

Mathematics Policy

St Laurence in Thanet Church of England Junior Academy



Our school offers a supportive, inclusive, nurturing and inspiring learning environment where each member is known by God, loved and empowered to reach their full potential. Children are encouraged through an aspirational and engaging curriculum to develop their knowledge, skills and character so that they can truly flourish, both now and into the future.

This set of values is reflected in all our policies.

Joy Hope Forgiveness Love Resilience

Approved by:	L.Buckland	Date: 13/04/23
Last reviewed on:	April 2023	
Next review due by:	April 2025	

Aims

At St Laurence, we believe the purpose of mathematics is not solely to gain classroom based skills, but to develop enquiry and reasoning skills and inquisitive minds that will develop through life. We want our children to understand, as they progress through the school, that maths is not only essential to everyday life, necessary for financial literacy and most forms of employment but is also a fun and engaging experience.

We understand that our learners come from a wide variety of backgrounds with varying exposure to mathematical concepts and practical experience. As a result, they require robust and clear progression through mathematical concepts and support with learning. The goal of our maths teaching is to deliver the core aims of the National Curriculum - both in the mathematics lessons and across the curriculum as a whole. Our children will be taught to be confident, successful and proficient mathematicians who can apply their maths to other contexts and situations. We want our children to leave us 'Secondary ready', with excellent foundations for future learning.

Our Vision for Mathematics

- To promote a positive attitude towards mathematics in all pupils
- To ensure all pupils are engaged in and are enjoying exploring mathematics
- To enable all pupils to find links between mathematics and other areas of the curriculum
- To ensure all pupils progress in mathematics and are challenged appropriately through an in depth understanding
- To use a wide range of concrete, pictorial and abstract representations to develop all pupils' relational understanding of mathematics
- To ensure all pupils are confident using mathematical vocabulary when reasoning about mathematics
- To promote a growth mind set in all pupils, particularly when problem solving

Mathematics at St Laurence

At St Laurence, we follow the National Curriculum for mathematics and use White Rose Maths to support the planning of our maths lessons. We offer the children the opportunity to have varied and frequent practice of their maths skills with the focus on their ability to recall and apply their knowledge rapidly and accurately. Reasoning is a key area in all our lessons as our children need to be able to describe, explain, convince, justify and prove to be successful in this subject. Our maths curriculum provides children to constantly revisit skills taught so that they become fluent in these areas, moving on to apply them in different ways. The teaching of mathematics contextualises skills so that children can relate to how they would be used in their everyday lives. Time is given, on building on a skill, to develop their own understanding of mathematics and explore patterns and different representations of number.

Our programme of study aims to ensure that all pupils:

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.

Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.

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.

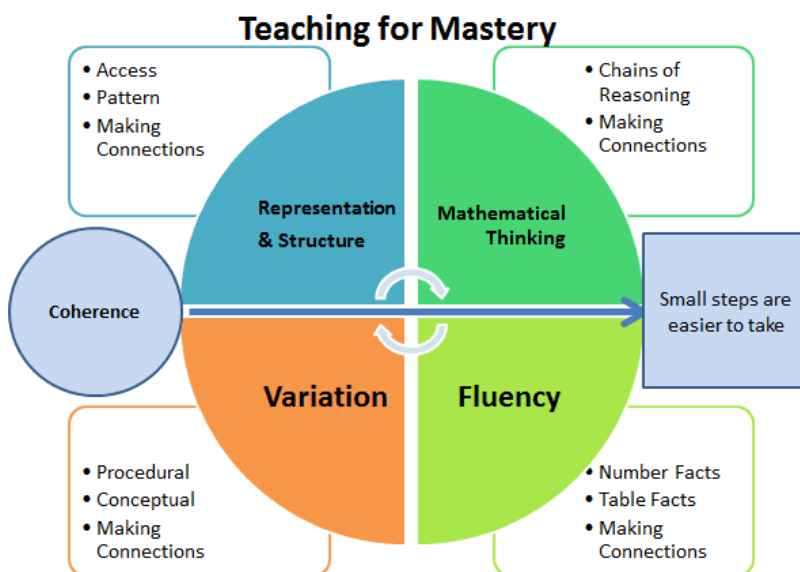
White Rose resources support us to provide:

- CPA (Concrete/Pictorial /Abstract) representations
- Variation (Procedural/Conceptual)
- Logical and effective small steps
- Vocabulary
- Manipulative usage

White Rose resources support:

- All learners through a whole class learning approach
- Visual representation designed to show concepts clearly
- Re-visiting of concepts
- Bar models and PPW models for problem solving
- Clear progression of calculation
- Fluency of calculation and concept with 'Flashback 4' questions

White Rose uses the Teaching for Mastery model as illustrated below. This has been developed by the NCETM 'Teaching for Mastery'

