Maths at Folville – School policy (Updated October 2023)

INTENT:

The intention of Maths at Folville is to enable children to be both fluent with their mathematical skills and to be able to manipulate their mathematical knowledge in a variety of situations (mastery).

A mathematical concept or skill has been mastered when a pupil can represent it in multiple ways, has the mathematical language to communicate related ideas, and can independently apply the concept to new problems in unfamiliar situations.

Curriculum coverage and planning:

We will use the **White Rose** long term and short term unit plans as our basis, however staff should adapt planning for the individual needs of the classes/ pupils when needed. For example, if more time is needed to consolidate a specific topic, teachers have the flexibly to do so.

It is important that we cover all areas of the curriculum – the Year 6 SATs papers include shape, measure etc. and often require children to use their skills in a different context,

The White Rose plans cover

- Yearly overview with each term split into blocks.
- Each unit - small steps –these will be used as the learning objective.
- Guidance for teaching with lots of examples of questions. Each block includes: mathematical talk, varied fluency (core learning) and reasoning/ problem solving.
- White Rose premium provides power points and videos to assist teachers in delivery of lesson if they wish to do so.

The White Rose approach

All pupils, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking this approach. Pupils are encouraged to physically represent mathematical concepts using concrete resources. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

Concrete – Students in both upper and lower key stage two should have the opportunity to use concrete objects to help support their understanding and learning.
Pictorial – Students should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.
Abstract – With the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.

To achieve our objective, we would like every lesson to cover core learning skills and reasoning/ problem solving. At the very least, reasoning and problem-solving will be taught every two days.

	Autumn	**Spring**	**Summer**
Year 3	Number sense X tables Place value Addition and subtraction Multiplication and division A	Multiplication and division B Length and perimeter Fractions A mass and capacity	Fractions B Money Time Shape Statistics
Year 4	Number sense Place value Addition and subtraction Area Multiplication and division	Multiplication and division B Length and perimeter Fractions Decimals	Decimals Money Time Shape Statistics Position and direction
Year 5	Place value Addition and subtraction Multiplication and division Fractions A	Multiplication and division Fractions B Decimals and percentages Perimeter and area Statistics	Shape Position and direction Decimals Negative numbers Converting units Measurement and volume
Year 6	Place value Addition and subtraction, multiplication and division Fractions A Fractions B Measurement and converting units	Ratio Algebra Decimals fractions and decimals Area and perimeter Statistics	Shape Geometry SATS Consolidation SATS Problem solving / themed projects – enterprise

IMPLEMENTATION:

A typical lesson would include:

- **Date** (short date and Learning objective -underlined)
- **Starter / reinforcement of previous learning** (as needed) – chosen to practise basic skills or to lead on to the main lesson. This could be done on whiteboards or in books.
- **Teacher introduction to lesson.-** there are videos and power points on the white Rose website should you choose to use them. Use of concrete apparatus when required
- **Core Learning** –
- **Reasoning and problem solving questions**
  (As with core learning, these skills will need to be modelled)
- (If appropriate)**Brain-stretcher challenge** (chosen to show mastery)

All children should have time to access the reasoning and problem solving questions. Mathematical questioning is encouraged – 'how do you know?' Why? and explanation. The use of mathematical vocabulary should be emphasised and used.

For a majority of lessons children will record into the books, however practical lessons and group investigations are also encouraged.
For written methods, children need to get used to setting out clearly on squared paper. Children need to write 1 digit per square.

SEND – there will be a few children who cannot access their year's work. They will be given separate work at their level but in a similar style.

Number Sense:

To be used predominantly in Years 3 and 4 to build up basic number skills in addition and subtraction.
Used in Years 5 and 6 to support children who need more practise in this area.

Number Sense lessons have been added in lower key stage 2 and booklets are available for interventions in upper kS2. The national curriculum states that **"** *All pupils should become fluent in the fundamentals of mathematics. Children who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on."*
Number sense is in six stages

Stage 1 : visual number foundations

In Stage 1, children spend time developing a deep and visual understanding of the numbers 1 - 10. They practice subitising quantities up to 5, and learn to subitise quantities between 6 - 10 when presented in structured arrangements. Children also meet the tens frame, and learn to recognise the quantities 1 - 10 presented both twos -wise and fives-wise on the tens frame.

