



**ST. JOSEPH'S CATHOLIC PRIMARY SCHOOL ALDERSHOT  
A VOLUNTARY ACADEMY IN THE DIOCESE OF PORTSMOUTH  
POLICY FOR MATHEMATICS  
(September 2019 - 2022)**

*The school aims to provide for the spiritual welfare, academic progress, physical development, aesthetic awareness and pastoral care of every child, within a secure, stable and stimulating atmosphere conducive to effective learning that reflects St Joseph's strong Catholic ethos.*

**Teaching and Learning at St Joseph's**

**Structure and the belief that all children can achieve** is key to all learning at St Joseph's. In all subjects, **recalling pre-knowledge and skills** is fundamental to our rationale for all curriculum areas. This means that essential linked knowledge/ skills are **revised** and links made with children's current learning in all subjects. Key concepts/ end points for each topic are highlighted and **over-learning** of these areas occurs through **repetition, modelling and scaffolding of learning**. Through our subject-specific Schemes of Work, we make sure that learning for all is progressive and sequential. In addition, reading and vocabulary are emphasised in all subjects. Thus, key concepts become embedded in the **long-term memory**.

**Vision Statement**

***As a Catholic family we welcome all and value Christ in everyone, whilst seeking the highest possible achievements.***

As such, we plan and resource pupils' learning, in line with the school curriculum policy. The School's Vision and Mission Statements underpin all aspects of our planning, our chosen pedagogy and our delivery to enable all pupils to make good and sustained progress in mathematics. We believe that all have the ability to achieve their best and our curriculum and varied choice of pedagogy enables all children to do this. This includes those with special educational needs and disability and those identified as most able.

**Intent of the Mathematic Curriculum**

The mathematic curriculum is designed by the curriculum co-ordinator, management team and governors to allow pupils to transfer key knowledge and skills to their long-term memory. Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavor to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them. The National Curriculum for mathematics describes in detail what pupils must learn in each year group to develop fluency, reasoning and problem solving skills. Combined with the St Joseph's Calculation Policy, this ensures breadth, balance, continuity and progression as well as high expectations for attainment in mathematics. This

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results in building new skills and knowledge based upon what has been taught before, allowing all pupils to **work towards clearly defined end points**.

We aim to provide the pupils with a mathematics curriculum and high quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to the full through encompassing **memorable learning opportunities** for example, themed days, enrichment activities and cross-curricular links. The school provides a coherently planned curriculum, sequenced towards cumulatively sufficient knowledge, skills and cultural capital through informative teaching and learning activities and enhancement experiences.

We therefore intend that all pupils will:

- Apply knowledge and facts to new situations with increasing independence and autonomy
- Develop fluency and reasoning
- Solve problems that lead to discovery and invention
- Develop systematic and orderly habits
- Have a well-developed sense of the size of a number and where it fits into the number system
- Know by heart number facts such as number bonds, multiplication tables, doubles and halves by developing a good understanding of numbers and the number system
- Make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them
- Explain their methods and reasoning, using correct mathematical terms
- Judge whether their answers are reasonable and have strategies for checking them where necessary
- Undertake calculations with confidence, accuracy and speed
- Develop a knowledge and understanding of measures, shape and space
- Handle data with confidence, accuracy and improved speed
- Develop the ability to question, reason and master about mathematical concepts within real-life contexts
- Develop in children the skills of enquiry, investigation, analysis, evaluation and presentation.
- Focus, build-upon and learn key vocabulary to develop understanding of concepts and mathematical knowledge.
- Build in memorable experiences to promote deep learning through enrichment activities, themed days and cross-curricular links.

We use a range of **pedagogical practices** in the teaching of mathematics to ensure that we are successful with our Intent. This can range from small group tasks, individual tasks, whole class tasks. We focus a lot on teacher modelling, expert questioning, giving children memorable experiences and over-learning to ensure that key knowledge is transferred to children's **long-term memory**.

### Implementation of Mathematics Curriculum

Subject Leadership:

Mathematics has a **progressive and sequential Scheme of Work** which has been written by the subject leader to meet the needs of all pupils at St Joseph's.

The subject leader is responsible for:

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- The design, review and implementation of the Scheme of Work (overseen by Phase Leaders, the Headteacher and the Governors.)
- The budget in their subject they are accountable to governors in relation to this.
- Observing and giving feedback to teachers on lessons across the key stages.
- Conducting pupil interviews to gain an idea of the pupil's thoughts and feelings about the mathematic topics they have studied and feed these into mathematics moderation, ensuring that all children make at least good progress.

