

St Saviour's C of E Academy

Mathematics Policy

Summer 2021

Introduction

Mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics;
- reason mathematically;
- can solve problems by applying their mathematics.

(National Curriculum mathematics – September 2014)

Through the mastery approach, we reinforce the expectation that all pupils are capable of achieving a high standard in maths, and we aim to support pupils to become confident mathematicians who enjoy maths and are excited by the challenge this subject offers.

The maths curriculum is underpinned by methodically designed long and medium term plans which build sequentially on key concepts, breaking them down into manageable steps that are studied in depth. Pupils, especially those who are quick to grasp concepts, are challenged through rich and sophisticated mathematical problems and reasoning opportunities. Teachers use formative and summative assessment to plan lessons that build on prior learning and address the needs of their class. Those who have not fully grasped content or have misconceptions will be supported to be in a position to access subsequent lessons.

Through practice, pupils develop fluency in the key concepts, including the recall and application of number facts, such as times tables and addition and subtraction facts. Precise mathematical language is modelled and discussed by teachers, and pupils use this to explain their reasoning, methods and approaches.

Planning

Planning engaging, carefully pitched and purposeful lessons are crucial for the development of pupils' maths skills. Planning should be informed by assessment of the pupils and closely tailored to the needs of the class so that all children achieve their full potential. Wherever possible, maths lessons should be delivered using a real-life context. Reasoning and problem solving should be planned for throughout each lesson and unit of work.

- Five maths lessons are planned every week, each lasting approximately one hour.

- Each lesson consists of a differentiated mental/oral starter, a main teaching input, group work activities and a review/challenge.
- Extra mental maths sessions take place three times a week for approximately 15 minutes, focusing on key multiplication, division, addition and subtraction facts.
- Long and medium term planning is informed by the 'White Rose Maths Hub' and 'Power Maths' planning materials. This is to ensure that there is complete coverage of the curriculum objectives for each year group.
- Teaching assistants should be planned for in all parts of the lesson.
- Planning should be shared with teaching assistants and printed so that it can be referred to and followed during the week. Where necessary, teachers should discuss the content of lessons verbally so that teaching assistants are clear about their role and the resources they should be using to support pupils. It is expected that the teacher and teaching assistant work with each group at least once per week.
- Adult support should be carefully considered. Some pupils may need adult support to access the main learning objective whereas others, such as higher ability children, may need adult support to develop understanding at greater depth.
- Teachers should use the calculation policy when teaching written methods. Planning should reflect the CPA (concrete-pictorial-abstract) approach to calculating.
- Mental maths objectives taught via Rapid Recall boards in KS1 and Retrieval grids in KS2 and other mental maths sessions should be taken from the mental maths policy document and the national curriculum objectives. Where necessary, these may be broken down into more focused skills.

Assessment

At the end of each term, every pupil's pathway (e.g. Not Yet There, expected, greater depth) is recorded on DCPro. This is informed by both summative and formative assessment.

Summative Assessment

- White Rose Assessments are used at the end of each unit to assess how well the pupils have grasped the concepts taught. At the end of each block, data from the teacher assessment grids (see appendix) will be collected and saved to the shared area. Question analysis should be used by teachers to inform future planning.
- PUMA tests are administered at the end of each term. The results are then submitted on to the excel document - 'PUMA and PIRA Results Tracker Year XX' (see appendix)
- Year 6 and Year 2 will complete the national standardised tests in the Summer Term.

Formative Assessment

- During marking and guided tasks the teacher should make daily judgements regarding the progress each pupil has made towards the objective that has been taught.
- Guided tasks that are completed on whiteboards should be assessed on a group assessment sheet.

- The children will assess their own work each lesson using a traffic light system. Wherever possible this should be informed through self-assessment during the review/challenge section of the lesson.

Moderation of Assessment

- Teacher assessment evidence (including exercise books, group assessment tasks and PUMA question analysis) will be moderated throughout the year to ensure that the DCPro judgements are accurate.

Marking

Once the lesson is completed, each piece of work needs to be stamped by the teacher or teaching assistant (for pupils they have supported).

Green stamp = Learning objective has been met. The pupils have met the learning objective and the success criteria (where applicable)

Black Smiley Face stamp = Learning objective has not been fully met and the pupils needs further practice or intervention with the teacher or teaching assistant.

Maths Codes and Guidance

√ Correct

. Incorrect

Incorrect number formation is identified by underlining the digit (e.g. if it has been reversed or is incorrectly formed). The number is then written at the bottom for the pupil to practise.

Missing units of measure are identified by a line after the number (e.g. 78_) Pupil then records the units (e.g. 78 ml)

Short written marking should still be used for pupils to respond to at the start of the next lesson. These should also be used during the guided session by teachers and teaching assistants when appropriate. This may include the following:

➤ **Consolidation Question**

This would be a question to consolidate what they have learnt the previous day. It can be used to see whether a pupil has retained a concept and as an opportunity to briefly revisit.

➤ **Challenge Question**

This is used when the pupil does not require next day intervention but may benefit from a small challenge question. The response provides can be used as formative assessment for the teacher.

➤ **Modelling of a method**

This is used when they have met the learning objective but have used an efficient method or made a mistake when using a method on a particular question (e.g. not lining up the digit correctly)

Any questions and comments should be written in the colour of the adult marking or the child's if self-marked.

