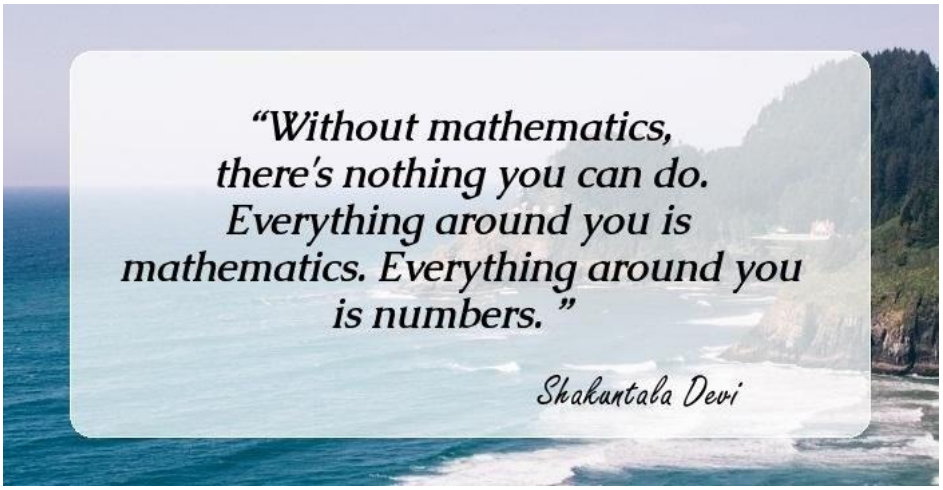
Mathematics



Overview of Mathematics

At St Michael's CE Academy, we believe that mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems and our maths curriculum is designed to provide children with the opportunity to develop this in order to prepare them for the wide variety of problem-solving opportunities that they will encounter in their lives.

Maths this year will foster positive attitudes, fascination and excitement of discovery through the teaching and learning of mathematical concepts. We will use a wide range of models, visual manipulatives and practical resources to develop a deep conceptual understanding alongside procedural fluency and we will broaden children's knowledge and understanding of how mathematics is used in the

wider world by making rich and varied real life connections through links with the wider curriculum. Our children will confidently reason about their mathematics, using a suitable range of mathematical language, recognising its importance for communication and deep thinking and will have a 'can do' attitude, especially when problem solving.

Teachers will foster children's independence by giving them the time to have a go, make mistakes and learn from them – the emphasis is on depth and challenge rather than accelerating through the content. Through this vision we are passionate and fully committed to developing a balance between the children's procedural fluency and a conceptual understanding. To support our Mathematics teaching we use White Rose Maths.

Our St Michael's vision for Mathematics

We develop our **independence** by working through problems and developing our fluency.

We **grow** our knowledge through exploring mathematical problems with manipulatives, pictures and finally through abstract problems.

We are **happy** when we succeed in maths. We all succeed in maths!

Maths is a **safe** place to make mistakes. We learn from our mistakes.

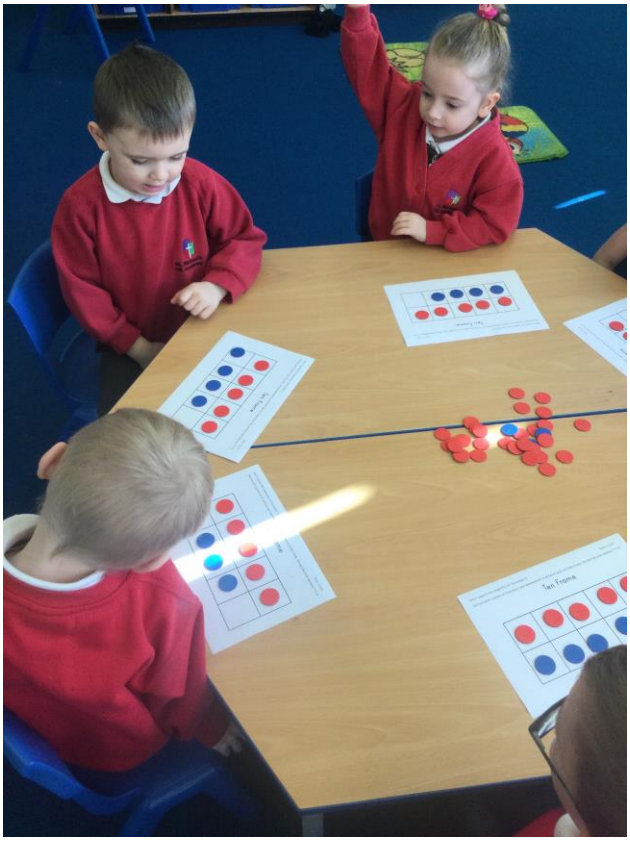
We put **trust** into the different methods we know, to help us solve problems. We know that if one method does not work, we have other methods we can explore.

