***Mathematics***

***Vision and Aims***

***At Highgate Community Primary School, we aim to empower children with a positive attitude to ‘I can do’ the maths. We encourage children to develop their knowledge and understanding of mathematics and aim for all pupils to enjoy, achieve and become confident, efficient mathematicians.***

***The Big Ideas***

Following the National Curriculum for Mathematics (2014), at Highgate we aim to ensure that all pupils:

* become **fluent** in the important aspects of mathematics, 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, developing an argument, justification or proof using mathematical language.
* **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.

***Pedagogy***

Teachers at Highgate aim to teach maths skills in across the curriculum as well as teach discrete lessons. Our teachers use the Power Maths scheme of work to guide the planning of maths lessons however we change lessons and add steps and challenges to the lesson plans as appropriate to meet our pupil’s needs. At Highgate we are teaching with a mastery approach which means that we are teaching so that a pupil can represent the maths in multiple ways, they will have the mathematical language to communicate their maths ideas and they will independently apply the concept to new problems in unfamiliar situations. At each stage of learning, pupils should be able to demonstrate a deep, conceptual understanding of the topic and be able to build on this over time. It is not about just being able to memorise key facts and procedures, which tends to lead to superficial understanding that can easily be forgotten. Pupils who are mastering the maths will be able to select which mathematical approach is most effective in different scenarios once they have become secure in the maths that they are learning.

**Maths Lessons**

Maths lessons are taught with a focus on new learning based on their year group curriculum expectations. This new learning will be gained through working with the concrete resources, using pictorial representations and then using the abstract maths. Teachers plan in small steps that help children on a clear journey through their maths learning by mastering one step at a time. The expectation is that the majority of 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 pupils’ understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems which require reasoning and putting their new learning in a new context, before learning new content. Precise questioning is used to deepen understanding and help identify the underling mathematical structure or help children to make links between other areas of maths.

Those who are not sufficiently fluent with earlier maths material will consolidate their understanding, including through additional practice, before moving on. At Highgate, teachers aim to keep children up to the same pace through immediate, same-day interventions or pre-teaching to help prepare slower graspers for new learning. Some children, who are significantly less secure in their maths skills and understanding, will work on their relevant maths skills through the guidance of their class teacher and the SENCO. Some of their teaching may take place in our Learning Hub so that they can progress at their pace and in their preferred learning style.

**Fast Maths**

Fast maths sessions are delivered in short bursts every day throughout the week, in all year groups. These sessions aim to:

* Practise number facts.
* Revise something that the class learnt last term.
* Revise something that the class learnt last week.

The new curriculum relies heavily on efficiency and known number facts. These sessions help to develop and secure this knowledge. At Highgate we aim to reach high expectations of maths knowledge by the end of each year. The table below shows these expectations.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Counting and ordering | Count to 20.  Order the numbers to 20. | Count to 100. | Count to 100 forwards and back.  Compare and order numbers up to 100. | Count, compare and order numbers to 1000. | Count back through 0 to include negative numbers.  Count, compare and order numbers above 1000.  Compare and order numbers with two decimal places.  Read Roman numerals to 100.  Count in 6s, 7s, 9s, 25s and 1000s. | Count forwards and backwards in tens from any number to one million.  Compare and order numbers with three decimal places.  Read roman numerals to 1000. | Compare and order numbers to ten million. |
| Times tables |  | **Count** in 1s, 2s, 5s and tens. | Know the times table and division facts for 2s, 5s and 10 times table.  Count in 3s. | Count in 4s, 8s, 50s and 100s.  Recall times tables and division facts for 3s, 4s and 8 times tables. | Recall all times tables and division facts to 12 x 12. | Identify multiples and factors including factor pairs. | Identify common factors, common multiples & prime number. |
| Number facts | Knowing one more or less than a number below 20. | Use number facts to 20. | Know the addition and subtraction facts to 20.  Recall number facts to 100. (multiples of ten. Example: 10 + 90 = 100.) |  |  | Recall prime numbers up to 19.    Recognise & use square numbers & cube numbers |  |

**Mastery in the Early Years**

The principles of mastery are the same for the early years but they are applied within the context of high quality early years’ provision. This includes learning through play within indoor and outdoor learning environments as well as through discrete teaching sessions or lessons led by a teacher. Teachers use the curriculum alongside Power Maths to create lessons that progress through the Early Years and prepare them for KS1.

Practitioners provide different contexts for children to explore the same mathematical idea and multiple representations of this idea (including pictorial, informal jottings and mathematics equipment).  For mastery in early years, children are encouraged to communicate their mathematical thinking in a wide variety of ways including through manipulation of resources, gesture, pointing, body language, mark-making and talk. Maths is embedded into the continuous provision throughout the day to support independent learning, allowing children to explore the maths further and become more confident learners.