Presentation

Teachers should encourage and praise pupils for neat presentation in their Maths books.

- Pupils should always use one digit per square when recording numerals.
- Any words or sentences should be written in the same style as the English books. The horizontal lines should be used to write on. Pupils should not write one letter per square.
- A ruler should always be used when drawing any straight lines (e.g for formal written methods, when drawing tables or when crossing out). Try to avoid crossing out unless absolutely necessary.
- Recording of calculations should be completed vertically, with each new question written below the previous question. If there is space for another column of calculations, they should start from the top again and work down the right hand side. Question numbers should be written as follows (e.g. question 4 would be written **4**) , not **4.** as this can look like a decimal point)
- Make sure that the children space their work and questions out so that they have enough space to record their workings, starting a second page when necessary.
- A new page should be started for each new piece of work.
- The short date (e.g. 8 · 1 · 17) should be written at the **top right hand side of the page, above the learning objective.**
- Learning objectives should be at the top of the page underneath date in KS2.
- KS1 initially the date and LO will be stuck in their Math's Jotter and by spring children the short date themselves.
- KS1 Use Power Maths books with work recorded neatly in the answer boxes provided.

Pupils should be encouraged to record their workings at all times, even if they are trying different solutions when problem solving. However, this should always be recorded neatly.

Calculation

- Progression in written and mental calculation methods is outlined in the Maths Calculation Policy and the Mental Maths Policy. Both documents can be found on the school website.
- Pupils are encouraged during lessons to decide on the most effective way of solving a problem (e.g. mentally, mentally with jottings, written method) Prompts are displayed in the classrooms to support pupils.
- Pupils need to be able to confidently use a written method for each of the four operations.
- Concrete apparatus should be used to introduce and support pupils' understanding of the formal written methods.

Mental Maths

It is vital that pupils are able to calculate mentally and develop fluency in the key addition, subtraction, multiplication and division facts.

Pupils should be taught the mental maths strategies outlined in the Mental Maths Policy and teachers should follow the progression, ensuring that pupils achieve the objectives at the end of each year.

Times Table Rockstars

All pupils are given a Times Table Rockstars log in, which should be stuck inside their reading diary. Children should be set regular homework tasks involving answering questions related to the times table they need to work on. Classes in Key Stage Two will complete the paper version of Times Table Rockstars three times a week.

Numbots

The Numbots app focuses on developing recall and understanding of key addition and subtraction facts, including doubles.

No.	Key Skill	Example
1	Adding and subtracting 1 or 2 within 10	$1 + 3, 8 - 2$
2	Number bonds to 5	$3 + ? = 5$
3	Doubles within 10 (i.e. up to 5+5)	$4 + 4$
4	Adding and subtracting 1 and 2 within 20	$17 + 2, 11 - 1$
5	Number bonds to 10	$3 + ? = 10$
6	Adding and subtracting 10 within 20	$3 + 10, 16 - 10$
7	Doubles within 20 (i.e. up to 10+10)	$8 + 8$
8	Adding two 1-digit numbers	$5 + 7$
9	Number Bonds to 20	$8 + ? = 20$
10	Subtracting 1-digit numbers within 20	$14 - 6$
11	Adding and subtracting 1, 2 and 10 within 100	$1 + 74, 51 - 2, 38 + 10$
12	Adding and subtracting 2-digit numbers to/from multiples of 10	$20 + 64, 83 - 20$
13	Addition by bridging a multiple of 10	$25 + 6, 47 + 5$
14	Subtraction by bridging a multiple of 10	$25 - 6, 42 - 5$
15	Number bonds to 100	$52 + ? = 100$
16	Using compensation to add and subtract within 100	$35 + 19, 35 - 19$
17	Adding by partitioning two 2-digit numbers	$64 + 25, 10 + 64$
18	Subtracting by partitioning two 2-digit numbers	$64 - 23, 47 - 31$
19	Adding any two 2-digit numbers	$63 + 56, 63 + 58$
20	Subtracting any two 2-digit numbers	$76 - 43, 76 - 47$

Pupils in Key Stage One (and Reception by Spring) have access to the Numbots app. This will also be available to pupils in Lower Key Stage Two and those who require extra practice in Upper Key Stage Two.

- Children will need to access the app regularly to develop a quick recall of these key facts.
- Pupils should have access to concrete apparatus should they need it.
- Progress through the app should be monitored by the class teacher and those needing not at meeting age-related expectations should be supported by the class teacher or teaching assistant

Maths Homework

Written maths homework will be set as follows:

- Foundation Stage – As part of homework activities.
- Key Stage One and Two – Fortnightly maths homework will be set in the homework book. (Year 6 CGP books)
- When the homework focuses on a written method, an example should be provided for the pupil and parent to refer to. This should be a

written method that they have learnt in class.

Mental Maths

- Key Stage Two will send out a weekly times table practice, which can be completed through the Times Table Rockstars website. This will be tested on a Friday through the TTRockstars mixed multiplication and division sheet.
- Key Stage One will send out a fortnightly mental maths focus via Numbots.
- Mental maths homework should be differentiated, where necessary, to the needs of different groups within the class.

Written Autumn 2021

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Chair of Governors M Weller

Review Summer 2023

Signed



Signed

