MATHS

Maths

St Joseph's Catholic Primary School

I AM A MATHEMATICIAN

Our Maths Vision

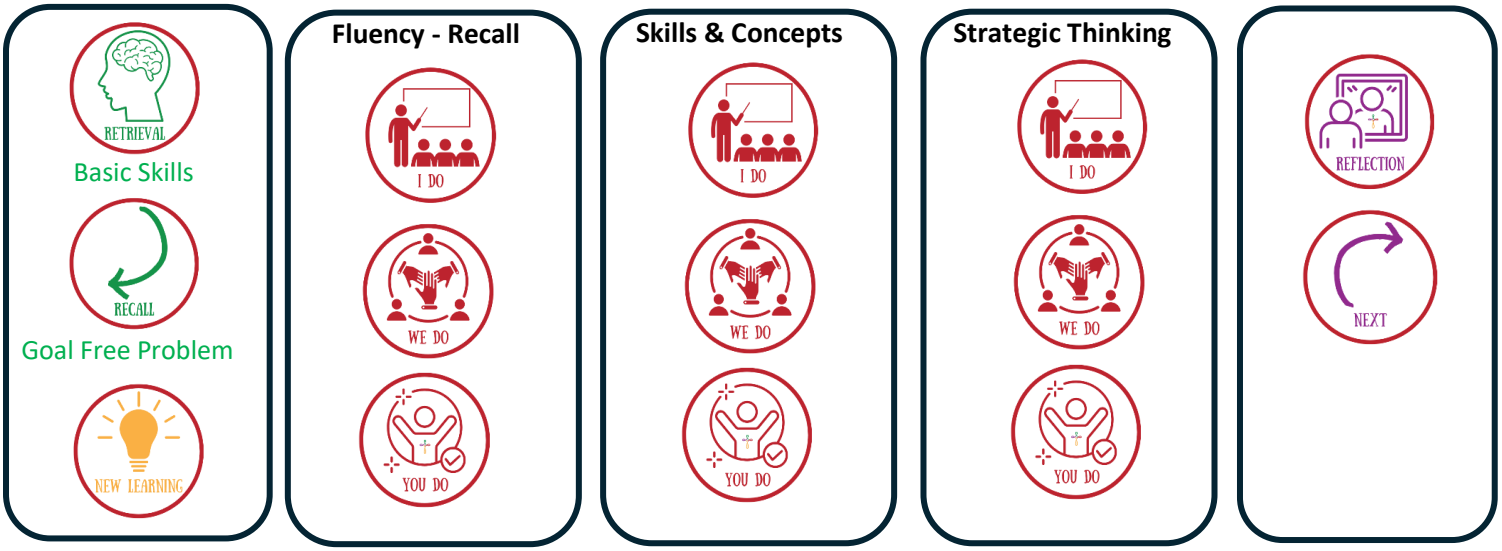
- Be fluent in the fundamentals of mathematics
- Apply mathematical knowledge and skills in varied contexts
- Show resilience when tackling problems
- Articulate thinking through reasoning, explanations and reflections, using mathematical vocabulary.
- Independently use methods, strategies and resources.

At St. Joseph's we teach maths daily following the **National Curriculum.** We use the **White Rose Small Steps** guidance to ensure lessons are pitched appropriately and consistently across the school.

Lessons are designed in Maths to incorporate the EEF's 7 step model to support metacognition and reduce cognitive load. A wide range or resources are used to offer a broad and balanced provision for all children, to allow for a deep understanding.

Throughout aspects of the lesson children will experience a Concrete Pictorial Abstract (CPA) approach which allows pupils to spend enough time to fully explore a topic, reinforcing it with practice, before moving onto the next one.

Lessons are typically broken into these parts:



Lesson Pedagogy

1. **Basic Skills**
   Each maths lesson begins with a focus on basic skills. These are selected by the teacher based on identified gaps in pupils' knowledge, using the progression map as a guide.
2. **Goal-Free Problem**
   Pupils are presented with a visual or numerical stimulus—such as a problem with no question, a collection of shapes, a graph, or a set of numbers. No question is asked. Instead, pupils discuss what they notice and what they think the information represents, encouraging curiosity and mathematical thinking.
3. **New Learning**
   The main learning objective for the lesson is introduced. Key vocabulary is shared and discussed with pupils to support understanding.
4. **Recall – Fluency**
   This stage uses the **I do, we do, you do** model. Pupils focus on fluency, practising the new skill in a structured and supportive way.
5. **Skills & Concept**
   The I do, we do, you do process is repeated in this stage. Pupils apply the learning from the fluency stage to solve problems. This helps deepen their understanding of the concept and develop their problem-solving skills.
6. **Strategic Thinking**
   Again, the I do, we do, you do model is repeated, but this time the complexity of the lesson increases. Pupils tackle more challenging problems, including reasoning and multi-step tasks, applying their learning in new contexts.
7. **Reflection**
   Pupils reflect on the key learning of the lesson. The teacher guides them to assess their understanding and consider whether they have achieved the learning objective.
8. **Next**
   The lesson ends with a short pre-teaching session to introduce the topic of the next lesson, helping pupils to prepare and build anticipation for future learning.

