



مدرسة جيمس متروبول
GEMS Metropole School
MOTOR CITY

Mathematics



Reviewed by: Mr. Naveed Iqbal
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Rationale

At Gems Metropole we believe that Mathematics should support the knowledge and understanding which is developed in the classroom. Home learning tasks are relevant to the learner's needs and provide opportunities to practise and improve essential skills and concepts which will in turn support students to become successful learners.

AIMS:

- To ensure the consolidation and reinforcement of previous learning in Mathematics and develop further understanding and high achievement.
- To ensure a consistent approach to home learning of Mathematics throughout school.
- To ensure that teachers, parents and pupils have a clear understanding regarding expectations for learning Mathematics.
- To ensure that teachers, parents and pupils are fully aware of the role they play with regard to learning in Mathematics.

National Curriculum of England

The [National Curriculum \(2014\)](#) for mathematics aims to ensure that all pupils:

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and can recall and apply their knowledge rapidly and accurately to problems.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Intent

Our intent focuses on equipping all pupils with the mathematics they need to master the curriculum for each year group, which requires that all pupils:

- Recall key number facts with speed and accuracy and use them to calculate and work out unknown facts.
- Develop their ability to apply mathematical skills with confidence and understanding when solving problems.
- Apply their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
- Express themselves and their ideas using the language of mathematics with assurance.
- Have sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures and use them to solve a variety of problems.
- Develop positive attitudes to mathematics, recognising that mathematics can be both useful and enjoyable.
- Nurture a fascination and excitement of mathematics.

- Are able to use and apply the skills in other curricular areas.

Our expectation is that pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of the pupils' understanding and their readiness to progress to the next stage.

Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those children who are not sufficiently fluent with earlier materials should consolidate their understanding, including through additional practice, before moving on.

Implementation

- A daily mathematics lesson of 60 minutes is taught in Year 1 to Year 6
- In EYFS, Mathematics is taught using the 'Early Years Foundation Stage Statutory Framework', which focuses on Number and Numerical patterns. This approach is enhanced by integrating the Curiosity Approach which encourages children to explore mathematical concepts through enquiry and exploration. Opportunities for mathematics are also developed through daily routines and other areas of learning.
- In KS2, 4 lessons a week cover the objectives of the National Curriculum, using the White Rose scheme of work and 1 lesson covers bi-weekly arithmetic and problem-solving objectives.
- Lessons within Y2 – Y6 include a Mental Arithmetic Recall and Speed task at the beginning of all lessons named 'Race to Mars' to improve approaches towards mental maths. Teachers will provide a session dedicated to reviewing and sharing strategies for key objectives. Strategies should be displayed within the classroom.
- Lessons are delivered using a concrete, abstract, pictorial approach.
- An anchor task is given to students to support starting points and progress with the lesson.
- Key Vocabulary is highlighted within the lesson, and this should be displayed on the classroom Maths working wall.
- A mixture of fluency and reasoning tasks in 'Bronze', 'Silver' and 'Gold' tasks as well as student choice of task (teacher supported) and movement through tasks to challenge.
- Open-ended challenge tasks to stretch high ability students in Platinum Tasks.

Teaching Methodology

At GEMS Metropole, we follow the White Rose Maths curriculum and long-term plan, using additional lesson resources from a variety of other resources such as NCTEM, Nrich. Mastery teaching ensures high expectations for all pupils, and use of the concrete-pictorial-abstract approach, encouraging all pupils to be able to independently choose methods and resources to support their mathematical learning. This approach develops children's understanding.

Teaching Maths involves employing a range of approaches that help students to develop a deep and secure knowledge and understanding of mathematics at each stage of their learning, so that by the end of every school year children will have acquired mastery of the mathematical facts and concepts they've been exposed to, equipping them to move on confidently and securely to move advanced material.

