

Roseberry Primary School

R P S



Policy for Mathematics

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At Roseberry Primary, we aim to inspire all children to reach their full academic potential. In mathematics, this means ensuring a curriculum that is fully inclusive of all children which:

- Develops children's knowledge and understanding of Mathematical concepts whilst enabling them to practice and hone skills and methods;
- Enables them to think critically and communicate their understanding;
- Gives them opportunities to apply learnt mathematical skills in different contexts across the curriculum.
- Provides opportunities to develop problem solving skills useful for maths and across the curriculum.

This policy is set within the context of the school's vision, aims and policy on teaching and learning. As a result of their learning in mathematics, and problem solving across the curriculum, children will:

- Be prepared for applying their skills effectively in everyday life situations, in their future learning and in the work place.
- Have the building blocks in place and to provide a solid foundation to lead onto secondary, further and higher education.
- Through teaching with a problem solving approach, children will learn to understand, refine and clarify information; consider what they know that will help them to solve problems, realising what they need to know next; create systems and strategies, organising information in a way that helps find patterns and ultimately solutions and to communicate and present their findings effectively.

Planning

Planning begins from a thorough understanding of children's needs gathered through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.

Topic medium term planning will outline the areas of mathematics that will be taught during the topic to ensure cross curricular links and application of skills in other subject areas.

Within short term planning, clear success criteria for each learning objective taught should be created – demonstrating the progression needed to reach and exceed the objective. This will enable the class teacher to follow a clear and systematic teaching sequence, where input and activities are differentiated by considering which parts of the success criteria individual children are ready for.

Where children are working significantly above or below the objective, the majority of the class need to work towards, and where extending this by expanding the success criteria seems inappropriate, objectives from higher or lower age-groups will need to be planned and taught.

Planning, where possible, should involve real life contexts for maths, where children are problem solving with a purpose in mind.

There should be a whole class opportunities planned at least once per week to practice different elements of problem solving, including: finding all possibilities, logic problems, finding rules and describing patterns, diagram/visual problems and exploring different aspects of number. During these investigations and independent problem solving activities, there should be a honing in on specific problem solving skills that are transferable to other contexts.

On at least one occasion per week, class teachers should include Test Base/SATs style questions (from Y3-Y6) in order to familiarise children with the vocabulary used, allow them to apply and transfer their skills and decide on appropriate approaches, strategies and methods.

Class teachers should regularly plan for opportunities for children to apply their maths skills to different problems within maths lessons and across the curriculum. This will also allow children to revisit, practice and consolidate different areas of maths and apply them within different contexts.

Teaching

In the Early Years, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.

Children will become very competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential.

Maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations.

Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts.

Children's mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practiced at school with support sought from parents through homework activities.

A progression towards efficient written calculations should be developed and applied consistently in each year-group. The school's Calculation Policy should be followed.

Individual and group targets should be used to ensure areas where the majority of the class have not grasped a concept can be revisited and mastered.

Though the nature of lessons will be very different depending on the needs of the class, children should be: active; practicing skills they haven't yet mastered (perhaps recapping on class/individual targets); learning something new OR learning to apply their knowledge to different contexts. They should be 'doing' very quickly; working at a good pace and being productive; sharing their thoughts and methods and being successful.

When teaching problem solving skills across the curriculum time (and sometimes whole lessons) should be given to each aspect of problem solving ensuring children get thorough practice at: 'preparing for problem solving', 'thinking through problems to establish what they know and don't know so far'; actually 'doing the problem solving' effectively AND 'communicating the answer effectively'. They should evaluate the process too. Over time children will improve at each aspect.

Assessment

Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular.

Children should self-assess against the learning objective and success criteria regularly, giving them a sense of success. Children should know when they are meeting their targets and be self-assessing against those too.

Pupil's work should be marked in line with the Marking Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods. Next steps should be prioritised and purposeful.

Future lesson design should depend on class success evaluated through marking and observations made during the lesson.

Assessment of pupil work and progress is ongoing by the class teacher and informs future planning. Teachers mark work in mathematics in line with the school marking policy. Teachers use a tick sheet assessment proforma and this allows teachers to assess (and assign an age related expectation) children's progress in mathematics, gathering evidence over the course of the year. Teachers use, alongside regular test analysis, this information to inform planning for groups and individual pupils.

Summative assessments are made at least once per half term in order to provide further understanding of the age related expectations a child is working at and to inform a more rounded judgement of their abilities.

Tracking is used in order that children who are not making good progress over time can be targeted for support in one form or another. What that support will and how intensive, depends upon the child's needs and it may be a simple strategy within whole class teaching that is needed.

Where further support is deemed necessary, children can access interventions, explained below.

Display and Resources

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

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

There should be maths working wall 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

Guidance for Teachers and TAs

When planning, class teachers should prioritise objectives that are linked to the maths targets in the back of children's books so that teacher assessment and self assessment can take place.

Maths should be taught every day (KS1 – 45/ 50 minutes, KS2- 60 minutes a day).

Resources to assist with the planning, teaching and assessment of mathematics can be found in the shared area of the school's computer network and in the maths resource cupboard.

Early morning work (before registration starts) should be set up by the class teacher so children can revisit, practice and consolidate previously learnt areas of maths.

Tracking and Intervention:

At Roseberry Primary we aim to provide children who are not making good progress, with extra support through interventions. Interventions in maths should be based on developing key number skills that are appropriate for the children involved.

Intervention provided to boost children's progression in maths should be tightly planned, with success criteria set and assessments made frequently to ensure progress is being made. Whilst interventions could be carried out by Teaching Assistants, for example, what is being taught and how it is delivered is the class teacher's responsibility and communication is essential.

We identify from tracking any gender issues that exist and plan initiatives that would address these as part of pupil progress review meetings where children's performance is evaluated on an individual basis with class teachers.

We also examine the progress of ability groups and those with English as an additional language, those entitled to the Pupil Premium and those with a Special Educational Need.

Monitoring:

Monitoring of children's progress begins with pupil progress meetings but continues with the maths leader evaluating further evidence to ensure children are making progress. This monitoring happens through examination of work in books, pupil interviews, analysis of assessment results and the assessments used, and through other means depending on what information needs to be gleaned.

Following monitoring activities feedback is given to staff about how they can strengthen their practice and CPD (professional development) opportunities built in where it would be deemed valuable. These might take the shape of inputs during staff meetings or by a variety of other means.

Other policies and documents to be read in conjunction with the Maths Policy:

Calculation Policy

Mental Maths Calculation Policy

Teaching and Learning Policy

Marking Policy

SEND Policy

Homework Policy