Maths at Betley gives all children the encouragement and wisdom to flourish and shine as mathematicians irrespective of their background or ability. We instil a sense of wonder where every child can experience awe as they solve a problem for the first



At Betley C of E (VC) Primary School we make maths exciting, enjoyable and stimulating. Through our close links with NCETM 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.

# <u>Eyfs</u>

At Betley 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 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, talk to adults and peers about what they notice and are not be afraid to make mistakes.
- Bridging documents are used to ensured that children are ready to progress to Ks1 and

### 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 has been adapted from the White Rose scheme and is carefully mapped out in our progression document in order

to cater to the needs of our mixed age classes. This ensures that the transition between phases is smooth. All lessons from class's 2-4 follow a 6-part lesson structure and are inspired by White Rose planning in order to establish a consistent lesson structure across Key stages.

# KEY STAGE 1

At Betley 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 can flourish and achieve.

#### 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 and during maths meetings.

#### 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 in Ks1 and 2 follow the White Rose scheme and have a 6-part lesson structure.

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

# Implementation:

# <u>EYFS</u>

In EYFS we follow the White Rose Guidance for Reception, which is used to ensure coverage and progression and also introduces the children with key concepts, mathematical language and understanding they will develop further as they move through the school. Alongside this, children in EYFS take part in mastering number sessions 4 times per week in order to deepen their understanding of key concepts and strategies in maths.

In the EYFS classroom, you will see a 'Maths Meeting Wall;' they are a place to support current and future learning in maths and 'maths meetings', and also celebrate excellent examples of pupil's work. Developing maths vocabulary is such an important part of maths at Betley. We need to stress the use of precise mathematical vocabulary when teaching, instead of using informal language. Appropriate vocabulary is outlined in our 'vocabulary progression document.' This ensures that staff are using the correct vocabulary at all times and that it is consistent throughout all year groups. 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 rapidly so is changed frequently. Teachers and children may write captions and add relevant vocabulary.

- The Concrete, Pictorial and Abstract approach will be reflected in all maths displays which will change for each unit of work.
- Maths displays will include all features highlighted in the schools 'EYFS Classroom compliance document':

Date

Calendar

Numbers 0-10

Shapes

Resources linked to half termly focus

- The learning process will be shown clearly for the children to refer to throughout lessons.
- 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'.

#### What does maths look like in EYFS?

- 'Mastering Number' sessions take place 4 times per week to promote a deep understanding of number and the development of maths strategies that prepare children for their transition into KS1.
- 'Maths meetings' take place daily. Maths meetings target key aspects of the EYFS curriculum and are adapted to the needs of the class.
- Continuous provision opportunities are used to promote an independent interest and enthusiasm for maths throughout the school day.
- Children have access to a multitude of maths resources that they can access independently.
- 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. These areas are targeted through daily 'Maths meetings' and through continuous provision.

#### <u>Key Stage 1</u>

As Betley, we follow the schools tailored 'Progression document' for maths. This follows the White Rose scheme of learning as well as the National Curriculum but has been adapted to suit our schools mixed age classes. Through the adaptation process, the maths lead has ensured full coverage of the National Curriculum. Consolidation time, has been allocated in order to revisit any areas where a deeper understanding is required.

Maths is planned using the White Rose scheme of learning as a basis and is set out in a 6-part lesson structure. Learning is organised into units, which have been sequenced 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.

Each classroom has a 'Maths meeting wall.' Walls should follow the 'classroom compliance document' and include: Date Place value of number (as appropriate for your year group) 100 square (KS1/LKS2) Resources linked to half termly focus The walls are used as a tool to aid children in their learning during daily 'Maths meetings.' Developing maths vocabulary is such an important part of maths at Betley. 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 walls and constantly referring to it during lessons using the terminology 'Star Vocabulary' 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 rapidly 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.

- 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, Star Vocabulary and 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
- Maths displays will include all features highlighted in the schools 'Classroom compliance document': Curriculum goal (overview for whole unit) Learning goal (changes daily/every couple of days) Vocabulary (Star words for the unit) Modelling
- 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. (These will be carefully selected to show a particular process e.g. showing different ways a problem has been represented or solved.)
- 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'.

#### What does maths look like in KS1?

- 'Mastering Number' sessions take place 3 times per week to promote a deep understanding of number and the development of quick recall maths strategies.
- 'Maths meetings' take 2 times per week. Maths meetings target key aspects of the maths curriculum and are adapted to the needs of the class. They are fun, engaging and quick paced with a heavy focus on the use of chants and song.
- 'Flash back 4' sessions take place daily. The sessions allow children to revisit and consolidate past mathematical concepts and

learning. Children in year 1 explore these concepts as a class up until the summer term. From summer onwards children will carry out the tasks in their DONOW books as year 2 children do from September.

- Daily maths lessons are set out in a 6-part lesson structure using the following headings:
- 1. DONOW: Revisit prior learning or concepts to establish consolidation or a deeper understanding.
- 2. New learning: Introduces the main mathematical concepts for that lesson.
- 3. Talk Task: An opportunity to prastise the new learning by talking about the maths using 'star vocabulary.'
- 4. Develop learning: Builds on the new learning segment and helps children to deepen their understanding of the concepts.
- 5. Independent task: Enables children to practice their new learning independently.
- 6. Plenary: Opportunity to recap on the lesson, checking understanding and celebrating success.
- Learning Goals are shared at the beginning of every maths lesson. Children are encouraged to write a simplified LG in their books along with the short date.
- 'Star vocabulary,' (key maths vocabulary used throughout the lesson) is shared with the children and meaning discussed.
- Lessons cater to the needs of all pupils. Appropriate scaffolds are made available for children who need them and challenge is provided to the more able.
- Throughout KS1, the children are encouraged to use 'smiley face' self-assessment.
- Marking at the point of learning is used to assess at the point and to address misconceptions as they happen.
- 'Key knowledge grids' are used to assess each child understanding of the lesson at the point of learning.

