Inspire Education Community Trust

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Learning together and inspiring success

Mathematics Policy

Approved by the CEO	1/9/2023
Version No.	3
Review Date	1/9/2026
Statutory	-

Legal framework

This policy has due regard to statutory guidance including, but not limited to, the following:

- DfE (2014) 'National curriculum in England: Mathematics programmes of study' (Please see Appendix A)
- DfE (2023) 'Statutory framework for the Early Years' Foundation Stage'

Statement of intent

Intent

At Inspire Education Community Trust, we recognise that mathematics is both a key skill within the school and a life skill to be utilised through everyday experiences. Our high-quality mathematics education provides a firm foundation for understanding how mathematics is used in everyday life and activities, therefore, ensuring all children develop the ability to reason and apply mathematically.

Through the teaching of mathematics, we aim to ensure that our children will be:

- Fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils will develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

- Confident with mathematical reasoning by following a line of enquiry, conjecturing relationships, and generalisations, and developing an argument, justification or proof using mathematical language.

- Confident to problem-solve by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Our Curriculum:

At Inspire we are following the White Rose Maths scheme to ensure we have a consistent approach to Maths across the Schools. We have made certain our teachers are highly trained with continued support and guidance securing teaching and learning.

The White Rose Maths curriculum is designed to provide pupils with a solid foundation in mathematics. Pupils will gain a deep understanding of mathematics and enjoy solving mathematical problems by following this scheme. The primary curriculum puts a significant

emphasis on mathematical skills, curriculum content must be well sequenced to promote a depth of understanding.

This scheme is not just about teaching maths, it is about developing mathematical thinking skills. The aim of the White Rose scheme is to ensure that pupils are able to think mathematically and solve problems with confidence.

Our aim is for young mathematicians to become:

- Confident and able to recall and apply mathematical knowledge in different contexts
- Able to explain their methods and thinking processes and apply skills in context
- Fluent in different areas of maths
- Efficient in applying problem-solving and reasoning skills
- Independent thinkers
- Aware of the Maths/ concepts/ process they are doing

The scheme focuses on developing deep understanding rather than memorisation. This means that it helps children develop self-belief, persistence, and resilience.

White Rose Maths offers a 'small steps' progression and yearly frameworks, which allow children to learn at their own pace while still achieving high standards.

White Rose Maths helps children develop their conceptual understanding of mathematics by using concrete objects, pictorial representations and abstract thinking. This inclusive approach is based on the principles of cognitive psychology and child development.

The scheme is split into Early Years (ages 3–5), and Years 1-6, Each year is split into three terms: Autumn, Spring and Summer.

The schemes of learning are designed to give sufficient time for teachers to explore and understand a concept in depth, rather than covering it superficially and then returning several times. However, we appreciate that schools want to enable children to revisit concepts and ensure number fluency.

The schemes interweave prior content with new concepts. For example, when children look at measurement, we recommend that they tackle lots of questions that practise the four operations and fractions. This practice and consolidation help children grasp the links between topics and understand them in more depth.

Inspire recognises that

Mathematics underpins much of our daily lives and therefore is of paramount importance so that children ASPIRE and become successful in the next stages of their learning.

Mathematics provides opportunities for children to apply their mathematical knowledge to other subjects (cross-curricular links).

Implementation

Teaching and Learning, Content and Sequence

The National Curriculum states:
"Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology, and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education, therefore, provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject."

Training has ensured that teachers are clear about the White Rose Calculation Policy and the strategy and steps of learning that are needed. This ensure that learning is consistent and that the skills and strategies are built upon at each stage of learning. (See Appendix C)

The White Rose Detailed MTPs support teachers in ensuring there is a clear progression of skills, these are integral to the Programmes of Study. Each teaching session ensures that alongside the main teaching session the children ren are taught mental maths building on their times tables and number relationships daily. The main maths is planned so it is taught through shared modelling and talked through using step by step strategies, children are then given the opportunity to apply skills taught independently and then whole class marking, and peer marking allows misconceptions to be identified and addressed. Reasoning is planned throughout the lesson so children can apply and talk through their working out.

