Maths Policy

Why we do what we do?

Children's chances of succeeding in education and life will be maximised if they develop deep and lasting procedural and conceptual mathematical understanding, which is built on solid foundations. Teachers avoid mechanical repetition and creates an appropriate path for practising the thinking process with increasing creativity (Gu 2004) 'Intelligent practice'.

In a nutshell, we want our children to not just be able to answer maths problems correctly but analyse why the answer is what it is, how did they come to this answer, have they used the most efficient method. The teacher's job is to facilitate a love of learning for exploring the children's maths work through either concrete, use of maths objects to support answers; pictorial, using images to support answers or the abstract, using methods such as column addition.

What would you see in our classrooms?

- All pupils will be encouraged by the belief that by working hard at maths they can succeed and they are expected to master each key point.
- The class are taught through whole-class interactive teaching, working together on the same key point, on the same lesson content, at the same time.
- Carefully crafted lesson design will provide a step-by-step, conceptual journey through the mathematics, engaging pupils in reasoning and the development of mathematical thinking including what things are/are not.
- Concrete and pictorial representations are chosen carefully to help build procedural and conceptual knowledge together.
- Possible solutions are shared, analysed and discussed to deepen understanding. 'The answer is only the beginning'.
- Precise questioning during lessons ensures that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.
- The teachers will challenge and support pupils to master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.
- Pupils are usually taught in mixed ability groupings to allow sharing of ideas between differing levels of ability based on the teacher's previous assessment. This enables students of differing abilities to share ideas of good practice, however they choose to approach a problem and opportunities to see other's good practice.
- Challenge is provided by going deeper rather than accelerating into new mathematical content. This is facilitated by the use of DEEPER in all lessons; DEEPER (KS2) and DEEP (KS1) follow the key principles of Describe, Explain, Extend, Prove, Evaluate and Refine. You will find reference to these around the room and through the teacher's questioning.
- Working walls in each classroom that include reference to maths targets, challenge opportunities, good practice and methodology/vocabulary that is appropriate to the learning taking place.

Our approach:

- Use of high-quality resources taken from government recommended areas such as White Rose Maths, Power Maths, NRICH and NCETM
- If a pupil fails to grasp a concept or procedure, this is identified quickly through immediate formative assessment and early intervention (either the same or the following day) ensures the pupil is ready to move forward with the whole class in the next lesson. We may also use pre-teaching to pre-empt more difficult areas for some children.
- Key facts, such as multiplication tables and addition facts within 10 are learnt to automaticity to avoid cognitive overload in the working memory and enable pupils to focus on new concepts. This is through

our target system, with regular practice outside of the daily maths lesson as well as a weekly 30 minute taught session (fluency comes from deep knowledge and practice).

- The use of DEEPER in all lessons to support reasoning learning by giving students the opportunity to take their maths learning journey further by exploring questions and their answers rather than just completing 10 more questions of the same idea.
- A focus on the 5 big ideas:

1. Coherence - Connecting new ideas to concepts that have already been understood, and ensuring that, once understood and mastered, new ideas are used again in next steps of learning, all steps being small steps.
2. Representation and structure - Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation.
3. Mathematical thinking - If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others.
4. Fluency – Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.
5. Variation - Varying the way a concept is initially presented to students, by giving examples that display a concept as well as those that don't display it. Also, carefully varying practice questions so that mechanical repetition is avoided, and thinking is encouraged.

Further opportunities for staff development:

- Focused TRG groups within a phase, to ensure specific ideas are worked on, targets set, actions addressed and reviewed as a continuum for learning and improving current practice.
- CPD as a whole school with training opportunities for staff inside and outside of school, within our academy group and with local maths collaborations such as the South East Midlands Maths Hub in phases and individually.

How do we assess our children in maths?
Assessment - values applying mathematics to new and unfamiliar situations and does not solely focus on the need to memorise key facts and procedures and answer test questions quickly.

- We give feedback to the children within each lesson through the teacher's questioning, live marking, peer support, targeted adult support and intervention.
- Termly formative assessment is completed using PIXL papers to assess children's application in a test at the end of each term. The question level analysis forms part of our assessment of the children to ensure planning meets their needs.
- Teacher summative assessments being completed through Arbor, which takes its targets directly from the national curriculum and are updated by teachers throughout each term to reflect on children's understanding of topics within maths. The teacher decides on this from the children's books, formative assessments and verbal responses within lessons.

At Stafford Leys, we value knowing 'why' and 'how' and not just valuing 'that'.