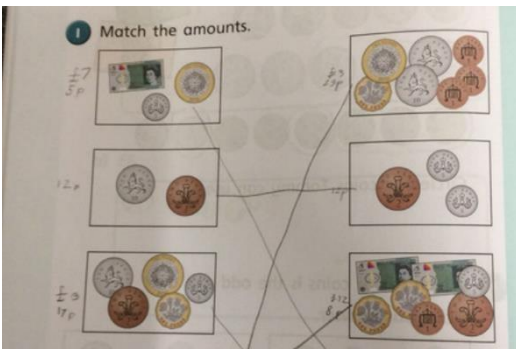


Concrete – Pictorial – Abstract teaching strategy

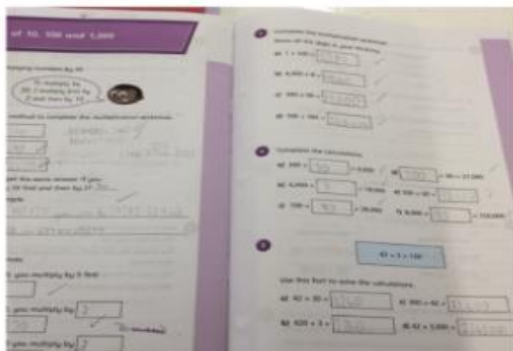
Children are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking. (Outlined below)



Concrete is the 'doing' stage, using concrete objects to solve problems. It brings concepts to life as children have the opportunity to be hands on and use physical objects to aid them in developing their understanding.

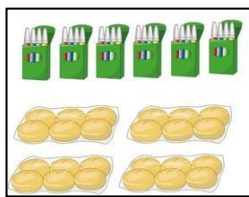


Pictorial is the 'seeing' stage, where representations of the objects are used to support learning. This stage encourages children to make a mental connection between the physical object and abstract levels of understanding, by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.

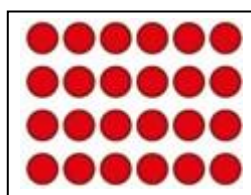


Abstract is the 'symbolic' stage, where children are able to use abstract symbols to model and solve Maths problems.

Concrete



Pictorial



Abstract

$$\begin{aligned} 6 \times 4 &= 24 \\ 4 \times 6 &= 24 \end{aligned}$$

Presentation in Maths

- Pupils will use a pencil for maths and rulers for drawing lines and representations.
- A double margin (where appropriate) should be drawn and the short date and learning intention will be written each lesson.
- Number formation should be clear and unambiguous and practised if necessary.
- High expectations for presentation must be upheld – including squares being used to demarcate numbers and place value columns.
- Pupils will use their green editing pens when self-marking (ticks in a single box) and self-assessing against the success criteria.

Presentation in maths should adhere to our 'Maths Must Haves' poster (See Appendix 1)

Inclusion

In line with our Inclusion Policy, each child will have an equal entitlement to all aspects of the maths curriculum and to experience the full range of maths activities. Therefore, in delivering maths, care will be taken to ensure that a variety of learning styles are accessed and teaching methods adopted. Intervention groups will take place both within the maths lesson and outside; these sessions may be delivered by the teacher or teaching assistant and may involve individual or small group work, accessing both ends of the learning spectrum.

Marking and Feedback

In maths, the aim of marking and feedback is to provide simple, effective feedback that ensures children are able to address misconceptions and check any mistakes they have made.

To support this, as much as possible, children will self-mark their independent work so that they can see, immediately, how they have done. This then gives them the chance to check any questions they have got wrong, self-correcting these if they can see where they went wrong. Marking by children should be done in green pen to indicate that they have self-marked their own work, with any corrections also completed in green pen to indicate that they have changed their answer/ method.

Developmental written comments should be included in books to help address misconceptions or to challenge pupils further (For further information please refer to our Marking and Feedback Policy).

RYG SELF-ASSESSMENT SYSTEM

At the end of each lesson, to support assessment and enable teachers to respond accordingly in the next lesson, children should self-assess against the success criteria using the RYG system. The RYG system informs the teacher how well their pupils believe they achieved the Learning Intention:

Red- I have not been successful in meeting the LI and would like support.

Yellow- I have been fairly successful in meeting the LI but could do with further support to achieve the LI confidently.

Green- I have successfully met the LI of the lesson and have a good understanding.

Resources and Displays

Each classroom is resourced with materials to support the delivery of maths; such items might include number lines, multiplication tables, 100 squares, multilink cubes, dice and other smaller items. Larger materials such as scales, trundle wheels and measuring cylinders are held centrally in the maths cupboard. Children should be encouraged to use whatever resources are available to them in the classroom and which they feel would be beneficial to help them when completing maths work. Each classroom should have a display dedicated to maths; this should be in the form of a working wall.

Assessment

- Through the White Rose learning journey and the clear small steps approach, the teachers, support staff and the pupils assess their learning continuously throughout the lesson.
- Children are invited to self-assess their learning against the learning intention and success criteria at the end of each lesson.
- At the beginning and end of the unit, block assessment tasks are completed, where children have the opportunity to reflect on their knowledge and understanding. Pre-assessments are used to inform planning.
- Three formal assessments take place in a year using NFER assessment papers. QLAs (Question Level Analysis) are completed and this gap analysis is used to plug gaps effectively.

