A voyage of discovery - we're sailing to success together… MATHS

INTENT	AIMS		
	At Trafalgar, we recognise that children enter our school with a varying degree of mathematical understanding and knowledge depending on their previous experiences.	Appreciate the power and beauty of maths.	Enjoy taking on challenges, when learning new concepts or skills through play and exploration.
		Think logically, creatively and imaginatively in solving problems, developing the ability to think for themselves.	Learn to work collaboratively, negotiating others' points of view.
		Work mentally with increasing confidence.	Learn the facts and techniques that they will need in order to further their maths learning.
		Achieve their potential.	

IMPLEMENTATION			
	*Our mastery approach to the curriculum is designed to develop children's knowledge and understanding of mathematical concepts from the Early Years through to the end of Y2. As a school we use White Rose Maths https://whiterosemaths.com/resources/primary and https://numbersensemaths.com/ to support the teaching of maths through **small progressive steps** and a confidence and fluidity of number facts. Lessons are planned and taught using Trafalgar's Quality First Teaching approach.*		
	Vocabulary -At the start of each new topic, key vocabulary is introduced and revisited regularly to develop language acquisition, embedding as the topic progresses. Questions – Are used to asses, review, emphasise and summarize key learning.	**Review** -All lessons begin with a short assessment/opportunity to revisit previous learning to support retrieval practice and develop long-term memory.	**Modelling** -Children are taught through clear modelling and have the opportunity to develop their knowledge and understanding of mathematical concepts. The mastery approach incorporates using objects, pictures, words and numbers to help children explore and demonstrate mathematical ideas, enrich their learning experience and deepen understanding at all levels.
	Guided Practice- Children work on the objective at whatever entrance stage they are assessed as achieving. Children can ACQUIRE the skill, APPLY the skill or DEEPEN the skill within the lesson.	**Purpose**- Teaching draws attention to the importance of maths and it's practical applications in real life which is emphasised through cross curricular activities.	**Checking Understanding** - Variation is used within lessons to highlight a concept's essential features by focusing on what is kept the same and what changes, which offers the opportunity to make meaningful connections.
	Adaptive and Inclusive -Resources are readily available to assist demonstration of securing a conceptual understanding of the different skills appropriate for each year group.	**High Expectations-**Reasoning and problem solving are integral to the activities children are given to develop their mathematical thinking.	**Feedback and Response -** Children are encouraged to explore, apply and evaluate their mathematical approach during investigations to develop a deeper understanding when solving different problems / puzzles.
	Independence and Choice - A love of maths is encouraged throughout school via links with others subjects, applying an ever growing range of skills with growing independence.		

IMPACT	CHILDREN MAKE EXPECTED OR GREATER THAN EXPECTED PROGRESS		
	Children show confidence in believing that they will achieve.	Children demonstrate a quick recall of facts and procedures.	They have flexibility and fluidity to move between different contexts and representations of maths.
		They have the chance to develop the ability to recognise relationships and make connections in maths lessons.	Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
		Children show a high level of pride in the presentation and understanding of their work.	

Vocabulary listed is the new vocabulary for each year group. Further guidance on vocabulary, including stem sentences, is on the White Rose SOLs and in the Maths Vocabulary folder in the Planning Room.

The program of study (knowledge and skills) in the long-term plan has been taken from the National Curriculum 2013 and Development Matters 2020. Additionally, for Reception, the ELGs for Maths, and for Year 2, the ARE from the TAF, are identified in italics.

Assessment takes place in every lesson through carefully planned lessons following our Quality first teaching approach. In addition, WR end of topic assessments may be used, independent activities away from the point of teaching and fluency assessments. Children's progress in maths is tracked termly and recorded on the school tracking system. Actions for children who are not secure are recorded on the Pupil Progress notes and the Fluency Tracker document.

