

Vernon Primary School



Mathematics Policy



The vision of the Maths curriculum at Vernon Primary School is to provide every pupil with:

- An understanding of the important concepts and an ability to make connections within mathematics.
 - A broad range of skills in using and applying mathematics.
 - Fluent knowledge and recall of number facts and the number system.
- The ability to show initiative in solving problems in a wide range of contexts, including the new or unusual.
- The ability to think independently and to persevere when faced with challenges, showing a confidence of success.
 - The ability to embrace the value of learning from mistakes and false starts.
 - The ability to reason, generalise and make sense of solutions.
- Fluency in performing written and mental calculations and mathematical techniques.
 - A wide range of mathematical vocabulary.
 - A commitment to and passion for the subject.

Introduction

It is of extreme importance to establish an approach to Mathematics that is agreed upon by staff, children, parents and governors. This policy will state the aims, principles and strategies for the teaching and learning of Mathematics at Vernon Primary School. It reflects the essential part that Mathematics plays in the education of each individual pupil. The implementation of this policy is the responsibility of all teaching staff with support and guidance from the Mathematics subject leader.

The Nature of Mathematics

Mathematics is an important tool that is used within everyday life. It is the development of skills that enable children to understand and make sense of the world. As a result we must ensure that children develop a positive and enthusiastic attitude towards the subject.

Through the teaching of Mathematics using objectives from the National Curriculum children should develop:

- A positive approach towards Mathematics
- The skills to apply Mathematics across the curriculum and in real life problems
- Independent, inquisitive and enquiring minds
- An ability to work both independently and in co-operation with others
- A sound understanding and confidence when working in Mathematics
- An understanding of Mathematics through practical, first hand experiences and recorded tasks

Provision

Early Years Foundation Stage

Mathematics in the Early Years Foundation Stage Curriculum comes under two strands:

Number

- 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.

Numerical Patterns

- 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 and how quantities can be distributed equally.

The Early Learning Goals define the level of development children are expected to attain by the end of the Reception year. The vast majority of pupils at Vernon Primary school achieve these Early Learning Goals.

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. This is what the EYFS at Vernon keeps at its core. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.

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 – our children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, our curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. We feel 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.

Key Stages One and Two

At Key Stage One and Two, teachers plan their lessons using learning objectives taken from the National Curriculum for Mathematics. Long-term plans have been devised based on the White Rose Materials, adapted to meet the needs of Vernon Primary children. This enables a coherent learning progression through the curriculum. It also provides the children with key skills in the first term that they consolidate and apply within other areas of Mathematics across the year, ensuring all children develop a deep and connected understanding of mathematics.

Year 5
Maths 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		Number: Addition and Subtraction		Statistics		Number: Multiplication and Division		Measurement: Perimeter and Area		Consolidation	
Spring	Number: Multiplication and Division			Fractions		Number: Addition and Subtraction	Fractions		Number: Decimals and percentages			Consolidation
Summer	Number: Addition and Subtraction	Number: Decimals (including addition and subtraction)		Geometry: Properties of shape			Geometry: Position and Direction		Measurement: Converting units (including multiplication, division and time)	Measurement: Volume	Consolidation	

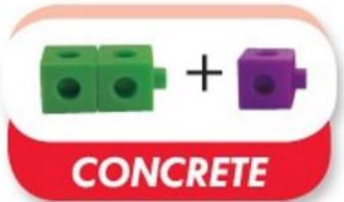
The Calculations policy, which can also be found on our school website, demonstrates how each element within addition, subtraction, multiplication and division progress throughout the school, building and consolidating from year to year.

Planning and delivery

Through careful planning and preparation, at Vernon Primary School, we aim to ensure that pupils are provided with a variety of opportunities to develop and extend their mathematical knowledge skills.


These are catered for through:

1. An opportunity to revisit prior knowledge in order to consolidate what has gone before and build on this.
2. First hand experiences, often related to real life and where appropriate linked into the theme, particularly up to Year Four.
3. Learning new concepts moving from concrete to pictorial to abstract.



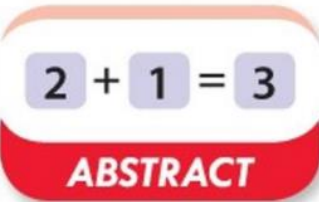
CONCRETE

Concrete is the 'doing' stage, using concrete objects to solve problems. It brings concepts to life by allowing children to handle physical objects themselves.



