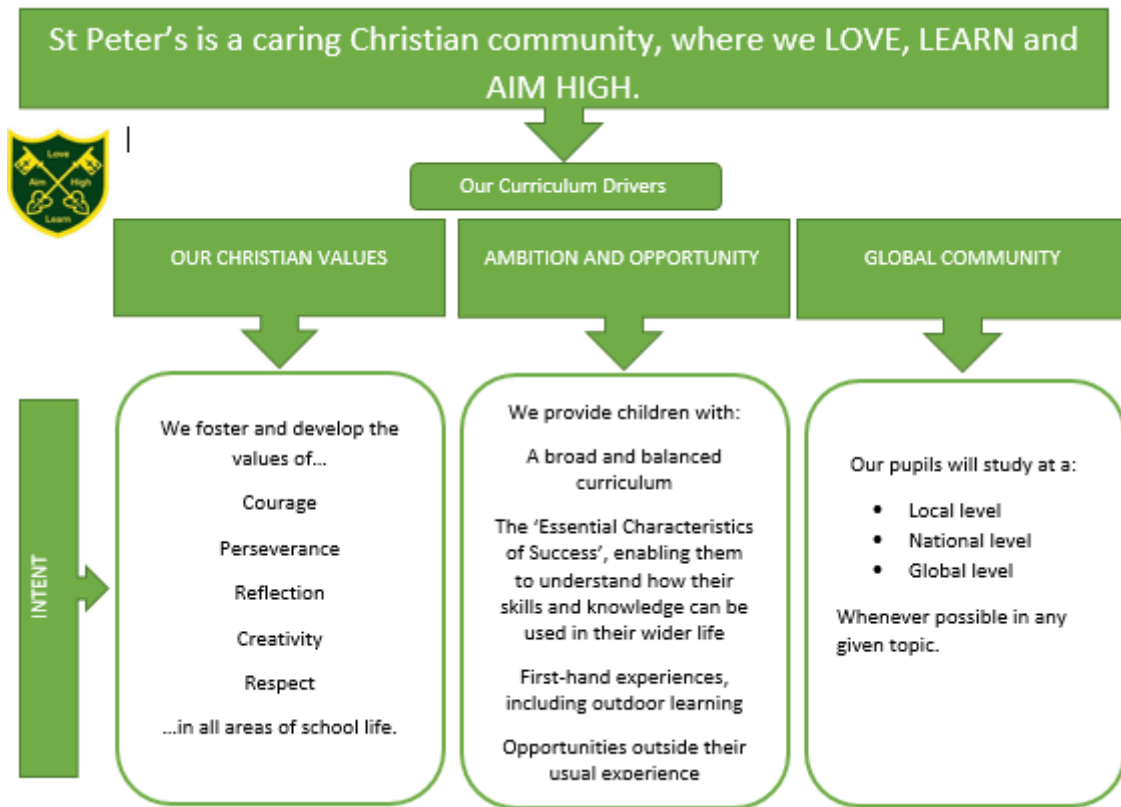


How we Teach Mathematics at St Peter's

At St Peter's, maths is made to be fun and relevant, encouraging children to be independent thinkers, mathematical talkers and problem solvers.

We aim to develop procedural fluency in maths through deep and meaningful conceptual understanding.



INTENT:

At St Peter's we aim to develop a culture of deep understanding, confidence and competence in maths – a culture that produces strong, secure learning and real progress. By building confidence, resilience and a passion for maths, we can show that whatever your prior experience or preconceptions, maths is an exciting adventure that everyone can enjoy, value and master!

OUR CHRISTIAN VALUES

Our Christian Values inform and guide everything we do at St Peter's, including our planning and delivery of maths. We teach procedural fluency in mental and written calculations so children have the **courage** to face problem solving questions and investigations **creatively** and the confidence in their skills to **persevere** when they get stuck – fully appreciating the value of making mistakes and **reflecting** upon them.