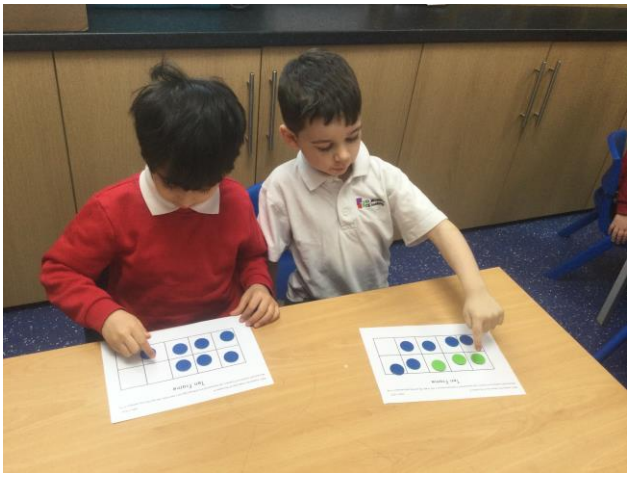
We are **ambitious**! We know that maths will help us in everyday life as we move on from St Michael's and we aspire to be the best we can be. Nothing will hold us back.

Maths in action


Maths Book 3


Reading
V.I.P.E.R.S

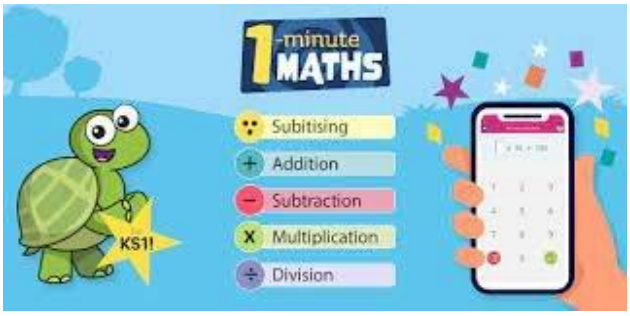

Ten Frame



Trusted apps and websites

1 - *Times Tables Rock Stars – Times Tables Rock Stars (ttrockstars.com) Also available as a free app.*

2 - *NumBots | Motivational maths practice for schools and families. Also available as a free app.*



3 - 1 minute maths is available on the app store or find the link on the White Rose Maths website. [1-minute maths | Maths App | White Rose Maths]

4 - [Maths - Topmarks Search]