## KEY STAGE 2

As in KS1, KS2 classes follow the schools tailored 'Progression document' for maths. This follows the White Rose scheme of learning as well as the National Curriculum but has been adapted to suit our schools mixed age classes. Through the adaptation process, the maths lead has ensured full coverage of the National Curriculum. Consolidation time, has been allocated in order to revisit any areas where a deeper understanding is required.

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 Twinkl Diving in to Mastery and Nrich to extend opportunities for problem solving and reasoning.

Maths is planned using the White Rose scheme of learning as a basis and is set out in a 6-part lesson structure. Learning is organised

into units, which have been sequenced 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.

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Each classroom has a 'Maths meeting wall.' Walls should follow the 'classroom compliance document' and include: Date Place value of number (as appropriate for your year group) 100 square (KS1/LKS2) Resources linked to half termly focus The walls are used as a tool to aid children in their learning during daily 'Maths meetings.'

Developing maths vocabulary is such an important part of maths at Betley. 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 walls and constantly referring to it during lessons using the terminology 'Star Vocabulary' 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 rapidly 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.

- 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.
- 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, Star Vocabulary and 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
- Maths displays will include all features highlighted in the schools 'Classroom compliance document': Curriculum goal (overview for whole unit) Learning goal (changes daily/every couple of days) Vocabulary (Star words for the unit) Modelling
- 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. (These will be carefully selected to show a particular process e.g. showing different ways a problem has been represented or solved.)
- 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'.

#### What does maths look like in KS2?

- 'Maths meetings' take 2 times per week. Maths meetings target key aspects of the maths curriculum and are adapted to the needs of the class. They are fun, engaging and quick paced with a heavy focus on the use of chants and song.
- 'Flash back 4' sessions take place daily. The sessions allow children to revisit and consolidate past mathematical concepts and learning. Children in year 1 explore these concepts as a class up until the summer term. From summer onwards children will carry out the tasks in their DONOW books as year 2 children do from September.
- Children have regular opportunities to practice and improve their Multiplication skills. Year 4 pupils access TTRockstars daily in order to promote quick recall of the multiplication tables. Year 3 children access at least once per week.
- Children in year 3/4 and those whose who require it in year 5/6 take place in a tailored 2 minute multiplication test daily. Children's results are then monitored and they are moved to the next level when appropriate.
- Daily maths lessons are set out in a 6-part lesson structure using the following headings:
- 1. DONOW: Revisit prior learning or concepts to establish consolidation or a deeper understanding.
- 2. New learning: Introduces the main mathematical concepts for that lesson.
- 3. Talk Task: An opportunity to prastise the new learning by talking about the maths using 'star vocabulary.'
- 4. Develop learning: Builds on the new learning segment and helps children to deepen their understanding of the concepts.
- 5. Independent task: Enables children to practice their new learning independently.
- 6. Plenary: Opportunity to recap on the lesson, checking understanding and celebrating success.

- Learning Goals are shared at the beginning of every maths lesson.
- 'Star vocabulary,' (key maths vocabulary used throughout the lesson) is shared with the children and meaning discussed.
- Lessons cater to the needs of all pupils. Appropriate scaffolds are made available for children who need them and challenge is provided to the more able.
- Throughout KS1, the children are encouraged to use 'smiley face' self-assessment.
- Marking at the point of learning is used to assess at the point and to address misconceptions as they happen.
- 'Key knowledge grids' are used to assess each child understanding of the lesson at the point of learning.

# Impact:

# <u>EYFS</u>

### 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.

<u>Cross federation monitoring</u>: Each term we have the opertunity to meet with the other school in our federation for a moderation staff meeting. During this time, staff are able to share evidence with other practitioners as part of an in-house moderation in order to assess if assessments are accurate and fair.

# <u>Key Stage 1 and Key Stage 2</u> <u>The impact of Maths Teaching in KS1/2 will be measured through:</u>

**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 Scans:** 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.

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

Marking at the point: Marking at the point of learning is used to assess children's progress in lessons immediately.

#### Assessment:

- 'Key knowledge grids' in books are used to assess children's learning at the end of each lesson using a traffic light system. This informs future lesson planning for progression.
- End of unit tests are carried out and recorded on spreadsheets. The results allow teachers to target key areas of development as well as children's individual progress within a unit.
- End of term tests are carried out and recorded on spreadsheets. The results allow teacher's and leaders to track progress of pupils during data collection points.
- 'Continual progress grids' are highlighted for each pupil during the 3 data collection points throughout the year. This allows teachers to see clear progress towards each year groups national curriculum outcomes. This is also an important document to pass up to the next class teacher in order for them to see any gaps in learning that need to be filled.
- TTRockstars Official Unofficial MTC to be carried out in September, January and April in order to track children's progress in the multiplication tables and set targets.

<u>Cross federation monitoring</u>: Each term we have the opertunity to meet with the other school in our federation for a moderation staff meeting. During this time, staff are able to share evidence such as books and data with other practitioners as part of an in-house moderation in order to assess if assessments are accurate and fair.

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.