Intent, Implementation and Impact Document

Subject: Mathematics

CURRICULUM INTENT

At Overstone Combined School we make maths exciting, enjoyable and stimulating. We provide high quality maths teaching, which is engaging, interactive and builds upon children's prior learning.

As a school we have invested in the White Rose Maths Scheme. Every resource has been carefully designed to ensure it addresses the three key aims of fluency, reasoning and problem solving and follows the principles of teaching for mastery. It is designed to support pupils to be able to perform simpler tasks so they can then move on to perform more complex tasks. For example, we cannot expect pupils to add two numbers together before they understand what each individual number represents. This provides pupils with a deep understanding of the subject through a concrete, pictorial and abstract approach. This ensures pupils fully understand what they are learning.

We have always put tremendous effort and resources into getting children to have instant recall of their multiplication table facts. Being fluent in calculation and knowing multiplication tables by heart are a maths essential. Knowing the multiplication tables (and their associated division facts) supports mathematical learning and understanding. Those children who have a strong grasp of them tend to be more self-assured when learning new concepts.

EYFS

At Overstone Combined we want all of the children in EYFS to develop a secure basis for their mathematical learning, which will stand them in good stead as they move through the school. Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.

Outcomes:

- Mathematics introduces children to concepts, skills and thinking strategies that are essential in everyday life and support learning across the curriculum.
- By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.
- It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Personal Outcomes:

- Understanding the link between numbers and quantities.
- Count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5, (including subtraction facts) and some number bonds to 10, including double facts.
- Have a deep understanding of number to 10, including the composition of each number.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
- Verbally count beyond 20, recognising the pattern of the counting system.

Our Maths Curriculum is carefully mapped out in our progression document and ensures that the transition between phases is smooth. All classes follow the White Rose planning and are developing a consistent lesson structure across EYFS, KS1 & KS2.

KEY STAGE 1

At Overstone Combined School we provide a structured and coherent Mathematics curriculum that is ambitious and accessible to all. We embed the aims of the National Curriculum to ensure that all children the following outcomes.

Outcomes:

- Become fluent in the fundamentals of mathematics.
- To become able to reason mathematically.
- To solve problems by applying their mathematics understanding and knowledge.
- By creating an exciting and stimulating environment to develop a fascination for mathematics.
- To provide mathematical opportunities to apply the skills and concepts taught across the whole curriculum.

Personal Outcomes:

- To promote confidence and competence in mathematical knowledge, concepts and skills.
- To develop an enjoyment and enthusiasm for learning through practical activity, exploration and discussion.
- To develop the ability to solve problems and think logically.
- To develop initiative and the ability to work both independently and in co-operation with others.
- For children to have the confidence to take the challenge and stretch themselves in their learning.

- To develop the ability to communicate maths effectively both orally and in written forms using appropriate mathematical language.

KEY STAGE 2

Within KS2 we continue to provide a structured and coherent Mathematics curriculum that is ambitious and accessible to all. We ensure to embed the aims of the National Curriculum, with the following outcomes.

Outcomes:

- Fluent in the fundamentals of mathematics.
- Ability to reason mathematically.
- Solve problems by applying their mathematics knowledge and understanding.
- Promote a positive attitude towards mathematics in which all children can succeed and develop a deep understanding and strong, secure learning.
- To develop a fascination for maths through a lively, exciting and stimulating environment.
- As well as teaching maths in our maths lessons, to provide opportunities to apply the skills and concepts taught across the whole curriculum.

Personal Outcomes:

- Build upon their confidence and competence in mathematical knowledge, concepts and skills which can be applied across the curriculum and in real life.
- The ability to solve problems, think logically and work systematically in a range of contexts.
- To continue to build upon the enjoyment and enthusiasm for learning through practical activities, exploration and discussions.
- The ability to work both independently and in co-operation with others.
- To challenge and stretch themselves and to be confident to take risks in their learning.
- To communicate maths effectively both orally and in written forms, using accurate and appropriate mathematical language.

Transition

Our Maths Curriculum is carefully mapped out in our progression document and ensures that the transition between phases is smooth. All classes follow the White Rose planning and as part of our journey we are developing a consistent lesson structure across KS1 and KS2.

Assessments are carried out systematically and are shared with other teachers and settings when needed.

CURRICULUM IMPLEMENTATION

EYFS

In EYFS we follow the White Rose Guidance for Reception, which is used to ensure coverage and progression and also introduces the children to key concepts, mathematical language and understanding they will develop further as they move through the school.

