MATHS POLICY

2022

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CONTENTS

1. Aims of the All Saints' maths curriculum
2. The mastery approach to maths
3. Fluency, reasoning and problem solving
4. Lesson structure
5. Planning
6. Calculation Policy
7. Times Tables
8. Resources
9. Recording
10. Feedback and marking
11. Workbooks
12. Assessment
13. Intervention
14. Classroom Environment
15. Homework

CURRICULUM AIMS

We aim for the children of All Saints' to understand and be able to use the fundamentals of mathematics as a key tool in solving everyday problems and understanding the world around them. Maths is an essential part of science, engineering and technology and can open up an infinite amount of possibilities for those who develop a sound understanding. It is also an essential skill in day to day life.

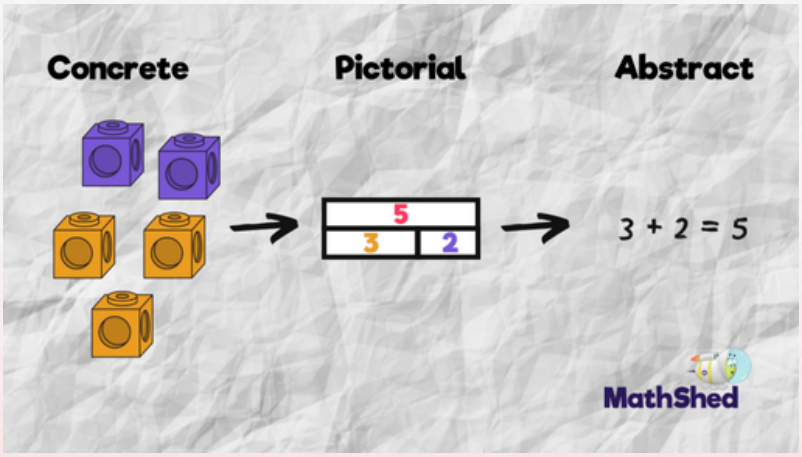
We want children to enjoy and be curious about the subject and have a positive attitude, no matter their starting point.

We follow the Programme of Study and aims of the National Curriculum as a starting point to ensure that all pupils;

- develop fluency by being able to recall key number facts and knowledge quickly and accurately.
- reason mathematically by looking for patterns and relationships and using knowledge to prove theories.
- solve problems by applying what they know to situations and questions of increasing complexity in a methodical manner,

MATHS MASTERY

At All Saints' we have been using the mastery approach for several years and every sequence of lessons should incorporate the Concrete - Pictorial - Abstract approach.



"The Concrete Pictorial Abstract (CPA) approach is a system of learning that uses physical and visual aids to build a child's understanding of abstract topics.
Pupils are introduced to a new mathematical concept through the use of concrete resources (e.g. fruit, Dienes blocks etc). When they are comfortable solving problems with physical aids, they are given problems with pictures – usually pictorial representations of the concrete objects they were using.
Then they are asked to solve problems where they only have the abstract i.e. numbers or other symbols. Building these steps across a lesson can help pupils better understand the relationship between numbers and the real world, and therefore helps secure their understanding of the mathematical concept they are learning."

