Mathematics Policy

Rationale

The study of Mathematics and the practical application of numeracy for life skills is a core subject entitlement for our pupils and, together with Literacy, takes priority in the timetable. It is also reflected in the wider curriculum where possible; for example, when our pupils are engaged in cross curricular topic work.

Studying Mathematics enables our pupils to acquire problem solving, logical reasoning and abstract thinking skills. It contributes to their ability to compete in the world of work and become independent and productive citizens.

Confidence in mastering basic skills allows our pupils the confidence to express themselves in a global language, particularly when it is linked to other curricular areas such as art, science and the humanities and to areas of personal interest.

The teaching of Mathematics is approached in basic numeracy for KS1/2/3.

This approach allows us to tailor each programme to the individual, personal and academic needs of each pupil. Our aim is to allow them equal opportunities to their mainstream peers and to challenge them to achieve beyond their expectations through sensitive and encouraging teaching.

The teaching of mathematics provides opportunities for spiritual, moral, social and cultural dimensions. In working together the pupils learn to co-operate, and to listen to others' ideas and opinions. Ancient number systems, those from other cultures and the adaptation of our own number systems offer a cultural dimension.

All pupils will follow a personal education plan with targets for maths linked to entry-level assessment data.

To allow for adequate differentiation and to meet the needs of mixed classes and key stages we have adopted a modular programme and we also offer primary models when appropriate.

We believe that Mathematics study at the school:

- Equips pupils with intellectual and practical skills to understand and make decisions about everyday life;
- Develops pupils' capacity to think reason and solve problems;
- Is a creative discipline that can stimulate moments of wonder, for example when connections are made and patterns are generated;
- Is best learnt through direct experience and the opportunity to discuss Mathematical ideas and develop mathematical language;
- Transcends cultural boundaries and has been contributed to, as a body of knowledge, by different cultures;
- Is important in helping pupils to access learning and make good progress across the curriculum;
- Is an entitlement for all pupils and develops all pupils' Mathematical, kinaesthetic, linguistic, visual and interpersonal intelligences.

Objectives

The school places a strong emphasis on the teaching of Mathematics as a core subject. Through its teaching we aim to:

- Develop an increasing confidence in Mathematics;
- Develop competency with numbers and measures;
- Develop a range of computational skills and the ability to solve number problems in a variety of contexts;
- Provide a secure foundation of Mathematical skills;
- Encourage an understanding of Mathematics through the process of inquiry, experiment, an appreciation of mathematical pattern and the ability to identify relationships;
- Be able to develop our pupils' ability to understand and use Mathematical vocabulary meaningfully and confidently;
- Develop the pupils' ability to apply their knowledge to make decisions and solve problems in real-life situations.

Entitlement

We ensure every pupil the opportunity to experience success in learning and to achieve as high a standard as possible. All pupils are entitled to access the Mathematics National Curriculum Programmes of Study and external accreditation and make progress through appropriately differentiated work.

All pupils will be given opportunities to:

- Develop a sense of the size of a number and where it fits into the number system;
- Know by heart number facts such as number bonds, multiplication tables, doubles and halves;
- Use what they know by heart to figure out answers mentally;
- Calculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies;
- Recognise when it is appropriate to use a calculator, and to be able to do so effectively;
- Make sense of number problems, including non-routine problems, and recognise the operations needed to solve them.
- Explain their methods and reasoning using correct mathematical terms;
- Judge whether their answers are reasonable and have strategies for checking them where necessary;
- Suggest suitable units for measuring, and make sensible estimates of measures; and
- Explain and make predictions from the numbers in graphs, diagrams, charts and tables.

The key thinking skills identified in the National Curriculum should be taught explicitly through Mathematics. Pupils of all abilities can develop these thinking skills:

- Information processing skills
- Reasoning skills
- Enquiry skills
- Creative thinking skills
- Evaluation skills.

Special needs

All our pupils receive individual support according to their level of need. Mathematical activities are differentiated within lessons through PEPs or through modular levels to support lower attaining pupils and to challenge and extend the more able. The pupil may also then receive targets for development in mathematics that are written into their Individual Education Plan. These targets are reviewed regularly.

Cross Curricular Links

Mathematics provides excellent opportunities for developing the six key skills that underpin all subjects in the National Curriculum. These Key Skills are:

- Communication
- Application of number
- Information technology
- Working with others
- Improving own learning and performance
- Problem solving

Opportunities for teaching and learning all these skills across all key stages can be identified when planning. Pupils can be encouraged to reflect on what and on how they learn, and how these skills can be applied to different subjects, different problems and real-life situations.

Pupils are encouraged to use what they have learned in Mathematics across the curriculum. Other subject policies identify how they contribute to the development of numeracy.

There are particularly close links between the teaching of mathematics and literacy. Pupils are taught specific vocabulary, they articulate reasoning and they discuss and compare methods of problem solving both orally and in writing.

Mathematics lessons can help to develop and support pupils' literacy skills: for example, by teaching mathematical vocabulary and technical terms, by asking pupils to read and interpret problems to identify the Mathematical content, and by encouraging them to explain, argue and present their conclusions to others.