PICTORIAL

Pictorial is the 'seeing' stage, using representations of the objects involved in maths problems. This stage encourages children to make a mental connection between the physical object and abstract levels of understanding, by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.



ABSTRACT

Abstract is the 'symbolic' stage, where children are able to use abstract symbols to model and solve maths problems.

'Nobody else is quite like me'

4. High quality teacher modelling
5. Independent application by the children
6. Fluency:
 - a. Fluency is quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.
 - b. We ensure there is constant reinforcement of learning to ensure fluency is attained. We do this through our FIT tasks, independent work and our mental starters.
 - c. In addition, to ensure fluency to children's mental maths skills, short daily activities are planned. This should be a short session of no more than ten minutes that must occur daily.
 - i. Year One: number bonds to ten. T
 - ii. Year Two :bonds to one hundred.
 - iii. Year 3 and 4: The national expectation is now that our children must know all their times tables to 12 x 12 by the end of Year Four.
 - iv. Year 5 and 6: arithmetic of prior mental calculations.
7. Reasoning
 - a. Reasoning in maths is the process of applying logical thinking to a situation to derive the correct problem solving strategy for a given question, and using this method to develop and describe a solution.
 - b. Put more simply, mathematical reasoning is the bridge between fluency and problem solving. It allows pupils to use the former to accurately carry out the latter.
8. Problem solving
 - a. Problem solving is not necessarily just about answering word problems in Maths. If a child already has a readily available method to solve this sort of problem, problem solving has not occurred. Problem solving in Maths is finding a way to apply knowledge and skills you have to answer unfamiliar types of problems.
9. Recorded work (two to three pieces a week) as well as practical outcomes.
10. Individual, group or whole class work
 - a. effective classrooms are filled with purposeful discussions among classmates and the teacher about concepts, skills, and problem solving strategies. Students who communicate with their peers and teachers about their thinking, solution pathways, and insights into how they solved a problem develop a deeper understanding of math.
11. Misconceptions always addressed and shared to ensure all children have accurate procedural knowledge.
12. Scaffolds to ensure children who need additional support are still able to access learning and allow opportunities for success
 - a. An example of this is children being given a number line to help them to accurately add a one digit number.
13. Adaptive teaching methods and strategies for children who need to break down learning into smaller steps.

Assessment

After each lesson

- Children will self-assess their learning using a traffic light
- Teachers will assess the learning of the child's learning against the learning objective and give children one, two or three ticks.

At the beginning of the next lesson

- Feedback and Improvement Task activities are completed each day in order to address misconceptions and consolidate learning.
- The teacher's marking will allow children to see which FIT task to do.
 - ✓ Children will work with the teacher as they have been assessed as not ready to move on.
 - ✓✓ Children are achieving learning and are given the opportunity to consolidate this learning with additional opportunities for fluency
 - ✓✓✓ Children are very confident in learning objective and have achieved fluency, reasoning and problem solving. Therefore children will be given an opportunity for additional variation and challenge.

At the end of the week:

- After teaching a week's planning, Teachers must complete the assessment on their planning sheet, using the emerging, expected and exceeding format. The assessments are then used to inform future planning and ensure that work is pitched at an appropriate level.

At the end of the unit:

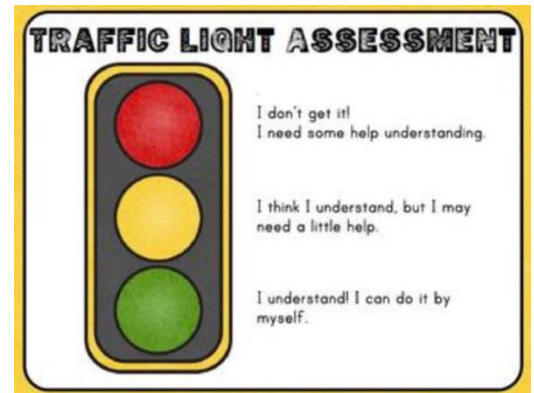
- Children will complete a mini assessment to see how well learning has stuck through the week or weeks. It will be used to see who needs further interventions and whether the class needs further focused revisiting of objectives which are yet to be secure.

