

Victory Primary School



Victory for all!

Maths Policy

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Vision

At Victory Primary School we believe the central purpose of education is to learn: learn to create; to solve problems; think critically; to evaluate and reflect; to care of others and the environment.

We believe in the right of every child to an inspirational education that develops their knowledge, skills, attitudes and behaviours, enabling them to become happy and successful, have high aspirations, and make a positive difference to their own lives, and to their community. (Teaching and Learning Policy)

The teaching and learning of mathematics at Victory plays an essential part in achieving our vision.

“Pure mathematics is, in its way, the poetry of logical ideas.”

Albert Einstein

“The study of mathematics, like the Nile, begins in minuteness but ends in magnificence.”

Charles Caleb Colton

“Mathematics expresses values that reflect the cosmos, including orderliness, balance, harmony, logic, and abstract beauty.”

Deepak Chopra

“Solving a problem for which you know there’s an answer is like climbing a mountain with a guide, along a trail someone else has laid. In mathematics, the truth is somewhere out there in a place no one knows, beyond all the beaten paths. And it’s not always at the top of the mountain. It might be in a crack on the smoothest cliff or somewhere deep in the valley.”

Yōko Ogawa

“But in my opinion, all things in nature occur mathematically.”

René Descartes

These quotations illustrate our vision of mathematics at Victory Primary School. We strive to teach and present mathematics in an inclusive and inspiring way. We endeavour to illuminate the beauty of mathematical concepts and logic; to link mathematics to the world around us; and help children see and understand how mathematics underpins both natural phenomena and human creations. Teachers model enthusiasm and the sense of achievement and satisfaction that can be gained from tackling a challenging mathematical problem or analysing a mathematical concept and mastering an understanding of it.

We also believe being numerate is vital in life: we all need to be numerate in order to be independent; manage our finances effectively and be successful and productive within the workforce.

Aims

We aim to develop **every** child's ability to calculate; reason and solve problems; and understand and appreciate relationships and patterns in both number and geometry.

The aims are:

- To promote enjoyment and enthusiasm for the learning of mathematics through practical activity, discussion, exploration and investigation, and inspiring stimuli or contexts for learning.
- Through a structured, progressive curriculum and regular practise, children become fluent in the fundamentals of maths: their understanding of mathematical concepts such as place value, and mathematical skills such as calculating.
- To develop mathematical reasoning by devolping; their skills of enquiry and investigation; their ability to identify relationships and generalise; and their ability to justify statements and explanations, and express a mathematical proof.
- To regularly challenge children and encourage them to make decisions and try different approaches to solve problems when they don't succeed first time, asking them to justify the decisions they have made.
- To nurture positive attitudes, confidence and competence by planning challenging yet achievable tasks, intervening to address misconceptions and developing an ethos where mistakes are seen as opportunities to learn.
- Enable all children to achieve and make progress through a rigorous cycle of assessment, analysis and intervention, in which feedback celebrates success; addresses misconceptions; consolidates and extends learning; and clearly identifies the next steps in a child's learning.
- To encourage the children to apply their learning to everyday situations so that children understand the importance of mathematical skills in everyday life.
- To consistently emphasise, encourage, support and develop the use of mathematical vocabulary.
- To develop a practical understanding of the ways in which statistics, measurement and geometry are used in the everyday world and in specialised areas, such as specific professions.

Teaching and learning

At Victory Primary School mathematics is based on five key principles. These are:

- Clear explanation and modelling of concepts and skills which includes the use of concrete resources and visual models and images to aid understanding.
- Regular practise and application of key mathematical skills, including calculation.
- Clear progression through a spiral curriculum where concepts and skills are returned to regularly and developed further (clearly structured through our medium term plans and calculation policy).
- A rigorous cycle of assessment, analysis and intervention.
- High expectations of all children in mathematics, and a dedication to timely intervention for children in need of additional support, including children with Special Educational Needs or children whose first language is one other than English.

Inclusion

We provide an inclusive curriculum which meets the needs of all pupils, where the achievement, progress, attitude and well-being of every learner matters. All children have equal access to the curriculum regardless of their gender, cultural group or background. This is monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups. Intervention is provided to ensure that all children achieve their full academic potential, including the more able. (see Teaching and Learning Policy and Assessment Policy)

Children with Special Educational Needs are taught within the daily mathematics lesson and teachers regularly address relevant targets from their Individual Education Plans.

For children for whom English is not their first language, and those new to English, we support their understanding by using visual models and images, visual representations of key mathematical vocabulary, and the use of speaking frames where appropriate.

Planning

The National Curriculum sets out programmes of study (objectives) for each year group through the primary phase. Our Medium Term Plans (MTP) break down these programmes of study each of which are taught every term. Class teachers use the MTPs to plan daily learning experiences. There is flexibility within the MTPs for teachers to spend more time on specific areas of the curriculum, if the majority of children do not achieve the objectives. For some children they may need specific intervention outside the daily maths lesson (see Assessment below).

