



‘Mathematics is, in its way, the poetry of logical ideas’ - Albert Einstein

***‘Mathematics can perform magic on the world; letting us see patterns and regularity, where previously we might only have noticed chaos and confusion’
- Mike Askew***

Maths at South Gosforth First School

At South Gosforth First School, our maths curriculum is designed to develop confident, resilient, and fluent mathematicians who can apply their knowledge and skills to a wide range of problems and real-life situations.

We deliver a high-quality, inclusive curriculum, in line with the National Curriculum, that is both engaging and ambitious, ensuring all learners experience success and make meaningful progress.

Our curriculum fosters curiosity, creativity, perseverance and a positive mindset towards learning. We aim to develop independent thinkers who are not afraid to make mistakes, and who can make strong, long-term connections across mathematical ideas and the wider curriculum.

By embedding fluency, reasoning, and problem-solving at the heart of our teaching, we ensure pupils acquire deep, lasting understanding. They leave us equipped with essential skills that are easily recalled, transferable, and relevant—ready for the next stage of their education and for everyday life.

Intent			
How our key drivers are lived through our maths curriculum			
Character	Culture	Creativity	Challenge
To believe in themselves as mathematicians and to develop resilience and perseverance when faced with mathematical challenges.	To be able to clearly articulate mathematical thinking when following their own lines of enquiry, and use reasoning, justification and critical thinking to explore, question and explain mathematical concepts.	To be creative, critical and divergent thinkers who approach mathematical problems with a positive and resilient attitude.	To meet and exceed national curriculum expectations in maths. To develop strong foundations in basic mathematical skills and be ready for the next stage of their learning. To use and apply mathematical knowledge in a range of real-life and meaningful contexts.



Implementation

Lesson design

Using the *White Rose Scheme of Learning* as a starting point for planning and resourcing, we provide a structured and sequenced approach to teaching mathematics. However, lessons are carefully adapted and supplemented with additional resources to meet the individual needs of pupils. To enrich lesson delivery, we draw on high-quality resources such as *NCETM's Teaching for Mastery*, *Power Maths*, and platforms such as *NRICH*.

Lessons are designed to include sophisticated problems, purposeful practice, and opportunities for both procedural fluency and conceptual understanding. Concepts are introduced and deepened using a variety of carefully selected examples, representations, and models that highlight the underlying structure of mathematics. This approach emphasises connections between ideas, helping pupils build a deep and connected knowledge of mathematics, with a consistent focus on fluency, reasoning, and problem-solving.

Our lesson design prioritises depth of understanding over speed. Pupils are given the time and opportunity to explore mathematical concepts thoroughly, enabling them to develop a secure and lasting understanding, rather than rushing through topics. Learning is often linked to real-life contexts, helping pupils see the relevance of mathematics in everyday life.

Fluency

We place a strong emphasis on fluency to ensure that children can recall and apply mathematical facts and procedures quickly and accurately. This automatic recall frees up cognitive capacity, allowing pupils to engage more effectively in reasoning and problem-solving.

Key number facts are learned to automaticity, while other essential mathematical facts are deeply understood and practised regularly. This approach helps to prevent overload in working memory and enables children to focus on acquiring new learning.

Fluency is embedded within our daily lesson structure and further reinforced through targeted homework tasks that focus on the learning of key facts.

In Early Years and Key Stage 1, the *NCETM Mastering Number* programme—supported by the use of the Rekenrek—helps children develop a secure understanding of number composition. In Year 2 and throughout Key Stage 2, pupils build on this foundation through the *Number Sense* programme and a range of additional activities designed to deepen their understanding of number relationships and multiplication facts.



By the end of Year 4, all pupils are expected to confidently and rapidly recall all multiplication facts up to 12×12 .

Calculation methods

Efficient mental and written calculation strategies are taught consistently across all year groups. Our approach is guided by the South Gosforth First School Calculation Policies, which draw on examples from both the *NCETM Calculation Guidance* and the *White Rose* scheme. These policies ensure a coherent and consistent approach to teaching calculations throughout the school.

Further details can be found in the separate Calculation Policy document.

