

Mathematics

How we structure a unit of work

The content for our mathematics units of work is taken from the National Curriculum 2014. We have a purpose built schedule for delivering all yearly learning objectives in weekly or fortnightly topics through the year. Key topics are revisited at several points in the year with greater depth to the learning being added.

Planning and Key Supporting Documents

- **The half termly overview maps**

Each year group has a half termly overview grid which outlines the strand of maths to be taught each week. Each half termly plan gives a breakdown of the objectives to be taught each week. These plans can be found on the server at: *Planning folder - Numeracy – Supporting documents - Focus Maths.*

- **Weekly plans**

For each year group a weekly plan has been allocated setting out the objectives that should be covered in that week as the teaching points in each lesson. The plan contains examples of activities that could be used to support the teaching at three ability levels – those in need of practice and consolidation, those working at the expected level and those working at greater depth. These activities should be used as teachers to develop their own lesson activities for the week. These can be found in relevant year group folders on the server at:

Planning folder - Numeracy – Supporting documents - Focus Maths.

Teachers may wish to further document a weekly plan on the maths planning template provided later in this document or may simply annotate the provided weekly plan

- **Smithy Street Calculations Policy**

This policy contains the key pencil and paper procedures that will be taught within our school. It has been written to

ensure consistency and progression throughout the school and reflects a whole school agreement. Hard copies of the policy are in each class, but it can be found on the server at:

Planning folder - Numeracy – Supporting documents – Calculation Policy.

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- **London Borough of Tower Hamlets Maths Tool**

Ideas for activities and assessment opportunities can also be taken from the Tower Hamlets Maths Toolkits. There are clear examples of 'meeting standards' for each national curriculum objective and what it looks like at the end of each term. They can be found on the server at:

Assessment Folder- LBTH Tools OR Planning folder - Numeracy – Supporting documents – Maths Tools.

- **Mathematical Vocabulary for the 2014 National Curriculum**

Progression of mathematical vocabulary through the year groups, is clearly organised into the National Curriculum strands for Mathematics. Teachers have been provided with a hard copy, but it can be found on the server at:

Planning folder - Numeracy – Supporting documents -Vocabulary.

- **Statistics (data)**

National curriculum objectives for data handling are outlined for Years 2 – 6, with clear examples to aid planning. Teachers have been provided with a hard copy, but it can be found on the server at:

Planning folder - Numeracy – Supporting documents – Statistics.

- **National Curriculum Glossary**

A hyperlinked mathematics glossary, to aid teachers with mathematical concepts through definitions and examples.

It can be found on the server at:

Planning folder - Numeracy – Supporting documents – Vocabulary.

Frequent techniques we use

An emphasis on Mathematical Fluency

- **Mental calculation strategies**

We are aiming for children to be confident, flexible and secure with a wide range of mental calculation strategies. These

are taught throughout the key stages.

- **Recall of Key Facts**

The recall of multiplication and division facts; number bonds; doubles and halves and fraction/decimal/percentage equivalences are essential parts of maths learning that is on-going throughout the year. A weekly lesson should be devoted to number work, regardless of the topic for the week.

- **Maths Starters**

We use the 5 – 10 minutes within a lesson to revisit and practise mental strategies and recall of number facts, so that children become and remain fluent in all areas of mental calculation. It does not have to be of the same strand of maths learning as the main lesson.

- **Times tables and related division facts**

Years 1 – 6 run a daily whole class intervention for times tables and related division facts. This takes place during some Maths starters and at other times of the day (i.e. afternoon register). Classes are tested each half term and percentages are added to a whole school tracker. Times table and related division facts teaching information and assessment can be found on the server at:

Planning folder - Numeracy – Supporting documents – Times tables.

An emphasis on Mathematical Oracy

Pupils are encouraged to explain and justify their mathematical reasoning. Use of talk partners and collaborative learning is made to ensure that explaining processes is seen as important as finding answers and solutions. The language of mathematical reasoning (talk for writing language structures) is to be used to support this process. Hard copies have been given to teachers, and can also be found on the server at:

Planning folder - Numeracy – Supporting documents – Calculation Policy (appendix).

The use of models, images and practical resources

Number lines and arrays are used to develop secure understanding of the four number operations. Visual images and hands-on practical resources are also frequently used to provide additional support. The use of learning walls will support children as they progress through a unit of work and re-visit previously learning content. The use of Numicon as an aid to number work is encouraged throughout the school.

Problem solving and investigating

Problem solving and investigative activities should be integrated into daily lessons as much as possible to develop a deeper understanding of mathematical concepts and reasoning skills. Often, activities that include the use of practical equipment such as dice or digit cards help the children to achieve well. When practical activities are carried out by children, this should be recorded in their books with the learning intention and steps to success, alongside a note or photo of the activity undertaken.

Cross- curricular links and a real life context

Links between maths and other areas of the curriculum should be made, where possible, in a unit of work to allow for evidence of deeper learning. Obvious links can be made in measuring and data handling activities within science, but creative links with literacy, I.C.T and other non- core subjects can enhance the learning in each of the linked subject areas. Where possible, the learning should be placed in a real-life context.

Why we have decided we teach this subject in this way and how is this benefitting our children

We recognise that children work best using a range of visual, kinaesthetic and auditory strategies (VAK strategies), depending on the type of learner they are.

Through encouraging reasoning, problem solving and investigating we believe children will build resilience and creativity in their learning and applying of maths. Providing children with a real life context and making cross curricular links results in them to be more engaged and motivated.

We teach in these ways as they are the most effective ways of children becoming confident and secure mathematicians, by deepening and enriching their understanding of mathematical concepts.