

Mathematics Policy

St Vincent's School for Sensory Impairment and Other Needs



Approved by:

Mr. L. Green and
Governing Body

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1. Purpose of Policy

This policy embodies the aims and values of St Vincent's School. It is designed to ensure all stakeholders—including staff, governors, parents, and pupils—are collaboratively working toward shared educational goals in mathematics. Mathematics is a fundamental and vital component of our curriculum, providing all pupils, irrespective of their starting point or ability, the chance to develop logical reasoning, problem-solving skills, and a confident numerical fluency.

The purpose of this Mathematics Policy is to:

- Establish a consistent framework for all teaching and non-teaching staff, providing clear guidance on the planning, teaching, and assessment of mathematics.
- Demonstrate strict adherence to the objectives and guidelines set out within the National Curriculum for Mathematics.
- Offer clear and transparent information to parents and carers regarding the specific mathematical content and skills their children will be learning.
- Enable the governing board to effectively monitor and evaluate the delivery and impact of the mathematics curriculum.
- Provide necessary evidence to Ofsted inspectors regarding the comprehensive planning and effective implementation of our mathematics curriculum.

This policy will be available on our school website www.stvin.com.

2. Subject Vision

At St Vincent's School, our core vision for mathematics is to cultivate confident, resilient, and enthusiastic learners. We aim to foster a deep appreciation for mathematics by creating an environment where students actively enjoy the learning process.

Cultivating Mathematical Confidence and Resilience

We encourage students to develop resilience and embrace risk-taking without fear of making errors. Our approach to assessment and reward focuses on celebrating the mathematical process and effort, alongside the final outcome, to consistently build confidence and maintain high levels of motivation in all pupils.

High Expectations and Inclusive Pedagogy

We uphold high standards and expectations for every pupil. To enable each student to perform to their best ability, our lessons are tailored to meet diverse needs. This includes utilizing tactile resources designed to accommodate every pupil's visual impairment, learning needs, and individual strengths.

Focusing on Application and Understanding

Our curriculum emphasizes problem-solving and critical thinking rather than simple rote memorization. We actively teach pupils to recognize and apply mathematical concepts within real-world contexts, demonstrating the relevance of mathematics beyond the classroom setting.

Curriculum Focus and Language Development

Across the school, with a particular emphasis in the primary phase, our primary focus is on developing foundational number fluency. This includes mastery of essential skills such as multiplication facts (times tables), place value, and the four fundamental operations.

We believe that the development of precise mathematical language is important. Recognizing that some pupils may have reading abilities below their chronological age, the primary curriculum heavily incorporates practical, hands-on activities. We progressively introduce worded mathematical questions in the primary phase to develop comprehension and application skills, a strategy that is continued throughout the secondary phase alongside a focus on mathematical keywords.

3. Aims & Outcomes

Aim:

The aims of our maths curriculum are:

- To ensure delivery of mathematical development across the whole school
- To ensure delivery of the National Curriculum in Maths
- To seek and ensure continuity and progression through National Curriculum provision
- To provide an integrated programme of learning experiences that will develop the student's ability to use mathematical skills effectively throughout the different key stages.

To achieve these aims, the specific objectives of our curriculum are:

- To develop the potential of each child in their knowledge, skills and understanding of mathematics by, effective planning, delivery and assessment
- To enable each child to become numerate by, effective planning, delivery and assessment.
- To support pupils to develop skills that can enable them to become confident and reflective learners.
- To support pupils to know, understand and use mathematical vocabulary
- To promote a fascination in mathematics and an enthusiasm for the subject.
- To develop independent learners

The domains of the Mathematics Curriculum are divided into Programmes of Study (PoS) within seven areas.

1. Working mathematically which includes fluency, reasoning and problem solving
2. Number and place value
3. Rates of change
4. Geometry and measurement
5. Probability and Statistics
6. Ratio and Proportion
7. Algebra and graphs

Outcomes:

Key stage 1 - years 1 and 2

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 should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

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.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower key stage 2 - years 3 and 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the 4 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.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

Upper key stage 2 - years 5 and 6

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.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Key Stage 3

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programme of study for key stage 3 is organised into apparently distinct domains, but pupils should build on key stage 2 and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge in science, geography, computing and other subjects.