Long Term Plan for Maths

	Autumn 1 (7 week)	Autumn 2 (7 week)	Spring 1 (6 week)	Spring 2 (6 week)	Summer 1 (6 week)	Summer 2 (7 week)
Foundation stage - LL	React to changes of amount in groups of up to 3 Recite number names randomly and in sequence. Take part in finger rhymes with numbers.	Combine objects Complete inset puzzles. Beginning to categorise objects according to properties	React to changes of amount in a group of up to 3. Count in everyday contexts. Recites some number names in sequence beyond 5 Represent numbers to 5. Recognise numerals of personal significance.	categorise objects according to properties. Use positional language Notices, uses and talks about patterns around us.	Recites numbers in order to 10. Counts up to three or four objects accurately. Recognise some numerals of personal significance. Compare amounts.	Recites numbers in order to 10. Counts up to three or four objects accurately. Recognise some numerals of personal significance. Compare amounts
Foundation stage - Nursery	Join in number rhymes to 5 Count up 5 in real life contexts with 1:1 correspondence Compare quantities Compare sizes and weights Notice patterns and arrange things in patterns including ABAB	Recite numbers up to 10 Count in everyday contexts, subitising to 3. Compare quantities. Select shapes appropriately. Combine shapes. Talk about and identify the patterns around them.	Subitise to 3. Recite numbers up to 10 and count objects accurately within this. Compare quantities. Link numerals and amounts. Understand position through words alone. Describe a familiar route.	Recognise numbers confidently up to 5 - subitising and match quantity to groups of objects. Understand cardinality. Compare quantities. Talk about and explore 2D and 3D shapes using informal and mathematical language.	Understand cardinality Compare numbers. Solve real world mathematical problems with numbers up to 5. Talk about 2D shapes. Extend and create ABAB patterns	Count objects, actions and sounds. Compare numbers. Solve real world mathematical problems with numbers up to 5 Talk about and explore 2D and 3D shapes Understand position. Make comparisons between objects relating to size, length, weight and capacity
Foundation stage - Reception	Number: Number and place value to 5 Measurement: time (my day)	Number: Addition and subtraction - sorting, one more/less Number: place value for comparing	Geometry: shape and space Number: Addition and subtraction to 5	Number: Place value to 10 Number: addition and subtraction to 10	Number: Place value to 20 Number: addition and subtraction- counting on and back Geometry: exploring patterns	Number: multiplication and division – numerical patterns Measurement: measure
Year 1	Number: place value within 10 **KIRF:** count, read and write numbers to 50	Number: Addition within 10 Geometry: Shape **KIRF:** number bonds for each number to 6 then 10	Number: Place value wthinn20 Subtraction within 20 **KIRF:** number bonds of 10	Number: place value within 50 Measurement: Length and height Weight and volume **KIRF:** doubles and halves of numbers to 10	Number: multiplication and division Number: fractions Geometry: position and direction **KIRF:** count in 2, 5 and 10s	Number: place value within 100 Measurement: Money Measurement: time **KIRF:** tell the time to nearest half hour and quarter
Year 2	Number: place value Number: addition and subtraction **KIRF:** number bonds of 20	Number: addition and subtraction Geometry: shape Measurement: money **KIRF:** 2 times table (x and ÷)	Number: multiplication and division Measurement: length and height **KIRF:** 5 times table (x and ÷)	Number: fractions Measurement: mass, capacity and temperature **KIRF:** 10 times table (x and ÷)	Measurement: time SATs revision **KIRF:** doubles and halves of numbers to 20	Statistics Geometry: position and direction Problem solving, efficient methods and investigations **KIRF:** tell the time to the nearest 5 minutes
Year 3	Number: Place Value Number: addition and subtraction **KIRF:** number bonds for all numbers to 20 +-	Number: addition and subtraction Number: multiplication and division **KIRF:** Adding 1, 10, 100 to numbers up to 1000	Number: multiplication and division Measurement: length and perimeter **KIRF:** 3 times table (x and ÷)	Number: fractions Measurement: mass and capacity **KIRF**: 4 times table (x and ÷)	Number: fractions Measurement: money **KIRF:** 8 times table (x and ÷)	Measurement: time Geometry: shape **KIRF**: tell the time to the nearest minute
	Statistics – objective covered throughout the year in Science and Topic lessons					
Year 4	Number: Place Value Number: addition and subtraction **KIRF:** number bonds of 100	Measurement: area Number: multiplication and division **KIRF:** 6 and 12 times tables (x and ÷)	Number: multiplication and division Measurement: length and perimeter Number Fractions **KIRF**: 9 and 11 times tables (x and ÷)	Number: fraction Number: decimals Topic link – Roman Numerals (place value) **KIRF:** 7 times table (x and ÷) then revise all x facts to 12 x12	Number: decimals Measurement: money Measurement: time **KIRF:** recognise decimal equivalents of fractions	Geometry: shape Statistics Geometry: position and direction **KIRF:** x and ÷ single digit numbers by 0, 1, 10 and 100
Year 5	Number: Place Value Number: addition and subtraction **KIRF:** all facts for times tables up to 12 x12 (x and ÷)	Number: multiplication and division Number - Fractions **KIRF:** square numbers and square roots up to 12^2 and recognise cubed numbers	Number: multiplication and division Number: fractions **KIRF:** prime numbers to 20 and factor pairs of a number	Number: decimals and percentages Measurement: area and perimeter Statistics **KIRF:** decimal number bonds to 1 and 10	Geometry: shape Geometry: position and direction Number: decimals **KIRF**: x and ÷ by 10, 100, 1000 and recall FDP equivalents	Number: decimals Number: Negative numbers Measurement: converting units Measurement: volume **KIRF:** recall metric conversions
Year 6	Number: Place Value Number: 4 operations **KIRF:** all facts for times tables up to 12 x12 (x and ÷)	Number: fraction Measurement: converting units **KIRF:** common factors and prime numbers	Number: ratio Number: algebra Number: decimals **KIRF:** convert between FDP	Number: FDP Measurement: perimeter, area and volume Statistics **KIRF:** Conversion facts for measure	Geometry: shape, position and direction SATs revision **KIRF:** revision	Investigations and problem solving through themed projects **KIRF:** revision
	Programme of SATs revision in place from Spring 1 – small group intervention, boosters and afternoon maths sessions					

Lesson Structure

Lesson structure for Maths

At the start of each unit, children complete a prior-learning assessment so that support needs can be identified.

Year 1-6 start each lesson with a flashback 4 for retrieval. Years 5 and 6 complete additional SATs style questions and year 2 complete an additional arithmetic question.

We then complete rapid recall work linked to our KIRF focuses.

We follow the school's teaching and learning sequence which consists of the following structure:

- Introduce the WALT
- Go through relevant/new vocabulary - my turn/your turn
- Teach Introduce the Stem sentence for the lesson.
- I do, we do, you do (on whiteboard). Fluency work
- (KS2) Teach we do (on the whiteboard). Problem solving/reasoning - display the sentence stem.
- Teachers then identify children who will remain for further support based on their answers.
- Children then complete independent tasks linked to fluency questions. (KS2) This is followed by reasoning/problem solving questions. Further challenges are available.
- (KS1) Teach we do (on the whiteboard). Problem solving/reasoning - display the sentence stem.
- (KS1) Independent task Children to complete reasoning/problem solving with further challenges available.
- As part of the review, children to put a smiley face next to the WALT :) :| :(

At the end of the unit, a post learning assessment will be completed.

Maths lessons can be be subsidised through

- Pre-teaching
- Morning work
- Mastering Number sessions
- Arithmetic sessions
- Diamond Dash
- KIRF assessments
- Homework

- TT Rockstars/NumBots