Vocabulary

- Vocabulary for the lesson is introduced and discussed during the 'New Learning' part of the lesson.
- Vocabulary is mapped out on our Maths Vocabulary long term plan to ensure mathematical vocabulary is progressive.

Oracy

- Oracy is promoted through Goal Free Problems which are posed in the first stage of the lesson. Pupils are presented with a problem but without the question present. Pupils then have the opportunity to discuss with others what they see on the board, what the notice and what they think the question could be.
- Talk partners and think, pair, share strategies are used throughout the classes.
- Oracy is also promoted through the use of agree/disagree questions or always, sometimes, never problems.
- Presentational talk is promoted through pupils modelling their working to the class.

Assessment

- ✓ Formative assessment used throughout lessons which then informs the teacher's planning and lesson content for the following lesson.
- ✓ Summative assessment includes:
  - In EYFS, the Early Years Framework is used.
  - From Year 1 to Year 5, we use termly assessments from Testbase.
  - In Year 6, Testbase arithmetic tests are used throughout the terms and end of term assessment is made

Long Term Plans - Area of Study & Basic Skills

Year 1 and 2							
		Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Area of Study		**Number – Place Value within 20** **Number – Addition & Subtraction within 20** **Geometry - Shape**	**Number – Place Value within 100** **Length & Height**	**Number – Addition & Subtraction within 100** (continued in Spring 2) **Position & Direction** **Multiplication & Division**	**Multiplication & Division** **Number – Addition & Subtraction within 100**	**Statistics** **Mass, Capacity &Temperature** **Money**	**Fractions -** **Time** **Number Consolidation**
Basic Skills	**Year 1**	KIRF: Recall number bonds to 10. KIRF: Recall number bonds to 20. • Subitise quantities up to 5 • Verbally count to and across 20, starting at any number. • Verbally count backwards from 20. • Compare quantities up to 10 (recognise when one quantity is greater than, less than or the same as the other quantity). • Read and write numbers from 1 to 10 in numerals. • Read numbers up to 20. • Recall doubles of numbers up to 5 + 5. • Recall halves of numbers (up to half of 10). Recall and write number bonds to 5		KIRF: Know one more/one less of numbers up to 20. KIRF: Know one more/one less of numbers to 50. • Verbally count to and across 50 starting at any number. • Verbally count backwards from 50. • Compare quantities up to 20 (recognise when one quantity is greater than, less than or the same as the other quantity). • Read and write numbers from 1 to 20 in numerals correctly. • Recall and write number bonds to 10. • Recall 1 more and 1 less of numbers up to 20 (mentally) Add and subtract up to 10.		KIRF: Count in steps of 2 from 24 from zero. KIRF: Count in steps of 10 to 120 from zero. • Verbally count to and across to 100 starting at any number. • Verbally count backwards from 100. • Read and write numbers from 1 to 100 in numerals. • Write the digits 0 to 9 with no reversals. • Recall half of any number to 20. • Count in 5s to 60. • Name and order the days of the week • Name and order the months of the year. • Recognise odd and even numbers. Add and subtract up to 20.	
	Year 2	KIRF: Count in steps of 2 from a given number up to 100. KIRF: Count in steps of 5 from a given number up to 100. • Name and order the days of the week • Name and order the months of the year. • Read numbers up to 100. • Subitise quantities up to 20. • Recall and write number bonds to 20. • Verbally count to 100 starting at any number. • Verbally count backwards from and to a given number (up to 100). • Compare quantities up to 20. • Recall doubles of numbers up to 10 + 10. • Recall halves of even numbers (up to half of 20).		KIRF: Recall doubles of even numbers up to 20. KIRF: Recall halves of even numbers up to 20. • Verbally count to and across 50, starting at any number. Verbally count backwards from 100 in steps of 1 and 2. • Compare quantities up to 50 (recognise when one quantity is greater than, less than or the same as the other quantity). • Recall and write number bonds to . • Recall 1 more and 10 more, and 1 less and 10 less of numbers up to 100 (mentally). • Add and subtract up to 50 (mentally).		KIRF: Recall 2s and 5s multiplication and division facts. KIRF: Recall 10s and 3s multiplication and division facts. • Verbally count to and across to 100 starting at any number. Verbally count backwards from 100 in steps of 2, 5 and 10. Read and write numbers from 1 – 100 in words. • Recognise odd and even numbers. • Name and recognise basic properties of 2-D and 3-D shapes	

