Mathematics
Curriculum Documents

Intent

We promote "teaching for mastery" in mathematics, aiming to ensure all students develop a deep and connected understanding of mathematical concepts through varied practice, reasoning, and application, allowing them to confidently solve problems and progress at their own pace, rather than simply memorizing procedures. Essentially, the goal is for every student to achieve a high level of mathematical fluency and conceptual understanding. By doing this, children develop their ability to articulate, discuss and explain their thinking using appropriate mathematical vocabulary. They are then able to build a deep conceptual understanding of maths and its interrelated content so that they can apply their learning in different situations

Implementation

We follow the National Curriculum and use resources from the National Centre for Excellence in the Teaching of Mathematics (NCETM). Students are exposed to maths using concrete, pictorial and abstract methods of teaching and learning. This allows:

Deep conceptual understanding:

Focuses on building a thorough grasp of fundamental mathematical concepts before moving on to more complex applications.

Varied practice:

Utilizes diverse problem types and strategies to solidify understanding and address different learning styles. This includes use of manipulatives.

Coherent progression:

Provides a logical sequence of learning where concepts build upon each other over time.

Addressing individual needs:

Supports students who grasp concepts quickly with challenging problems, while providing extra support for those needing more time to solidify foundational knowledge.

Reasoning and problem-solving:

Encourages students to explain their thinking, justify their answers, and approach problems with a strategic mindset.

Coherence

Teaching is designed to enable a coherent learning progression through the curriculum, providing access for all pupils to develop a deep and connected understanding of mathematics that they can apply and communicate in a range of contexts.

Representation and Structure

Teachers carefully select representations of mathematics to expose mathematical structure. The intention is to support pupils in 'seeing' the mathematics, rather than using the representation as a tool to 'do' the mathematics. These representations become mental images that students can use to think about and discuss mathematics, supporting them to achieve a deep understanding of mathematical structures and connections.

Implementation continued

Mathematical Thinking

Mathematical Thinking is central to how pupils learn mathematics and includes looking for patterns and relationships, making connections, conjecturing, reasoning, and generalising. Pupils should actively engage in mathematical thinking in all lessons, discussing and communicating their ideas using precise mathematical language.

Fluency

Efficient, accurate recall of key number facts and procedures is essential for fluency, freeing pupils' minds to think deeply about concepts and problems, but fluency demands more than this. It requires pupils to have the flexibility to move between different contexts and representations of mathematics, to recognise relationships and make connections, to explain their ideas and to choose appropriate methods and strategies to solve problems.

Variation

The purpose of variation is to draw closer attention to a key feature of a mathematical concept or structure through varying some elements while keeping others constant. Through variation the teacher focuses thinking and discussion on the key feature in question.

Conceptual variation involves varying how a concept is represented to draw attention to critical features. Often more than one representation is required to look at the concept from different perspectives and gain comprehensive knowledge.

Procedural variation considers how the student will 'proceed' through a learning sequence. Purposeful changes are made in order that pupils' attention is drawn to key features of the mathematics, scaffolding students' thinking to enable them to reason logically and make connections.

Impact

Teachers' develop excellent subject knowledge and deep understanding of how pupils learn. This enables them to plan learning tasks allowing time for pupils to master key skills and knowledge over time.

Pupil Outcomes: We strive to achieve strong outcomes in internal assessments, demonstrating that our pupils are well-prepared for the next stage in their education and have a solid grasp of mathematical concepts

Pupil Engagement: Pupil voice surveys indicate high levels of enjoyment and confidence in mathematics. Our students express a sense of belonging and are eager to participate actively in lessons, evidencing their flourishing in a supportive environment.

Curriculum Evaluations: Regular monitoring and evaluation of our curriculum, including lesson observations and learning walks, affirm that teaching is consistently of high quality and promotes deep learning

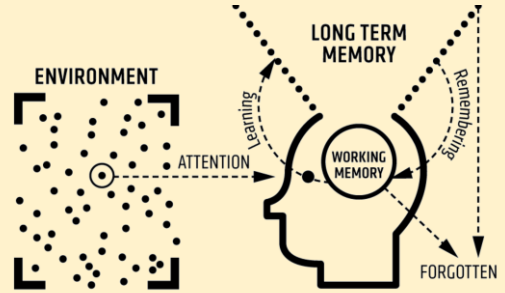
Wessex Learning Trust Principles

Strategic Aims

The Principles codify the shared language that contribute to high-quality, adaptive teaching and inclusion for all.
Used routinely to bring the curriculum to life, the pedagogical principles support learning and progress over time.
The Wessex Principles are not a linear planning tool, an expectation for every lesson or mandate a formulaic approach to lessons

The principles aim to:

- Reduce cognitive load
- Encourage self regulation
- Provide regular opportunities to identify misconceptions or gaps in learning
- Ensure teaching is adapted to need
- Make learning explicit and transferable across the curriculum, beyond school into the wider community and wider world



Ready To Learn Routines → **Linking Prior + New Learning** → **Focused Instruction *'I Do'*** → **Practise Learning *'We Do'*** → **Learning Check *'You Do'*** → **Consolidating Learning**

★ Subject pedagogies are key ingredients to adaptive teaching, alongside effective formative and summative feedback to monitor progress.