Assessment

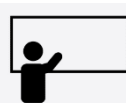
Assessment is an integral part of daily teaching, carried out through questioning and diagnostic marking. At the end of each teaching block, teachers use a range of assessments, including practical tasks and *White Rose Maths* End of Block Assessments, to identify misconceptions and assess readiness to progress. Dedicated time is given after assessments to address any gaps in understanding.

From the spring term in Year 1, and throughout Years 2 to 4, pupils complete termly NFER assessments. In Year 2, the Key Stage 1 assessments replace NFER tests in the summer term. The use of these standardised assessments across school provides valuable benchmarks to support teacher judgements and track progress.

All assessment data is recorded in the school's Insight Tracker, where it is analysed to inform planning, interventions and to identify the next steps in learning.



What would a maths lesson look like at South Gosforth?

					
Clarity of learning exemplified The 'big learning' is explained, with small steps broken down to support understanding. Children know what they are learning, why they are learning it and how it links to previous learning.	Vocabulary The use of precise mathematical vocabulary is essential, enabling children to clearly express their reasoning and thinking. New vocabulary is explicitly introduced, explained, and modelled, with time given for pupils to rehearse it in context. Stem sentences support understanding of key concepts and help pupils articulate their ideas. Maths lessons are a discussion rich environment, with talk and reasoning being central to every lesson.	Links to prior learning and retrieval practice Children regularly revisit prior learning through a range of low-stakes strategies. <i>Flashback 4</i> is used to review concepts from the previous day, week, unit, and term, helping to embed key knowledge into long-term memory. The curriculum design ensures that key concepts are revisited and reinforced over time.	New learning explained and modelled Whole-class interactive teaching is the main approach used, with teachers providing clear explanations of new concepts. Across all year groups, the Concrete, Pictorial, Abstract (CPA) approach supports learning by allowing children to explore ideas using concrete manipulatives, visual representations, and abstract methods. A combination of questioning, short tasks, explanations, demonstrations, and discussions encourages children to think deeply, make connections, reason logically and apply their knowledge to solve problems.	Independent practice and group work Children are given regular opportunities to practise new learning through carefully planned tasks. Learning is broken down into manageable steps using a 'teach-do' approach to reduce cognitive overload and support retention. Mixed-attainment groupings and the regular rotation of talk partners promote rich mathematical discussion and effective collaboration. Tasks are designed to develop fluency while also offering opportunities to deepen understanding through the use of rich, sophisticated problems and reasoning activities.	Assessment for learning and feedback strategies Assessment for learning opportunities are woven in throughout the lesson through careful questioning that makes the pupils think deeply. Errors and misconceptions are picked up and addressed as the lesson progresses. From Year 2 onwards, pupils also self-mark using green pens. This approach encourages self-reflection, promotes a growth mindset, and empowers children to take ownership of their learning.



Learning links across the curriculum to maths						
	Science	History	Geography	Art	D&T	Computing
Nursery Reception	In Nursery and Reception, mathematical learning is naturally integrated across the curriculum to build children's understanding in a meaningful context. For example, in History, children explore chronology in relation to ordering daily and weekly routines, developing an awareness of order and time. In Science, they use measurement and comparison when observing changes in the environment or investigating materials. In Art, children explore shapes, patterns, symmetry, and spatial awareness through creative activities. In Geography, they develop early skills in sorting, classifying, and understanding positional language while exploring maps, weather, and their surroundings. These cross-curricular links help children see maths as part of everyday life and build a strong foundation for their learning journey.					
Year 1	Seasonal Changes: -Describe how day length varies in different seasons -Create different weather stations e.g. rainfall gauge and a windsock and make observations. -Pattern Seeking – Do trees with bigger leaves lose their leaves first in Autumn? -How can we sort the leaves that we collected on our walk? -In which season does it rain the most? -Observe and record the weather -Pattern Seeking – Does the wind always blow the same way? Everyday Materials: -Observing Over Time – What happens to materials if we bury them in the ground? -Which materials are the most absorbent?	Toys in the past: -Discuss events in the past and changes over time using words like: past, present, older, newer, ___ years ago, ___ is older than ____. -Create a toys timeline Bridges and transport of Newcastle: -Create a train timeline to show changes in different types of trains. The Queen: -Chronology and timelines	My Local Area: -3D mapping, map of local area The United Kingdom: -Compass points -programming a beebot (directions and turns) Hot and cold places: -World maps – locating North and South Poles	Make your mark: -Kandinsky – 2D and 3D shape Paper Play: -Samantha Stephens – 3D paper structures and drawings -Hubert Philips – 3D rockets	Sliding Picture Book (Mechanisms): -Measuring sliders for mechanism. Wheels and Axles (Mechanisms): -Design a moving vehicle. Smoothies (Cooking and nutrition): -Measure and prepare ingredients for a recipe. -Follow a recipe.	Coding: -positional language (right and left) Text and Images: -Creating and manipulating shapes. Comic creation: -Sequencing



