Mathematics Policy for Melbourne Infant School

Contents

Rationale

An early understanding and ability to apply mathematics in everyday life is essential in preparing children to meet the demands of an increasingly complex world. Mathematics not only has value in itself but is also a necessary foundation for development in other areas of the curriculum. Children at Melbourne Infant School will leave our school being able to be fluent mathematicians, reason using mathematical vocabulary about their understanding of maths and solve problems across all mathematical areas.

Aims

At Melbourne Infant School it is our aim to provide all children with a structured and varied approach to mathematics through the daily mathematics lesson and in accordance with the National Curriculum 2014 and EYFS Guidance.

- A positive attitude to mathematics as an interesting, exciting and fun subject.
- An ability to think clearly and logically in mathematics with confidence, independence of thought and flexibility of mind.
- An understanding of mathematics through a process of enquiry and experiment.
- An appreciation of mathematical pattern and the ability to identify relationships and make connections.
- Mathematical skills and knowledge accompanied by the quick recall of basic facts.
- An awareness of the use of mathematics in the world beyond the classroom. Children should learn that mathematics will frequently help them to solve problems they meet in everyday life.
- The ability to work cooperatively with other children.
- Reason mathematically by following a line of enquiry, making connections and developing an argument, justification or proof using mathematical language/manipulatives.
- Acquire the necessary skills and fluency to recognise and make links between areas of mathematics and to move between representations of mathematical ideas.
- Apply their mathematical knowledge to science and other subjects.

It is expected that all children have equal access to the support and opportunities in the mathematics curriculum regardless of their ability.
It is our aim at Melbourne Infant School to ensure that all children reach as high a standard as possible.

Guidelines

EYFS Guidance 2013

Number - 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 - 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.

National Curriculum 2014 states:

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, manipulatives and measuring tools].
At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
By the end of Year 2, pupils should know different number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Mathematics Mastery Program

At Melbourne Infant School we have adopted the Mathematics Mastery program for the delivery of mathematics lessons in EYFS, Year 1 and Year 2.

The expectation is that the majority of pupils will move through the programs of study provided by the National Curriculum at broadly the same

pace. However, decisions about when to progress, is based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils, who grasp concepts rapidly, are challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material, consolidate their understanding, through additional practice, before moving on. All lessons therefore are appropriately differentiated to fully meet the needs of all pupils in class. Teachers employ a range of teaching strategies, which include:

- Sharing teaching objectives with the class, ensuring that pupils know what they are going to learn.
- Instructing and demonstrating, modelling mathematics using appropriate resources and visual displays through the use of Math's working walls in all classrooms and bay areas as an extension of the classroom when TA's/Teachers are taking out intervention groups or guided groups.
- Children working within mixed ability groups or mixed pairs.
- Guided activities when appropriate.
- Booster groups
- PTP
- First class at number intervention.
- Mastery Max problem solving and reasoning activity.
- Challenges

'The essential idea behind mastery is that all children need a deep understanding of the mathematics they are learning. So that future mathematical learning is built on solid foundations which do not need to be re-taught, there is no need for separate catch-up programmes due to some children falling behind. Children, who, under other teaching approaches, can often fall a long way behind, are better able to keep up with their peers, so that gaps in attainment are narrowed whilst the attainment of all is raised. '
Teaching for Mastery 2015

Mastery Max

The Character Mastery Max has been introduced as a whole school approach to help the children with their reasoning and problem solving skills. He is on the weekly activities and he appears in lessons throughout the week and in every plenary session.

The Daily Mathematics Lesson

All children at Melbourne Infant School take part in a daily mathematics lesson from Reception through to Year 2. The daily mathematics lesson consists of whole class, group work and independent activities which are differentiated accordingly to meet the children's needs.

Organisation of the daily mathematics lesson

Reception (4 x 50 minute lessons a week)

Every lesson always begins with a counting activity using a counting stick or 100 square.

15 minutes – The children begin with a whole class mental and oral warm up followed by a main teaching activity.