- At the start of each new topic, key vocabulary is introduced and revisited regularly to develop language acquisition, embedding mathematical language. Sentence stems are used to develop children's accuracy when explaining what they have learnt. (See Appendix B for full vocabulary)
- We make certain, that at whatever stage of learning children are at, they can ACQUIRE the skill, APPLY the skill and DEEPEN the skill within the lesson as teachers embed the concept of **'know more, remember more and do more.'**
- In every lesson all children, when ready are challenged to ensure their understanding is deepened.
- Reasoning and problem solving are integral to the learning taking place. The skills of reasoning are strategically planned across the curriculum and children are supported to articulate their answers through teachers modelling.
- New to English children and those children who need extra support in maths have learning that is differentiated to meet their needs. Regular teacher assessments ensure children are taught at an appropriate level with elements of challenge to ensure the progression of skills is developed.
- Children with Complex needs have individualised learning plans, they are taught in a smaller group to ensure they have quality first teaching. Teachers provide scaffolding and daily

opportunities for practical application and support as necessary to develop basic skills and knowledge through language development, an understanding of number, amounts and different mathematical topics.

Early years provision

The EYFS also follow the White Rose Scheme of Learning and maths is taught throughout the seven areas of learning. All areas of learning and development are important and interconnected. All areas are particularly crucial for igniting children's curiosity and enthusiasm for learning, and for building their capacity to learn, form relationships and thrive, as outlined in the DfE's 'Statutory Framework for the Early Years' Foundation Stage'.

At INSPIRE, we aim to provide children with a strong 'real-world' context for maths; ensuring that areas of mathematics are taught wider than the literal sense and provide key opportunities for children to experience maths in everyday situations. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding, and using numbers, practically calculating simple addition and subtraction problems; and describing shape, space, and measure. Problem-solving and reasoning is an integral part of teaching mathematics and is taught in a broad range of contexts in which children can explore, enjoy, learn, practise, and talk about their developing understanding. They must be provided with opportunities to practise building up the skills across mathematics, gaining confidence and competence in building knowledge to apply their learning in both areas of number and shape, space, and measure.

Mathematical resources are rich and varied so that children can explore, investigate, and practise their taught skills independently. All aspects of mathematics are covered each day through adult and child-led activities. Each week in Reception, a different mathematical topic is focussed on in line with Developmental Matters (EYFS curriculum). There is a mathematical input each day, delivered through fun and exciting whole-class games and activities. Children are encouraged to solve problems and use their mathematical skills applying them to different situations and in different contexts.

There are opportunities for mathematical learning to continue in both indoor and outdoor environments, underpinned by an array of rich resources and activities. For example, water and sand stations to develop awareness and exposure to capacity; number and shape treasure hunts; water trail investigations; shop/café role play to consolidate money; games and songs to enhance simple addition and subtraction; shape arrangements/assembles using transient media; and physical activity to develop spatial awareness. We have a child-led, inquisitive approach to our daily maths problem solving to ensure the deepening of critical thinking skills.

By the end of the EYFS, children are becoming confident in applying their mathematical knowledge to solve simple addition and subtraction problems; name 2D and 3D shapes and talk about their characteristics; use the language of time, weight, size and position; find 2-digit numbers, and justify why they have sorted certain objects together.

Children in Nursery are taught in small groups, during which time they begin to develop their understanding of simple mathematical concepts such as counting to 5 and beyond, maintaining 1 to

1 correspondence, exploring numbers in the environment, and describing simple 2D shapes in the environment. Children are taught these concepts using concrete resources, pictorial resources, songs, games and role-play. The learning will continue through play, adult-led and child-initiated activities.

In Reception, children have focusses on number and space, shape and measure, following this, teachers ensure a good balance between whole-class work, group teaching and individual practice. It supports assessment daily, as well as individual feedback to children, ensuring that children receive immediate intervention as required during the supported focus activity.