In each classroom, you would see a 'Maths Working Wall' display; they are a place to support current and future learning in maths, and also celebrate excellent examples of pupil's work. Developing maths vocabulary is such an important part of maths at Overstone. We need to stress the use of precise mathematical vocabulary when teaching, instead of using informal language. Having the vocabulary on display on the working wall and constantly referring to it helps the children to both remember and use it.

Work on the working walls reflects the current mathematics work. Work does not need to be mounted, as it is expected to develop rapid and change frequently. Teachers and children may write captions and add relevant vocabulary. Teachers may have pre-prepared paper (e.g. bright paper, flip chart paper etc) ready to write on which can go directly onto the working wall.

- The Concrete, Pictorial and Abstract approach will be reflected in all maths displays which will change for each 'Number' based unit of work.
- Display templates will be used showing the following headings: Concrete, Pictorial, Abstract, Mathematical Vocabulary and Star Challenge. These will be used in all classes to ensure consistency for pupils. The content under each heading will vary in each year group. E.g. in Year 1 the 'Concrete' section will be larger than the 'Abstract' section and vice versa in Year 6
- **Concrete heading:** will display relevant objects (FS/Year 1)
- **Pictorial heading:** will display images of objects, equipment
- **Abstract heading:** will display the above but presented using numbers, symbols, and words
- The learning process will be shown clearly for the children to refer to throughout lessons.
- Examples of the children's work, at each stage, will be displayed underneath or alongside each heading. (These will be carefully selected to show a particular process e.g. showing different ways a problem has been represented or solved.)
- Speech bubbles will be used to encourage reflection, by asking questions or adding commentary to detail a strategy that has been used
- In Early Years, commentary is especially important e.g. it might include photographs of counting strategies with quotes from the children e.g. 'Don't forget to start at 1' or 'Only count each object once'.
- **Mathematical Language heading:** will display key words for the current unit of work and be regularly referred to by teachers and pupils.
- **Star Challenge heading:** will promote open ended problem solving and reasoning questions for the children to access independently and to encourage discussions about Maths throughout the day. These will also link to other curriculum areas where possible. These will be changed on a weekly basis and become more complex as the unit progresses.

A typical lesson would include:

A mixture of whole class activities such as daily counting, guided maths sessions and through opportunities provided in continuous provision both inside and outside to apply their mathematical understanding in different real-life contexts. In addition, it is important that the curriculum includes rich opportunities for the children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

Key Stage 1

As a whole school, we follow the White Rose Yearly Overviews for Maths. This ensures full coverage of the National Curriculum.

Maths is planned using the White Rose schemes of learning as a basis. Learning is organised into units, which have been sequenced to ensure that one unit of work develops to ensure consolidation and the opportunity for progression. Each unit is then divided into a sequence of carefully planned small steps, designed to gradually develop children's understanding of the subject through a concrete, pictorial and abstract approach. This ensures pupils fully understand what they are learning.

In each classroom, you would see a 'Maths Working Wall' display; they are a place to support current and future learning in maths, and also celebrate excellent examples of pupil's work. The working wall is purposeful, helpful, relevant and above all useful.

Developing maths vocabulary is such an important part of maths at Overstone. We need to stress the use of precise mathematical vocabulary when teaching, instead of using informal language. Having the vocabulary on display on the working wall and constantly referring to it helps the children to both remember and use it.

Work on the working walls reflects the current mathematics work. Work does not need to be mounted, as it is expected to develop rapid and change frequently. Teachers and children may write captions and add relevant vocabulary. However, handwriting should always be consistent with the school agreed style, be neat, legible, formed correctly demonstrating correct joins from Year 2 upwards. Teachers may have pre-prepared paper (e.g. bright paper, flip chart paper etc) ready to write on which can go directly onto the working wall.