The implementation of this mathematics policy is the responsibility of all staff engaged in the learning and teaching of mathematics.

### Subject Knowledge (breadth and depth of mathematics Scheme of Work):

- The subject leaders ensure that teachers have good subject knowledge and the subject leader is appropriately trained to provide support, sharing and informing knowledge.
- The Scheme of Work provides a **focused learning environment and clear learning objectives to embed learning in the long-term memory through encompassing memorable learning experiences.**
- Our mathematics curriculum covers the skills outlined in the National Curriculum through a broad, challenging and inspiring topics. A topic-based approach is used to deliver the content within a **meaningful context and wherever possible cross-curricular links are exploited** particularly links with geography, history, science, British Values, School Values, computing and English.
- **Pre-knowledge and skills are retrieved and built upon** at the beginning of each topic as outline on the Scheme of Work.
- At a classroom level, **key concepts are presented clearly so that they are embedded in the long-term memory and over-learning is prevalent**, this is also monitored by the subject leader.
- Individual lessons are planned to inspire, engage and challenge pupils in response to their needs.
- Children are given a wide variety of experiences both in the classroom and out. Pupils to undertake **memorable learning opportunities** by attending school visits and having visitors into school to enable the children to gain first-hand experiences to support their learning and influence further learning.
- Reading and mathematical vocabulary are emphasised and taught to embed these skills in the pupils long-term memory.
- Teachers will remind the children how their school and home environments are valuable resources. The children have the opportunity to bring in mathematical learning and resources from home for display, discussions and presentation of achievements in assemblies.

The implementation of learning mathematics at St Joseph's will take place within the framework of our mathematics Scheme of Work. The Scheme of Work includes the following strands:

- Number: Place value, Addition, Subtraction, Multiplication, Division
- Number: Fractions, Decimals, Percentages
- Measurement
- Geometry: Properties of shapes
- Geometry: Position and Direction
- Statistics
- Ratio and Proportion
- Algebra

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Within each of the aforementioned strands, children will develop their skills in each of these three foci:

- **Fluency and calculation:** mental and written. Written calculation has become embedded within St Joseph's calculation policy. This is discussed with all members of staff and parents annually and adhered to within each year group. The Scheme of Work also supports mental methods and these are developed and embedded through starters, tasks and plenaries. Multiplication tables are taught in each year group at the direction of the class teachers who know what their children need and differentiate accordingly. Numerous resources are used to develop this including Times Table Rock Stars and also various workbooks/booklets.
- **Reasoning:** a demand of the current SATs for Year 2 and 6 is in the reasoning and understanding of mathematics. In order to equip pupils with the skills required, the Scheme of Work has clearly defined end goals. These end goals are incorporated into various starters and plenaries thus enabling all children to access learning in each lesson. Additional reasoning and problem lessons are delivered weekly to children in Years 2-6 and included in cross-curricular activities. Resources and activities have been purchased to develop teaching and provide challenging learning opportunities.
- **Problem Solving:** this also receives an increased level of focus within apply sessions, numerous starters and plenaries, and additional focus days. As above, extra resources have been purchased in order to achieve this. Within our apply activities for reasoning and problem solving, objectives from any of the sections of study can and will be introduced, revised and practised therefore giving internal links between maths topics and also, where possible, links to topic based learning.

At Key Stage 1: Upon entry, children's maths skills are low therefore we have greater emphasis on the development of these skills through our Scheme of Work to ensure good progress. We create a learning environment in which mathematics is encouraged and valued. This includes creating a stimulating and engaging classroom environment where pupils can learn. All staff work in partnership with parents and carers by sharing information about their pupils' interests, strengths and needs. Teachers deliver the curriculum, facilitate learning opportunities, support the less able and extend the more able pupils building on pre-skills learnt. They also develop children's knowledge and understanding of mathematics through practical activities, exploration and discussion. Children learn how to know and use number facts in calculations involving all four operations, as well as understand number and use this understanding in reasoning and solving problems involving shape, space, measures and data handling. Continually, teachers use evidence from individual pupil's work to set mathematical targets that result in deeper understanding by support pupils in achieving these targets and continuously assess pupil progress. In Key Stage 1, pupils are taught in ability sets (lower, middle and higher) and to support children who needs extra support and to challenge those deemed at more able and talented.

