

Hillary Primary School



Primary School
NURSERY - INFANT - JUNIOR

Mathematics Policy

December 2016

(To be reviewed December 2018)

AIMS

The mathematics teaching at our school is geared towards enabling each pupil to develop within their capabilities; not only the mathematical skills and understanding required for later life, but also an enjoyment, enthusiasm and fascination of mathematics itself.

We aim to help the pupils to:

- Understand the nature and purpose of mathematics in everyday life
- Promote confidence and competence with numbers and the number system
- Develop the ability to solve problems through decision-making and reasoning in a range of contexts
- Develop an understanding of mathematical vocabulary, enabling them to discuss and share their ideas and thoughts clearly, concisely and accurately
- Develop confidence in using and applying mathematics and to learn to enjoy its challenges

PLANNING

Planning begins from the chapters in the Maths No Problem series and is coupled with a thorough understanding of children's needs gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.

Medium term planning outlines the areas of mathematics that will be taught during each term to ensure complete coverage of the National Curriculum. This is provided by the subject leader and is based on the chapters covered within the Maths No Problem series.

Within short term planning, clear success criteria (WILF) for each learning objective (WALT) 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.

Planning should involve real life contexts for maths, where children are problem solving with a purpose in mind. Every Maths No Problem lesson starts with a problem

presented in a story and the aim is for children to find at least two different methods to solve the problem. Teachers need to plan for these opportunities and ensure that all children have the appropriate resources and scaffolds available to allow them to do this.

There should be a whole class investigation/problem planned at least every two weeks 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, there should be a honing in on specific problem solving skills that are transferable to other contexts. During these tasks, becoming 'stuck' should be celebrated and children should be taught how to look for alternative routes and apply a range of strategies to work towards a solution. Ideas for these investigations could come from the Nrich website or the NCETM assessment materials.

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, practise and consolidate different areas of maths and apply them within different contexts.

The role of a teaching assistant within the maths lesson can be varied, however planning should clearly state which children they should be working with, key questions that should be asked, suggested extension tasks and expected progress. Teaching assistants should be used to maximise progress during a lesson. This may mean that they deliver a different mental/oral starter to the teacher or that they do some pre-teaching during a plenary ready for the following day. During the main exposition, they may be noting down names of children who need additional support or challenge during the independent tasks. Teachers should ensure that teaching assistants work with a variety of children throughout a series of lessons and that they are used to extend more able children as well as support lower ability and SEND children.

TEACHING

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, both verbally and written, 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. Children should be taught to recognise when to use a written method and when to use a mental method.

A progression towards efficient and formal written calculations should be developed and applied consistently in each year-group. The school Calculation Policy should be followed. Before written methods are carried out they should consider:

1. Can I do it in my head? (using roundings...)
2. Can I estimate the approximate answer?
3. Could I do jottings to keep track of my calculations?
4. Which method is the easiest for me to use to get the answer?

Class targets should be used to ensure areas where the majority of the class have not grasped a concept can be revisited and mastered. These should be displayed clearly in the classroom and all adults and children in the room should be aware of the target and how they are working to achieve it.

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

In order to evidence practical and verbal work taking place, all teachers should contribute to a weekly Padlet page for their class. This should then be evidenced with a QR code in the Maths No Problem book.

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.

On a daily basis children should self-assess against the WALT and WILF and the Big Picture should be completed to self-assess the learning that has taken place during a chapter. They should be supported with unpicking their learning to identify which areas they are achieving success in and those they are finding difficult and how they can overcome them.

The Feedback and Marking policy should be adhered to.

Future lesson design should depend on class success and misconceptions that are evaluated through marking and observations made during the lesson by both the teacher and the teaching assistant.

Teachers assess against statements from the National Curriculum and this allows teachers to give a step assessment to each child to show their attainment in mathematics. Teachers use this information to inform planning for groups and individual pupils.

Summative assessments are made at least once each half term, using the Rising Stars Progress tests. There are two Maths No Problem tests to be completed during the year; these are designed to assess the content taught in both Maths No Problem books. A question analysis should be completed after each test, including the progress tests, to give vital information about gaps in knowledge/skills which need to be taught and also strengths. From this, future planning should be informed.

Target Tracker is used to review assessments that are made 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 be 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.

Year 2 and Year 6 will use the Interim Frameworks to make a judgement as to whether children are achieving the expected standard during the summer term. They will use information stored on Target Tracker, the children's books and any other knowledge they have of the child to inform the judgement.

