



**Alexandra**  
Primary School

## Alexandra Primary School

### Rationale for Maths Teaching

**Aspire, Perform, Succeed**

Children should leave Alexandra Primary School being able to confidently use and recall key number facts; they should be able to effectively and confidently apply problem solving skills to a range of scenarios and they need to be able to reason and justify the methods and approaches that they have used.

The approach should provide children with an interconnected world of Mathematics and link in as many cross-curriculum opportunities as possible. Alongside all of this, the school will aim to foster a deeper level of confidence and enjoyment for Maths and allow children to effectively apply these skills across a range of different subjects throughout their school life and in their wider life as they become young adults. We ensure children are introduced to progressive Maths vocabulary across the school in order to assist them with their understanding of Maths concepts and provide opportunities for children to explain their thinking with a deeper understanding. A progressive approach to calculations, as outlined in our Calculation Policy, enables children to develop a secure knowledge of number and the confidence to apply the most appropriate methods effectively.

We aim for children to be able to:

- Confidently recall and apply number facts to solve equations.
- To effectively apply different methods to help them problem solve in different scenarios.
- To confidently reason and justify their methods for problem solving.

#### **Inclusion**

Children learn in different ways and we intend to support all children in their learning and extend the learning for all. At APS all children have a right to a full and rounded education which enables them to become successful learners who have high aspirations, make progress and succeed. School will endeavour to secure special educational provision for pupils for who require additional support that is different from that provided within the differentiated curriculum to better respond to their identified needs.

A range of resources and visual aids are often used to support all Mathematical concepts and allow children to have a concrete understanding before moving beyond to abstract concepts and approaches. Children's knowledge and understanding is extended to the abstract through investigative approaches and the application of their learning across different Maths concepts. We have a high proportion of EAL learners at Alexandra and we ensure that they have a strong foundation of vocabulary in order to become fluent in their reasoning about maths.

## **Number**

Being able to confidently and effectively apply number facts are key skills that are going to help children in later life. Number facts support almost everything that adults do in day to day lives. Through our approach to teaching Maths, we will promote the following key skills:

- Children will have quick recall for their number bonds to 10, 20, 100 and 100 and apply these to different situations.
- Children will be able to justify the composition of numbers and explain this using mathematical vocabulary.
- Children will be able to confidently, and mentally understand whole numbers, counting, place value.

## **Addition and Subtraction**

Children will need to develop a level of confidence in both written and mental methods for solving addition and subtraction equations. They will be able to apply these methods to solve various word problems and other problem-solving scenarios. Children will be able to justify their chosen method and explain when it is appropriate to use a specific methodology. Through our approach to teaching Maths, we will promote the following key skills:

- Development of fluency in different efficient written methods for both addition and subtraction equations.
- Development of fluency in different efficient mental methods for both addition and subtraction equations.
- Applying efficient methods for solving different addition and subtraction word problems.
- Applying efficient methods to solve a wider range of problems involving more complex properties of number and arithmetic.
- To have developed a level of fluency in written methods for all four operations and use these to help solve problems involving fractions, decimals and percentages.

## **Multiplication and Division**

Children will develop confidence in both written and mental methods for solving multiplication and division equations. They will develop a fluent approach to mentally solving multiplication facts and by the end of Year 4 should have developed a more effective and fluent approach to memorising and applying their multiplication tables up to and including the 12 multiplication tables. They will develop precision and fluency when completing their work. Through our approach to teaching Maths, we will promote the following key skills:

- Development of fluency in different efficient methods for solving both multiplication and division equations.
- Develop an efficient method for solving longer multiplication and division equations that include a higher level of complexity.
- Apply methods for solving a wider range of word problems and other problem-solving questions that include a wider range of complexity and multiple steps.
- To have memorised their multiplication tables up to and including the 12 multiplication tables.
- To have developed a level of fluency in written methods for all four operations and use these to help solve problems involving fractions, decimals and percentages.

## **Statistics**

For many children, their future careers will involve a range of situations that will involve not only the four operations but also the ability to read, decipher and analyse various forms of data and statistics. Therefore, children here will be more confident in reading different forms of graph, deciphering and question different forms of graph and effectively analyse different data forms. Through our approach to teaching Maths, we will promote the following key skills:

- Effective and efficient reading of a range of data and different data representations.
- The ability to construct and present data through a range of different media.
- Develop effective and efficient means of deciphering and questioning different forms of data that is presented.
- Develop effective and efficient ways of analysing the data presented to them and make conclusions based on this analysis.

## **Geometry**

Children will be engulfed in a world of various shapes and sizes and therefore, it is important for them to have a confident mindset towards the identification of different 2D and 3D shapes. Also, children will be able to apply their shape knowledge to help them solve a variety of problems using the correct mathematical terminology. Through our approach to teaching Maths, we will promote the following key skills:

- To confidently identify and describe the properties of a wide range of 2D and 3D shapes, including parallel and perpendicular lines and symmetry.
- To confidently reason about the properties of 2D and 3D shapes.
- Develop an efficient method for identifying and creating different types of angles and justify these using correct mathematical terminology.
- Effectively and efficiently apply knowledge of position and direction to develop an understanding of coordinates.
- To create a range of 2D and 3D shapes through a range of different media.
- To reason about the similarities and differences between different shapes and distinguish between regular and irregular polygons.

## **Measurement**

Children will move through their lives encountering a wider range of different scenarios that will require a deep and sound understanding for the different areas of measurement. Measurement can take place across the entire curriculum and can be entwined in the different key areas of Maths. The topic can take the form of length and height; weight, mass and capacity; area and perimeters and most importantly time. Through our approach to teaching Maths, we will promote the following key skills:

- Identifying and applying some knowledge for length and height using a range of units.
- Identifying and applying some knowledge for weight, mass and capacity and being able to justify the difference between all three.
- Applying the knowledge of the four operations to solve a wide range of complex problems involving area and perimeter and being able to distinguish the difference between these two areas.

- Identifying the different measurements of time whilst using the correct terminology for each.
- Confidently and effectively converting between a range of measurement units.
- Using and effectively applying the knowledge of the four operations to solve a variety of problems involving all forms of measure: including the use of decimal notation and scaling.

## **Planning and Assessments**

Throughout the topics covered teachers are constantly making teacher assessments about the progress of the children in their care. If the teacher deems that more time is needed for a topic than this will be planned for. Teachers apply a range of formative assessment opportunities to enable them to identify any gaps in learning or any areas that require more attention in the curriculum.

The children's outcomes in their Maths books are acknowledged through a range of approaches:

- Hot marking, which takes place during lesson time. This form of marking allows teachers to quickly identify children who require more support with a particular area of Maths.
- Written feedback where children are provided with next steps to support any misconceptions, secure their understanding or challenge their understanding to apply their skills;
- Verbal feedback, where a teacher has made an assessment of learning during the lesson and has communicated this verbally with the child during the lesson. This means that the child can improve and develop their skills across the lesson.

At the end of a half term, teachers provide children with an assessment that includes the most recently taught topics and some upcoming topics. This identifies children who may require more support than others which can then be planned for through the use of rapid-maths work groups.

Teachers will use a range of assessment data and their own teacher judgements to monitor children's progress against the ARE statements, ensuring that these are being consistently met across their year group.

Moderation of Maths takes place through INSET times and through phase meetings; at times they are also conducted through our soft federation C8 and with other schools across the local authority. Our aim is to ensure that all staff are confident at moderating Maths to ensure a consistent standard across the school with clear progression of Maths throughout the different Key Stages.