

Priory Infant School

Mathematics Policy

Rationale:

The importance of mathematics

Mathematics equips pupils with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem-solving skills, and the ability to think in abstract ways. Mathematics is important in everyday life, many forms of employment, science and technology, medicine, the economy, the environment and development, and in public decision-making.

Different cultures have contributed to the development and application of mathematics. Today, the subject transcends cultural boundaries and its importance is universally recognised. Mathematics is a creative discipline. It can stimulate moments of pleasure and wonder when a pupil solves a problem for the first time, discovers a more elegant solution to that problem, or suddenly sees hidden connections. *National Curriculum 1999*

“Interactive whole class teaching means using lively questioning, exploration and illustration. It means expecting children to play an active part in lessons by explaining and demonstrating their methods to their classmates”. *NNS Framework 1998*

Aims:

At Priory Infant School our aim is for all children to have equality of opportunity to:

- Have a positive attitude to mathematics, to enjoy and be successful in the subject
- Develop a sound understanding of basic mathematical concepts through relevant and meaningful practical and investigational work.
- Acquire necessary and appropriate mathematical skills and apply them confidently
- Demonstrate their skills and knowledge in a range of contexts across the curriculum
- Talk about their work using appropriate mathematical language
- Develop logic and clear thinking skills to solve problems
- Use and recognise mathematics as part of their everyday lives at home and at school

Objectives:

To meet our aims we will ensure that:

- All children follow a broad and balanced mathematics curriculum based upon the requirements of the National Curriculum.
- All children will have interesting and challenging lessons and tasks that will enable individuals to achieve to the best of their ability within the subject
- Children will have opportunities to work individually, collaboratively in pairs, groups and as a whole class
- Children will have opportunities to work with the teachers and teaching assistants as well as developing independent skills and making decisions about their own work.

Principles of teaching and learning:

Our school follows the National Curriculum for Mathematics using the Primary Mathematics framework to support our mathematics curriculum and allow for individual, group and class differentiation where needed.

The children are taught following the seven strands in the Primary Mathematics framework and Programmes of Study within the National Curriculum.

At Priory Infant School we believe that **Using and Applying Mathematics** is the most fundamental strand and this is the cornerstone of our mathematics curriculum.

This strand is always at the forefront of our thoughts when planning for the other areas which are:

Counting & Understanding number

Knowing and using number facts

Calculating

Understanding shape

Measuring

Handling data

Through our teaching of the above we intend to promote numeracy and mathematical skills in all of our children at the highest possible level for each individual to raise achievement in the subject for all.

Expectations:

By the end of Key stage 1 we expect that numerate pupils should:

- Have sense of the size of a number
- Know by heart number sequences appropriate to their age such as simple doubles, halves, and some times tables
- Work out answers mentally and be able to use a pencil and paper where appropriate to aid their mental calculations
- Make sense of problems and have strategies for working through a problem
- Use strategies to check their own work
- Explain their methods and reasoning
- Suggest suitable units for measuring
- Select and use suitable resources
- Make sensible estimates
- Begin to read and explain data on graphs, charts and tables

Differentiation and Inclusion:

At Priory Infant School each class has a dedicated full time Teaching Assistant who support the teaching during maths lessons in a wide variety of ways. An additional adult also supports during mathematics lessons at least twice a week within the Key stage 1 classes. In the Early Years classes the 2 Teaching Assistants support the teaching of mathematics as planned by the teachers.

The teachers always differentiate weekly planning to include appropriate and “next step” activities for the least able as well as more challenging extension activities for the more able in the class. To do this they use the National Curriculum, the schools own assessment booklet and the Primary Mathematics Framework to select objectives from the previous term or year (or from the following term or year for the more able) as appropriate to the children.

Where children have maths targets on their IEP or Group EPs the teacher will often plan specific activities outside maths lessons and the teaching assistant is aware of their needs when working with those children. Generally children are grouped in class by ability in the subject although at appropriate times mixed ability groups can work well.

The Teaching Assistant and additional adults often support the least able during the mental and oral starter by focussing attention, working alongside to remind, prompt or work on the same strategy but with smaller numbers. Equally the teacher is well aware of how to use different levels of questioning to extend and develop the thinking of the more able children during this part of the lesson.

Group work is recommended for the majority of the maths lesson in order to cater for the very wide range of abilities found in every class. Some groups will be taught outside the classroom on occasions in order to maximise concentration or consolidate learning by giving extra practical or revision tasks. ICT is used as often as is possible for SEN children to consolidate skills and for the more able to extend their understanding as well as generally being used in lessons as a planned part of the activities.

Homework activities are also differentiated to reflect the children's learning during the maths lessons that week. Generally, homework is given to the children in the form of a game or family based activity ("be a detective and find as many repeating patterns around the home as you can") so that children can access the task at their own level.

Teaching and Planning mathematics:

Teachers plan a daily mathematics session for their class at least 4 times a week. This will include a session in the ICT suite for some of the children in the class.