Key Stage 4

Pupils will work towards a qualification. The specific qualification will depend on the ability of the child but will follow the National Curriculum guidelines for Key Stage 4.

Post 16

Post 16 pupils will complete a suitable maths course for their ability.

4. Teaching & Learning

Mathematics is taught in single-aged classes by maths specialist teachers or class teachers (at Key Stages 1 and 2) supported by learning support assistants as necessary depending on the needs of the pupils. Lesson plans are based around the subject's long-term plan and resources available, with objectives adapted to suit the stage of development, literacy, and skill acquisition for the pupils in each class. The teaching of maths is completed by following the curriculum product of White Rose maths that incorporates the DfE National Curriculum.

Teaching Methods

Planning and Environment

Forward planning is essential, particularly for the preparation of specialist resource materials and mathematical equipment.

- Hands-on experience is prioritized whenever possible, utilizing concrete manipulatives to build conceptual understanding.
- We have discussions to explore mathematical topics and processes, especially for pupils who have limited visual experience to draw upon for abstract concepts.
- To ensure full pupil participation across all mathematical activities, a wide and diverse range of adapted equipment is required for the successful completion of tasks (e.g., large-print calculators, tactile geometric shapes, tactile protractors, specialized rulers).
- Wherever possible, we provide clear examples of 'starting points' or models, particularly when introducing concepts related to spatial reasoning, measurement, or three-dimensional geometry.
- We will use tactile three-dimensional models and geometric forms to aid comprehension.
- Resource development may necessitate the use of reprographics equipment (e.g., enlarged photocopying), swell tactile diagrams, the school library, Braille materials, IT, or the Internet. We also have available Low Vision Aids (LVAs) and CCTV magnifiers, alongside standard word processing software, for accessing and creating specialized learning materials.
- Examples of different types of mathematical work and applied problem-solving is displayed in the school building.

Developing Motor Skills for Mathematics

It is recognized that pupils with visual impairments may demonstrate a relative deficit in fine motor functions/skills compared to their fully sighted peers; those who are partially sighted often perform closer to blind pupils than fully sighted pupils in these functions.

The development of fine motor skills is critical for successfully engaging with many mathematical activities. These skills include, but are not limited to:

1. Manipulating small objects used for counting or modelling, such as counters, beads, or number tiles.
2. Competent use of drawing and measuring tools, including compasses, protractors, and adapted rulers.
3. Accurate use of tactile aids such as stencils and templates—requiring the ability to hold them steady while tracing shapes or diagrams on German film raised paper.
4. Precise handling of rulers—demanding steady fixation for drawing lines and accurate alignment for measurement.
5. Working with specialized tactile materials like modelling clay or other substances, where skills like kneading, rolling, or pouring may be required for representing volumes or shapes.

Curriculum Progression

Due to the inherent individual differences in visual acuity, manual dexterity, and cognitive strengths, pupils will naturally achieve specific mathematical objectives at varying times and with diverse degrees of competence.

Our approach to curriculum progression is designed to ensure that mathematical skills, conceptual understanding, and practical experiences are developed steadily and sequentially. This process guarantees that all learning targets set for pupils are realistic, individually appropriate, and ultimately achievable.

Detail of programmes of study/curriculum maps can also be found on our school website: www.stvin.com