Emma Johnson - Thirdspacelearning.com

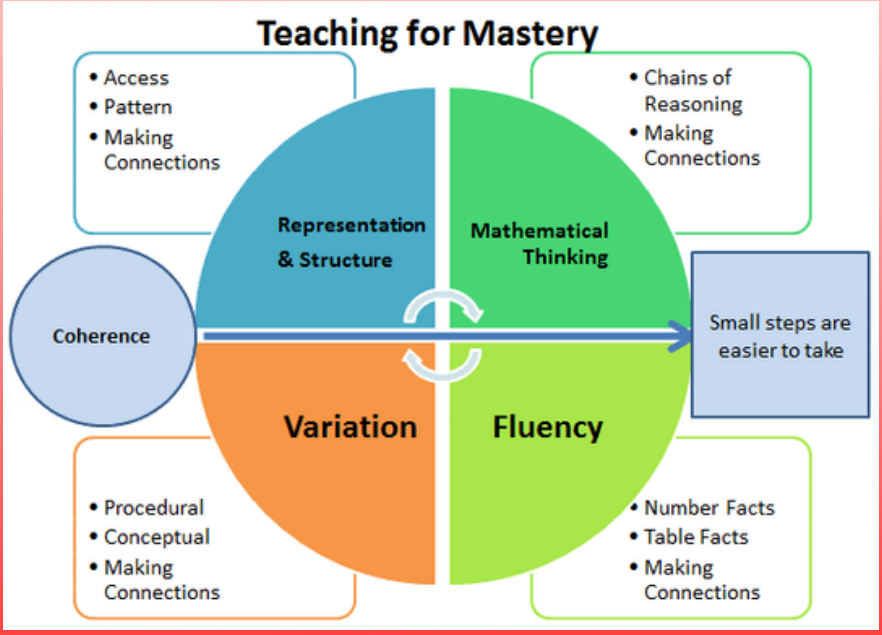
FLUENCY, REASONING AND PROBLEM SOLVING

3 of the main areas of the mastery approach are reasoning, fluency and problem solving.

Reasoning is a way for children to demonstrate that they have a sound understanding of what they have learned. Work partners and small group activities give the children the opportunity to discuss a problem and to justify and explain why they have come to a conclusion. Teachers introduce mathematical vocabulary and the children are expected to use this vocabulary when explaining their thinking.

Fluency in mathematics is the ability to recall and use key number facts (such as number bonds or times tables) accurately and apply what they know to solve something that they don't know. Secure knowledge of these number facts allow the children to make connections at the right time.

Problem solving is one of the key ideas of mastery. By varying the way problems are represented and giving differing contexts it provides a deeper understanding of a concept. This allows more children to demonstrate true understanding .



LESSON STRUCTURE

At All Saints' we approach classroom organisation and grouping in a flexible and fluid way. Children are not 'set' by ability in the vast majority of lessons and tend to work in mixed ability groups. Teachers use formative assessment activities to identify any misconceptions or knowledge gaps so that support can be directed to where it needs to be.

Lessons are differentiation in a number of ways:

- by resource
- by outcome
- by support
- by pace

Where appropriate, SEN children or those working significantly below the expected standard may work in supported small groups on tasks that are more appropriate to them. Assessment data is used to determine their learning objectives.

Maths lessons at All Saints' follow the same structure from Years 1 to 6.

Key Skills practice - used to develop known number facts such as number bonds or times tables. Where possible this should be linked to the concept in the main part of the lesson (for example counting in 2, 5 and 10 before a lesson on money where children add coins to find a total.

New learning - using the mastery approach to explore concepts from the White Rose Scheme. Vocabulary should be introduced and explored during this part of the lesson.

Review of learning - verbal questioning to assess understanding or extension questions to allow children to explain their methods.

PLANNING

Teachers in Years 1-6 follow the White Rose Maths scheme (although teachers may occasionally build in work from other sources if they think it is more appropriate for the children). Lessons should use the CPA approach and the school's calculation policy should be adhered to.

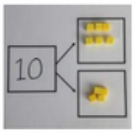
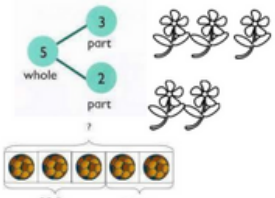
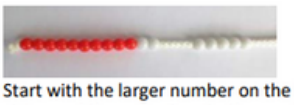
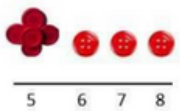
Teachers are not expected to rewrite short term planning but notes should be made on the White Rose plans which explain any deviations from the plan, any misconceptions or knowledge gaps that become apparent through formative assessment activities and any intervention built in for individual children (Big Maths, Precision Teaching etc.) Each teacher must keep the planning and guidance documents from White Rose in a folder.
White Rose Maths Long Term Planning is divided into blocks of varying weeks across the 3 terms.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**				Number **Addition and subtraction**					Geometry **Shape**		
Spring	Measurement **Money**		Number **Multiplication and division**					Measurement **Length and height**		Measurement **Mass, capacity and temperature**		
Summer	**Statistics**		Number **Fractions**			Geometry **Position and direction**		**Problem solving**		Measurement **Time**		

CALCULATION POLICY

The All Saints' calculation policy provides guidance for teachers on how to progress through each stage of learning for the four operations. It details the mastery approach and is split into Concrete, Pictorial and Abstract for each objective.

The calculation policy is saved in the maths coordinator file on the staff server and is available on the maths information page of the school website.

