Unlocking….

Minds that learn, Hearts that love, Faith that gives

Subject Intent, Implementation and Impact

Subject	Subject Lead	Scheme
Maths	Rob Miles	White Rose Mastery

Intent

The 'Intent' of our mathematics curriculum has been derived from the aims of National Curriculum for Mathematics:

- Fluency: become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately;
- Reasoning: reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language;
- Problem Solving: can solve problems 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.

Implementation

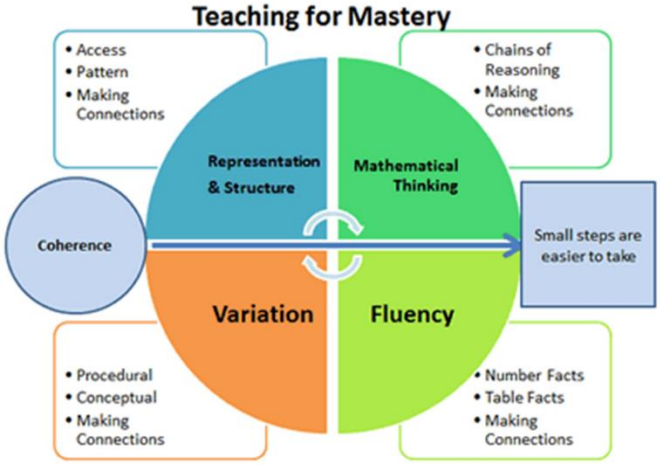
Teaching and Learning

Our calculation policy is based on the White Rose Hub scheme of learning to effectively teach children. This calculation policy makes use of the concrete, pictorial and abstract methodology which caters to all styles of learners and stages of learning. We teach using interactive resources and as well as physical manipulatives to enable children to unlock new, difficult and abstract concepts and embed previous learning.

Lesson Structure

Our lesson structure ensures that:

- Teachers base their teaching on the 5 key principles of mastery (see below)
- learning from previous lessons and topics is reviewed at the beginning of each lesson to enabling knowledge to be embedded
- new learning is carefully guided by the teacher to ensure all learners are supported, by staff or by their talk partners, and stretched
- independent tasks are planned using Bloom's taxonomy which supports as well as allows children to achieve greater depth, with more able children being offered rich and sophisticated problems, as well as exploratory, investigative tasks, and additional challenge questions within the lesson as appropriate
- practise and consolidation play a central role; carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in small steps. Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up
- all learners work through low threshold high ceiling activities and each lesson ends with an opportunity for the rich mathematical debate which arises out of these activities
- pupils who have not fully grasped the lesson's conceptual or procedural learning are quickly identified and same-day intervention is provided for these children



Testing and misconceptions

We make use of regular, low-stakes testing as well as summative assessment to enable teachers to forensically investigate children's misconceptions and effectively teach gaps in their learning. This enables teaching to be dynamic and diagnostic and means that the curriculum is catered to individual year group and children's needs.

Assessment data in maths is reviewed throughout the year to inform interventions and to also ensure that provision remains well-informed to enable optimum progress and achievement. End of year data is used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

Planning for success over time

We have our own curriculum maps for each class which ensures we apportion the most amount of time to the highest priority areas of the curriculum. Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time however we regularly revisit topics through discreet arithmetic lessons which are taught in addition to our mastery maths lessons. This enables us to cover the statutory elements of each year group's curriculum throughout the year, giving children a chance to embed and build upon previous knowledge. We make use of the White Rose Hub resources as well as using resources from Deepening Understanding, NCETM, PiXL and NRICH to aid mastery, deepen knowledge.

This ensures that children are able to focus for longer on each specific area of Maths and develop a more secure understanding over time. This approach is also designed to enable children to progress to a greater depth of understanding.

Subsequent blocks continue to consolidate previous learning so that the children continually practise key skills and are able to recognise how different aspects of Maths are linked. All lessons follow the St Peter's lesson structure (see diagram below).