The Year 1 curriculum will also reflect the Early Learning Goals and the pedagogy in at least the first term, to support the transition from Reception to Year 1. Learning will provide pupils with the opportunity to develop and improve their skills in counting, understanding, and using numbers, calculating simple addition and subtraction problems, and describing shapes, spaces and measurements.

INSPIRE follows the Mathematics Programmes of Study: Key Stages 1 and 2

From Year 1, spring 1 upwards, children are grouped according to prior attainment. Group size varies according to the needs of pupils in the year group but generally, groups are larger for the 'higher attaining' pupils and target groups are smaller to ensure maximum impact is made.

Pupils will undertake independent work and have the opportunity to work in groups and discuss work with other pupils.

Pupils engage in:

- the development of mental strategies
- written methods
- practical work
- investigational work
- problem-solving
- mathematical discussion
- consolidation of basic skills and number facts
- mathematical games

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations.

Mathematics contributes to many subjects and the children are given opportunities to apply and use mathematics in real contexts. Using and applying mathematical skills across the curriculum is important, e.g., measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and the collection and presentation of data in history and geography.

We always endeavour to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning. Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g., through cooking, music, and mathematical investigations and games. Lessons will involve the use of a variety of sources, including data, statistics, graphs, and charts.

Teachers ensure reasoning is taught daily and the skills of reasoning weekly to ensure that pupils develop the skills of mathematical thinking and enquiry. The first skill of reasoning would be to accurately verbalise their reasoning.

Teachers, in collaboration with the subject leader, will ensure that the needs of all pupils are met by:

- Setting tasks that can have a variety of responses.
- Providing resources of differing complexity, according to the ability of the pupils.
- The higher attaining children: The class teacher, who teaches that group, will stretch the children's abilities through focused planning and assessment.

National Curriculum 2014 - Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content.

Therefore, teachers will ensure a challenge for all children, using material that will allow their pupils to apply their knowledge to a variety of problems/ puzzles/ investigations to ensure the application is secure and challenging for the concepts taught for their year group.

- Setting tasks of varying difficulty, depending on the attainment of the group.
- Our approach ensures that the curriculum ensures fluency comes from deep knowledge and practice. This means that structured questioning is used to ensure that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.
- Focus is put on the development of deep structural knowledge and the ability to make connections, to ensure that what is learnt is sustained over time.
- At Inspire Education Community Trust, we do not prioritise between technical proficiency and conceptual understanding, and we aim to develop these in parallel.

Teachers will use the key learning content in the DfE's statutory guidance 'National curriculum in England: mathematics programmes of study', published in 2014. (**See Appendix A)**

Impact:

The Mathematics curriculum equips pupils with a powerful set of skills to help them understand and change the world: not only the ability to calculate (being mathematically fluent) but also the ability to apply these skills to real life scenarios (solve problems) and also to talk knowledgably and articulately about mathematical working (reasoning).The successful approach at Inspire results in a fun, engaging, high-quality Maths education, that provides children with the knowledge and skills

for understanding the world. The impact of a well-designed curriculum, coupled with outstanding teaching, leads to articulate, knowledgeable, and skilled young mathematicians who are ready to move on to their next phase of learning.

Inspire Education Community Trust has a supportive ethos, and our approach supports the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of all children. Children enjoy maths and have an attitude of not giving up and challenging themselves whilst building resilience in their Maths.

We place a strong emphasis on the power of questioning: this enables teachers and children to explore topics together as a class as well as verbally develop reasoning skills during lessons so children can clearly explain their reasoning and justify their thought processes. Children are supported to develop quick recall of facts and the ability to recognise number relationships and make links in mathematics applying strategies and skills taught. Children are encouraged to take ownership of their learning through self-and peer- assessment and regular modelling throughout the lesson. Our ethos is to develop happy, confident, articulate and autonomous learners with a life-long passion for learning. Leaders monitor the effectiveness of teaching, frequently through lesson observations, book scrutinies and informal drop-ins. Teachers are becoming confident to plan and assess effectively; keeping in mind a mathematical concept or skill has been mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.