Monitoring


The monitoring of maths teaching and pupil progress is the shared responsibility of teachers, subject leader and the senior leadership team. The work of the subject leader includes supporting colleagues in the teaching of maths, keeping up to date with current developments as well as providing a strategic lead and direction for the subject. The school's governing body receive regular updates to inform them of the vision for continually driving forward teaching and learning. Termly monitoring includes observing lessons, speaking to children/staff and work scrutiny. Feedback focuses on what we are doing well and what we want to improve.

Parental Engagement

We encourage parents to be involved with their children's learning of mathematics by:


- Inviting them into school twice/three times yearly to discuss the progress of their child.
- Providing parents an interim report and a yearly report outlining their child's achievements.
- Holding workshops for parents.
- Sharing any useful resources for maths at home via Class Dojo.
- Sending homework activities to be completed by or with their child (Online and written activities).
- Celebrating mathematical achievements in newsletters and celebration assemblies.

Appendix 1 – Maths Must Haves



Believe, Achieve and Aspire!

Maths Must Haves



We form our numbers correctly:

0 1 2 3 4 5 6 7 8 9

In our maths books we:

Underline short date and LI with a ruler.

Write in pencil.

Write one digit per square.

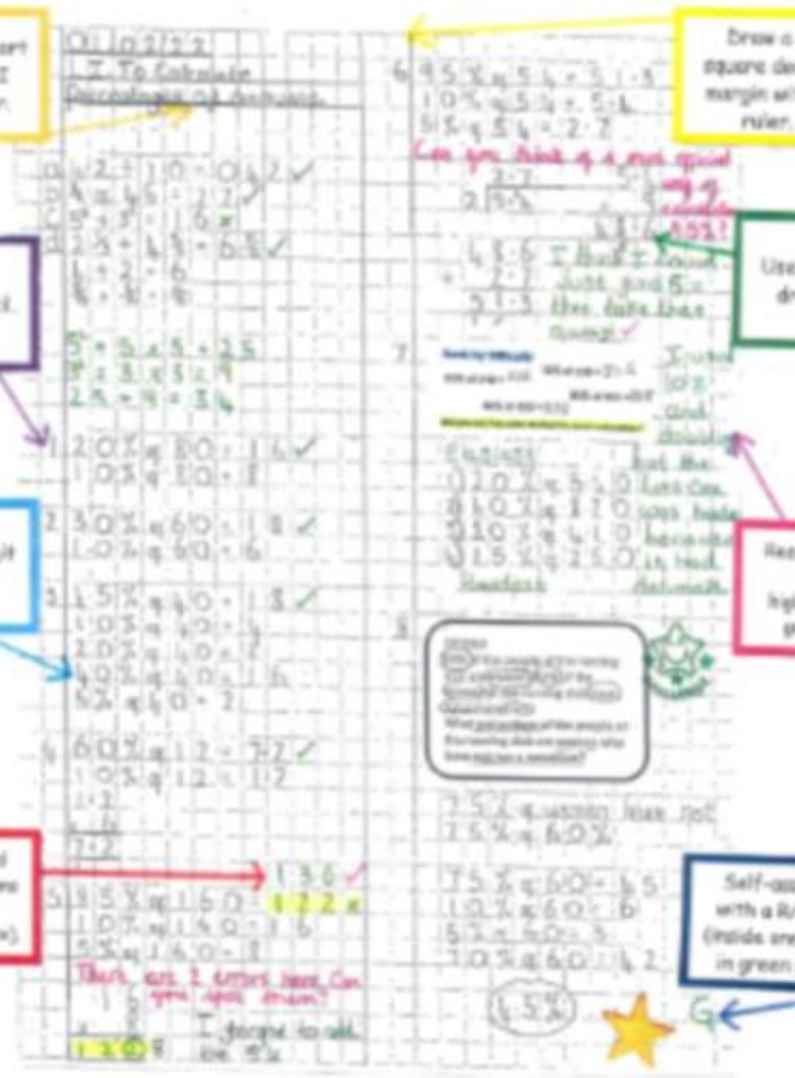
Self-mark and make corrections in green pen (ticks in one box).

Draw a 2 square double margin with a ruler.

Use a ruler to draw lines.

Respond to any yellow highlighting in green pen.

Self-assess with a R/Y/G (inside one box) in green pen.



The image shows a student's handwritten work on a grid. The work includes several multiplication problems, such as $2 \times 10 = 20$, $3 \times 10 = 30$, $4 \times 10 = 40$, $5 \times 10 = 50$, $6 \times 10 = 60$, $7 \times 10 = 70$, $8 \times 10 = 80$, and $9 \times 10 = 90$. There are also more complex calculations like $2.5 \times 40 = 100$ and $7.5 \times 60 = 450$. The student has used a ruler to underline the date and LI, and to draw a double margin. There are yellow highlights on some parts of the work, and green pen corrections and self-assessments are visible. A star and the letter 'G' are drawn at the bottom right.