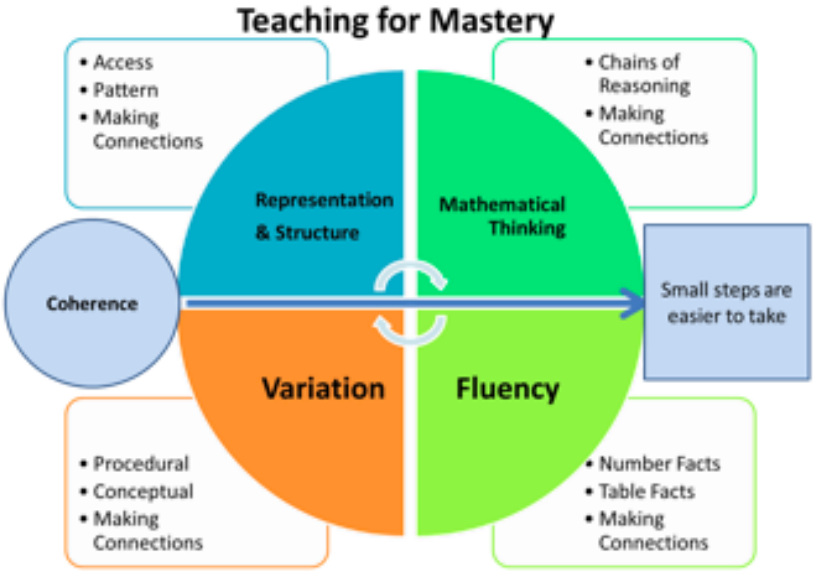
Sparkwell Maths Policy

Policy lead:	Headteacher
Date of last review:	September 2022
Date for next review:	September 2024

Principles



Teaching for mastery:
We believe that the most successful maths lessons will have careful consideration of the above points. Planning and resources take account for all of the above in order for children to explore and understand the key mathematical concept being taught.

Planning
Long term
White Rose Mixed Age/ Maths Shed planning is used as relevant to the year groups. Teacher discretion is expected in terms of length of time on particular areas based on prior knowledge and assessment.
Where possible, statistics, measure and some geometry will be taught using the context of other curriculum areas over the course of the year e.g. science, history and geography in order to make it relevant.
Medium term
In Key Stage 1 White Rose mixed age planning units are used to structure timing, sequencing of objectives and key outcomes.
In Key Stage 2 Maths Shed is used to teach (found here). Objectives from the younger year group will guide the progression and teachers will use the lesson from the parallel sequence for the older year group for challenge and progression. Where possible, lessons will be taken by TAs to ensure progression is both challenging for those ready and supportive for those that need more help.

- Additional enrichment is available on: N-Rich, Maths No Problem, NCTEM, I See Reasoning etc.

Short term
Teachers store electronic resources for the teaching of a concept in the relevant planning folder on Google Drive.

Assessment (in line with the marking and feedback policy) allows for flexibility in planning in order to meet the needs for progression of learning and consolidation.
EYFS - see below.

Recording in books

Like in all subject areas, mathematical learning and pupil's acquisition of skills can not be exclusively captured in books. However, we aim to ensure pupil's maths books represent the learning of concepts, the deep exploration of key ideas and the struggle pupils have in order to deepen their fluency and understanding.
Principles and expectations of maths books (KS1&2):

- Pupil's presentation shows respect for the learning and ensures it is clear for both themselves and adults to understand
- Where possible, pupils should record directly into their books, rather than on worksheets.
- Where relevant, 'journalling', stem sentences and longer explanations are recorded in books to capture mathematical thinking and talk.
- Pupil's jottings and 'playing with maths' are recorded in a clear and coherent way as modelled and guided by the teacher.
- Evidence in books will be coherent small steps that shows the gradual acquisition of concepts
- Any same day or booster intervention is recorded and indicated in books

EYFS

We follow the guidance in Development Matters and teach the skills and knowledge appropriate to the children's age and stage of development as set out in the 'specific area' of Mathematics. This is taught through a mixture of whole class and small group teaching, continuous provision (e.g. construction, sand and water play) and planned play-based learning (such as shops, cooking). Parents are encouraged to support maths learning at home and children have opportunities to practise forming numbers and recording their mathematical ideas; children who are at expected or exceeding in the summer term may also be taught ways to record their experiences in preparation for Year 1. Children's development in mathematics is predominantly recorded by the teacher through observation and recording on Tapestry.

Key areas of consideration when planning

Fluency

Children are taught and expected to apply number facts and mathematical procedures (relevant to their age and stage) every day either explicitly through drills, low-stake tests and quizzes or through application in a new concept.
Teachers model the application of these facts or processes through teacher talk and expect pupils to do this through their own explanations and feedback.
E.g. I know that 60 + 30 is 190 because 6 tens plus 3 tens is 9 tens.
Notes

- We have Number Fact Passports for pupils and teachers to track acquisition of facts and use to guide their expectations of applications. These passports are used to guide lesson planning and will aid in assessment. At transitions, these will provide important information for class teachers.
- All children are assessed for their recall and application of number facts in early autumn term and intervention is planned to support this.
- Preparation for the Tables check in year 4 requires additional input and mini-tests to monitor progress and recall.
- Retrieval starters are used across the school to review previous learning and to assess for fluency of concepts
- Number Blocks is used in EYFS and KS1, alongside corresponding NCETM resources, to support the thorough acquisition of early number sense.

