



HEARTS ACADEMY TRUST

Maths Policy

Adopted: June 2017
To be reviewed: June 2020

HEARTS Academy Trust is committed to providing a happy, caring and safe learning environment for all within a values led context, where everyone feels valued and grows in confidence and independence.

We promote **HAPPINESS** through a creative, exciting and practical curriculum, which generates a love of, and interest in, learning and a resilience and hope which supports us through challenging times.

Great value is placed on pupils' self **ESTEEM** which is developed through a positive and motivated attitude to learning, a healthy lifestyle, good social skills, self-discipline and a positive self-image.

We promote the highest standards of **ACHIEVEMENT** in all areas of the curriculum and help all pupils to fulfil their potential regardless of gender, race or ability.

We foster **RESPECT and RESPONSIBILITY** for all by establishing good relations between the school, home and community. Pupils are taught respect for themselves, others and the environment. They are also taught to take full responsibility for their own choices and responsibility for themselves and their community.

We encourage **TRUTH** and honesty in all aspects of school life – relationships, work and the curriculum and learn to trust and accept others' individuality and uniqueness.

We develop **SPIRITUALITY and SERVICE** so that calm, quiet, reflective times which support deep thought are part of school life and beauty is appreciated. We promote a service culture that reflects our duty to support and show compassion to all members of the community and not just ourselves.



Children at the HEART

HEARTS Academy Trust

Mathematics Policy

Rationale

This policy sets out the principles on which we base our practice and reflects the requirements of the New National Curriculum 2014.

The Hearts Academy Trust is committed to providing a happy, caring and safe learning environment for all within a value-led context where children and adults feel valued and grow in confidence and independence.

HAPPINESS is promoted through a creative, exciting and practical mathematics curriculum, which generates a love of, and interest in learning. Pupils are provided with rich and enjoyable mathematical experiences related to their individual needs and to the requirements of the National Curriculum. Mathematics supports pupils' logical thinking and helps build resilience in problem solving.

ESTEEM The structured teaching of basic skills encourages confidence in tackling mathematical problems from the early years in school. Effective displays and learning environments celebrate pupils' successes and model high expectations of what all can achieve. Teachers celebrate occasions where children persevere to master a skill or concept.

The highest standards of **ACHIEVEMENT** are promoted in mathematics and help all pupils to fulfil their potential regard of gender, race or ability. Individual achievement is recognised during and at the end of each lesson, with regular basic skills assessments, and the regular celebration of success.

We foster **RESPECT and RESPONSIBILITY** in mathematics lessons by emphasising the value of respect for themselves, others and the environment. Paired and group work supports pupils in developing respect for the opinions and work of others and in learning to look after and share resources.

We encourage **TRUTH** and honesty in all aspects of school life – relationships, work and the curriculum.

SPIRITUALITY and SERVICE Pupils are given opportunities to appreciate the beauty of pattern and relationship in mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

To ensure that all pupils

- become fluent in the fundamentals of mathematics, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- are confident and competent in using and applying basic skills of counting and written and mental calculation
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of problems with increasing sophistication.
- develop awareness of the uses of mathematics in the classroom and everyday life, enabling them to apply their mathematics skills and knowledge to real life situations.
- have a positive attitude towards mathematics

- understand and appreciate pattern and relationship in mathematics;
- are able to communicate clearly and fluently about mathematics, using the appropriate mathematical language.

Implementation

Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.

The expectation is that the large majority of pupils' progress through the curriculum content at the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage.

Differentiation is achieved by emphasising deep knowledge and through targeted support and intervention. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding, including through additional practice, before moving on.

Early Years Foundation Stage

All children in the EYFS follow a broad-based curriculum and have a wide range of opportunities to explore mathematical concepts; both planned and self-initiated inside and outdoors. Children also take part in whole class and group activities designed to develop mathematical language and concepts. This supports development of initiative and an ability to work both independently and in cooperation with others. Resources are used imaginatively and creatively to stimulate curiosity and excitement about the world around them and to develop an understanding of mathematics through a process of enquiry and investigation

Assessments are observation based and inform planning to build on prior knowledge and understanding.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This will involve working with numerals, words and the four operations, including with practical resources.

