**Intent, Implementation and Impact in Mathematics**

|  |  |  |
| --- | --- | --- |
| **Intent** | **Implementation** | **Impact** |
| At Stoneydelph Primary School, we use a mastery approach to teaching maths in order to embed a culture of deep understanding, confidence and competence in this subject, with the aim of shaping assured, happy and resilient mathematicians.  We want learners to be equipped with an understanding of mathematics that will be relevant and useful in their future studies and/or in the world of work.    The mathematics curriculum follows the requirements of the national curriculum, using Maths Mastery and the White Rose Schemes of Learning to map out the progression of the teaching blocks for each year group. Each block is then broken down into carefully planned small steps to develop and deepen the children's understanding of the topic.  These steps provide all children with experience of mathematical fluency, reasoning and problem solving.  Our programme of learning has been designed on principles to provide learners with a deep conceptual understanding of mathematical principles, the ability to confidently communicate in precise mathematical language, while becoming mathematical thinkers. | **Principle 1. Conceptual Understanding**  • Mathematics tasks are about constructing meaning and making sense of relationships. Learners deepen their understanding by representing concepts using objects, pictures, symbols and words.  • Different representations stress and ignore different aspects of a concept and so moving between representations and making explicit links between them allows learners to construct a comprehensive conceptual framework that can be used as the foundation for future learning.  • Tasks are sequenced to help learners build a narrative through different topics. These topics are then sequenced in a logical progression that allows learners to establish connections and draw comparisons.  • Multiple representations are carefully selected so that they are extendable within and between different areas of mathematics. Using models encourages learners to develop different perspectives on a concept.  **Principle 2: Language and Communication**  • Mathematical language strengthens conceptual understanding by enabling pupils to explain and reason. This must be carefully introduced and reinforced through frequent discussion to ensure it is meaningfully understood.  • The more learners use mathematical words the more they feel themselves to be mathematicians. Talk is an essential element of every lesson and time is dedicated to developing confidence with specific vocabulary as well as verbal reasoning.  • The content of our curriculum carefully progresses in order to ensure confident use of the language, signs and symbols of mathematics. Verbal and non-verbal communication is part of every sequence of learning in the curriculum.  • This often starts with more informal language initially, building up to formal and precise mathematical language.  • Talk tasks are part of every lesson in the curriculum to help with this development.  **Principle 3: Mathematical Thinking**  • We support pupils to develop mathematical ‘habits of mind’ – to be systematic, generalise and seek out patterns.  • The creation of a conjecturing environment and considered use of questions and prompts are important elements of encouraging learners to think like mathematicians.  • Our curriculum is designed to give learners the opportunities to think mathematically. Throughout the curriculum you will see tasks that require learners to specialise and generalise, to work systematically, to generate their own examples, to classify and to make conjectures.  • This is aided by our prompts for thinking which help make these important parts of mathematics more explicit. | If pupils demonstrate an understanding of the curriculum taught, they are deemed to be making good or better progress.  Moderation and monitoring will demonstrate:  • High quality formative assessment leading to the greatest learning gains.  • Opportunities for teachers to ask questions that will reveal learners’ understanding of a concept.  • Opportunities for meaningful dialogue to take place in lessons, by giving learners opportunities to talk, and by listening carefully to what they say, that we gather some of the richest data on their understanding, in order to influence teachers’ next moves.  **What does it mean to know more, remember more and be able to do more mathematics?**  • In order for learners to make sense of a new idea or relationship learners need to incorporate it into their current understanding and see how it connects with ideas and relationships they have encountered previously.  • The greater their understanding of what has been taught previously, the more sense-making they will be able to do in the future with increasingly complex mathematics. Therefore, we believe that the key to knowing more mathematics lies in understanding.  • We also believe that learners who make sense of the mathematics they are learning have more memorable and enjoyable experiences that are more likely to be remembered in the long term. They will also be able to do more as they understand how to push the boundaries of what they know and apply it to solve problems. |