Mathematical Thinking

All children have access to tasks and questions that encourage them to make connections and reason about the maths they are engaged in.
Stem sentences:

> The quality of children's mathematical reasoning and conceptual understanding is significantly enhanced if they are consistently expected to use correct mathematical terminology (e.g. saying 'digit' rather than 'number') and to explain their mathematical thinking in complete sentences.
> *NCETM*

- There are three main types:
    - Conceptual: These sentence structures often express key conceptual ideas or generalities and provide a framework to embed conceptual knowledge and build understanding. For example: *If the rectangle is the whole, the shaded part is one third of the whole.*
    - Working: Children fill in the missing parts of a sentence; varying the parts but keeping the sentence stem the same.
    - Emerging: where a mathematical generalisation or "rule" emerges within a lesson. For example: *When adding 10 to a number, the ones digit stays the same*

Simple day-to-day questions that promote mathematical thinking and reasoning:

- Which of the questions was easiest to solve? Why?
- Order the questions from trickiest to solve to easiest. Explain your reasons?
- What mistake was made here? What did the person not understand?
- What is similar about these (methods/ questions)? What is different?

Additional resources and planned for tasks

- Teachers plan for variation and application of concepts rather than a list of very similar procedural questions (intelligent practice).
- Teachers use reasoning activities: I See Reasoning for different key stages; N-Rich etc
- All children have access to reasoning tasks even if the 'maths' is from a stage below their chronological age but is more accessible. Reasoning is not just for 'quick finishers' but for all.

Problem solving
Children should be given a range of problem solving opportunities, at all stages of learning. The schemes we use incorporate these well into day-to-day practice.
At all ages and stages, teachers should plan for the concentrate-abstract-pictorial approach to number / calculation based problem solving; they should make links to part-part-whole and, where appropriate, use bar models to support the process and steps needed to solve.

<u>Meeting the needs of all learners</u>
The intention of the National Curriculum is that all children '*move through the programmes of study at broadly the same pace'.* Assessment opportunities (previously discussed) guide teachers to make decisions in order to meet the needs of all learners.

> '**Meeting the needs of all pupils without differentiation of lesson content** requires ensuring that both (i) when a pupil is slow to grasp an aspect of the curriculum, he or she is supported to master it and (ii) all pupils should be challenged to understand more deeply'.
> (A more thorough description can be found here https://www.ncetm.org.uk/resources/46830).

The following pedagogical practices are in place in ensure children are suitably challenged and building on secure previous learning:
Pre-teaching:

- **Teachers** work with small groups or individuals to enable them to be active and influential learners in the classroom
- Teachers may share the representations linked to the lessons learning; the key language or vocabulary linked to the concept; or rehearse stem sentences that will be used in the lesson.
- Pre-teaching, as an intervention strategy, has the greatest impact when the **same** children are given pre-teaching over a prolonged period (4-6 weeks)
- Pre-teaching is most effective when carried out on the same day of the lesson and lasts no longer than

15-20 minutes.

Role of TAs:

- TAs work with pupils identified by the teacher at different parts of the lesson (this may be high attaining pupils as well as those that need additional support)
- Assessment before the lesson and during the lesson will determine pupils that need adult intervention.
- When additional staffing is available, afternoon sessions can be used to address gaps and provide same day intervention in pupils' learning: this may be by the TA or teacher.

Intelligent practice:

- Maths activities will develop conceptual understanding, at the same time as developing procedural fluency. Alongside a depth of mathematical thinking.
- Deeper understanding can be achieved for all pupils (particularly those quick to grasp) by questioning that asks them to articulate **HOW** and **WHY** different mathematical techniques work, and to make deep mathematical connections.

For those unable to access learning for their chronological age:

- There are a few children that are unable to work within the concepts of their chronological age due to specific needs or other external factors.
- For children below, the teacher (with SENCo and maths lead as required) will identify key concepts that they will learn and lesson plans will address these areas as required. Previous Maths Shed resources can be used to support this.
- For those significantly above (when other good practice strategies are not providing suitable challenges), the teacher looks to the progression of concepts that they are currently teaching to provide additional challenges. Individual cases are discussed with the maths lead as needed.

Assessment

Formative:

Teachers will carry out formative assessments during lessons at each small step, adjustment to pace, support and resources will be made in response to this.
Children will be identified for catch-up, pre-teaching or additional challenges between lessons.
Low-stakes tests and retrieval will be used to ensure pupils are activating prior learning after days, weeks and months.

Summative:

Twice a year, pupils will undergo standardised tests so the maths lead and class teachers better understand progress and areas to target.
Teachers have access to testbase if they want to carry out their own assessments in class to aid with lesson planning etc.
In year 2 and year 6, previous test papers are used to help children become familiar with test papers and give teachers an indication of performance against the end of key stage standards.

A Palmer
September 2022