★ Disciplinary and substantive learning is integral to any planned sequence of learning.

We Learn **Together**

Ready To Learn Routines		*Ref SLC* - *Emotional learning environment* - *physical learning environment*	Learning environments are safe, inclusive and welcoming. Relationships are positive and love of learning is promoted. Everyone feels safe to take risks and explore learning without judgement. Praise and rewarding effort is used to motivate and engage. A sense of pace and challenge is established from the start of the lesson.
Linking Prior + New Learning		*Ref SLC* - *Pace of talk, clarity of instruction*	Prior learning is checked and revisited to strengthen connections and longer-term memory. Know more, remember more. Planning ensures new learning builds on prior learning. Vocabulary is explicitly taught using the schools agreed pedagogies so that words are understood, contextualized and barriers to learning are reduced. Problem solving and number skills are revisited, retaught and applied in unfamiliar contexts to support deeper learning. Gaps in learning and misconceptions are revisited, including feedback and improvement tasks. Planning is adapted lesson on lesson so that core skills and knowledge are retaught where necessary. Precision learning is explained so that skills and knowledge are well understood, and misconceptions are minimised.
Focused Instruction *'I Do'*		*Ref SLC* - *Explicit teaching of vocabulary* - *Explicit teaching of listening*	The steps to new learning are broken down into manageable amounts and reduce cognitive load. High-quality explanations are used to model thinking, decision making, and application of knowledge. Self-regulation is taught through decision making modelled, visible and explicit. Approaches to getting unstuck are taught and accepted as part of learning. Practical skills and strategies are modelled so that there is a clear understanding of how to solve problems solve and minimize misconceptions. Deeper learning is sequenced so that all learners can understand each developing stage. Learners know what excellent learning looks like and have success criteria to support their independent work.
Practise Learning *'We Do'*		*Ref SLC* - *Explicit teaching paired, small group talk*	Guided practice and worked examples are used to link new learning and decision making with prior learning. Formative assessment, including rich questioning, is used skilfully to check understanding and the impact of planned learning. Peer explanation + modelling scaffolds and prepares for independent practice. Learners use expert thinking and talking to explore deeper learning. Scaffolding and support (including TAs) is in place to develop and build independence.
Learning Check *'You Do'*			Skills and knowledge are explored using a variety of contexts. Independent practice and application of learning (including homework) builds confidence, self esteem and motivation. Metacognition and self-regulation are developed over time. Learning is consolidated. Scaffolding and support is reduced and removed over time. Feedback is used to deepen learning and address misconceptions.
Consolidating Learning			Learner's plan, review and evaluate their progress reflecting on what excellent learning looks like and success criteria. Next steps are identified and used to inform teacher planning and develop mastery approaches over time. Learning skills continue. *Next lessons, rest of day, community, wider world.*

NCETM – Progression of Skills in Key Areas

NCETM – Breakdown of Units and Content

	Unit	Unit name
Autumn 1	1	Previous Reception experiences and counting within 100
Autumn 2	2	Comparison of quantities and part–whole relationships
	3	Numbers 0 to 5
Spring 1	4	Recognise, compose, decompose and manipulate 2D and 3D shapes
	5	Numbers 0 to 10
Spring 2	6	Additive structures
	7	Addition and subtraction facts within 10
Summer 1	8	Numbers 0 to 20
Summer 2	9	Unitising and coin recognition
	10	Position and direction
	11	Time

- Number and place value
- Number facts
- Addition and subtraction
- Geometry
- Other

Year 1

Curriculum map

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

June 2021

	Unit	Unit name
Autumn 1	1	Numbers 10 to 100
	2	Calculations within 20
Autumn 2	3	Fluently add and subtract within 10
	4	Addition and subtraction of two-digit numbers (1)
Spring 1	5	Introduction to multiplication
	6	Introduction to division structures
Spring 2	7	Shape
	8	Addition and subtraction of two-digit numbers (2)
Summer 1	9	Money
	10	Fractions
	11	Time
	12	Position and direction
Summer 2	13	Multiplication and division – doubling, halving, quotitive and partitive division
	14	Sense of measure – capacity, volume, mass

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Geometry
- Other

Year 2

Curriculum map

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

June 2021

	Unit	Unit name
Autumn 1	1	Adding and subtracting across 10
	2	Numbers to 1,000
Autumn 2		
Spring 1	3	Right angles
	4	Manipulating the additive relationship and securing mental calculation
Spring 2	5	Column addition
	6	2, 4, 8 times tables
	7	Column subtraction
Summer 1	8	Unit fractions
Summer 2	9	Non-unit fractions
	10	Parallel and perpendicular sides in polygons
	11	Time

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

Year 3

Curriculum map

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

June 2021

	Unit	Unit name
Autumn 1	1	Review of column addition and subtraction
	2	Numbers to 10,000
Autumn 2	3	Perimeter
	4	3, 6, 9 times tables
Spring 1	5	7 times table and patterns
Spring 2	6	Understanding and manipulating multiplicative relationships
	7	Coordinates
Summer 1	8	Review of fractions
	9	Fractions greater than 1
Summer 2	10	Symmetry in 2D shapes
	11	Time
	12	Division with remainders

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Other

Year 4

Curriculum map

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

June 2021