AMBITION AND OPPORTUNITY



Maths is vital in every child's development to provide a strong basis for reasoning, estimation, problem solving and thinking logically in later life. Our approach to maths at St Peter's aims to provide all our pupils with this solid foundation and also to enable them to see where a good mathematical understanding can take them in the world. We want to fuel and drive children's ambition to succeed in maths by exposing them to the vast and wide-ranging employment opportunities a good mathematical understanding provide.

GLOBAL COMMUNITY



Maths is a universal language! By ensuring our children have a secure mathematical foundation, we are equipping them with a life skill enabling them to work and communicate on a local, nation and global level.

Maths Mastery

At St Peter's we follow a **mastery approach** to mathematics based upon, but not exclusively dependent upon, the White Rose Schemes of Learning.

What does Mastery mean at St Peter's?

- Mastery at St Peter's means enabling ALL learners to master concepts through exploration, clarification, practice and application. As such, our approach involves not moving on too quickly - in order to ensure learners are equipped with deep, robust and flexible understanding of key concepts.
- At St Peter's, we enable learners to demonstrate their understanding in multiple ways, using appropriate mathematical vocabulary and we provide them with opportunities to apply their learning flexibly. Our approach goes beyond attaining fluency in written methods.
- Mastery means exposing learners* to the expected level of work and enabling them, through focussed teaching and continual assessment, to achieve success applying combinations of scaffolding or filling in of gaps in the 'building blocks' of understanding. **There may be exceptions for SEN pupils.*

- Mastery at St Peter's includes operating '**a stage rather than age**' approach. This enables opportunities for differentiation, including opportunities for higher attaining pupils to develop advanced reasoning, explanation and problem solving skills above an age related standard.
- Mastery at St Peter's involves giving all pupils opportunities to enjoy success in maths and applying '**concrete-pictorial-abstract**' learning techniques.

Principles That Guide Us.

- We avoid holding learners back who demonstrate deep and secure mastery of methods/concepts.
- We match learning to each learner's developmental need.
- We use continual assessment to ensure we know learners' starting points and needs. This can mean we can opt to pitch lessons at different levels.
- We do not limit learners by expectation and we ensure learners are exposed to the attainment levels expected for their age wherever this can be achieved. Generally, our first principle is to scaffold learners to enable them to work at the expected level. This is where the concrete-pictorial-abstract approach proves most useful. However, it may be more appropriate, on occasion to take a learner back to an earlier step and fill in gaps in their understanding.
- Quality first teaching to us, means flexing pedagogy according to the needs of learners on a lesson by lesson basis.

IMPLEMENTATION:

Mastery in a Mixed Year Group Class

- Whilst committed to the principles of **Maths Mastery**, we adapt our approach to match our learners' needs in mixed year group classes.
- The progression of knowledge to achieve success in each area is broken down into small steps - the 'building blocks' of understanding. Learners are taught step/s according to the extent to which they have mastered the proceeding steps.
- Our approach involves applying the key progression below and this remains a feature throughout each learner's mathematical journey at St Peter's. We firmly believe mastery involves deep rather than surface level understanding and as such, we do not bypass concrete / pictorial understanding.



- In classes with two year groups, the 'stage not age' approach may continue, and learners may need to be grouped according to the degree to which they have mastered preceding mathematical concepts.

Differentiation

- Where work of varying complexity is supplied, teachers may call these: chillis, stages, star levels of difficulty, gems (e.g. in Practice Maths). It can be helpful to develop learners' knowledge of the steps necessary to progress to master stage expected for their year.
- Teachers are the most qualified/reliable judge of what work is most appropriate for each learner – even amongst the oldest learners.
- As learners mature, they are encouraged to self-check* their attainment. We encourage the mantra, "If you get every question of this type correct – always", move to the extension work".

**Self-marking is a great aid but may not always be appropriate. Teachers will develop learners' metacognition skills as aid to this process.*

NOTE: It is generally more effective to teach the whole class one learning objective in a lesson and scaffold learners who need support to achieve and extend those who can to go deeper. This often proves more effective than operating multiple learning objectives within one lesson simultaneously - even in mixed age classes.