30 minutes – The children are grouped by their ability into 4 coloured groups and access guided group work and independent learning choices linked to mathematical concepts. Each child receives 1 guided session a week either from a teacher or TA.

5 minutes – Plenary. All children reconvene on the carpet for discussion/assessment of the learning objectives. Any misconceptions are dealt with at this point. If there is time there will be a short activity to reinforce the sessions learning objective or extend the learning further. During the plenary children receive a mastery max problem solving question. Children work together to find the answer and to prove what Mastery Max has said is right or wrong using manipulatives and mathematical vocabulary.

Year 1 and 2 (5 x 50 minute lessons a week)

2/3 minutes counting activity.

5-10 minutes – Mental and Oral maths session with problem solving opportunities.

10-15 minutes –Whole class main teaching focus.

20 minutes – The children work with in mixed ability groups or in mixed ability pairs. The tasks are differentiated to suit the individual's needs. There are regular 'pit stops' through out the lesson to support any children with mis-conceptions or challenge those who need it. There is a balance of practical and recorded mathematics maintained throughout the year. However children always have access to resources they need to support their learning in the classroom. Children are encouraged to access these and use what works for them when they need it. There is an equal mix of work in books, on worksheets, practical – non recorded and outdoor activities.

5 minutes – Plenary. All children reconvene on the carpet for discussion/assessment of the learning objectives. Any misconceptions are

dealt with at this point. Every lesson always ends with a problem solving question from Mastery Max for children to solve and reason their answers. Children are encouraged to prove their answer by using mathematical language and manipulatives to show the answer.

In addition to the daily mathematics lesson all classrooms have a problem solving area indoors and outdoors and a Mastery Max problem solving box.

Problem solving, fluency and reasoning is embedded across all lessons to enable children to become adept problem solvers.

Planning

Long Term Planning
The EYFS Guidance and National Curriculum 2014 are used as the long term planning at Melbourne Infant school. Following the Mastery programme at Melbourne Infant school we now block areas over a longer period of time to ensure children fully master an area before moving them on. The whole school always begins with place value in September in both EYFS and Key Stage for at least 1 half term. The long term plan ensures all areas are met and covered throughout the academic year. (See Long term over view for more details)

Medium Term Planning
At Melbourne Infant school in the Early Years Foundation Stage, the objectives for Mathematics are organised by their strand name; number and shape, space and measures. A long term plan is in place which staff use and highlight over the year to ensure coverage. These plans ensure that the learning objectives for the Early Learning Goals and strands are regularly revisited and also allow for pace, rigor and progression throughout the year. They also include vocabulary, problem solving and reasoning ideas to support teachers with their weekly planning.
In Year 1 and 2 the medium term plans are structured into blocks to ensure children have mastered an area and are fluent before moving them on. The medium term plan ensures all objectives in that area are covered in a range of ways throughout the year. Problem solving is embeded through all areas.

Short Term Planning

All teachers follow a weekly planning format for mathematics. A range of resources are available to support the planning of activities. The Calculations Policy (see attached) is used to ensure progression and procedures are consistent across the school.
Planning is monitored by the Head teacher, SLT and the Maths Subject coordinator as well a frequent math learning walks and book scrutiny.

Planning is annotated at the end of each week to include action notes and evaluations which inform future planning.

All classes plan for an independent learning choice based on mathematical concepts both for inside and outdoor learning.

Mathematical Vocabulary

It is vital that mathematical vocabulary is consistently used and introduced in the daily mathematics lesson.
Children need to be familiar with mathematical vocabulary so that they can understand spoken and written instructions.
Teachers plan opportunities for the children to develop their mathematical vocabulary, whether is be verbally with peers or teachers, or recorded in books/ on worksheets.

Progressive mathematical vocabulary checklists are provided for in all year groups. Each classroom has a Maths Vocabulary board where the vocabulary for the week is displayed and referred to.

Planning will identify vocabulary to be taught during each block or lesson as appropriate.

