Alexandra Primary School
Aspire, Perform, Succeed

Maths at Alexandra Primary School – Our Intentions:

Maths weaves together a multitude of knowledge, skills and procedures. At Alexandra, we want to support children to become fluent in number; so they can solve equations quickly, accurately and more efficiently, become better at reasoning; so children can justify the choices they make when approaching a problem and finally, become better problem solvers; able to tackle multi step problems by applying their knowledge, skills and understanding in solving increasingly sophisticated problems; an important life skill for children's future lives and careers.

Maths skills developed at APS:

- **Fluency**:
  We aim to build up children's fluency in number and efficiency for solving a wide range of equations. Children will become more confident in their ability to recall and apply knowledge.
- **Reasoning:**
  Children will have a better grasp of developing a line of enquiry, argument or justification towards methodology.
- **Problem solving:**
  Children will apply their chosen methods to solve a range of problems with increasing sophistication.

What is APS Maths?

Maths at APS follows a tailored version of the Maths mastery expectations. The curriculum is designed to provide children with a wide depth of knowledge for various mathematical skills.

Most children will move at broadly the same pace through the wider maths curriculum and will move onto the next stage of learning when the majority of the children have grasped a concept.

This can be achieved through the wide array of resources that we have to offer at APS. These can be physical mathematical apparatus or through the use of additional adult support time.

Maths at APS is designed to provide children with a strong and deep understanding of mathematical concepts, providing them with a firm foothold for the future. Moving from the concrete, using apparatus for practical situations and moving into abstract problems (C-P-A).

Strategies used in Maths at APS:

- Direct teaching sessions
- Ping-Pong sessions
- Conceptual variation
- Procedural variation
- C-P-A approach
- Rapid interventions
- Times Tables Rock Stars
- Rapid recall of facts
- Therapy interventions for knowledge gap filling

In order for our children to aspire, perform and succeed, we want children to learn to solve equations with confidence, fluency, with the confidence to make mistakes and learn from them; and to reason deeply about Maths.

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In Maths, there should be a culture for allowing children to make mistakes. Children should feel comfortable and safe to make errors, learn from those that have been made and for misconceptions to be quickly addressed. As teacher's we identify misconceptions and teach about them but we should also empower students to do the same.

Why is Maths important?

Maths is a subject that has developed over the centuries and is a very creative and inter-connected subject providing children with a vast range of transferable skills.

Maths provides children with the skills that they will need in their future lives and careers. Primary Maths is the first stepping stone on this journey of discovery.

The three main strands of Maths; fluency, reasoning and problem solving allow children to be competent at solving sophisticated problems. These problems they could face in their future lives and with careers in science; technology and engineering as well as for financial literacy.

Maths is:

- Solving equations fluently using the four operations.
- Identifying, classifying, ordering and comparing various 2D and 3D shapes.
- A development of mental recall for basic mathematical facts (i.e. multiplication facts).
- Finding the area or perimeter of various different regular and irregular shapes.
- Identifying, counting in and using various forms of money and notations to solve problems.
- Apply their knowledge of the four operations to solve a range of problems with growing sophistication.
- Using mathematical concepts to solve real-life problems.
- Being able to read the time correctly across a 24 hour time system, to the nearest minute.

What does the Maths curriculum look like?

At APS we have worked very carefully to design a curriculum that links and weaves mathematical concepts together whilst also providing children with a rich range of manipulatives and problems to solve, to recall and then practise.

Our lessons focus on using 3 main teaching points (ping-pong) to build upon fluency of skills, reasoning about skills and applying these skills to solving problems. These are then closely linked to the tasks that children will complete during their lessons.

Maths is an important part of learning for all children, especially in the early years and receiving a good grounding in Maths is an essential life skill.

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Mathematics classrooms are places where students believe that everyone can do well in Maths; mathematics problems can be solved with many different insights and methods and mistakes are valuable; encouraging brain growth learning and developing connections to other subjects.

What is procedural understanding?

This is having an understanding of using different methods to solve a variety of equations.

Children with very strong procedural understanding often have stronger reasoning skills because they can explain which method they prefer to apply and why it could be considered more useful in solving the equation they are presented with.

Children with better procedural understanding are more fluent and efficient at solving equations.

What is the C-P-A approach?

With the shift towards having a Maths mastery approach, we at APS have adapted teaching to incorporate the C-P-A approach to lessons.

Introducing new topics, often, begins with the use of physical resources (concrete) to help children to visualise the methods.

After that we move onto using pictorial representations to help the children further visualise a method – this stage is often the main focal point for developing efficiency and fluency in a concept.

Finally, the children use the visualisations that they have created to solve a variety of different equations based on a specific concept. This is known as an abstract equation (i.e. 4 + 4 = ___).

The final stage is applying all of the above to help children use a specific method to solve a range of problems.

What is conceptual understanding?

Having conceptual understanding is a crucial part of mathematics and is essential for problem solving.

This term is used when displaying a Maths concept in a variety of forms and media. *For example, missing number equations, and word problems.*

Children should be exposed to a wide range of activities when learning about new concepts.

"Pure mathematics is, in its way, the poetry of logical ideas." – Albert Einstein.