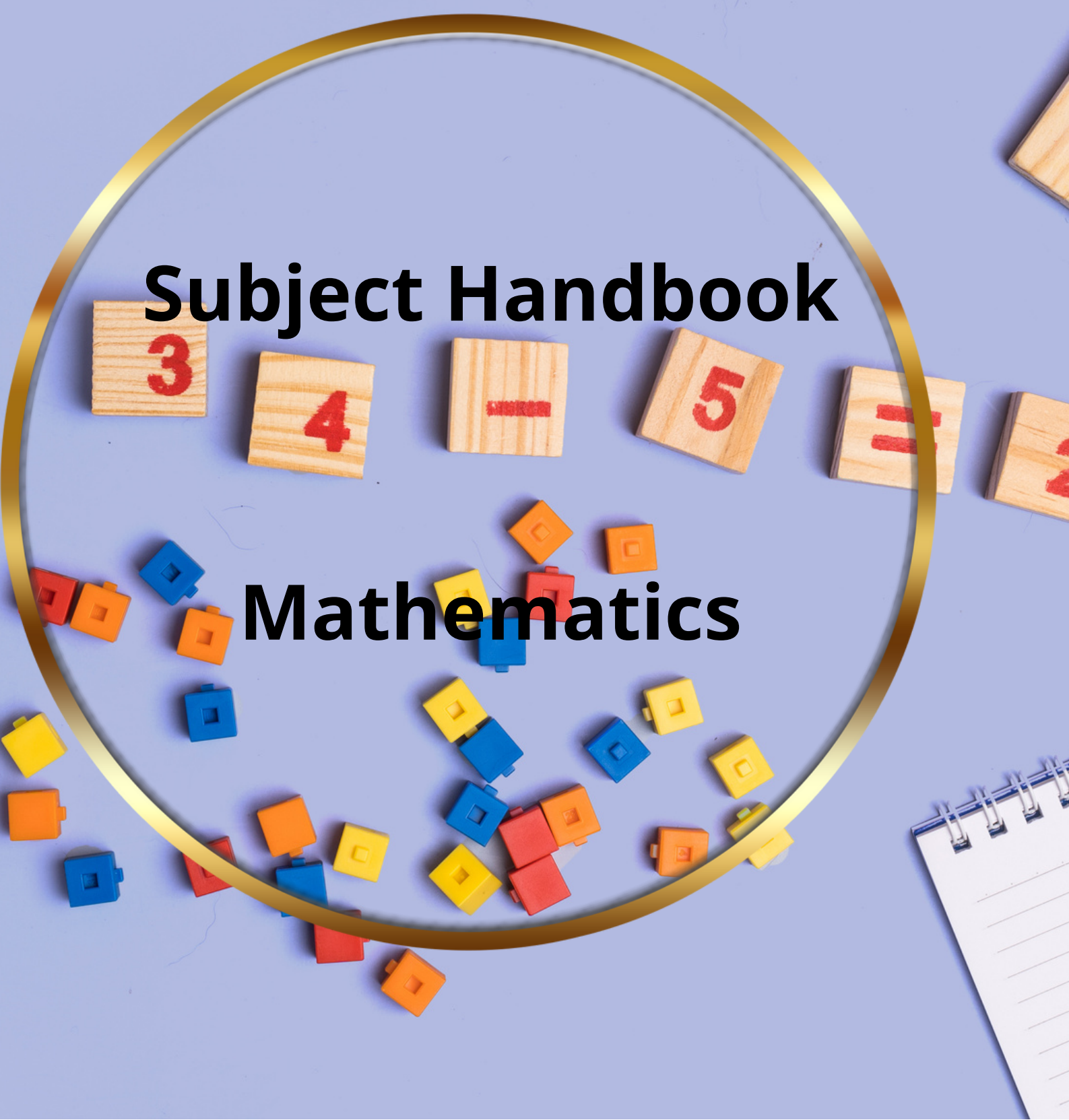




Subject Handbook

Mathematics





Maths Handbook

Vision for Maths

We provide a high-quality mathematical education which will ensure children are numerate, confident and well-equipped. Through quality first teaching, we aim to unlock children's potential in maths and make it a fun, engaging subject which is accessible to all.



Mathematics Principles

1. Everyone can be a mathematician
2. Commitment to the 'why', not just the 'how'
3. Always aiming for fluency with the unfamiliar
4. Relish and enjoy the challenge and exploration of the mathematical world
5. Engage the power of the learner, learning mathematics is a collaborative process
6. Mathematics is everywhere - it's a universal language
7. Celebrate and explore different approaches
8. Mathematics is a creative discipline; the answer is only the start

Mathematics Pupil Characteristics:

1. Be inquisitive
2. Be a resilient problem solver - have the confidence to try and try again
3. Make connections and find patterns
4. Be open to different approaches
5. Have a sense of accomplishment and pride - find satisfaction in solutions
6. Be fluent and aim for complete mastery
7. Be confident mathematical communicators; explain, justify and reason
8. Appreciate both the relevance of maths and its abstract beauty



Intent

Pupils are taught a rich, balanced and progressive curriculum using Maths Mastery to reason, problem solve and develop fluent conceptual understanding. Lessons are child focused and maths is kept fun and current. Our curriculum allows children to better make sense of the world around them relating the pattern between mathematics and everyday life. The mapping of Mathematics across school shows clear progression and pupils are challenged whilst those who are identified as SEND or underachieving are supported completely, revisiting learning where needed.