5.1 Programmes of study

	Autumn term 1 (8)	Autumn term 2 (7)	Spring term 1 (6)	Spring term 2 (5)	Summer term 1 (6)	Summer term 2 (7)
Year 7	Sequences Algebraic introduction and equations Place value and ordering	Four operations Statistics and range Rounding	Graphing data Fractions, decimals and percentages	Directed numbers Fractions and percentages of amounts Perimeter and area	Speed, distance and time Four operations with decimal numbers Properties of number	Adding fractions Subtracting fractions Angles and polygons
Year 8	Ratio Proportion and scale Directed number Algebraic manipulation	Coordinates Graphs Multiplying fractions	Area Volume Equations Fractions	Percentages Decimal arithmetic and rounding Expressions and indices Standard form	Interpret and represent data Angles in polygons Tables and probability Circles	Graphs and charts Sequences Symmetry and reflection
Year 9	Properties of number Percentages Area and volume Equations, inequalities and formula	Fractions Rates Standard form Maths and money	Straight line graphs Ratio and proportion Construction and congruence	Similarity Algebraic manipulation Pythagoras	Non-linear graphs Probability Transformations Simultaneous equations	Trigonometry Consolidation of KS3
Year 10 GCSE	Algebraic manipulations Equations and inequalities Quadratic equations Percentages	Ratio and scale Four operations with fractions Fractions of an amount and solving problems with fractions	Non calculator methods Straight line graphs Probability Frequency trees	Rounding Estimation Perimeter, area and volume Interpret and represent data	Non-linear graphs Angles Graphs and diagrams Vectors Factors and powers	Pythagoras Trigonometry Simultaneous equations

	Autumn term 1 (8)	Autumn term 2 (7)	Spring term 1 (6)	Spring term 2 (5)	Summer term 1 (6)	Summer term 2 (7)
Year 11 GCSE	Ratio and proportion – buying and conversion Area and volume Similarities and congruence	Sequences and proof Standard form Work with circles Set notation and Venn diagrams	Functions and graphs Equations and formulae Rates	Angles, bearings and trigonometry Constructions and Loci Transformations 1	Transformations 2 Consolidation of Key Stage 4 Revision and exam preparation	Exam preparation Preparation for Post 16
Year 10 Entry 2	Four operations and number Time and dates Rounding Fractions and decimals	Money Analogue and digital clocks Measurement and Temperature Shapes	Handling information and data Consolidation of Entry 2 work	Preparation for worded questions Past paper questions Exam preparation	Exam preparation	Preparation for Entry 3 qualification
Year 11 Entry 3	Four operations and larger numbers Rounding larger numbers Linear sequences	Fractions and equivalent forms Decimals up to 2 places and sequences	Money and rounding Time Length, capacity, weight and temperature Units	Measuring 2D and 3D shapes Compass points and directions	Extracting information from diagrams and graphs Interpreting information Organising information	Past paper questions Revision Exam preparation
P16	The Post 16 scheme is dependent on the qualification they are doing. This will be provided to individual pupils at the start of Post 16.	This year will be following the Entry 2 qualification which is the same as the Year 10 scheme detailed above.				

6. Cross-Curricular Links

Opportunities for Mathematical Integration

Mathematics is purposefully integrated across the curriculum to enhance its relevance and practical application for our students. These cross-curricular links are vital in demonstrating how mathematical concepts function as powerful, interdisciplinary tools.

Enrichment and Life Skills Application

Our Enrichment Clubs held on Friday mornings directly apply mathematical concepts. Activities like Lego, STEM, and Construction require students to use measurement, geometry, and spatial reasoning. Grow Wild (gardening) and Art involve working with ratio, proportion, and scale, while Cooking and Coding demand practical use of measurement and estimation.

In Mobility training, students engage in practical time, distance, speed, and cost calculations when navigating public transport and making necessary purchases at local shops.

Links with Citizenship and PSHE focus on developing financial literacy through practical budgeting, money management, and understanding financial awareness.

Our Post-16 Independence program requires the advanced application of real-world mathematics. This includes practical skills like budget planning for events, currency conversions, and adjusting recipe ratios for independent living.

Subject-Specific Links

- **Art and Design:** Students explore repeating patterns (tessellations), analyse proportions, understand ratios and scales, and identify geometric shapes.
- **Science:** Mathematics is crucial for data analysis, including handling, interpreting, and ordering data into appropriate graphs and charts. Students apply scales, ratios, and mathematical models to study scientific phenomena.
- **Geography:** We use scale and ratio for accurate map reading. Students analyse and manipulate population statistics and weather data, reinforcing skills in statistics and data handling.
- **History:** The subject develops comprehension of time, chronology, and sequences through the construction of timelines. Students also study historical number systems, such as Roman numerals and the Mayan number system.
- **Information Technology:** Students apply logical reasoning and sequencing through coding and algorithmic thinking. They also utilize coordinate systems and mapping principles in applications like Google Maps.
- **Physical Education:** Mathematics is used to calculate and analyse performance data, including distance, speed, and time trials. Students apply geometry to understand angles, parallel lines, and symmetry in movement, and use sequences in routines.
- **Religious Education:** The curriculum includes contrasting and analysing different numerical bases and systems, such as the Hindu/Arabic number system. Students also use data handling to examine and compare demographics of religious adherence.