In the National Curriculum, mathematics is organised into the following areas:

Year 1

- Number - Number and Place Value
- Number - Addition and Subtraction
- Number - Multiplication and Division
- Number - Fractions
- Measurement
- Geometry - Properties of Shape
- Geometry - Position and Direction

Year 2 and Year 3

- Number - Number and Place Value
- Number - Addition and Subtraction
- Number - Multiplication and Division
- Number - Fractions
- Measurement
- Geometry - Properties of Shape
- Geometry - Position and Direction
- Statistics

Year 4

- Number - Number and Place Value
- Number - Addition and Subtraction
- Number - Multiplication and Division
- Number - Fractions (including decimals)
- Measurement
- Geometry - Properties of Shape
- Geometry - Position and Direction
- Statistics

Year 5

- Number - Number and Place Value
- Number - Addition and Subtraction
- Number - Multiplication and Division
- Number - Fractions (including decimals and percentages)
- Measurement
- Geometry - Properties of Shape
- Geometry - Position and Direction
- Statistics

Year 6

- Number - Number and Place Value
- Number - Addition and Subtraction
- Number - Multiplication and Division
- Number - Fractions
- Ratio and Proportion (including percentages)
- Algebra
- Measurement
- Geometry - Properties of Shape
- Geometry - Position and Direction
- Statistics

When planning lessons teachers take into account their knowledge of the children and their learning, including a gap analysis of any assessments already carried out, and the needs of individual children in their class, including children with Special Educational Needs and EAL. They strive to address these needs through: the use of a range of teaching strategies; the use of concrete resources or visual models and images; and planning for effective use of teaching assistants' time and skills.

Progression is clearly set out in the Medium Term Plans and the Calculation Policy.

We aim for all children to achieve the programmes of study for their year group. However, this is not always possible for all children, for example, children with Special Educational Needs or children who have recently joined our school from a different education system. For these children, teachers plan challenging work that will enable them to make progress from their starting points, and the aim is for as many as possible to reach the expected standard for their age group as soon as is possible.

Resources

Central to our school belief is the use of concrete resources and visual models and images to promote understanding. Each class is equipped with a variety of resources to promote the understanding of a range of mathematical concepts.

Assessment and Record Keeping

Assessment is regarded as an integral part of teaching and learning and is a continuous process.

Teachers follow a rigorous cycle of assessment, analysis and intervention in order to maximise the progress and achievement of all children.

During lessons, teachers regularly ask questions of the whole class to which all children respond, enabling the class teacher to identify those children who need extra support and intervention there and then. If there are misconceptions teachers

use probing questions to analyse the misunderstanding. They then intervene by addressing a misconception or misunderstanding.

After every lesson teachers evaluate the learning of all the children and adjust their daily plans if necessary.

Teachers also review and assess learning throughout the term and address any issues they identify, again by adjusting their daily plans.

We believe that all children should master the understanding and skills laid out in the National Curriculum for their year group. This is achieved through regularly asking children to apply their knowledge, understanding and skills in a variety of ways, such as problem solving or investigations, as well as in other subjects such as science or geography.

All children are challenged, and those children that achieve the programmes of study for their year group, and have clearly demonstrated they are embedded, will work on programmes of study from following year groups.

At the end of each term, children are assessed in a variety of ways, including formal testing. This information is used to carry out a gap analysis. A Pupil Progress meeting is held termly with senior leaders, at which actions are set based on this gap analysis, including interventions for individuals and groups.

Reporting to Parents

Parents receive a written report every term which outlines their child's attainment, progress and attitude to learning in maths, as well as current targets. Parents are given the opportunity to discuss their child's progress at termly parent evenings.

Homework

Children from Year 1 upwards receive at least 1 piece of maths homework each week, relating to the area of mathematics that is currently being taught. These activities are valuable in promoting children's learning in mathematics and give them an opportunity to use and apply skills taught in class.

Early Years Foundation Stage

In EYFS the mathematical objectives relate to the Early Learning Goals. These underpin the curriculum planning for children aged three to five.

The children's knowledge and understanding is initially developed through stories, songs, games and imaginative play. We believe a positive approach to mathematics around the classroom helps the children to begin to relate mathematics to their everyday lives. The EYFS learning environment includes visual images, models and number resources to stimulate interest.

We give all the children regular opportunities to develop their understanding of number, measurement, pattern, shape and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics.

Mathematical resources are readily available both indoors and in the outside learning environment.

The early learning goals are split into two areas for mathematics.

Numbers: counting forwards and backwards, ordering numbers, adding and subtracting single digit numbers, and solving problems in real contexts, including doubling, halving and sharing.

Shape, space and measures: using language to discuss size, weight, capacity, position, distance, time and money; comparing quantities and objects and solving problems; recognising, describing and creating patterns; and describing the characteristics of shapes.

Appendix A
Resources

A variety of resources can be found in the centralised Maths Resource Library located opposite the ICT suite. These resources need to be used to ensure that our children are given the depth and breadth of experience required for them to excel. It is the teacher's and teaching assistants responsibility to ensure that the resources borrowed are logged in the resource folder and returned in a state fit to be used by other classes. If teachers feel that other resources need to be purchased they should use an ordering form located in the office and hand it to the Maths coordinator.

Central Maths Resource List

Extra Base 10
Different Base equipment (Base 6 for example)
Number Lines
Weights
Weighing Scales
Balance Scales
Capacity resources
Measuring jugs
Class set of Calculators
Coins
2D shapes
3D shapes
Spinners
Games that cover a variety of mathematical concepts and skills
Clocks, teacher and pupils.
Timers
Money games
Copymasters
Number and Calculation Publications
Shape Publications
Gifted and Talented Publications.