The teachers use the mental and oral starter to "warm up" the children at the start of each session (5 -10 mins) , introduce the whole class teaching focus (10-15 mins) and then group work activities (25 – 30 mins) followed by the Plenary (5 – 10 mins).

Throughout the week there are a variety of approaches used to maintain interest and enthusiasm. Resources such as numberlines, hundred squares and digit cards are available in each class. Washing lines, ladders and counting sticks are available in each year group. Large dice and whiteboards have been bought for each class and maths funding been spent increasing the number of games and practical resources that are available for small group work during the maths lesson. Resources such as number fans, individual number lines, whiteboards and pens have been purchased in order to ensure that all children are actively participating at all times during mathematics lessons.

Teachers plan to provide a balance between practical and recorded work, oral and written activities, independent tasks or "guided" tasks, individual, group or paired work throughout the week.

Each lesson has a clear learning objective which is shared with the children. Our focus is on direct teaching with a meaningful content and purposeful approach that makes the activity relevant to the children. In each week there will be specific opportunities for the following:

- Demonstration – showing how to
- Explanation – giving examples
- Questioning – to challenge and develop understanding
- Discussion and Evaluation – talking about methods, strategies, errors
- Direction – using a specific strategy, use of resources, ways to record

ICT in mathematics:

Each pupil will have access to appropriate ICT resources to develop and enhance maths teaching either through whole class teaching in the Computer Suite, group work in the suite or individual work on the class computer station. The programmes used and the frequency of use will be planned into Mathematics Medium term Plans by each teacher.

Display:

Each class will produce a maths display at least once a term which will involve interactive aspects and key questions to reflect the work that has gone on in class. Mathematics displays are used to ensure that knowledge and skills that have been learnt are consistent revisited by the children in their classrooms.

Relevance:

Mathematics is a life skill and this will be emphasised in our teaching. Our maths curriculum will provide opportunities for children to understand how maths is integral to everyday life. This will be supported by **cross curricular links** that will be made clear to the children, eg. Measuring in design technology, pattern and shape in artwork, number, money and vocabulary in role play.

Investigations Week's involve a mathematics focus developing the children's using & applying, problem solving and investigating skills around a given theme (eg. The Pond Area, Ourselves) in a cross curricular way.

Continuity and progression:

All teachers use the Schools Assessment booklet, the National curriculum Attainment targets and the Primary Mathematics Framework for long and medium term planning. Year R staff follow the Early Years Foundation Stage Curriculum and Profiles points for Year R.

Medium Term plans broadly follow the objectives outlined in the Framework although changes are made as appropriate for the children in the class at the time. (eg. Year 2 may decide not to introduce multiplication in the Autumn term but to use that time to develop place value skills more thoroughly through money and calculations and then begin multiplication as separate topic in Spring). At the end of each half term the plans are reviewed to show coverage and the class's development and areas of weakness. This then informs the next half term plan.

Weekly planning shows specific learning objectives, key questions, resources and organisation for differentiation. All teachers continue to use the weekly planning sheet but it has now been amended to show "sessions".

Teachers evaluate the weeks planning and decide whether the planned objectives were met, whether the children need further development in that area or can move on.

Assessment, recording and reporting:

Teachers make regular assessments of children' progress in mathematics and record them systematically. This involves:

- Informal assessments of individual and group responses and confidences through specific questioning during lessons. These are annotated within the the children's work.
- Task evaluations for groups of children in the key objectives for the week. These are completed as the teacher or TA works with the group on a specific activity and inform the individuals assessment tracking sheet.
- Assess and Review lessons assessment tasks may be given to the children to make a formal assessment of their understanding of the objectives covered. Teacher then use this information to update the individuals tracking sheet or IEP targets.
- Evaluation of how the whole class / group are working compared to the Schools assessment booklet and termly plans
- SATs materials used in years 1 and 2 to aid teacher assessments throughout the year
- Levelled "Maths Quizzes" are used in the Summer Term to establish a level for each child

Equal opportunities:

There is a school equal opportunities policy which applies to all curriculum areas including mathematics. Teaching materials are chosen where possible to reflect the cultural and ethnic diversity of our society and also to have no gender bias.

Pupil performance is monitored through tracking and target setting to ensure that no group is disadvantaged.

In lessons full participation of both boys and girls is encouraged equally.

Resourcing:

Resources are regularly audited to ensure that resourcing remains relevant and well balanced to meet the needs of the children.

A Maths resources area has been established where “shared” resources (eg. Balance scales, posters, teachers books, large dice, extra multilink, problem solving packs and assessment resources) are kept and can be borrowed by all.

Role of the co-ordinator:

The maths co-ordinator is responsible for:

- Monitoring planning, teaching and learning in maths across the school
- Resourcing
- Keeping up to date with new initiatives/legislation/training needs
- Advising colleagues
- Reporting to governors and Parents about mathematics in school

Review:

This policy will be reviewed every other year by the maths coordinator following discussions with Headteacher and colleagues. Any amendments will be presented to the whole staff and the Curriculum Committee of the Governing Body for approval.

Karen Pugh: Maths Co-ordinator

Review date: 2016