At the end of the term:

- Children are given individual targets linked to a unit of work of that is being taught, for example Addition or Geometry. Children should have at least one target each half term. Each time they meet their target they will receive a tick. After three ticks, the child will be rewarded and given a new target. The targets will be shared with each child so that they can work towards achieving them and moving their mathematical capabilities forward. As the children progress through the school, they will become more involved in discussing with their teacher what the target should be.
- Towards the end of each term, children in Years 2 to 6 complete a Progress in Understanding Mathematical Assessment (PUMA) test to inform future planning and act as a diagnostic tool. Teachers use the information from these tests, as well as their professional judgements, to complete the termly tracking grids (see below).
- At the end of each term, teachers complete their tracking grids to monitor children's progress. This identifies any children who require further support and ensures all children are making progress.

Statutory assessment:

- A baseline assessment is carried out as children enter Reception and progress is tracked throughout the year. Children are then assessed at the end of the Reception year against the Development Matters outcomes. When children achieve ELG or above they achieve 'expected' or 'exceeding'.
- Formal summative assessment is carried out at the end of Year Two through end of Key Stage Assessments and in Year Six through the compulsory SATs.
- Year 4 receive a Multiplication Check to assess their knowledge of their tables to 12x12.



Roles and responsibilities

Role of the Subject Leader

The Mathematics Subject Leader holds responsibility for leading mathematics throughout the school. This involves:

- Monitoring the teaching and learning of mathematics across the school
- Informing others of in-service training where appropriate
- Support colleagues in their development of detailed plans and in assessment and record keeping
- Assisting with requisition and maintenance of resources required for the teaching of mathematics
- Monitor progress and continuity from each year group
- Scrutiny of work and planning
- Tracking under achievers and high achievers
- Implementing new initiatives
- Ensuring they have the most current knowledge in Maths teaching
- Monitoring remote learning should it be required.

Role of the Class Teacher

- To develop and update skills, knowledge and understanding of mathematics
- To identify CPD needs and attend training
- To keep up-to-date records of assessment
- To plan effective mathematics lessons, through short, medium and long terms plans
- To mark recorded work in line with the school's Marking Policy
- To inform parents of their child's progress in Mathematics
- To ensure teaching assistants are aware of the role they play in the mathematics lessons.
- To ensure that a maths target is given and reviewed when appropriate for the child in line with the whole school policy

Role of the Teaching Assistant

During whole class work Teaching Assistants can:

- Provide extra support for a targeted group of children
- Prompt children who are shy or lacking in confidence
- Help children to use specific resources to find an answer
- Observe the participation of a fixed set of children to feed into assessment

Within the main part of the lesson Teaching Assistants can:

- Support the work of a small group
- Encourage participation of children in group work
- Look for and note any common difficulties that children have so that teachers can address them during the plenary or subsequent lessons
- Ensure children interpret questions correctly
- Assess children during independent work or whole class

Parental Involvement

- Parents/Carers are invited into school three times a year to look at their child's work and discuss their child's progress.
- Parents/Carers are invited to an 'Open Evening' in the summer term
- Parents/Carers are welcomed into school to work within the classroom
- Parents/Carers are encouraged to support their child with mathematics homework.
- Parents/Carers are invited to a Mathematics evening when their child is in Year One and Two to establish how Maths is taught at Vernon Primary.

Reporting to Parents

Children's progress is reported to parents in an annual written report at the end of the year, as well as an interim report in the Spring term.

Homework

Mathematics homework is provided regularly from Year Three onwards. Homework provides parents with an opportunity to work with their child at home and see their progress. These activities may only be brief but are valuable in promoting children's learning in Mathematics.

To support our children in learning their times tables, in Years Three and Four each child has a small squared paper book to practise their times tables. They practise the table that they are focussing on in class that week. This is marked and checked by the class teacher to ensure that each child is making progress. The school provides access for children in Year Three and Four to Times Tables Rockstars. This is an app that the children are expected to use at home to practise their times tables to sharpen their skills. Please see the Homework Policy for homework progression and expectations.

Special Educational Needs

Children with SEND are taught within the daily Mathematics lesson and are encouraged to take part at every given opportunity in the same way as their peers.

Activities are planned in such a way that all children, no matter what their ability, are encouraged to participate. Teachers use appropriate adaptive teaching and scaffolding, as well as ambitious goals, within their planning to ensure that all children are being challenged at their own level.

Monitoring and Review:

We are aware of the need to regularly review our policies to take into account the new initiatives, changes in curriculum or developments in technology.

Claire Kitchen

Subject Leader for Mathematics

Policy date – November 2022

Review Date – November 2024

Ratified by Governors – November 2022