Springfield Academy
DISCOVER • GROW • SHINE

# Subject on a page


At Springfield Academy, we embrace the Mastery Approach to teaching and learning in mathematics. We believe that every child can succeed in maths when given the right support and opportunities. Through careful scaffolding, rich problem-solving, and a focus on deep understanding, we empower our pupils to build confidence, resilience, and a love for learning. With hard work and determination, all children can achieve mastery and unlock the power of mathematics/

## Intent

***- We aim to…***

- Develop fluent mathematicians who can recall number facts competently and confidently.
- Ensure that depth of knowledge is acquired in each maths unit of work by building on prior learning.
- Provide children with the knowledge and skills they need to become confident mathematicians by developing reasoning and problem solving.
- Ensure that when children are introduced to new concepts in maths, they are given an opportunity to develop competency through the concrete, pictorial and abstract approach.

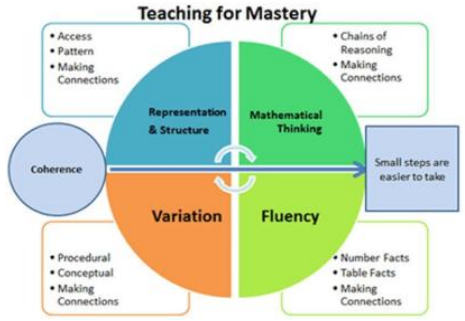
## Implementation

***- How do we achieve our aims?***

### How maths is structured at Springfield Academy:

| | Y 1 | Y 2 | Y 3 | Y 4 | Y 5 | Y 6 |
|---|---|---|---|---|---|---|
| Place Value | X | X | X | X | X | X |
| Addition and Subtraction | X | X | X | X | X | X |
| Multiplication and Division | X | X | X | X | X | X |
| Fractions | X | X | X | X | X | X |
| Decimals | | | | X | X | X |
| Fractions, Decimals and Percentages | | | | X | X | X |
| Ratio and Proportion | | | | | | X |
| Algebra | | | | | | X |
| Measurement | X | X | X | X | X | X |
| Geometry | X | X | X | X | X | X |
| Statistics | | X | X | X | X | X |

**Mastery the 5 big ideas:**




**Mathematical Thinking**

We aim to develop all three key areas of the National Curriculum in order to give children the knowledge and skills they need to become confident mathematicians:


**Concrete Pictorial and Abstract = CPA**

When our children are introduced to a new concept in maths, they are given the opportunity to develop competency by following the Concrete, Pictorial and Abstract approach:


**Concrete:** Children have the opportunity to work with physical objects (concrete resources), in order to bring the maths to life and to build an understanding of what they are doing.
**Pictorial:** Children work with pictorial representations alongside concrete resources to enable them to make links. We encourage children to solve problems through visualising them.
**Abstract:** Children develop their understanding of abstract methods with the support of concrete and pictorial representations.

## Impact

***- How will we know we have achieved our aims?***

- Pupils are number fluent and confident when recalling key facts such as times tables and number bonds.
- Pupils can apply knowledge and skills learned in maths to solve problems.
- Pupils have a deep understanding of maths and are able to make connections across mathematical ideas.
- Pupils can apply their mathematical knowledge in other subjects such as Science.
- Pupils are confident and competent mathematicians who have the belief that they can do maths.

## The National Curriculum

**Key Stage One:** The principal focus of mathematics teaching in Key Stage One 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 four operations, including with practical resources (for example, concrete objects 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 the 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 One.

**Lower Key Stage Two:** The principal focus of mathematics teaching in Lower Key Stage Two is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concepts of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage pupils should develop their ability to solve a range of problems including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of Year 4, pupils should have memorised all of their times tables up to and including the12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently using their growing word reading knowledge and their knowledge of spelling.

**Upper Key Stage Two:** The principal focus of mathematics teaching in Upper Key Stage Two is to ensure that pupils extend their knowledge of the number system and place value to include large integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions decimals and percentages. Pupils should read spell and pronounce mathematical vocabulary correctly.