In school moderation takes place to judge the accuracy of assessments made. These may be in year group meetings, staff meetings or by an external advisor that we have bought in to school.

TRACKING AND INTERVENTION

At Hillary we aim to provide children who are not making good progress, with extra support through timed, specific and measurable interventions. 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. Use of the 'Intervention Impact Grids' are vital. All maths interventions should be clearly identified on the Provision Maps, including those in place to challenge or extend more able mathematicians.

We identify from tracking any issues that exist and plan initiatives that would address these as part of the half-termly review of standards, where children's performance is evaluated on an individual basis by class teachers. Interventions which can be accessed are the Assisting Maths, Rapid Maths and Numicon programs, but units should be selected carefully and there is no need to teach the whole series of lessons if the child or group of children do not require it.

The success of interventions is also monitored by the Inclusion manager and this informs future planning of intervention.

MONITORING AND EVALUATION

Monitoring of children's progress begins with data analysis but continues with the subject leader evaluating further evidence to ensure children are making progress. This monitoring happens through observations, 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 including lesson study and planning sessions.

PARENTS AND HOMEWORK

We recognise that parents make a significant difference to children's progress in Maths and encourage this partnership. Every child receives differentiated maths homework fortnightly. The format of this homework will be at the discretion of the class teacher and allows flexibility for the child to be creative. The use of Education City and RMeasimaths also provides a link between school and home.

Parent sessions are run throughout the year and school invites parents in to work with a maths specialist on a regular basis.

EARLY YEARS

The Early Years Foundation Stage (EYFS) sets the standards that all early years providers must meet to ensure that children learn and develop well and are kept healthy and safe. It promotes teaching and learning to ensure children's 'school readiness' and gives children the broad range of knowledge and skills that provide the right foundation for good future progress through school and life.

The Curriculum for the Early Years Foundation Stage (EYFS) underpins all future learning by supporting, fostering and promoting children's Mathematics by providing opportunities for all children to develop and improve their counting, understanding and use of numbers; to practise calculation skills in simple addition and subtraction problems and to use and describe shapes, patterns, spaces and measures and to investigate and solve simple problems.

The school uses Early Years Outcomes throughout the EYFS as a guide to making best-fit judgments about whether a child is showing typical development for their age, may

be at risk of delay or is ahead for their age. This is then used to track children's progress and attainment through the Early Years Outcomes bands ranging from 0-11 months - Band 1, to the Early Learning Goals - Band 7.

In the final term of Reception, each child's level of development must be assessed against the early learning goals (ELG). Practitioners must indicate whether children are meeting expected levels of development (ELG), if they are exceeding, or not yet reaching expected levels ('emerging'). This is the EYFS Profile.

Numbers ELG: children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Shape, space and measures ELG: children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Maths - No Problem!

A list of 'none-negotiables' to be seen in workbooks, maths books and lessons.

- 1) **WALT and WILF** to be clearly displayed and used during the lesson.
- 2) **Appropriate concrete/visual representations** to be used in every lesson - evidence of this should be seen. This could be through photographs, marking or self/peer assessment.

- 3) **QR codes leading to a weekly Padlet** page must be stuck into the workbook - practical and verbal work should be evidenced on here throughout the week.
- 4) All work in workbooks and maths books to be **dated**.
- 5) **WALTs** must be recorded next to all work in both the workbooks and maths books.
- 6) A '**Big picture**' to be in maths books to signify the **start of a new chapter**. It should include a summary of the new learning taking place (Self check from textbook) and mastery assessment questions for the end of the chapter.
- 7) The '**Big picture**' **must be completed** at the end of a chapter - children must write a comment to explain their thoughts and achievements
- 8) **Differentiation to be evident** - tasks for rapid graspers and supports provided as scaffolds should be obvious within a lesson.
- 9) **Stickers must be used to show where a child has had a same day intervention** either from a TA or a teacher. These should be stuck in the workbook and there should be appropriate green pen work to evidence this. There may be additional work in the maths book as evidence of this too.

Date:

Consolidating Learning with Mrs Rana.
I worked with Mrs Rana to look at my work again, I have used a green pen to show my new understanding.



- 10) **Workbooks and maths books to be marked using the marking and feedback policy** - use of marking codes, highlighting and comments which move learning forward.
- 11) Questions posed through marking must be answered by children using **green pen**.
- 12) A **working wall should document/reflect current learning** - appropriate vocabulary and models/images to provide a support to the learning.
- 13) **Reasoning and application of skills** should be seen in challenges provided for rapid graspers but also the investigations taking place at least once every fortnight