning for this.

**Timetable for Math lessons. In KS1 and KS2** these take place daily each morning (including an arithmetic specific skills lesson) for approx. 1 hour. They include a recap at the beginning of each lesson on previous lessons taught, in order to help pupils retain information from previous topics and a plenary at the end to consolidate understanding. Lessons are planned and sequenced so that new knowledge and skills build on what has been taught before.

**Arithmetic** and basic math skills are practised daily to ensure key mathematical concepts are embedded and children can recall this information to see the links between topics in Maths. Our pupils are encouraged to physically represent mathematical concepts. There is also an arithmetic specific lesson taught weekly from EYFS (when the children are ready) to Year 6. This is differentiated for all abilities and assessment marks are taken in and pupils tracked, to make sure progress is taking place and any misconceptions and the relevant skills are being addressed each lesson. Children work with buddies to work through their corrections.

**Methods used to enable all learners to access maths include**:

Concrete – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.

Pictorial – children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.

Abstract – With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence.

Individual, paired and group work -are used to practice skills.

**Calculation Policy** Staff also refer to the Calculation Policy when teaching formal methods, understanding that sometimes children find their own efficient methods along the way.

**Times tables** Each week a Times Tables focus and assessment is carried out in classes from Y1 to Y4, in order to give children the opportunity to practise and improve their rapid recall skills with facts up to and including 12x12. Children enjoy the weekly challenge and strive to improve their time and score each week. Times tables are also given time at the beginning of each lesson which is extra to the weekly tests. We use daily teaching of each table using songs and games in class as well as daily practice for 5 mins using class booklets in both Y1/2 and Y3/4.

All children throughout school also have access to their own personal account of ‘Times Tables Rockstar’ where they can compete against other pupils and classes in school. Y4 also have a timestables booklet to do each week.

Y4 do the official check in June, the results of this are used to identify where there are children who will still require regular practice/interventions perhaps into y5/6.

The curriculum is delivered by class teachers. All work is differentiated in order to give appropriate levels of work and children are taught in ability groups, when required, from the end of Foundation.

At Kirk Smeaton C of E Primary School we follow the Kirk Smeaton Calculation Policy

Corrections are done, where- ever possible, as the children are working, with impact marking by the teacher during, or at the end of a session. This might include stopping their independent work after 10 minutes to check each pupils understanding and if there are any problems, then intervention from teacher/support staff can happen straight away with individuals or a target group.

**Display /Resources**

 In the classrooms there should be, either on display or easily accessible to children, appropriate resources, particularly concrete and pictorial apparatus to support children so they can grasp the concepts.

 Mathematical vocabulary should be displayed so that children use this in the communication of their understanding.

 There should be maths work on display in classrooms and in other areas of the school in order to encourage a positive attitude and enthusiasm towards mathematics for all groups of children

Mathematical materials, equipment and Basic resources are stored in each classroom.

The maths Co‐coordinator should be informed when equipment needs replacing or supplementing. The children are shown how to take care of equipment and resources and progressively encouraged to select materials suitable for the task in which they are engaged.

**Links to other curriculum areas**

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Within every Science/DT topic, children will also develop their mathematical skills. This will help children appreciate how to Work Scientifically and skilfully, but also practise discrete mathematical skills.

 Mathematics contributes to the children’s spiritual development, finding shapes and pattern in nature, seeing order, logic and pattern that number offer. Opportunities to reinforce mathematical concepts in other subject areas as well as in the outside environment will be encouraged and provide.

**The role of the subject/SLT leader:**

The role of the subject leader/SLT is to:

* to provide a strategic lead and direction for the subject
* to support and offer advice to colleagues on issues related to the subject;
* to monitor pupil progress in that subject area;
* to provide efficient resource management for the subject.

It is the role of the Maths subject leader to keep up to date with developments in Maths, at both national and local level. They review the way the subject is taught in the school and plan for improvement. They review the way the subject is taught in the school and plan for improvement. This development planning links to whole-school objectives reviews the curriculum plans for their subject, ensures that there is full coverage of the National Curriculum and that progression is planned. They must then monitor and review this on a regular basis, by conducting book scrutiny, learning walks and through discussion with both pupils and staff.

**Parental Support and Homework**

We recognise that parents make a significant difference to the pupils’ progress in maths and encourage this essential partnership. Homework follows the school’s Homework Policy and is used for the following purposes:

* To practice a skill

To learn something by rote such as times tables and formulae

* To revise for an assessment
* To help target children improve in the area they need reinforcement.

In Y6 pupils will take various work home during the year that will help them with

Reasoning and arithmetic this will increase for Y6, as SATs approach to help with revision. They also will be sent revision skills practice.

**Homework** is set to develop and review children's learning using the CPG Math Target Books across kS2 . In KS1 children have Timestables Rockstars, and topic related maths activities as when appropriate.

In Reception, children receive one page of Maths homework from the Mathletics Numbers and Patterns workbook.

**Intended Outcomes Our pupils will learn to:**

* Develop the appropriate mathematical language associated with number, shape and position;
* Use and apply mathematics in practical tasks, in real life problems and in acquiring further knowledge, skills and understanding in the subject itself;
* Understand and use the four operations of number in relevant contexts;
* Understand relationships between numbers, learn basic number facts and develop a range of computational methods;
* Understand place value in our counting system and understand how it can be extended into numbers below zero.
* Use their mathematical skills in simple problem solving;
* Collect, interpret and represent data in tabular, graphical and diagrammatic form;
* Develop mental methods of calculation;
* Recognise, describe and represent shapes and patterns in terms of their properties, location and movement;
* Measure quantities including length, area, volume/capacity, angle, temperature, time and mass;
* By the time children reach Year 6 they will be introduced to ratio/ proportion and language of algebra as a means for solving a variety of problems.

Pupil to be at the Age- Related Expectations (ARE) at the end of their appropriate school year with some children expected to be GD.

**Assessment of Maths** Whole school assessment and tracking takes place termly forKS1/ KS2. Children are assessed in Y5/6 using previous SAT papers which allows teachers to complete a question-by question analysis and provide a scale score.

In year 3/4 Rising Stars assessment tests are used termly. At the end of the summer term Y4 pupils use 2015 Sat paper for ready for UKS2. Y4 complete the National Timestable check at the end of the year.

 In y1/2 children have a termly assessments using previous SAT paper in Y2 and at the end of year 2 sit the SATS paper in arithmetic and reasoning. EYFS children are assessed against the Early Learning Goals at the end of Reception and are tracked against the age related Mathematics statements from Development Matters.

Children, who are not ready to access year group expectations, can complete a pre key-stage assessment

**Calculation Policy**

This is referred to by all class teachers when choosing methods of learning.

**Inclusion and equal opportunities**

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

**Special Educational Needs**

All children will have their specific needs met through differentiated work in conjunction with targets. TA support time is planned for and provided in relation to identified needs for individuals and groups.

**Marking and presentation**

Teachers are expected to adhere to the schools marking policy when marking books and presentation policy when guiding children as to how to present their work. It is expected presentation to be of a high standard, showing working out in an organised manner. Marking is carried out at the end of a lesson/ specified time in lesson by children/teacher or support staff with impact marking whenever possible.