



# Sidney Stringer Primary

MATHS POLICY

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Mathematics teaches our children to make sense of the world by developing their mathematical language and their understanding of concepts. An effective mathematician at Sidney Stringer Primary uses a variety of resources to show their fluency, they create sentences to show their reasoning and they can solve problems using different concepts.

We know every child can become a successful mathematician. We do not believe in adding a ceiling to children's learning but giving them the opportunities to really master a skill before moving on to the next concept. Teachers and LSA's accomplish this by stretching the children's learning with carefully crafted questions, varied fluency in lessons and a mixture of different experiences.

Through a variety of experiences children are able to appreciate relationships and patterns in numbers, space and in everyday lives. Children enjoy a range of real life and topic based work which makes maths real, and useful. We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations.

We use the White Rose Mastery scheme to give our children the most opportunities to talk about maths through reasoning and problem solving work.

Children will work in class-sized groups, small groups and 1:1 with an adult in maths sessions depending on the activity.

Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use Mathematics in real contexts. It is important that time is found in other subjects for pupils to develop their Numeracy Skills, e.g. there should be regular, carefully planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in history and geography.

We endeavour at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning.

By the time our children leave Year 6 they will have been taught to:

- ◇ demonstrate an understanding of place value, including large numbers and decimals (e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits;  $8.09 = 8 + 9 / ?$ ;  $28.13 = 28 + \blacklozenge + 0.03$ )
- ◇ calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g.  $53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18$ ;  $20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700$ ;  $53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8$ )
- ◇ use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?)
- ◇ recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as  $1/5$  or 0.2 or 20% of the whole cake)
- ◇ calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as  $7/21$  and that this is equal to  $1/3$ ; 15% of 60;  $11/2 + 3/4$ ;  $7/9$  of 108;  $0.8 \times 70$ )
- ◇ substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle)
- ◇ calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm)
- ◇ use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles)

“become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately”

“**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.”

These three quotes from the national curriculum state the three aims of teaching and learning of maths in primary schools. At Sidney Stringer Primary we believe these three skills are all needed to make a successful Mathematician in every year group. The children experience many fluency, reasoning and problem solving tasks each week through a variety of mathematical concepts. All staff believe lessons should include concrete resources and plenty of conversation.