	Objective	Concrete	Pictorial	Abstract
Year 1	Number bonds of 5, 6, 7, 8, 9 and 10	  Use cubes to add two numbers together as a group or in a bar. 	 Use pictures to add two numbers together as a group or in a bar. 3 2	2 + 3 = 5 3 + 2 = 5 5 = 3 + 2 5 = 2 + 3  Use the part-part-whole diagram as shown above to move into the abstract.
	Counting	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer. 	Use a number line to count on in ones. 	5 + 3 = 8

TIMES TABLES

Times tables are important number facts that the children should be able to recall quickly and accurately. This process starts in the EYFS and continues through to Year 4 for most children. In Upper Key Stage 2 the children should continue to practice to develop speed and fluency and be able to apply their knowledge to problem solving.

Children in Y4 take the government's statutory Multiplication Tables Check (MTC), an online, timed assessment of multiplication and division facts.

The progression for times tables is:

- Reception - counting in multiples of 10.
- Y1 - counting in multiples of 10, 5 and 2.
- Y2 - recall multiplication and division facts for 10, 5, and 2.
- Y3 - recall multiplication and division facts for 3, 4 and 8.
- Y4 - recall multiplication and division facts for 6, 7 and 9.

Children will be taught about multiplication and division being inverse operations and how to use 'switchers' and 'fact families' to build their knowledge of key number facts.

All children from Years 2 - 6 have access to the TT Rockstars online platform and can access this at home and at school. For school Year 2022/2023 we will be running a TT Rockstars competition for each class on a monthly basis.

RESOURCES AND RECORDING

Teachers have a wide range of physical and electronic resources available to support the children's learning. White Rose suggests resources for particular tasks though teachers are free to select the resources that they feel will support the group or individual children most effectively.

Concrete resources are kept in classrooms though there is a range stored in the shared area outside the Y2 classroom.

Maths learning is to be recorded in a squared exercise book (normally 1cm squared although KS1 can choose larger squares if more appropriate). Work must be dated and have an 'I can' statement showing the lesson outcome. Teachers should indicate if the activities were completed using Concrete, Pictorial or Abstract methods by using C, P or A either at the top of the page or next to an individual task.

Work is to be completed in pencil, not pen.

ASSESSMENT AND FEEDBACK

Work must be assessed against the learning outcome and the school's marking policy (tickled pink and growing green) must be followed and indicated on the I can statement at the top of the page. Teachers should indicate the next step in the learning sequence. This could be using a different approach to achieve the same outcome (moving from concrete stage to pictorial) or a new outcome (moving from adding two one digit numbers without crossing ten to adding two one digit numbers where a ten is crossed).

The Big Maths progress drives are an excellent frame of reference for the small steps which will form progression through the curriculum. Each class teacher has a copy of the Progress Drives and they are available in the Maths Coordinator file on the Teacher Drive.

Opportunity for formative assessment should be built in to every lesson through questioning and observation. This is an excellent way for class teachers to spot misconceptions and see which children may need support.

ASSESSMENT AND FEEDBACK

Summative assessment should be completed half-termly using the Assertive Mentoring tests. Assessments should be administered according to the child's previous level, not by which year group they are in. This will enable teachers to be able to see where knowledge gaps are and tailor planning accordingly.

Assessment grids should be completed which shows individual attainment on each strand and then a class grid which will allow us to analyse effectiveness of teaching for each strand. The grids should be saved into the Trackers 2022/2023 folder in the maths coordinator folder. Paper copies should also be given to the maths coordinator.

Before the 2022/2023 academic year we will be looking at the summative assessment system to see if we can improve the efficacy of the tests to provide more useful data.

Termly Pupil Progress Meetings will be held to discuss the progress and attainment of each child and to determine which children need intervention sessions.

INTERVENTION

Assessment data will inform which children need intervention sessions for particular strands. Those children who are working significantly below Age Related Expectation (ARE) will be moved onto the Big Maths scheme which will enable them to concentrate on smaller steps within each strand, pitched at the precise level to enable them to achieve and make progress. The CLIC and Learn Its tests will enable us to track progress on a weekly basis and ensure that children can progress no matter their starting point.

Staff working with these children should have a sound knowledge of the scheme and will attend CPD sessions to ensure that it is delivered in the correct way and assessment is accurate.

Individual assessment records must be kept for all children being taught in this way.

CLASSROOM AND HOMEWORK

The classroom environment should be used as a teaching and learning tool as much as possible. Interactive resources that will enable children to practice skills they have been taught should be used where possible. Each classroom has a different layout which means that the space available for displays and resources differs. Teachers should aim to have one display and one interactive resource as a minimum.

The school is currently consulting with teachers and parents to try to find the best way to engage children. Consultation will be at the end of Summer term 2 2021/2022 and changes will be implemented at the start of 2022/2023. The policy will be updated upon completion.