Children with Special Educational Needs

At Melbourne Infant School we aim to ensure that children with SEND are identified early and their individual needs are met.
Ways we achieve this are;

- IEPs – relate to specific mathematic objectives.
- Differentiated activities.
- First class at number intervention
- Mixed ability pair and group work to allow for peer support.
- Booster groups.
- Additional TA support.
- Mathematics objectives shared on the homework sheet for that half term.
- Weekly activities on the School website. Parents are given suggested ideas for how their child's learning can be extended at home either with practical activities or directed to specific websites.
- Mastery max question on weekly actives on the website to encourage problem solving and reasoning at home.

Children who are Higher Attainers

Children who are identified as well above average or Higher Attainers in mathematics are well catered for at Melbourne Infant School. We aim for these children to reach a level of mastery in maths, which is well above their peers.
Ways we achieve this are;

- Challenges (highlighted on weekly planning).
- Group and pair work opportunities.
- Weekly activities on Website.
- Opportunities to visit the problem solving area/mastery max challenge box within the classroom.
- Peer to peer support to encourage children to articulate the activity at hand.

Assessment

Children's progress in Mathematics is assessed at Melbourne Infant School in the following ways;

- Initial assessment when the child first starts school
- Early Years Foundation Stage Profile
- Pupil discussions
- Observations
- Higher level questioning
- Maths books/folders/ jotters

- Peer and self assessment
- Plenary
- AWL grids
- Teacher assessments are on going. This allows the Head teacher, SLT, mathematics subject manager and teaching staff to track a child's progress in mathematics across the year and across their time at Melbourne Infant school.
- The head teacher tracks different groups of children at the end of each term and the actions are fed back to staff.

Staff regularly moderate work/ marking/ expectations against national standards to ensure assessment is accurate.

Mathematics Information for Parents

During the academic year there are many opportunities for parents to discuss with their child's class teacher the progress that their child is making in Mathematics.

In Key Stage 1 and reception homework is sent home at the start of every term and celebrated within school. Weekly activities are shared with parents every Friday with suggestions of how they can support their child's learning at home.

A booklet is sent to parents at the start of the academic year which shows expectations in each of the different year groups. Parents also receive a termly newsletter which shows what the children will be covering that term.

Maths Parents Workshop

All parents are invited to a meeting by the Mathematics Subject Manager. The organisation, objectives and expectations for each year group are discussed in greater detail. Ideas and activities to support their child's mathematical development at home are shared. Resources to match the calculations policy are shown and parents are encouraged to ask questions about Mathematics and the ways in which it is taught at Melbourne Infant school. This enables the parents to be in a better position in helping their child at home.

Parent's Consultation Evenings

There are three parent consultation evenings planned throughout the academic year. There is one meeting held during each term, enabling parent's to discuss their child's progress in Mathematics with the class teacher. However teachers are available to discuss any concerns with parents on an individual basis as and when necessary.

At the end of the year all children also receive an annual report, where attainment and progress is evident.

Homework

At Melbourne Infant School we value the home/school partnership as vital to the progression of the children's achievements in mathematics. Teachers also suggest ideas/ activities for how parents could support their child's learning at home. As well as a mastery Max problem solving activity each week on the website. The homework menu also states what will be covered that term in maths alongside a suggested activity.

Maths Week

Once a year the whole school participates in a maths week. These activities cover a wide, varied range of mathematical areas/skills. The aim of the maths week is to provide an enjoyable, exciting, and fun experience incorporating many aspects of mathematics, whilst fostering a positive attitude towards mathematics.

I.C.T in Maths

At Melbourne Infant School all classrooms are well equipped with PCs and Interactive Whiteboards. Melbourne Infants also has a bank of Ipads that the children have access to, to support their learning further. ICT is used to enhance the learning and teaching of mathematics throughout the daily lesson including in the mental/oral maths session, main teaching activity, independent activities and the plenary. Staff show their use of ICT in the mathematics lesson on their weekly plans by underlining the ICT being used. A wide and varied range of software is available to support the learning and teaching of all the strands of mathematics.
For more information with regards to ICT please refer to the ICT policy and scheme of work.