Higher Attaining Learners

- Learners who have mastered a concept will deepen their understanding by explaining what they know, using correct mathematical vocabulary, in various contexts and by reasoning with their knowledge and understanding.
- Once a learner's understanding has considerable depth, we continue to follow the '**stage not age**' approach and teachers may select to advance learners to concepts above those expected of their chronological year.

Pupils not attaining at Age Related Expectations

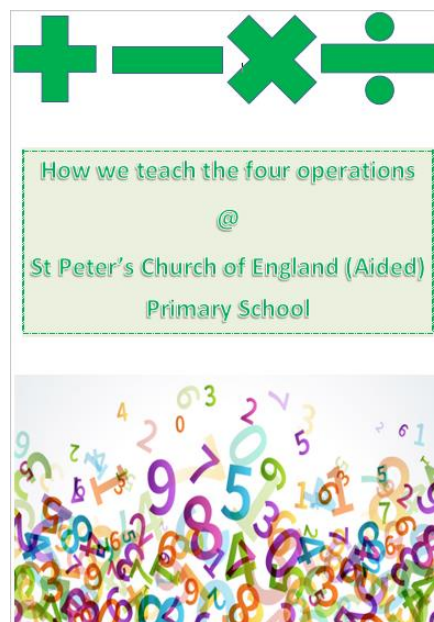
- We avoid the trap of never exposing learners who aren't attaining at the expected level to learning appropriate to their chronological age. This is best achieved by scaffolding learners using the concrete-pictorial-abstract approach and using continual assessment to determine where knowledge gaps might be prohibiting them from accessing new concepts. In such cases, pre or post teaching may be required to support gaps to be filled or other forms of learning intervention.

- We do not rush. We provide time for those who require it, to process new concepts and use opportunities such as mathematical investigations to provide every learner with enriching and low stake outlets to orally express their mathematical understanding and problem solve. This can involve using 'Low Threshold – High Ceiling' activities.

**N.B: We are committed to avoiding falling into the trap where Lower Attainers never have a chance to use and apply their maths. The temptation is to give them more time to attain fluency. However, that should not come at the cost of never exposing them to problems solving, reasoning and explaining activities.*

Our Progression in Written Methods

At St Peter's we have developed a comprehensive document detailing how we teach the four operations. This ensures a clear progression of mental and written strategies which is taught consistently throughout the school. This document was produced by the subject leader in collaboration with all school staff and governors.



PLANNING PRINCIPLES

The point of planning is to outline, in advance, what learning needs to happen and how best it can be facilitated. Good planning involves outlining:

- Where learners are starting from.
- Skills and knowledge learners need to acquire to attain the learning objective.
- Chosen methods to move EVERY learner forward.

There is no expected format on which to plan. What is vital, is that planning according to the principles above, takes place and can be evidenced.

Evidence of planning in line with the principles in this document must be **saved in the Weekly Plans and/or Resources folder by 9am each Monday**. This practice enables supply teachers or HLTAs to pick up planning where teachers are absent and provides a record of learning for future reference and subject development.

When work for the bulk of the week is prepared in advance, with lesson slides and resources demonstrating the St Peter's approach are saved on the school server by 0900 on Monday, we view this as evidence of planning. Where lesson slides and resources are not readied in advance of the week, documentation referencing what learning intentions, resources or slides will be used, must be prepared and saved by 0900 on Monday. Word.doc or exel proformas can be used for this purpose. Planning proformas as minimum must outline learning objectives for each session and contain notes of differentiation / scaffolding / extension and resources recommended for use.

Provision for SEN and higher attaining pupils should be detailed, ensuring appropriate challenge for all.

NB: Given the principles of mastery, pre-planned lessons may be advanced to more quickly or slowed from, in order to match learners' needs as they emerge.

Mathematics

Essential Characteristics of Mathematicians

- Fluent knowledge and recall of number facts and the number system.
- Fluency in performing written and mental calculations and mathematical techniques.
- An understanding of the important concepts and an ability to make connections within mathematics.
- A broad range of skills in using and applying mathematics.
- The ability to show initiative in solving problems in a wide range of contexts including the new or unusual.
- The ability to think independently and persevere when facing challenges.
- The ability to embrace the value of learning from mistakes and false starts.
- The ability to reason, generalise and make sense of solutions.
- A wide range of mathematical vocabulary.
- A commitment and passion for the subject.