	Plants: -How does my mustard seed change each week? -Which compost grows the tallest/shortest mustard plants? -Is there a pattern in where we find weeds growing in the school grounds? Animals inc Humans: -Does my height change over the year?					
Year 2	Living things and their habitats: -Observing over time – What conditions do minibeasts prefer to live in? Animals including humans: -Observing over time: How does a tadpole change over time? -Pattern Seeking - Which age group of children wash their hands most in a day? -Do bananas make us run faster? Everyday materials: -Would a paper boat float forever? -Which paper would be the strongest for a paper bridge? Plants: -Observing over time – What happens to my sunflower seed after I planted it? -Pattern Seeking – Do bigger seeds grow into bigger plants? -Do cress seeds grow quicker inside than outside?	The Great Fires: -Timeline of events from the Great Fire of London Explorers: -Timeline of significant events in the life of Christopher Columbus Wings to fly: -Timeline of events – history of flight. -Timeline of events in the life of Amelia Earhart.	Coastal Regions: -Seaside map (position and direction) London and Nairobi: -Temperature/climate graphs Continents and oceans: -Positional language – describing location of continents. - Climate/population/size graphs to compare different continents.	Map it out: -Maggie Scott/Kim Soon Im – 2D and 3D representations -Matthew Cusicks - To investigate maps as a stimulus for drawing (describing route to school – position and direction) Clay Houses: -3D drawing and sculpting	Baby bears chair (Structures): -To explore the features of structures and compare the stability of different shapes. Pouches/Bags (Textiles): -Design, measure, cut and sew a fabric pouch.	Coding: -Positional language and turns. -Displaying data (graphs) Data handling (optional unit): -Use software to label a pictogram and add data to each column.



Year 3	Forces and motion: Observing over time-If we magnetise a pin, how long does it stay magnetised for? Pattern Seeking-Does the size and shape of a magnet affect how strong it is? -Which magnet is the strongest? -North and South poles of magnets Animals including humans: -Pattern Seeking – Do male humans have larger skulls than female humans? -How does the angle that your elbow is bent affect the circumference of your upper arm? Light: -Observing over time: When is our classroom the darkest? -How does the distance between the shadow puppet and the screen affect the size of the shadow? -Observe and record the length of shadows at different times of day -Observe and record how the size of shadow changes when the source of light is moved closer or further from the object causing the shadow. Plants: -How do flowers in a vase change over time?	Stone Age to Iron Age: -Chronology – Create a Stone Age to Iron Age timeline. -Mapping – plot the journey of stones to Stonehenge. Ancient Egypt: -Use a timeline to explore the beginning and end of Ancient Egyptian civilisation. Vikings: -place the arrivals of Vikings on a timeline and compare to other periods in History studied.	North East Regional Study: -8 compass points -4 figure grid references The Alps: -Journey planning (directions/distances) -climate and tourism graphs. Earthquakes and volcanos: -Richter scale measurements, graphs.	Growing artists: -Georgia O’Keeffe- identifying shapes within flowers. Abstract Shape and Space: -Robert Morris – Constructing in 3D, drawing and sculpture.	Castles – Structures: -Design a castle with key features, drawing and labelling using 2D and 3D shape labels. Egyptian Collars (Textiles): Develop, measure out and adapt a template for a design.	Coding: -Positional language and turns. Digital Storyboards: -Sequencing Data handling (Branching databases): -Create a branching database to sort a variety of animals.
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	-Which conditions help seeds germinate faster? -How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals? -Which soil absorbs the most water? -How does adding different amounts of sand to soil affect how quickly water drains through it?					
Year 4	States of matter: -How does the level of water in a glass change when left on the windowsill? -Pattern seeking -Is there a pattern in how long it takes different sized ice lollies to melt? -Does seawater evaporate quicker than freshwater? Electricity: -Pattern Seeking – which room has the most electrical sockets in a house? Animals including humans: -Observing over time - How does an eggshell change when it is left in cola? Sound: -Pattern seeking – Is there a link between how loud it is in school and the time of day?	Romans: - Chronology – explore where the Romans fits in with other periods of History studied. -Timeline of key events – Boudicca, Hadrian’s wall etc. -Roman numerals. Ancient Greeks: -Chronology - explore where the Ancient Greeks fit with other periods of History studied. -Ancient Greek achievements- mathematicians and early number. Victorians: -Chronology – timeline of Victorian era.	Settlements and Migration: -Compare population density statistics and settlement patterns Climate Zones and Biomes: -Analyse climate and rainfall graphs Climate Change: -Compare climate graphs and data on polar ice caps and sea level changes.	Power Prints: -Ed Ruscha - To draw using tone to create a 3D effect. Architecture: -3D monument design Memory Museum: -3D sculpture	Electrical systems: Measure and mark materials using template or ruler in order to create an electrical poster. Pavillion: Create and Design a 3D pavilion structure.	Coding: -Positional language and turns (degrees to points of turn) 3-D design: -Using 3D shapes to design a 3-D village.