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

Children will be taught mathematical knowledge, skills and understanding through

- Direct instruction following a clear, small-step progression, building gradually on previously learning and providing appropriate challenge for all
- Using relevant real-life examples and mathematical models and images to develop secure conceptual understanding
- Practical activity, exploration and discussion
- Using mathematical ideas in practical activities then recording these using objects, pictures, diagrams, words, numerals and symbols

- Quality questioning and supported discussion to probe understanding and remedy their misconceptions. They will be supported in making their thinking clear to themselves as well as others when discussing their mathematics.
- Using mental images of numbers and their relationships to support the development of mental calculation strategies
- Explicit teaching of problem solving skills including a wide range of increasingly complex problems
- Measuring in a practical context and drawing inferences from data in practical activities
- Exploring using a variety of resources and materials, including ICT

Key Stage 2

In KS2, high quality schemes of work are used alongside teacher and trust developed plans and resources. Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge. Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should 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. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

Subject Organisation

In Key Stage 1 and 2 The Mathematics Curriculum is delivered using the National Curriculum 2014 guidelines. In Reception, the mathematics curriculum is taught through the mathematics specific area of learning and development and also in learning opportunities related to other areas of learning and development in the Early Years Foundation Stage curriculum. This ensures continuity and progression from the Foundation Stage through to the National Curriculum.

All Mathematics plans are stored on each of the school's central network. There are shared whole Trust medium term overviews which identify which objectives will be covered over a half term. There will be weekly plans (short term) which detail learning objectives and teaching and learning for the week's lessons, including models and images to be used.

Effective planning ensures:

- that there are achievable learning objectives for all pupils.
- that work is matched to pupils' abilities and experience.
- that the teaching meets needs of all pupils through support, scaffolding, use of resources and challenge
- that the teacher's & LSA's time is employed effectively throughout the lesson;
- that there is progression and continuity related to previous learning, not previous teaching.
- balanced coverage of the objectives/ statutory requirements

Classroom practice and organisation

In all classrooms children are encouraged to discuss mathematics using talk partners. Children are given the opportunity to work independently, with partners and in groups. Throughout the school, an extensive range of models and images are used alongside key practical resources and structured apparatus. It is important that children understand the mathematical concepts conceptually before they are expected to apply and use. ICT is used in all classrooms, this is through interactive white boards, cameras, laptops and applications on I pads.

Classes will be kept together to access the content, to ensure all children are exposed to high level mathematical vocabulary and ideas. Pre-teaching and specific teacher led interventions occur to ensure all children are given the best opportunity to achieve.

Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording. All children are taught the importance of high quality presentation.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The Assessment and Recording process

Foundation Stage pupils are assessed through observations, activities and work scrutiny which is then recorded onto their Foundation stage profile either by written comments or given as photographic evidence.

KS1

All Teachers make individual informal assessments from observing and working with children and looking at written evidence as appropriate to monitor progress. These assessments are used to inform future planning.

At the end of each half-term, pupils' progress against specific objectives is recorded on the Scholar Pack electronic assessment system. This allows teachers to identify gaps in learning and next steps for

individuals or groups of children. Oral assessment tasks and tests are used half termly to provide additional evidence for assessments.

Progress in basic skills of counting and recall of number facts is assessed regularly and recorded each half term.

KS2

All teachers make individual informal assessment from observing, talking to and working with children, alongside looking at written evidence as appropriate to monitor progress. These assessments are used to inform future planning.

At the end of each half term assessments are administered to help teachers make judgements on progress and attainment.

As in KS1, progress in basic skills of counting, recall of addition and subtraction facts and multiplication facts are assessed using ICT on a termly basis.

Calculation Policy

The Trust calculation policy outlines how addition, subtraction, multiplication and division will be taught. The policy is to be used by teaching staff to plan and deliver lessons. Teachers are given support on which methods should be taught and when, and the reasons behind the progression towards formal written methods. The models and images included in the policy should be used in the classroom in order to enhance the children's learning. The policy is available for everyone in the school community on the website. All new staff will be trained in using the calculation policy in lessons.

Parents and carers

As a trust we value the input and support of parents and carers. Parents are invited into classrooms on a regular basis so they can understand the expectations we have and develop techniques to support their own children. Parent workshops are organised on a regular basis to keep parents and carers informed about methods, policy and expectation changes and ways that they can support their child's progress.

Feedback and Marking

Feedback and marking follow the Trust policy

Special Educational Needs

The daily mathematics lessons are inclusive to pupils with special educational needs. Where required, children's IEPs incorporate suitable objectives from the New National Curriculum for Mathematics or Development Matters and teachers keep these objectives in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the Mathematics lesson. Maths focused intervention programmes are available in school to help children with gaps in their learning and mathematical understanding. These are delivered on a 1:1 basis by trained support staff and overseen by the class teacher. Within the daily mathematics lesson, teachers must not only provide differentiated activities to support children with special educational needs but also activities that provide appropriate challenges for children who are high achievers in mathematics. It is vital that all children are challenged at a level appropriate to their ability.