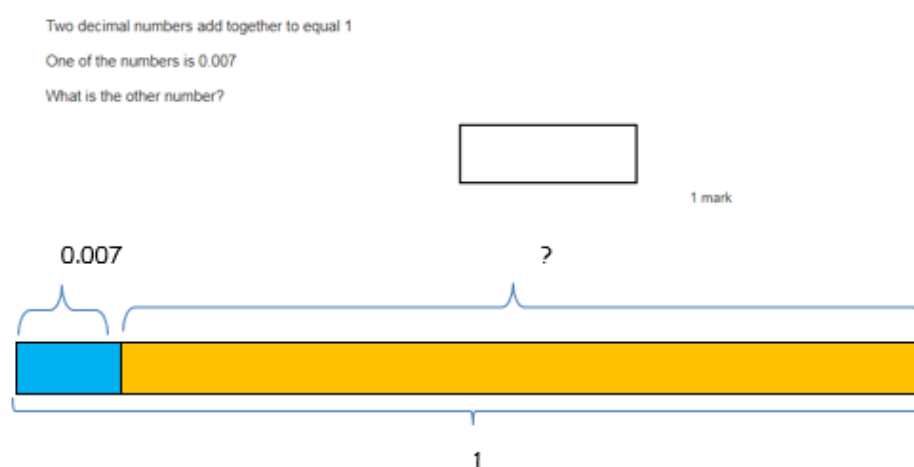
For medium term planning, we follow the **White Rose Schemes of Learning**. This ensures appropriate coverage and progression throughout the school. We also ensure our planning meets the requirements of our '**Essential Characteristics of Mathematicians**', as outlined by the Chris Quigley Essentials Curriculum.

- **Lesson Structure:**

Every maths lesson at St Peter's includes an element of retrieval practice. This supports our mastery approach and ensures children are able to recall, use and reinforce previous learning.

Maths lessons are planned to include a range of mathematical activities including calculation, problem solving and reasoning.

At St Peter's, we use bar models as our visual approach to representing maths problems. All staff have received **bar modelling** training and this approach is regularly revisited and reviewed.



- **Assessment for Learning:**

At St Peter's, we include the children in the assessment of their own learning as much as is appropriate. During lessons and units of work, children and staff will be constantly assessing understanding and progress to inform future learning.

More formal assessments will take place at three 'check points' throughout the academic year using ****name of assessments****. As a result of ongoing formative assessment, regular summative assessment and pupil progress meetings with the Head and subject leader, appropriate interventions are put in place for individual children.

The quality of maths provision in school is checked regularly by the subject leader through a range of pupil conferencing, book looks, discussions with staff, team teaching, pupil progress meetings and lesson 'drop ins'.

- **Provision for high attaining pupils and those with SEN:**

Specific questions and tasks designed for high attaining pupils are highlighted on teachers' planning in red; these children are considered, and planned for in all aspects of the maths lesson. Appropriate intervention for all children is designed and planned for in pupil progress meetings, held regularly throughout the year.

- **Transparency and consistency:**

At St Peter's, we include all stake-holders in the intent and implementation of maths curriculum. Regular meetings and consultations with link-governors ensure governors are included in decision making. We also ensure parents feel included in their children's maths learning. Open lessons and workshops ensure parents are able to experience first-hand what their children are learning and are subsequently able to support learning at home.

Teachers and school staff have regular opportunities to take part in 'team teaching' to share good practice and further ensure consistency in our approach to teaching mathematics.

IMPACT:



Our pupils will demonstrate:

- A love of learning
- A strong knowledge about, and compassion for, local and global issues (e.g. Fairtrade, climate change)
- The skills and attitudes to be life-long learners.
- Academic excellence
- An understanding of the diversity of their local area, Britain and The World.
- A knowledge of how to keep themselves safe
- An understanding of British Values
- Increased 'Cultural Capital'.
- An awareness of their strengths, talents and opportunities