*'As the children move through the school, they **blossom** as they grow as unique individuals, benefitting from the strength and faith of our school.' – ref. School Vision*

What Maths looks like in Goodrich CE (VC) Primary School

Our aim is to equip all pupils with the skills and confidence to solve a range of problems through fluency with numbers and mathematical reasoning. Our ultimate aim is to ensure that children are given a visual/concrete representation of the maths being taught and set in a real-life context to make it meaningful to the children.

Throughout the school all classes are mixed age. We use a flexible mastery approach which is taught with the lesson objective chosen from each year group which closely match and are a continuation of each other being developed throughout the lesson or series of lessons. Where lesson objectives for differing year groups cannot be closely match, objectives are taught to the whole class ensuring that support and/or depth of learning opportunities are provided. When necessary and appropriate, children are taught in smaller groups for precision teaching.

CURRICULUM INTENT

Curriculum Intent

What Maths looks like in our school.

❖ A curriculum which caters for the needs of all individuals

❖ A flexible approach is adopted to the grouping of children based on their needs relating to the particular objective(s) being taught. Where appropriate children are given the opportunity to choose the level of their challenge based on their need and thus providing opportunities for them to develop as independent learners.

❖ Daily basic skills practise (Mastering number/Minute Maths/ 9 Quick Questions / Times Tables) to ensure fluency and develop long term recall

❖ We use a concrete, pictorial, abstract approach (see Calculation Policy)

❖ Regular Reasoning & Problem-solving opportunities are provided

❖ Questioning is a key part of the maths lesson – letting the children demonstrate what they know and challenging them every step

❖ Pupils are required to explore maths in depth, using mathematical vocabulary to reason and explain their workings

❖ A well planned lessons using ready-to-progress criterion for each year group which links to pupils' prior knowledge and future applications.

❖ Structured interventions to help close the gaps for targeted children.

This is our philosophy:

❖ To become fluent in the fundamentals of mathematics so that children develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

❖ To be able to solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios

❖ To reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

❖ To have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in mathematics.

This is the knowledge and understanding gained at each stage:

By the end of EYFS pupils will:

❖ Have a deep understanding of number to 10, including the composition of each number

❖ 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

❖ Verbally count beyond 20, recognising the pattern of the counting system

❖ 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

❖ Develop their spatial reasoning skills across all areas of mathematics including shape, space and measures

❖ Have an ability to 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

By the end of Key Stage 1 pupils will:

❖ Develop confidence and mental fluency with whole numbers, counting and place value.

❖ Use numerals, words and the four operations, including with practical resources.

❖ Recognise, describe, draw, compare and sort different shapes and use the related vocabulary.

❖ a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

❖ know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

❖ Read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1

By the end of Lower Key Stage 2 pupils will:

❖ Be increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.

❖ Develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

❖ Develop their ability to solve a range of problems, including with simple fractions and decimal place value.

❖ Draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties and confidently describe the relationships between them.

❖ Use measuring instruments with accuracy and make connections between measure and number.

❖ By the end of year 4, memorised their multiplication tables up to and including the 12 multiplication table.

❖ Read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

By the end of Key Stage 2 pupils will:

❖ Understand the number system and place value to include larger integers.

❖ Make connections between multiplication and division with fractions, decimals, percentages and ratio.

❖ Develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation.

❖ Use the language of algebra as a means for solving a variety of problems.

❖ Classify shapes with increasingly complex geometric properties and use the vocabulary they need to describe them.

❖ Be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

❖ Read, spell and pronounce mathematical vocabulary correctly

CURRICULUM IMPLEMENTATION

Curriculum Implementation

Please refer to:

- Our **Long Term Overview** to demonstrate the progression of knowledge and skills within the whole school
- Our Calculation Policy

This is how it works:

- Children in EYFS have a daily mathematical focus based on acquiring knowledge of basic mathematical facts and concepts within the EYFS Curriculum using the Mastering Number Programme. Mathematical concepts are also woven throughout their continuous provision.
- Teachers use a Concrete, Pictorial, Abstract (CPA) approach to support learning.
- Teachers take time to think carefully about the small step nature of learning within their lessons and select questions which move children on to the next step.
- Lessons incorporate a 'ping/pong' approach i.e. the use of mid-point reflections to explore misconceptions/difficult points and allow 'in the moment feedback' which maximises progress.
- Daily basic skills practise (Mastering Number/Minute Maths/ 9 Quick Questions / Times Tables) to ensure fluency and develop long term recall
- There are frequent opportunities for children to explain their thinking promote reasoning, explanation and depth of thought.
- We use mistakes and misconceptions as an essential part of learning.
- Teachers use their professional judgement, and AfL strategies, to ensure that children have a depth of understanding before moving on, whilst ensuring that all key areas are covered across the year.
- Children falling behind are given rapid, same day/next day intervention time to quickly reinforce the learning and give quick opportunities to reinforce understanding.
- Support is determined during each lesson to ensure secure understanding based on the needs of the child
- Pre-teaching and/or immediate interventions to prepare children for learning the next day.
- 123Maths used for daily intervention for the lowest achieving pupils in all year groups from Year 2 and across KS2