Year 3 and 4							
		Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Area of Study		**Number – Place Value** **Number – Addition and Subtraction**	**Number - Multiplication and Division** **Measurement - Length and Perimeter** **Measurement – Area**	**Number - Multiplication and Division** **Number - Fractions**	**Fractions** **Measurement – Mass and Capacity** **Geometry – Position and Direction**	**Number - Decimals** **Time**	**Measurement – Money** **Geometry – Shape** **Statistics**

Basic Skills	**Year 3**	Recall addition and subtraction facts for multiples of 10 to 100.
		Recall multiplication and division facts for 4 x tables
		
		• Count in steps of 2, 3, 5 and 10.
		• Recall and use multiplication and division facts for 2x, 5x and 10x tables.
		• Recognise odd and even numbers
		• Count from 0 in multiples of 4, 8, 50 and 100.
		• Find 10 and 100 more of less than a given number.
		• Double and halve numbers up to 100.
		• Recall and use additional and subtraction facts to 20 fluently, derive and use related facts up to 100 (e.g 6 + 4 = 10, so 60 + 40 = 100)
				Recall multiplication and division facts for 6 x tables
				Recall multiplication and division facts for 9 x tables
				
				• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
				• Add and subtract numbers mentally, including:
				  ○ a three-digit number and 1s
				  ○ a three-digit number and 10s
				  ○ a three-digit number and 100s.
				• Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction.
						Recall multiplication and division facts for 8 x tables
						Know number bonds to 100
						
						• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
						• Introduction to 7 times table.
						• Add and subtract numbers mentally, including:
						  ○ a three-digit number and 1s
						  ○ a three-digit number and 10s
						  ○ a three-digit number and 100s.
						• Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction.
						• Tell and write the time to the nearest hour, half an hour, 15 minutes, and draw the hands on a clock face to show these times.
						• Sequence intervals of time.
						• Know the number of minutes in an hour.
						• Know the number of hours in a day.	

	Year 4	Recall multiplication and division facts for 7 x tables Recall multiplication and division facts for 12 x tables • Count in steps of 2, 3 and 5 from 0, and in tens • Count from 0 in multiples of 4, 8, 50 and 100 • Recall how to identify odd and even numbers • Double and halve two-digit numbers mentally • Recall and use multiplication and division facts for 11 • times table • Use place value, known and derived facts to multiply and divide mentally • Add and subtract mentally: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; three one-digit numbers • Add and subtract numbers with up to three digits using a formal written method • Add and subtract numbers with up to four digits, using a formal written method • Count up and down in tenths and hundredths		Recall multiplication and division facts for all times tables up to 12 x 12 • Count in multiples of 6, 7, 9, 25 and 1000 • Multiply two-digit numbers by a one-digit number, using a formal written method for calculating • Multiply one digit and two-digit numbers by 10 • Multiply one digit and two-digit numbers by 0 and 1 • Multiply three numbers together • Divide by 1 • Recognise and use factor pairs and commutativity in mental calculations. • Add and subtract fractions with the same denominator within one whole • Count up and down in tenths and hundredths		Find 10, 100 or 1000 more or less than a given number. Know decimal number bonds (e.g 0.3 + 0.7) • Recall times table facts up to 12 x 12 (MTC preparation) • Tell and write the time from an analogue clock, including Roman numerals, and 12-hour and 24-hour clocks • Convert time between analogue and digital clocks • Recall vocabulary am and pm • Recall number of seconds in a minute, days in a given month, year and leap year • Convert basic units of metric measure	

Year 5 and 6							
		Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Area of Study		**Number – Place Value** **Number – Addition and Subtraction** **Number – Multiplication and Division** **Number – Fractions**	**Number – Fractions** **Number – Multiplication and Division** **Statistics**	**Number – Decimals** **Number – Fractions** **Area, Perimeter and Volume** **Algebra**	**Number – Decimals** **Number – Fractions, Decimals and Percentages**	**Number Recap** **Ratio**	**Shape** **Position and Direction** **Converting Units**
Basic Skills	**Year 5**	• Consolidate multiplication and division facts for all times tables up to 12 x 12. • Recall square and cube numbers within 100.		• Multiply and divide whole numbers by 10, 100 and 1000. • Recall decimal and percentage equivalents of the fractions 1/2 , 1/4 , 3/4, tenths and fifths.		• Convert between different units of metric measure (e.g km/m, cm/m) • Recall prime numbers up to 19.	
	Year 6	• Derive multiplication and division facts using multiples of 10 and decimal numbers e.g. 50 x 7 = 350; 8 x 0.7 = 5.6 • Recall equivalences between simple fractions, decimals and percentages.		• Multiply and divide decimal numbers by 10, 100 and 1000. • Identify common factors of a pair of numbers		• Know all previous number bonds including decimals that total 1 or 10 (two decimal places). • Double or halve any number with up to 2- decimal places.	