Regular and ongoing teacher assessment informs teaching, as well as intervention, to support and enable the success of each child. These factors ensure that we can maintain high standards, with achievement at the end of KS2 in line with the national average, as well as a growing number of children demonstrating greater depth, at the end of each phase.

At the end of each year, we expect the children to have made at least good progress in maths from their starting point. Some children will have progressed further and achieved greater depth (GD). Children who have gaps in their knowledge receive appropriate support and intervention.

Cross-curricular links (see Appendix E)

Throughout Inspire Education Community Trust, mathematics is taught as a discrete lesson and as part of cross-curricular themes when appropriate. Mathematics contributes to many subjects within the primary curriculum and opportunities will be sought to draw the mathematical experience out of a wide range of activities. This will allow children to begin to use and apply mathematics in real contexts:

English

- Mathematical terminology is used where appropriate.

Science

- Pupils' data collection and analysis skills are further developed through the conduction of physical experiments, using units of measurement, calculating averages and interpreting results.
- Pupils record their finding using charts, tables and graphs.

Humanities

- Data analysis, pattern-seeking and problem-solving skills are developed through the teaching of Geography.
- Understanding of time and measurement of time are developed through discussions of historical events.

Computing

- Pupils are encouraged (where appropriate) to use calculators and other electronic devices, gaining confidence throughout their school experience.
- Computing lessons will be used to enhance pupils' mathematics skills through the use of online resources and the creation of spreadsheets.
- Computing lessons will be used to record findings, using text, data and tables.

Assessment and Reporting

Pupils will be assessed continuously through the lesson, following the 'feedback policy' and their progression recorded in line with the school's Assessment Policy.

Children in EYFS will be assessed following the 'Statutory Framework for the early years foundation stage', to identify a pupil's strengths and identify areas where progress is less than expected.

An EYFS Profile will be completed for each pupil in the final term of the year in which they reach age five.
The progress and development of pupils within the EYFS is assessed against the early learning goals outlined in the 'Statutory Framework for the early years' foundation stage'.

Throughout the year, teachers will plan on-going creative assessment opportunities, to gauge whether pupils have achieved the key learning objectives.

Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them verbally
- Marking work against the learning objectives (marking should be done in the lesson to give instant and direct feedback)
- Pupils' must self-correct their work, and teachers may model where necessary).
- Pupils can sometimes mark their own/ partner's work, but this is to be closely supervised and should only be used sparingly.

- Classroom tests and formal tests

Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and inform their immediate lesson planning.

End-of-unit tests will be used at the end of each half-term to allow the teacher to assess competence and progress.
Standardised tests will be used once at the end of the academic year (Y2 upwards), to measure each pupil's attainment in all areas of mathematics and primarily to identify strengths, weaknesses and gaps in learning. These tests will be used to inform teacher assessment and provide a baseline for the following year.

Parents will be provided with a written report about their child's progress during the summer term every year. These will include information on the pupil's attitude towards mathematics, understanding of mathematical terminology, investigatory skills and the knowledge levels they have achieved.

Verbal reports will be provided at parent-teacher meetings during the autumn and spring terms.

The progress of pupils with SEND will be monitored by the teacher and progress will be reviewed on a termly basis (as a minimum) with the SENCO. Some pupils will have their progress tracked on the mathematical continuums.

Resources

The subject leader is responsible for the management and maintenance of mathematics resources, as well as for liaising with the school business manager, to purchase further resources.

Mathematics resources will be stored in each classroom, including rulers and protractors.

Pupils (where appropriate) will have access to concrete materials, e.g. double-sided counters, 2D /3D shapes and place value mats, so that they have opportunities to fully explore the practical elements of mathematics.