	-How does the volume of a drum change as you move further away from it? Living things and their habitats: Observing over time - How does the variety of invertebrates change over the year on the school field?	-Census data – exploring population density. -Data handling – coal mining maps				
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What makes maths special at South Gosforth First School?

What makes mathematics truly special at our school is the way we inspire curiosity and enthusiasm through engaging lessons and enriching events and experiences. During Maths Week England and NSPCC Number Day, pupils participate in creative activities that bring mathematical concepts to life. Our STEM and Aspirations Weeks provide valuable insights into diverse mathematics careers and highlight the achievements of notable mathematicians, encouraging pupils to envision their own future pathways. Through competitions, class events, and assemblies across the school year, we celebrate the importance of mathematics and foster confidence and pride in mastering essential skills such as times tables.

CPD

Strategy	Who	When	Impact
Subject leadership time	Amanda Logan	Autumn term	The subject leader has completed Mastery Specialist Training through the NCETM Great North Maths Hub, enabling them to disseminate expertise in mastery pedagogy and promote consistent, high-quality mathematics teaching across school.
Staff meetings	Richard Brown ('Freestyle Maths' Consultant) Amanda Logan	Autumn term/spring term/summer term	Staff CPD – 3 sessions which focused on the use of concrete resources and mathematical games. These have enhanced staff confidence in delivering practical, hands-on learning



			experiences, leading to improved pupil understanding and engagement in mathematics.
Membership to subject association (White Rose Maths Hub)	All staff	Ongoing	Staff have access to high-quality mastery CPD and carefully designed resources, enabling precise planning for small steps in learning and ensuring a coherent progression of mathematical understanding across all year groups.
NCETM Teaching for Mastery Programme (Sustaining School)	Amanda Logan, Rachael Blackburn and other staff across school	6 sessions across the year (September 2025 onwards)	Subject lead and other members of staff from across school will develop subject knowledge in mastery approaches by visiting other settings and applying effective strategies in their own classrooms.
GST Subject Leader Networks	Amanda Logan	2 sessions throughout the year	Subject leader has access to examples of best practice across the trust. Subject leaders can share planning and resources that can then be disseminated in school.
Newcastle Subject Leader Networks	Amanda Logan	3 sessions across the year	Subject leader has access to examples of best practice across the city Subject leaders can share planning and resources that can then be disseminated in school.

Impact	
Strategy	Evidence and findings
Pupil Voice	Key findings from this monitoring in school can be found on internal school documents and is collated by Amanda Logan (Maths Subject Leader). This monitoring informs the current 'Maths Subject Action Plan' which identifies key strengths and areas for development in Maths, as well as actions taken to improve the subject curriculum and delivery across school.
Book Look	
Lesson observations	
External reports e.g. SIP/Governors	