Implementation

- NCETM accredited PD Lead works closely with Central Maths Hub, Mastery Maths Sustaining Workgroups and Mastering Number Workgroups to refine Mastery approaches.
- Subject expertise allows the intentions of our mathematics curriculum to be executed successfully.
- Good practice is always shared between staff and all CPD is used to inform teaching and learning across school.
- Our resources allow us to better use model, concrete resources and images to support learning in each area. Children are familiar with these and able to access them independently where needed also supporting learning in different contexts.
- Formative assessment is incredibly important. We focus on challenge questions, analysis of learning, extension work, mini plenaries and discussion with peers using Kagan strategies.
- There is coherent progression seen in planning within each unit and activities in EYFS develop knowledge and skills of key learning Children are given opportunity to reason and solve problems regularly.
 - Learning is varied and allows for deep and secure understanding.
- Both greater depth and struggling learners are supported by both teachers and teacher assistants order to ensure every child is reaching their full mathematical potential.
- Children are given time to practice and perfect their calculation strategies including giving pupils opportunity to make appropriate decisions when estimating, calculating and evaluating the effectiveness of their chosen methods.
 - Feedback is designed to ensure pupils are well informed and making visible progress.
- Children work both collaboratively and independently solving problems, which require them to persevere and develop resilience.



Impact

Children will understand the relevance of what they are learning in relation to real world concepts. We have fostered an environment where Maths is fun and it is OK to be 'wrong' because the journey to finding an answer is most important. Children will have a growth mindset and they make measurable progression against their own targets. Children will become fluent mathematicians and demonstrate their understanding thus leading to them achieving well. Children can apply efficient and accurate mathematical methods when faced with more complex calculations or unfamiliar problems.



Prior Learning (Flashback 4)

Children will review learning from previous lessons, days, units and years to consolidate learning and ensure children know more and remember more

Direct Teaching

Children start the lesson with an anchor task which is a problem that provides children to activate prior knowledge, work together, persevere and explain their thinking. This feeds into the main lesson where children are taught the key concepts they need to succeed in the lesson. The direct teaching will include elements of concrete, pictorial and abstract where appropriate and prepare the children for their independent, paired or group tasks.

Task

Do it! Children to be provided with a variety of fluency questions which increase in difficulty to apply their understanding. **Twist it!** Children will demonstrate their understanding through reasoning and explain in writing. **Deepen it!** Children will complete open ended problem solving activities to deepen their understanding. Kaagan strategies may be used at this point to support understanding and mastery.

Plenary

Children's understanding of the knowledge taught in the lesson is assessed and progress reviewed. Assessment for learning takes place throughout the maths lesson and this is used to adapt future teaching.

Curriculum Overviews

Curriculum overviews are available to inform planning. They identify which unit the object is covered within the curriculum. Specific objectives have been identified and selected to be taught and consolidated at the start of each unit. This is selected key knowledge children need from the previous year group.

Year 1 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation	
Spring	Number: Addition and Subtraction (within 20)				Number: Place Value (within 50) (Multiples of 2, 5 and 10 to be included)				Step 1 Add and subtract 1s, 10s, 100s and 1,000s Step 2 Add up to two 4-digit numbers – no exchange Step 3 Add two 4-digit numbers – one exchange Step 4 Add two 4-digit numbers – more than one exchange				
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5 and 10 to be included)			Number: Fractions		Geometry: Position and Direction							

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division: Recall, Represent, Use		<ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Autumn 4 Spring 1	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Autumn 3	<ul style="list-style-type: none"> recall multiplication and division facts for multiplication tables up to 12×12 use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers recognise and use factor pairs and commutativity in mental calculations Autumn 4 Spring 1	<ul style="list-style-type: none"> identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) Autumn 4	<ul style="list-style-type: none"> identify common factors, common multiples and prime numbers use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. Autumn 4

Progression

The progression maps from White Rose carefully maps the development of key ideas within a strand from Y1 to Y6 ensuring that the learning journey is cohesive and that each new element builds on the appropriate conceptual components.



Inclusion



All children access the Mathematics Curriculum. We teach to the top and scaffold down using resources, adaptations and adult support to ensure all learners make progress.

Within the representation stage there is a systematic approach to the introduction of new content which builds on prior learning and explicit links are made with the content that the children have previously acquired.

Different representations are provided to support with understanding.

The use of practical resources to represent the concept or method is vital within the representation stage to ensure all children have conceptual understanding.

The use of resources also support pupils who are less confident but a reliance on the use of physical resources is to be avoided.

More time is given to children who require it to complete tasks so that core facts and methods are secure in their long-term memory. Additional support may also be provided to some pupils.

Worked examples are used with staff modelling how the answer was achieved and discuss the methods or strategies used.

