## *This policy should be read in conjunction with our Mission Statement and out Learning and Teaching Policy.*

## Aims and objectives

Mathematics teaches us how to make sense of the world around us through developing a child’s ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many people to the development and application of mathematics.

Our objectives in the teaching of mathematics are:

* To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
* To develop logical thinking and reasoning skills through a natural curiosity and investigative approach
* To promote confidence and competence so that children are ‘proud to shine’ about their achievements
* To develop a thorough knowledge and understanding of numbers and the number system
* To develop the ability to solve problems through decision-making and reasoning in a range of contexts
* To develop a practical understanding of the ways in which information is gathered and presented
* To explore features of shape and space, and develop measuring skills in a range of contexts
* To understand the importance of mathematical skills in everyday life.

## Teaching and learning style

The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children’s knowledge, skills and understanding in mathematics. We do this through a daily lesson that has a high proportion of whole class and group-direct teaching. Some children are taught in differentiated groups and not in their own class groups. In years 5 and 6 an extra teacher is available to teach a 3rd group. During these lessons we encourage children to ask, as well as answer, mathematical questions. They have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their learning. Children and teachers use ICT in mathematics lessons where it will enhance their learning, and to assist with modelling ideas and methods. Wherever possible, we encourage the children to use and apply their learning in everyday situations.

In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. Throughout lessons a range of strategies are used to ensure all pupils are able to access appropriate learning. Children are asked to undertake independent work but other strategies are also utilized. In some lessons group work is undertaken, and in other lessons, children are organised to work in pairs on open-ended problems or games. We use learning support assistants to support some children and to ensure that work is matched to the needs of individuals.

Children in key stage two are set a weekly home learning task in order to strengthen their learning in mathematics. This task directly links with the current learning and is differentiated according to the needs of different pupils.

## Mathematics curriculum planning

Mathematics is a core subject in the National Curriculum and we use the National Curriculum document as the basis for implementing the statutory requirements of the programme of study and attainment targets for mathematics.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The National Curriculum document gives a detailed outline of what we teach in the long term in the programmes of study and attainment targets in each year group.

Our medium-term mathematics plans, which are adopted from the National Curriculum document and give details of the main teaching objectives for each term, define what we teach. They ensure an appropriate balance and distribution of work across each term. These plans are accessible on the school server.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans and ensures they are accessible on the school server, and the class teacher and subject leader can discuss these on an informal basis. These plans are monitored by the mathematics subject leader.

**Early Years Foundation Stage (EYFS)**

Of the seven curriculum areas taught at Foundation Stage, mathematics is one of the Specific Areas of Learning where children are taught ‘essential skills and knowledge.’ The mathematics curriculum is divided into two aspects – Number and Shape, Space and Measures. Children in the Foundation Stage work towards achieving the Early Learning Goal (ELG) in both aspects of the mathematics curriculum.

The teaching of mathematics is based on the age and stage of development of each child as they work towards the Early Learning Goals, as set out in the curriculum guidance document: Development Matters in the Early Years Foundation Stage.

Teaching approaches are almost entirely practical and play-based in the first instance. Children move towards a slightly more formal approach and begin to record their work over the course of their Foundation Year. Children may access the mathematics curriculum across the setting, equally both inside and outside. Children are given opportunities to learn in whole-class, small groups or individually adult-directed or child-initiated tasks. Activities may focus on a specific mathematical skill or concept or may require children to apply their mathematical skills and knowledge to practical or cross-curricular problems. A range of continuous provision is always provided for children to consolidate their learning or investigate further. Opportunities are always available (both adult-directed and child-initiated) for children to take their learning further allowing them to exceed the Early Learning Goals at the end of Foundation Stage. Children are prepared for starting the National Curriculum at an appropriate point in Year one, once they have achieved the Early Learning Goals.

The organisation of a typical lesson will usually be as follows:

* An introduction to engage children, focus mathematical thinking and consolidate prior learning – counting, finger games, number rhymes and songs
* Teaching and activities related to the learning focus for the lesson
* Small group activities – adult-directed tasks usually in ability groups
* Child-initiated free-flow activities
* Plenary session to consolidate, praise, emphasise progress and extend learning

## Contribution of mathematics to teaching in other curriculum areas

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

Science

During science lessons, children are able to use and apply their data handling skills when creating tables and graphs of scientific measurements. Whole class discussion of data also highlights the importance of clear recording of information. Children are also able to use a wide range of measuring devices in a real-life context. Children are required to read the scales on Newton meters, measuring cylinders, weighing scales and a variety of other instruments.

Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of personal, social and health education and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other’s views. We try to present older children with real-life situations in their work in order to make learning relevant.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

Mathematics and computing

Children use and apply mathematics in a variety of ways when solving problems using computing. Younger children use computing to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. All year groups are using a web based program, MyMaths, to further their learning.

## Mathematics and inclusion

At our school we set suitable learning challenges and respond to each child’s individual needs. Mathematics implements the school curriculum policy of providing a broad and balanced education to all children. Through our mathematics teaching, we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with additional educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language

Intervention through internal and external SEND support will lead to the creation of provision maps for children with special educational needs. The provision map may include, as appropriate, intervention programmes for mathematics.

We enable pupils to have access to the full range of activities involving mathematics. Where children are to participate in activities outside the classroom, e.g. in a museum or at an exhibition, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## Assessment for learning

We assess children’s work in mathematics from three aspects (long-term, medium-term and short-term). We make short-term assessments which we use to help us adjust our daily plans. These short-term assessments are closely matched to the teaching and learning objectives.

We make medium-term assessments to measure progress against the key objectives and to help us plan the next unit of work. We use termly assessments as a way of recording children’s progress in objectives covered across that specific term. A range of strategies are used to assess the children depending on their age and stage, including the use of informal and formal testing. The children’s progress is tracked using Target Tracker and statements and steps are entered for each child at the end of every term.

We make long-term assessments towards the end of the school year and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child’s progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make the long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in year 6 and 2, plus optional test materials for children at the end of years 3, 4, and 5. We also make annual assessments of children’s progress measured against the National Curriculum programmes of study statutory requirements.

Teachers meet to review individual examples of work against the National Curriculum programmes of study statutory requirements in core areas of the curriculum, including maths.

## Resources

There is a range of resources to support the teaching of mathematics across the school. All classrooms have a wide range of appropriate small apparatus. The remainder of the resources for mathematics are centrally stored. Mathematical dictionaries are available in school. The library contains a range of books to support children’s individual research. A range of software is available to support work with the computers and the school subscribes to MyMaths. The Maths on Target mathematics scheme and other schemes are available to support the teaching of mathematics. Each year group has an additional range of teaching and support materials appropriate for the age/ability range they teach.

## Health and safety

In this subject, the general teaching requirement for health and safety applies. Teachers are expected to undertake any other risk assessments for trips, visits or learning as the activity necessitates.

## Monitoring and review

Monitoring of the standards of children’s work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The mathematics subject leader gives the head teacher an annual summary in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The head teacher allocates regular management time to the mathematics subject leader so that s/he can review samples of children’s work and undertake lesson observations of mathematics teaching across the school. A named member of the school’s governing body is briefed to oversee the teaching of numeracy. This governor meets with the subject leader to review progress.

This policy will be reviewed at least every three years.

### Signed:

### Review Date: January 2019