Our teaching ensures high expectations from all pupils and the use of the Concrete- Pictorial– Abstract approach. This approach develops children's understanding from Concrete (handling objects, resources,

manipulatives), on to Pictorial (visual images and representations), and then Abstract (symbolic stage with more formal strategies).



Teachers use the White Rose scheme as a framework to inform long and medium-term planning. These plans are evaluated and adapted each term to suit the needs of each yeargroup.

Individual lessons are taught using Active Inspire which allows digital presentations and interactive whiteboards. Allowing teachers to create engaging, multimedia-rich lessons and activities than can be displayed on interactive boards.

Assessment

Assessment for learning is fundamental to raising standards and enabling children to reach their potential. Assessment in Mathematics takes place daily using a range of strategies such as marking, feedback of work and verbal discussions with children.

Assessment of learning is formally completed through formative and summative assessment. Formative assessment is carried out daily and feeds forward into the next lesson as well as ongoing planning. Summative assessments include half termly mental maths assessment, end of unit White Rose assessment and Progress Tests at the end of each year. Teachers use assessment information to inform their future planning.

Children's progress is monitored using the progress tracker on Go 4 Schools. This data is used by the class teacher, to review children against age related expectations based on their Key Stage starting points. Children who are not on track or are vulnerable to falling behind are identified through analysis. Barriers to learning are identified, targets are set focusing on next steps, and interventions are planned and delivered.

Progress Tests

Students in Years 2-6 complete progress tests in Arithmetic, Reasoning and Problem Solving at the end of each academic year.

CAT4

Students in Years 2-6 will complete CAT 4 tests at the beginning of each academic year. Quantitative scores can be used to assess needs for challenge or support. These scores will be cross referenced against the latest PT score to ensure all children are supported to achieve their 'Maths' potential.

Learning Environment

Each classroom will have a stimulating learning environment which encourages children to be independent by offering:

- A Maths trolley for children to access and select appropriate resources and manipulatives.
- A Working Wall which reflects learning in current unit, vocabulary, mental maths strategies and misconceptions / key learning from previous units.

Roles and Responsibilities

Role of the Mathematics Leaders:

- Have overall responsibility for Mathematics across the primary school.
- Ensure that the Mathematics outcomes are mapped across the school curriculum for progression.
- Monitor and evaluate the impact of Mathematics.
- Provide guidance on resources for Mathematics for both staff and parents.

Role of Class Teachers:

- Plan and deliver Mathematics outcomes to all students through all subjects.
- Measure the impact of Mathematics through observation and questioning of students.
- Report outcomes to parents in the half termly reports.
- Assessing understanding of Mathematics.
- Engage students with Mathematics through purposeful and meaningful lessons.
- Develop real-life and UAE links within the subject.
- Use of Go 4 Schools to assess the progress of students.

Role of Children:

The purpose of Mathematics is to develop a nation of responsible global citizens who:

- Possess a secure knowledge of mathematical concepts as appropriate for the age of the child
- Show the core values of the school through strong learning behaviours.
- Work efficiently with physical and digital resources to construct evidence-rich oral and written professional discourse equipping for a career with lifelong learning.

Role of Parents:

Parents have an important role to play in their child's learning and their attitude and competence with Mathematics can influence the learning of their child. Parents are expected to support the learning in the following ways:

- Attend parent engagement meetings to learn about their child's attainment and progress
- Attend parent workshops to gain knowledge on how to help the children at home and the strategies the children use to solve questions
- Provide a quiet area for children to complete home learning tasks

- Check your weekly teacher email for updates on learning and home learning tasks
- Inform the school if you have any concerns about home learning
- Do not complete home learning for your child, instead encourage them with questions and strategies to overcome any difficulties
- Ensure school home learning takes priority over work set by external tutors

Communication

The school will communicate information about the Maths curriculum through:

- Updates on the weekly Infant and Junior newsletters
- Updates on weekly emails from class teachers
- Parental workshops throughout the year
- Half-termly reports
- Parent engagement evenings