At Key Stage 2: We continue to create a learning environment in which mathematics is encouraged and valued. This includes creating stimulating and engaging classroom displays that support the classroom learning. All staff continue to work in partnership with parents and carers by sharing information about their child's level of achievement and areas of development. Children have greater opportunities to apply their learning to the wider context across all areas of the curriculum especially in science and computing and within the world around them to enrich their learning. In Key Stage 2, pupils set three ways by ability with the lower ability pupils receiving specialist daily mathematics lesson from the Intervention Mathematics Teacher. Within the set groups, pupils receive further differentiated-by-extension teaching and activities as appropriate.

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### Equitable Delivery

- Mathematics is taught through a variety of individual, group and whole class activities.
- Active participation is encouraged through questioning and answering, reasoning, investigating and solving problems as well as analysing and interpreting evidence.
- Children are encouraged to communicate their findings in a variety of ways e.g. written or verbal reports, use of graphs and pictures, visual/concrete resources and displays.
- The subject leader is accountable for their own annual budget to purchase a variety of resources, training and school visits/visitors to improve outcomes for pupils.
- Enrichment days are organised in relation to particular topics covered across the key stages.

### Assessment

- It will comply with the school's assessment policy. Mathematics will be assessed through summative and formative methods at the end topic. The class teacher will assess the child's achievement against the overall main learning outcome and end points and comment in the pupil's book. The teacher will assess every child as working below, developing, working securely, working above or at mastery level. This description indicates the child's performance against the learning expectations being recorded.
- At the end of Key Stage 1, pupils complete SATs tests which are used in conjunction with teacher assessment to set future targets for pupil mastery.
- At the end of Key Stage 2, pupils complete SATs tests to measure pupil's progress throughout the school.
- Each child will be given the opportunity to appraise his / her work and progress through discussion with the teacher, either individually, or in small groups in the context of a practical task being investigated.
- Collect examples of children's work for evidence of progress throughout the school year.

### Impact of Mathematics Curriculum

- Our thorough tracking and assessment system enables teachers to check children's progress in relation to the curriculum and provide targeted intervention if needed.
- Mathematics is monitored by the subject leader and phase leaders in all year groups after each topic, through work scrutiny, review of assessment, pupil interviews and lesson observation to discuss learning and look at the impact. This is reported to the Headteacher and appropriate changes made.
- Upon entry into St Joseph's, children's maths skills are low therefore we have greater emphasis on the development of these skills through our Scheme of Work to ensure good progress.
- St Joseph's, pupils achieve highly across the curriculum in English and Maths, the sciences, humanities, art, language and physical education and the use of transferrable skills is promoted.
- Pupils use the knowledge and skills learnt to meet the challenges of the next part of their educational journey and to do so with confidence and concentration.

### Health and Safety

- All out of school activities comply with the guidelines in the school health and safety and educational visit guidelines.
- When engaged in field work and visits children are expected to behave in a considerate responsible manner showing respect for other people and the environment.

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### **Equal Opportunities**

All pupils receive tuition in mathematics with a view to meeting individual needs regardless of gender, ability, creed, class, ethnicity, language and special educational needs (protected characteristics). Pupils are streamed by ability in order to provide them with access to appropriate work. They are assessed along the same guidelines and set appropriate targets to help them progress at the expected rate or better. Our primary approach is to teach all pupils within a group setting and provide additional support where appropriate.

In Key Stage 1, lower ability pupils receive specialist daily tuition in mathematics from a designated teacher. In Key Stage 2, lower ability pupils receive specialist daily tuition from the Intervention Mathematics Teacher. These lessons take place in a specialist mathematics room and groups consist of 7 – 14 pupils. These groups also have an additional learning support assistant to support the pupils even further.

Pupils on the higher end of the spectrum are set differentiated tasks to challenge and extend learning. At year 6, those pupils deemed as more able and talented have specialist lessons to support their extended learning towards mastery.

Pupils learn that mathematical expressions are universal symbols that supersede language barriers. It is acknowledged that mathematical knowledge has its origins in many cultures and problem solving is not cultural or language specific. Pupils learn to apply mathematical thinking to identify and resolve issues related to living with diversity developing cultural capital.

### **Background Documentation**

This document is a statement of the aims and strategies for teaching and learning mathematics in St. Joseph's Catholic School Aldershot. It was developed by Miss Jessica Hawkes in consultation with the Staff, Headteacher and Directors/Governors.

#### **DATE OF APPROVAL:**

September 2019

#### **REVIEW DATE:**

September 2022

Signed: Mrs D. McNeill

**Headteacher**

Dr. Campbell McCafferty CBE

**Chair of Governors/Directors**