Resources that are not required regularly, and those concerning key whole-school topics, will be stored in shared storage facilities.

Display walls will be utilised and updated regularly, following the area of mathematics being taught at the time. This includes a vocabulary ladder displaying the relevant vocabulary for the week/ unit.

The subject leader will undertake an audit of mathematics equipment and resources on an annual basis.

Equal opportunities

All pupils will have equal access to the mathematics curriculum.

Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all mathematics lessons.

Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.

Inspire Education Community Trust aims to provide the higher attaining pupils with the opportunity to extend their mathematic thinking through extension activities such as problem-solving, investigative work and research of a mathematic nature.

Teacher Accountability:

- Following the Maths and Calculation Policies.
- Ensure teachers are aware of the lessons that they are teaching.
- Ensure lessons are prepared with differentiated work to challenge all children from their starting points.
- If additional support is required (e.g. lessons, behaviour management, the structure of lessons, pace etc), it is a teacher's responsibility - as a professional - to ask and seek advice from the relevant members of staff.
- All planning, flipcharts and resources must be saved in the relevant folders on SharePoint.
- Follow the non-negotiables for their relevant key stage which set out expectations of presentation, layout and format of lessons (see Appendix D)

Monitoring

- Maths 'pupil voice'.
- Maths learning walks.
- Mental maths and application of sentence stems to be monitored (e.g. through learning walks and formal observation).
- Monitoring of teachers' flipcharts and planning on SharePoint
- Maths books monitored.
- Maths environment to be monitored by SLT to ensure impact.

Parents

The school recognises that parents and carers have a valuable role to play in supporting their child's mathematical learning. An overview of the Maths curriculum is available on the school's website, as well as the Calculation Policy.

· Children are given Maths homework regularly from Reception to Year 6.

· Parents are informed of their child's progress at Parents Evenings, and this is also communicated in a written school report.

The Maths Team

Roles and responsibilities

Role of the Maths Team - The **subject leader** is responsible for:
They are responsible for improving the standards of teaching and learning of Maths through the monitoring and evaluation of the subject. This will involve:

- Analysing data
- Monitoring of pupil progress (e.g. through pupil voice, book monitoring, learning walks and lesson observations)
- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of mathematics, providing support for staff where necessary.
- Ensuring the continuity and progression from year group to year group.
- Encouraging staff to provide effective learning opportunities for pupils.
- Conference with pupils regarding all areas of Maths.
- Helping to develop colleagues' expertise in the subject.
- Purchasing and organising the deployment of resources and carrying out an annual audit of all mathematics-related resources.
- Liaising with teachers across all phases.
- Keeping up to date with recent Maths developments and communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Auditing, supporting, organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessing pupil performance.
- Advising on the contribution of mathematics to other curriculum areas.
- Collating assessment data and setting new priorities for the development of mathematics in subsequent years and ensuring assessment for Maths is carried out in line with the school's assessment policy

Teachers (who teach mathematics) are responsible for:

- Acting in accordance with this policy.
- Ensuring the progression of pupils' mathematical skills, with due regard to the national curriculum.
- Planning lessons effectively, ensuring the correct sequence of learning.
- Liaising with the subject leader about key topics, resources and support for individual pupils.
- Monitoring the progress of pupils in their class and reporting this on an annual basis to parents.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of the senior leadership team (SLT).

- Undertaking any training that is necessary to effectively teach the subject.

The **special educational needs' coordinator (SENCO)** is responsible for:

- Liaising with the subject leader to implement and develop mathematics throughout the school.
- Organising and providing training for staff regarding the mathematics curriculum for pupils with special educational needs and disabilities (SEND).
- Advising staff on how best to support pupils' needs.
- Advising staff on the inclusion of mathematical objectives in pupils' individual education plans.
- Advising staff on the use of teaching assistants to meet pupils' needs.

Monitoring and review

This policy is reviewed regularly as required by the CEO and the Maths Team.

Any changes made to this policy will be communicated to all members of staff.