Stage 2: make and break 10

Stage 2 consists of a focused study of each number from 1 to 10. Children practice making each number from two smaller numbers (the basis of addition) and partitioning numbers (the basis of subtraction). During Stage 2 children will start to remember some number bonds for each number to 10 but are not expected to be able to recall them all. The focus is on developing a deep and visual understanding of the quantity value of each number to 10. Addition and subtraction equations are introduced only towards the end of each book.

Stage 3 :facts and strategies within 10

Stage 3 teaches children the calculation strategies, which enable them to become fluent in all the addition and subtraction facts within 10. Through the teaching of the strategies, children learn to spot key number relationships and to "use what you know to work out what you don't yet know". At the end of each book there are several mixed practice exercises involving all the strategies the children have been taught by that point. The final book in the stage (Book 9) then provides a thorough period of mixed practice involving all the Stage 3 calculation strategies and number facts within 10. By the end of the stage, children should be able to add and subtract within 10 without counting on their fingers.

Stage 4 : 10 and a bit facts

In this short but important stage, children spend time visualising and recognising the numbers and quantities 11 to 20, and learn the concept of place value. With the visual and structural understanding of the ‘Ten and A Bit’ numbers secure, children then start to work with the addition and subtraction equations relating to the ‘Ten and A Bit’ structure of these numbers.

Stage 5: facts and strategies across 10

Stage 5 teaches children the calculation strategies ,which enable them to become fluent in all the addition and subtraction facts across 10. Through the teaching of the strategies, children continue to practice spotting key number relationships and using "what you know to work out what you don't yet know". The final book in the stage (Book 5) then provides a thorough period of mixed practice involving all the Stage 5 calculation strategies and number facts across 10. By the end of the stage, children should be able to add and subtract across 10 without counting on their fingers.

Stage 6: Extending facts and strategies beyond the grid

In this final stage, children learn to extend and apply the number facts and strategies they have learned so far to addition and subtraction calculations involving two digit numbers. For example, "Make 10 and Then" becomes "Make the Next 10 and Then." By the end of the stage, children should be solving equations involving two digit numbers confidently and

efficiently without using their fingers or extensive jottings. There is currently no Stage 6 assessment as much of the Stage 6 content is assessed in KS1 SATs. When KS1 SATs no longer take place, a Stage 6 assessment pack will be provided to gauge your children's understanding of these concepts.

Times Tables:

We will be assessing and practising a with Bronze/ Silver/ Gold/ Platinum/ Diamond reward system.
(In the summer term, all Year 4 children will be tested on their times tables.)
Bronze: 10, 5, 1, 0, 2
Silver: As above + 4, 8, 3, 6 (focussing on doubling)
Gold: As above + 9, 11, 12, 7 (focussing on patterns and distributive law)

Times tables lesson:

30 minutes on times tables.
Children are given 10 minutes to practise, 10 minutes to take the relevant test and 10 minutes to go over the answers. To achieve Silver, for example, all questions on 'Going for Silver' sheet must be completed and correct in 10 minutes.

Flashback 4:

This element contains questions (core skills and reasoning/ problem solving) on a unit covered previously. Flashback 4 booklets will give the children a chance to revisit prior subjects covered in class.
All pupils will have a termly flashback 4 booklet, with approximately twelve flashback 4 assessments in (4-5 questions per flashback 4). Children are to complete this booklet per term. This booklet is to be completed independently and can therefore be used for moderation. Flashback 4 assessments can be read to pupils, if necessary. Children are to work from their respective year group unless they are on the SEN register or are unable to access their year group in class.

Marking work:

Teacher and TA will mark as walk around the class.
Teachers may choose to stop at points for whole class marking.
Teachers will ensure that all children's work is commented on at least once a week. It is important that the children know their books are being looked at.

IMPACT:

Assessment and moderation:

We will use the NFER arithmetic and problem and reasoning tests on a termly basis.
Year 6 will be working towards the Key Stage 2 SATS and will therefore be using past sats papers.

To assess and moderate the children's skills, we need to know that work is independent.

With that in mind, we have termly Flashback booklets, which include 12 mini flashbacks, to be completed each term.
We also have a fortnightly times tables assessment session.

Each child has a maths folder.
Each fortnight, insert their times tables sheet into their maths folders along with heir flashback 4 booklets.

The mini flashbacks can be recorded and used for moderation purposes as well as giving children the chance to revisit previous learning.
Over the year, this will show you the general level that each child is working at and whether they have excelled or struggled with any particular element.