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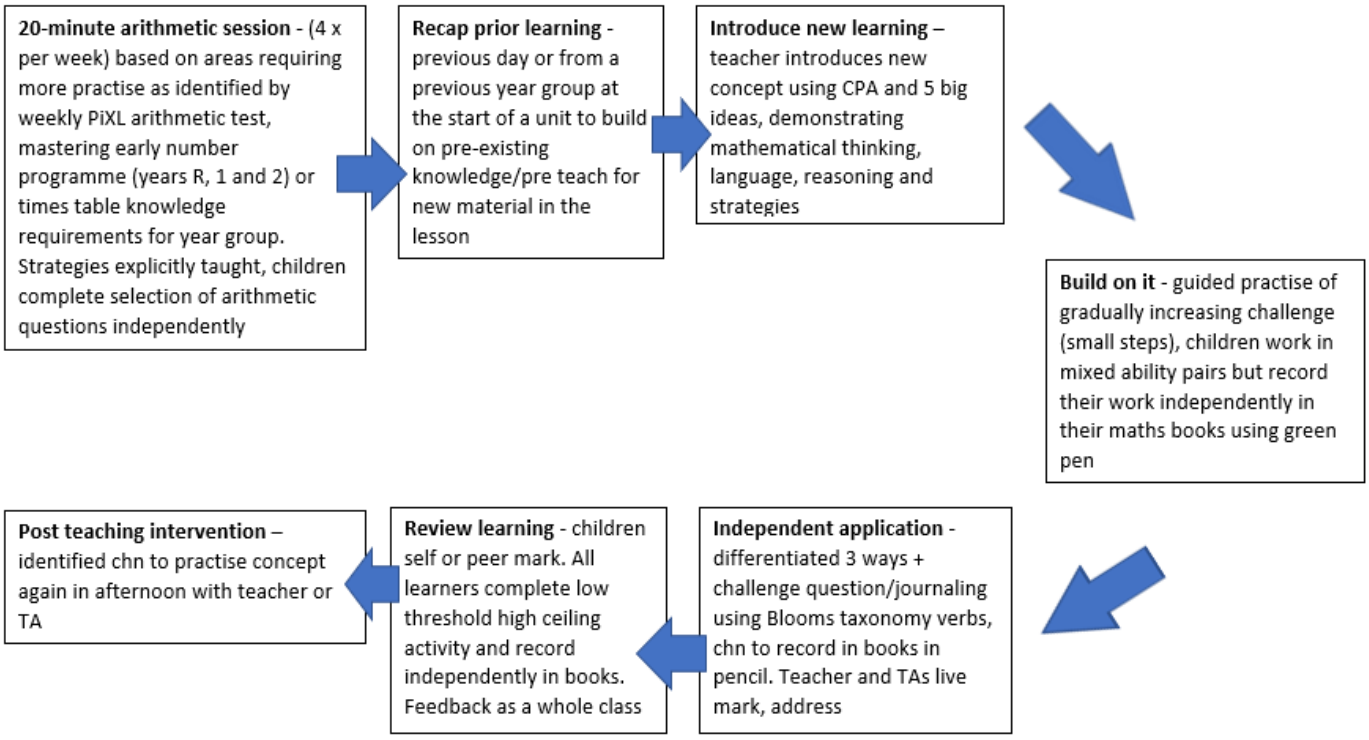
Maths Mastery lesson structure at St Peter's



<u>Times tables</u>

Times tables are taught from year 2 onwards, by the end of year 4 children are expected to be fluent in timetables up to 12x in order to complete the statutory multiplication check. The times tables have been separated out into each class so that children are able to learn them in a logical order which has built in progression. Teachers teach 3 discreet times table maths lessons per term on the focus times table for that term. Children are encouraged to make links between counting in multiples and the real world, making links between different times tables, using their number sense when working with times tables and understanding how division and multiplication facts are linked. To aid children's learning we use regular low stakes testing in class. We also make use of PiXL timestables app as homework to engage children to learn their times tables in different ways.

<u>Calculation</u>

The ability to calculate mentally forms the basis of all methods of calculation and must be maintained and refined throughout pupils' school lives. For more detail on how we do this at St Peter's, please see our calculation policy which details progressively sophisticated methods for each year group. A good knowledge of numbers or a 'feel' for numbers is the product of structured practise through progression in relevant practical maths experiences and visual representations.

Impact

The impact of our approach is borne out of the school's supportive ethos and our ability to develop pupils' collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the

success of each child. These factors ensure that we are able to maintain high standards, with achievement at the end of KS2 above the national average and a high proportion of children demonstrating greater depth, at the end of each phase.

<u>The overarching aims are that when children leave St Peter's CE Primary School they:</u>

- are able to recall number facts with fluency,
- have developed conceptual understanding through being able to visualise key ideas – such as those related to place value - through experience with practical equipment and visual representations;
- are confident to reason using the language of 'support' and 'challenge'. Make use of diagrams and informal notes to help record steps and part answers when using mental methods that generate more information than can be kept in their heads;
- have an efficient, reliable, written method of calculation for each number operation that they can apply with confidence when undertaking calculations that they cannot carry out mentally;
- are able to make connections between all four number operations, understanding how they relate to one another, as well as how the rules and laws of arithmetic can be applied