Vocabulary

EYFS							
Place Value	**Addition and Subtraction**	**Multiplication and Division**	**Fractions**	**Measures**	**Geometry: Shape**	**Time**	
first second third fourth one ten most more than least fewest less than	add more and make sum total altogether score double difference			length width height depth long, short tall high, low wide, narrow deep, shallow thick, thin longer, shorter taller, higher longest, shortest tallest, highest near, close weigh weighs balances heavy/light heavier/lighter heaviest, lightest		Days of the Week day week birthday holiday morning/afternoon evening/night bedtime dinnertime playtime today yesterday/tomorrow before/after next/last now soon early/late quick/quicker/quickest quickly slow/slower/slowest slowly	old older/oldest new/newer/newest takes longer/less time hour o'clock clock watch hands

Year 1

Place Value	Addition and Subtraction	Multiplication and Division	Fractions	Measures	Geometry: Shape	Time	Statistics
compare, count on, digit, fewest, greater than, greatest, less than, most, one(s), order, partition,	takeaway minus plus near double subtract half halve equals	groups lots of double halve repeated addition		roughly metre metre stick	Group, sort Shape circle, triangle, square Cube, cuboid, pyramid, sphere, cone, cylinder, Flat, curved, straight, round Hollow, solid Corner (point, pointed) Face, side, edge Make, build, draw	Seasons always never often sometimes usually once twice month year weekend midnight fast faster fastest how long ago? how often? Half past	count sort vote group same, different set list table

Year 2

Place Value	Addition and Subtraction	Multiplication and Division	Fractions	Measures	Geometry: Shape	Time	Statistics
Numbers to one hundred Hundreds Partition, exchange, least, multiple, value	Hundred more/less plus near double equals addition subtraction	groups equal groups lots of share arrays repeated addition row column commutative multiplication multiply times divide divided by	Part equal parts fraction whole half quarter one whole one half two halves one quarter two quarters three quarters	Scale kilogram (kg) half kilogram gram (g) capacity	Size Bigger, larger, smaller Symmetrical, line of symmetry Fold Match Mirror line, reflection Pattern, repeating pattern	Months of the year fortnight minute second quarter to quarter past digital analogue timer	tally graph block graph, pictogram represent label title most popular, most common least popular most popular

Year 3							
Place Value	**Addition and Subtraction**	**Multiplication and Division**	**Fractions**	**Measures**	**Geometry: Shape**	**Time**	**Statistics**
digit partition		division remainder product	third tenth one third two thirds one tenth	distance apart distance between	Horizontal, vertical, perpendicular and parallel lines	century calendar date am/pm	chart, bar chart Frequency table Carroll diagram, Venn diagram axis, axes diagram
Year 4							
Place Value	**Addition and Subtraction**	**Multiplication and Division**	**Fractions**	**Measures**	**Geometry: Shape**	**Time**	**Statistics**
order round rounded to negative ascending descending	increase decrease inverse	factor quotient divisible by inverse	eighth sixth fifth twentieth proportion decimal fraction decimal point decimal place	breadth millimetre (mm) Edge perimeter mass pint	Quadrilaterals Triangles Right angle, acute and obtuse angles	leap year millennium date of birth noon timetable arrive depart	Tally chart Survey Questionnaire data

Year 5							
Place Value	**Addition and Subtraction**	**Multiplication and Division**	**Fractions**	**Measures**	**Geometry: Position and Direction**	**Geometry: Shape**	**Statistics**
Sequence Interval	Efficient written method	Factor pairs Composite numbers Prime number Prime factors Square number Cubed number Formal written method	Proper fractions Improper fractions Mixed numbers Percentage Half, quarter, fifths, Ratio, proportion	Volume Imperial units Metric units	Reflex angle Dimensions	Regular/irregular polygons	Line graph Bar line chart Mode, range Maximum Minimum Classify Outcome database
Year 6							
Place Value	**Addition and Subtraction**	**Multiplication and Division**	**Fractions**	**Geometry: position and direction**	**Geometry: Shape**	**Algebra**	**Statistics**
Numbers to ten million	Order of operations: BIDMAS	Order of operations: BIDMAS	Degree of accuracy simplify	Four Quadrants	Vertically opposite angles Circumference, Radius Diameter	Linear sequence Substitute Variables Symbol Known values	Mean Median statistics Pie chart construct