- The Concrete, Pictorial and Abstract approach will be reflected in all maths displays which will change for each 'Number' based unit of work.
- Display templates will be used showing the following headings: Concrete, Pictorial, Abstract, Mathematical Vocabulary and Star Challenge. These will be used in all classes to ensure consistency for pupils. The content under each heading will vary in each year group. E.g. in Year 1 the 'Concrete' section will be larger than the 'Abstract' section and vice versa in Year 6
- **Concrete heading:** will display relevant objects (Year 1/2) or mathematical equipment (dienes, place value disks) being used to illustrate the concept being taught e.g. for place value they may be positioned on a place value chart.
- **Pictorial heading:** will display images of objects and equipment
- **Abstract heading:** will display the above but presented using numbers, symbols, and words
- The learning process will be shown clearly for the children to refer to throughout lessons.
- Examples of the children's work, at each stage, will be displayed underneath or alongside each heading. (These will be carefully selected to show a particular process e.g. showing different ways a problem has been represented or solved.)
- Speech bubbles will be used to encourage reflection, by asking questions or adding commentary to detail a strategy that has been used
- In KS1, commentary is especially important e.g. at beginning of year 1 it might include photographs of counting strategies with quotes from the children e.g. 'Don't forget to start at …' or 'Only count each object once'.
- **Mathematical Language heading:** will display key words for the current unit of work and be regularly referred to by teachers and pupils.
- **Star Challenge heading:** will promote open ended problem solving and reasoning questions for the children to access independently and to encourage discussions about Maths throughout the day. These will also link to other curriculum areas where possible. These will be changed on a weekly basis and become more complex as the unit progresses.

<u>A typical lesson would include:</u>

- Whole Class daily maths challenge this may be counting or consolidation of previous learning.
- Whole Class interactive teaching with a focus on use of appropriate mathematical vocabulary both modelled by the teacher.
- The majority of the class moving through learning at the same pace.
- Differentiation challenges set for individuals/groups.
- Opportunities for collaborative learning and group discussions.
- Time for the children to work independently to practise new learning.
- Misconceptions quickly identified and addressed by the teacher or TA.
- Teachers and Teaching Assistants working flexibly within the class based on daily formative assessments and observations.
- Throughout KS1, the children are encouraged to use red, yellow and green self-assessment faces or stamps.
- In some lessons, the children would use a purple pen, and the self-marking stations to mark their work.
- When the task is completed and self-assessed, the children are offered a task from the 'Challenge boxes.' Theses boxes are provided for all children, helping to deepen their understanding, whilst applying learning to increasingly complex problems.
- At the end of the lesson, self-assessment trays/areas are used to place individual's maths journals.

KEY STAGE 2

Maths is planned using the White Rose schemes of learning as a basis. Learning is organised into units, which have been sequenced to ensure that one unit of work develops to ensure consolidation and the opportunity for progression. White Rose Maths has produced long term plans to support mixed year groups. The mixed year groups cover Y3/4 and Y5/6. These overviews are designed to support a mastery approach to teaching and learning, and have been designed to support the aims and objectives of the new National Curriculum.

Our approach ensures progression whilst also valuing teacher's professional judgement by providing the flexibility to decide on how long to spend on each step, which models to use and also which additional resources to use to supplement teaching. These include activities from BBC Bitesize, Oak Academy and Nrich to extend opportunities for problem solving and reasoning.

In each classroom, you would see a 'Maths Working Wall' display; they are a place to support current and future learning in maths, and also celebrate excellent examples of pupil's work. The working wall is purposeful, helpful, relevant and above all useful.

Developing maths vocabulary is such an important part of maths at Overstone. We need to stress the use of precise mathematical vocabulary when teaching, instead of using informal language. Having the vocabulary on display on the working wall and constantly referring to it helps the children to both remember and use it.

Work on the working walls reflects the current mathematics work. Work does not need to be mounted, as it is expected to develop rapid and change frequently. Teachers and children may write captions and add relevant vocabulary. Teachers may have pre-prepared paper (e.g. bright paper, flip chart paper etc) ready to write on which can go directly onto the working wall.

- The Concrete, Pictorial and Abstract approach will be reflected in all maths displays which will change for each 'Number' based unit of work.
- Display templates will be used showing the following headings: Concrete, Pictorial, Abstract, Mathematical Vocabulary and Star Challenge. These will be used in all classes to ensure consistency for pupils. The content under each heading will vary in each year group. E.g. in Year 1 the 'Concrete' section will be larger than the 'Abstract' section and vice versa in Year 6
- **Concrete heading:** will display relevant objects or mathematical equipment (dienes, place value disks) being used to illustrate the concept being taught e.g. for place value they may be positioned on a place value chart.
- **Pictorial heading:** will display images of objects and equipment
- **Abstract heading:** will display the above but presented using numbers, symbols, and words
- The learning process will be shown clearly for the children to refer to throughout lessons.
- Examples of the children's work, at each stage, will be displayed underneath or alongside each heading. (These will be carefully selected to show a particular process e.g. showing different ways a problem has been represented or solved.)
- Speech bubbles will be used to encourage reflection, by asking questions or adding commentary to detail a strategy that has been used
- Commentary is especially important e.g. at beginning of year 3 it might include photographs of counting strategies with quotes from the children e.g. 'Don't forget to start at … or 'Only count …'.
- **Mathematical Language heading:** will display key words for the current unit of work and be regularly referred to by teachers and pupils.
- **Star Challenge heading:** will promote open ended problem solving and reasoning questions for the children to access independently and to encourage discussions about Maths throughout the day. These will also link to other curriculum areas where possible. These will be changed on a weekly basis and become more complex as the unit progresses.