ICT

Computers and calculators are fully integrated into the school's Mathematics teaching and the use related software support learning particularly for KS1 to KS3.

PCs are used to help with the practice and recall of facts. They are also used to support pupils' understanding of the application of Mathematics to solving problems. Pupils' ICT skills are addressed through the use of spreadsheets and databases and the use of programmable hardware and software.

Pupils will be taught to use calculators appropriately. They can help pupils understand place value and see patterns in calculation. Calculators are not used as a substitute for simple problems where a mental or written strategy would be more efficient.

English, Mathematics and Science are taught with the incorporation of **online resources (English – Read, Write, Inc., Mathematics – White Rose and Science - Bug Club)** which increases the likelihood of engagement in our pupils.

Organisation, setting arrangements and time allocation

Mathematics is taught as a discrete subject throughout the week. It is also integrated into all other subject areas wherever links can be identified to widen the scope of this core subject.

Resources

There are a range of materials to support teaching and enhance the core curriculum.

Basic mathematical equipment including games is kept in each classroom.

There is ICT equipment in each classroom.

The role of the Lead Teacher

The role of the Lead Teacher is to:

- Be familiar with the Framework and the National Curriculum
- Ensure other teachers are aware of how the school has adapted the Framework to form a cross-curricular Scheme of Work
- Provide information and training for other subject teachers where necessary to enhance cross curricular topic work.
- Support the Headteacher to assess, evaluate and monitor the mathematics curriculum through classroom observation, reviewing assessment data and speaking to colleagues and pupils;
- Support the Headteacher in the target setting process;
- Discuss regularly with the Headteacher and all staff the implementation of the National Numeracy Strategy in the school;
- Formulate and monitor the mathematics policy;
- Ensure there are sufficient mathematical resources.
- Attend standardisation meetings for examination purposes.

Assessment and target setting

Short-term assessment

Short-term assessment is a planned part of lessons and is an especially important aspect of the plenary. Assessments are closely matched to the lesson objectives built into weekly planning and made through careful questioning. They are used to check that the pupils have grasped the main teaching points and address any misunderstandings. Assessment through questioning in the lesson also provides information about how future plans might be adjusted or how additional resources could be used.

Medium term assessment

These assessments are used to record progress. They are recorded on the Mathematics specific assessment grids.

Targets are set for each pupil in Mathematics on a regular basis. These targets are shared with pupils and parents. These records are also used to feed into End of Year pupil reports.

Long-term assessment

Long-term assessments are made annually and are summative.

Monitoring and evaluation

Formal and informal assessment is essential in order to inform us of pupils' progress and the value or otherwise of our curriculum. Teachers are aware that the need for systematic checks on acquisition of knowledge, understanding and skills are necessary. We use a wide range of daily, weekly, termly and yearly assessment evidence to measure each pupil's progress against personal and national criteria. We use this data to inform our planning, school development and overall business strategy.

Baseline/entry level assessments in Numeracy are made as soon as possible.

Individual assessments include:

- Daily informal teacher feedback to other education or care staff in beginning or end of day sessions or at any other times.

- Daily feedback recorded on lesson achievement sheets.

- Assessments linked to each unit award module as outlined in the scheme of work are recorded in **teacher's mark books** and in **pupil's subject folder, progress file** and possibly **Record of Achievement** folder.

- Work for each module is broken down by the teacher into manageable differentiated components, which have corresponding assessment criteria. This information is made clear to each pupil and a copy of their individual scheme of work and targets is in each pupil's subject folder.

- Opportunities exist for staff to regularly share and compare information about pupils in weekly staff meetings. Relevant aspects of this information will be recorded on the 'Pupil Progress' form. As well as education staff meetings there is a weekly whole staff forum, which includes social care personnel. Information sharing is vital in this context as it allows a wider perspective on each pupil and their situation. It also allows opportunities if necessary to validate and moderate individual judgements and raise awareness of the complex interactions which take place within each pupil's life on a daily basis.

- Pupils who have statements of special education need will also have IEPs. Specific SMART (specific, measurable, attainable, realistic and timely) targets will be reviewed separately in accordance with the individual recommended time limits (see SEN policy).

- Investigation and use of efficient data collection and interpretation systems is a feature of our future school development plan.

The Executive Headteacher, Head Of Education and the Lead Teacher co-ordinate the teaching and learning of Mathematics. All staff are involved in reviewing core policies.

Policy review

This policy document will be reviewed by the Executive Headteacher on an annual basis
to ensure it is up to date with current legislation and best practice.

Date approved: April 2014
Date last reviewed: September 2022
Next review (or before): September 2023

Signed: 

Position: Education Director

Staff Acknowledgement

In signing this document I am confirming I have read the information and have an understanding of the procedures outlined within the information provided.

I have had the opportunity to discuss this document with a Senior Leadership member of staff to gain further clarity.

I also know that if I feel I need further guidance I know I can access through the Executive Headteacher.

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