This is what the adults do:

- Plan progressive lessons which build on prior knowledge.
- Support, encourage and nurture a love of Maths.
- Create a learning environment that supports learning and engages children's interest.
- Use Bloom's Questioning in class to assess conceptual knowledge and skills and allow pupils to develop strategies for questioning and thinking.
- Regular book scrutiny, learning walks, pupil meetings and planning audits.
- Use data to identify strengths and weaknesses and develop/implement plans to address areas of concern.

- Identify those children who need extra support in order to provide them with urgent, catch-up sessions
- Whole school professional development.
- Network with other schools and Maths coordinators, e.g. though the WVLN.

This how we support:

- We use teacher and self-assessment to quickly identify any child who requires additional support in specific areas

- Differentiated ability tasks enabling children to progress at their own pace.
- We make cross curricular links whenever possible.
- Provide visual and practical prompts
- Provide additional targeted support where necessary

This is how we support staff:

- Identification of CPD needed
- Curriculum Groups – share expertise throughout the school
- Use of staff meetings
- Small sessions and immediate support as and when required
- Work in conjunction with other local school through Maths network meeting and South Herefordshire Maths Hub

This how we challenge:

- Lessons will be differentiated or adapted though challenge or support.
- Though challenging questions e.g. Prove it! Convince me! Why? How do you know?
- Additional activities/targets to stretch the learning within the lesson.
- Activities with alternative/extended discussion points.
- Teachers will adapt their questioning to support or challenge

This how we ensure all children can access the curriculum:

- Children with SEND are taught within the daily mathematics lesson and are encouraged to take part when and where possible
- Teaching lessons using the CPA approach.
- Targeted intervention for those that need extra support with their basic maths skills
- More frequent repetition and revisiting to help make it stick

Cultural Capital/Enrichment

The mathematics curriculum allows our pupils to develop lifelong skills that are essential for succeeding in all aspects of school life and beyond.
Cultural Capital is the essential knowledge that children need to prepare them for their future success – in the world of work, in relationships forged throughout life and as a valued contributor to society.

Therefore, our aim is to give children the knowledge and skills to prepare them for what comes next in their lives. This includes the relevant vocabulary needed throughout their education and the opportunity to link maths to real-world problem solving.

Cultural Capital is the accumulation of *knowledge, behaviours,* and *skills* that a child gains over time through different experiences and opportunities. They draw upon these to demonstrate their cultural awareness, knowledge and competence. It is one of the key ingredients a child will draw upon to be successful in society, their career and the world of work.
Cultural Capital gives a child power. It helps them achieve goals, become successful, and rise up the social ladder without necessarily having wealth or financial capital.

We recognise that for a child to aspire and be successful academically and in the wider areas of their lives, they need to be given rich and sustained opportunities to develop. Within Maths, we engage in; Careers Information, Growth mindset, Resilience development strategies and Pupil Voice to empower pupils.

CURRICULUM IMPACT

Curriculum Impact

This is what you might typically see:

- Happy, confident and engaged learners
- Children practising and applying knowledge to different situations.
- Confident children talking positively about maths, sharing and reflecting on their learning and being able to justify their mathematical ideas
- Specific gaps in learning addressed through daily interventions
- A classroom environment with displays including vocabulary, to support learning.
- TIPTOP learning

This is how we know how well our children are doing:

We have identified substantive and disciplinary knowledge which is fundamental to the children's development and understanding as mathematicians. They accumulate this as they move through our school which then gives them a firm foundation to build on when they move on to KS3 and beyond.

- AFL at the beginning and throughout every lesson.
- Marking and feedback which also includes peer assessment
- Lesson planned based on work done in previous year groups to ensure children are progressing
- Formative assessment though questioning throughout the lesson
- Photographic/video evidence
- Observations of children during investigation and exploration
- Next step marking and feedback by teacher and peers.
- Book scrutiny, pupil meetings and planning audits.
- Regularly monitoring of the standards of children's work and the quality of teaching and learning in lessons
- Assessment tracked at the end of each term and entered onto our summative assessment tracking system.

This is the impact of the teaching:

- Children who are confident talking about maths.
- Children who enjoy their learning in maths.
- Inquisitive learners who make observations and ask questions.
- Depth of understanding/application in different contexts
- Pupils use acquired vocabulary in maths lessons.
- Reflective learners.
- Children will be ready for the next stage in their education. Pupils with SEND will achieve the best possible outcomes.
- Children ready for their next step in learning.
- Pupils are able to apply their mathematical knowledge.