A typical lesson would include:

- Whole Class daily maths challenge.
- Whole Class interactive teaching with a focus on use of appropriate mathematical vocabulary both modelled by the teacher.
- The majority of the class moving through learning at the same pace.
- Differentiation challenges set for individuals/groups.
- Opportunities for collaborative learning and group discussions.
- Time for the children to work independently to practise new learning.
- Misconceptions quickly identified and addressed by the teacher or TA.
- Teachers and Teaching Assistants working flexibly within the class based on daily formative assessments and observations.
- Throughout KS2, the children are encouraged to use red, yellow or green pens to signal their understanding on meeting the success criteria for that lesson.
- UKS2 are encouraged to write the success criteria out, and will self-assessed against this.
- Once completed, using a purple pen, the children can use the self-marking stations to mark their work.
- When the task is completed and self-assessed, the children are offered a task from the 'Challenge boxes.' Theses boxes are provided for all children, helping to deepen their understanding, whilst applying learning to increasingly complex problems.
- At the end of the lesson, self-assessment trays/areas are used to place individual's maths journals.

CURRICULUM IMPACT

EYFS

The impact of Maths Teaching in the EYFS will be measured through:

Observations:
EYFS staff use observations as the basis for planning. Staff are skilled at observing children to identify their achievements, interests and next steps for learning. These observations then lead the direction of the planning. Relevant and significant observations are recorded in the children's online Learning Journeys.

The Foundation Stage Profile is the nationally employed assessment tool that enables teachers to record their observations at the end of the Foundation Stage, and to summarise their pupils' progress towards the Early Learning Goals. It covers each of the seven areas of learning contained in the curriculum guidance for the Foundation Stage, including Mathematical Development.

Drop in/Learning Walk: Termly during whole class activities, group work and also during child-initiated learning will enable me to see how the approach is working, and how the children are applying their knowledge and understanding in their play.

Policy Review: Maths Policy is reviewed annually to reflect current practise both in terms of the ELG Framework and best practice.

Staff / Pupil Voice: Both will enable me to gain an understanding of the views of adults and children within the class. What is going well and what needs further development?

Assessment: For every child starting Nursery and Reception, teachers complete a baseline assessment in their first four weeks of school. The National Reception Baseline Assessment is an online assessment in which children are asked to carry out early Maths activities in order to gauge their starting points. This information will be used to inform the planning of our curriculum to ensure that it meets the needs of all of our learners, including those with SEND and from disadvantaged backgrounds.

Each half-term, we assess each child's level of development to be beginning, within or securely working within the Development Matters age-bands. This is then recorded on our whole school assessment software, Target Tracker.

These assessments allow us to identify patterns of attainment within the cohort, in order to adjust the teaching programme for individual children and groups of children.

Key Stage 1 and Key Stage 2
Observations:
Observations enable the co-ordinator to see the learning process from whole class input, adult led activities, the opportunities provided in continuous provision in maths and how these are accessed and developed by the children. These happen on a formal and informal basis throughout the year.

Drop in/Learning Walk: Learning walks/drop ins, involve staff moving between different groups of pupils for a purpose other than facilitating learning. During this year the focus has been on seeing how the White Rose Scheme and resources were being used, how children are supported and challenged within lessons.

Book Looks: Used to see progress across a unit of work, to see that policy is being implemented and to ensure that assessments are accurate and reflect deep and secure understanding of the children.

Policy Review: Maths Policy is reviewed annually considering national guidance and best practise.

Staff / Pupil Voice: A maths weekly slot is provided at weekly staff meetings, providing the staff and Maths Co-ordinator the opportunity to discuss teaching practice and any relevant updates.

Pupil voice: is obtained through informal conversations with children during learning walks and at other times during the day.

Assessment: Target Tracker is updated regular with statements completed and achievements at the end of every half term, e.g. below, working towards, working at. Formal assessments for each end of unit will be carried out, this outcome will aid the teacher's judgement and linked to TT statements. Target tracker (TT) is cross checked with books to ensure that assessments reflect learning.

We strongly believe that mathematics is an important strand in our school, as it is essential that the children understand how maths is used in our world today.