Assessment, Recording & Feedback

7.1 Assessment

St Vincent's School uses assessment to enable staff to understand what pupils have learnt before, what they need to learn now and what they will learn next.

Formative assessment

- Teacher Observation
 - Monitoring engagement, effort, and technique during classwork.
 - Assessing how students use materials and respond to feedback.
- File Reviews
 - Evaluating their work.
 - Encouraging self-reflection and progress.
- Questioning and Class Discussion
 - Informally assessing understanding of techniques, concepts, and mathematical concepts.
 - Checking for depth of thought, vocabulary use, and analysis skills.
- Peer and Self-Assessment
 - Students reflect on their own work or critique classmates' work.
 - Encourages independent learning and critical thinking.
- Feedback (Verbal and Written)
 - Regular, specific feedback from the teacher during lessons.
 - Often recorded in files or digital platforms (iTrack).

Summative assessment

- Baseline assessments at the start of each Key Stage
- End of Unit assessments
 - Independent work at the end of every unit assessing their understanding of what has been taught (recorded on iTrack)
- End-of-term or end-of-year grades
 - School-based levels – through iTrack.

At the end of each school term pupils will be assessed within 1 of the following bands:

- Emerging
- Developing
- On Track
- Secure
- Exceeding

Please see the below linked policies for further details:

- Assessment policy

- Teaching and Learning Policy

Marking

Children receive regular feedback and St Vincent's School marking follows the school's marking policy. More information can be gathered in our marking and feedback policy.

7.2 Recording

In Maths pupils may record their learning in the following ways:

- Files
- Photos
- Online assessment-based tool – iTrack

This may take the form of photographs, pictures, notes or written work, and may be worksheet-based or fully independent.

We will provide regular targets for pupils and provide termly verbal reports against these at parents' evenings. Pupils will receive a written report twice per year, once at Annual Review and once at Monitoring Evening.

8. Resources

8.1 Textbooks and other equipment

The Mathematics Department ensures that a wide array of specialized materials and equipment is available to effectively support learning across all key stages, with a dedicated focus on the needs of visually impaired pupils.

Provision and Accessibility

We provide comprehensive access to adapted mathematical tools and apparatus. This provision includes, but isn't limited to:

- Tactile Manipulatives: Concrete objects (e.g., counters, blocks, base-ten materials) designed for tactile discrimination and conceptual understanding.
- Accessible Measuring Tools: Adapted rulers, protractors, and compasses (often enlarged or with raised markings).
- Assistive Technology: Large-print calculators, iPad scientific calculators, screen-reading software, and specialized Braille or embossed materials for graphs and geometric shapes.
- Specialized Equipment: Tools for creating tactile graph paper or playdoh for manipulating

Maintenance and Utilization

All resources are maintained to ensure they meet safety standards and are always fit for purpose. Equipment is used strategically to:

- **Support Curriculum Delivery:** Facilitate the teaching of abstract mathematical concepts through concrete experiences.
- **Enhance Skill Development:** Aid the mastery of numerical fluency, calculation accuracy, and spatial reasoning.
- **Promote Conceptual Understanding:** Allow pupils to physically interact with mathematical models.

The department is committed to ensuring that all students have equitable access to high-quality, specialized materials, irrespective of their visual acuity or background, thereby supporting every pupil's maximum engagement and achievement in mathematics.

8.2 External speakers, local museums, trips

Educational visits and external speakers can enrich the Mathematics curriculum. They can provide real-world context, enhance problem-solving skills, and deepen students' practical application of mathematical concepts.

Educational Visits

Visits could be arranged to:

- **Real-World Context:** Visits to locations such as banks, currency conversion offices, architectural sites, businesses, or public infrastructure which can be linked directly to curriculum content, allowing students to observe and apply concepts like finance, scaling, measurement, and data analysis in authentic settings.
- **Planning and Compliance:** All trips are meticulously planned with clear, measurable learning objectives and strictly adhere to school procedures for risk assessments, parental consent, and safeguarding protocols.

External Speakers and Specialists

External speakers and industry specialists can be invited that bring valuable professional insight and specialist knowledge directly into the mathematics classroom.

- **Industry Insight:** Visiting professionals—such as engineers, financial analysts, or statisticians can bring real-world data and case studies into the classroom, demonstrating the practical career relevance of mathematics.
- **Session Design:** Sessions may include guest lectures, interactive workshops, practical demonstrations of software, or collaborative data analysis projects.
- **Safeguarding:** All external visitors strictly adhere to school safeguarding procedures and are supervised by staff at all times.

The impact of any trips and guest sessions would be reviewed through student feedback and staff evaluation to inform future planning.

9. Roles & Responsibilities

9.1 Senior Leadership Team

The Senior Leadership Team at St Vincent's school will:

- Support the subject leader but also hold them to account for the effectiveness of the subject
- Support staff through the provision of training and resources

- › Monitor the planning and delivery of the subject
- › Ensure the requirements of the National Curriculum are met
- › Ensure this policy is reviewed according to the timescales set out

9.2 Subject leader

The subject leaders at St Vincent's school will:

- › Prepare and review subject policy and curriculum plans
- › Promote the study of the subject throughout the school
- › Monitor the teaching and assessment of the subject
- › Attend appropriate CPD
- › Stay informed regarding developments in the study and teaching of the subject
- › Evaluate resources
- › Provide training and CPD to staff on the subject curriculum and its delivery, and keep them informed about subject developments nationally
- › Assess the impact of the subject curriculum on pupils' learning and development

9.3 Link governor

The link governor responsible for monitoring the curriculum at our school will:

- › Monitor the impact of the subject across the school and on pupils
- › Monitor teacher workload and professional development
- › Ensure subject action plans are suitable
- › Monitor the quality of resources
- › Keep track of pupil and parent engagement with the subject
- › Keep up to date with the curriculum (what's taught, why it's taught, and how it's taught)

9.4 Classroom teacher

Classroom teachers at our school will:

- › Teach and assess the subject according to the principles laid out in this policy
- › Report to the curriculum manager / Assistant Headteacher
- › Maintain subject knowledge and appropriate CPD

9.5 Parents

The parent community at our school will follow the responsibilities set out in the Home School Agreement.

10. Inclusion

All pupils are entitled to a broad, balanced and relevant curriculum which enables them to make progress in relation to their priority needs.

Pupils at St Vincent's may have additional needs – sensory, physical, emotional, behavioural or additional learning difficulties.

For these pupils there is a need to provide further modifications to the teaching programmes. As a school we ensure we follow the SEND Code of Practice (2014, updated April 2020) and the Education Health Care Plans (EHCP). Teachers will plan lessons so pupils with visual impairment and/or sensory need can study Maths, wherever possible, and ensure that there are no barriers to every pupil achieving.

Differentiations for Levels of Ability

- All maths lessons will be taught in class groups.
- Large class groups such as Y10 & P16 will be taught in splits
- All pupils will have maths lessons

Classroom Approaches

The classroom approach is based on:

- Encouragement of pupils to be interested in maths.
- Providing suitable experiences where pupils are encouraged to explore new ideas.
- Exposition by the teacher:
 - a. To a small teaching group
 - b. To an individual pupil.
- High level of specialist LSA support for pupils.
- Encourage a relaxed teaching environment

The above list is not exhaustive and should be adapted for each individual pupil.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

11. Links To Other Policies

This subject policy links to the following policies and procedures:

- Curriculum policy
- Assessment policy
- Marking and Feedback policy
- SEND policy

12. Monitoring & Review

This policy will be reviewed by staff and governors every year.