	By the end of Autumn 1 children will…	By the end of Autumn 2 children will…	By the end of Spring 1 children will…	By the end of Spring 2 children will…	By the end of Summer 1 children will…	By the end of Summer 2 children will…
Reception	**Counting** *Verbally count beyond 20, recognising the pattern of the counting system* <u>Vocabulary</u> Zero, number one, two, three … to twenty and beyond teens numbers, eleven, twelve … twenty first, second, third… twentieth count, count (up) to, count on (from, to), count back (from, to) count in ones, is the same as,	**Counting** *Verbally count beyond 20, recognising the pattern of the counting system* <u>Vocabulary</u> Zero, number, one, two, three … to twenty and beyond, teens numbers, eleven, twelve … twenty first, second, third… twentieth, count, count (up) to, count on (from, to), count back (from, to) count in ones, is the same as, more, less, odd, even, few, pattern, pair **Numbers up to 5** *Have a deep understanding of number to 10, including the composition of each number*	**Counting** *Verbally count beyond 20, recognising the pattern of the counting system* <u>Vocabulary</u> Zero, number, one, two, three … to twenty and beyond, teens numbers, eleven, twelve … twenty first, second, third… twentieth, count, count (up) to, count on (from, to), count back (from, to) count in ones, is the same as, more, less, odd, even, few, pattern, pair **Numbers up to 5**	**Counting** *Verbally count beyond 20, recognising the pattern of the counting system* <u>Vocabulary</u> Zero, number, one, two, three … to twenty and beyond, teens numbers, eleven, twelve … twenty first, second, third… twentieth, count, count (up) to, count on (from, to), count back (from, to) count in ones, is the same as, more, less, odd, even, few, pattern, pair **Numbers to 10** *Have a deep understanding of*	**Counting** *Verbally count beyond 20, recognising the pattern of the counting system* <u>Vocabulary</u> Zero, number, one, two, three … to twenty and beyond, teens numbers, eleven, twelve … twenty first, second, third… twentieth, count, count (up) to, count on (from, to), count back (from, to) count in ones, is the same as, more, less, odd, even, few, pattern, pair **Numbers beyond 10** Build and identify numbers to 20 (and beyond)	**Counting** *Verbally count beyond 20, recognising the pattern of the counting system* <u>Vocabulary</u> Zero, number, one, two, three … to twenty and beyond, teens numbers, eleven, twelve … twenty first, second, third… twentieth, count, count (up) to, count on (from, to), count back (from, to) count in ones, is the same as, more, less, odd, even, few, pattern, pair **Number**

	more, less, odd, even, few, pattern, pair **Shape** Matching objects and shapes including, size, colour, pattern. Say what is the same/different. Sort objects by attributes including by shape, colour and size. Know that a collection of objects can be sorted in different ways. **Measure** Compare quantities using the language of more, same and fewer. Compare objects by size, mass and capacity.	*Subitise (recognise quantities without counting) up to 5* *Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts)* *Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally* Link the number symbol (numeral) with its cardinal number value. <u>Vocabulary</u> Ones, the same number as, as many as, more, larger, bigger, greater fewer, smaller, less fewest, smallest, least most, biggest, largest, greatest, one more, ten more, one less, ten less, compare, last, last but one before, after, next, between, guess How many …? about the same as	*Subitise (recognise quantities without counting) up to 5* **Numbers to 10** *Have a deep understanding of number to 10, including the composition of each number* *Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 10 (including subtraction facts)* *Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally* Estimate quantities to 10 Understand the 'one more than/one less than' relationship between consecutive numbers.	*number to 10, including the composition of each number* *Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 10 (including subtraction facts)* *Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally* Estimate quantities to 10 Understand the 'one more than/one less than' relationship between consecutive numbers. Link the number symbol (numeral) with its cardinal number value. **Shape** 2D/3D shapes: select, rotate and manipulate shapes in order to	Explore 'How much is 100?' **Numbers to 10** *Have a deep understanding of number to 10, including the composition of each number* *Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 10 (including subtraction facts)* *Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally* Estimate quantities to 10 Understand the 'one more than/one less than' relationship between consecutive numbers. Link the number symbol (numeral) with its cardinal number value. Add and takeaway using the first, then, now	*Have a deep understanding of number to 10, including the composition of each number* *Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 10 (including subtraction facts)* *Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally* **Sharing and Grouping** Recognising equal and unequal groups. Make equal groups of objects. **Spatial reasoning** Understand that patterns and models can be replicated. **Patterns and relationships**

	Vocabulary More, fewer, greater, smaller, long, short, tall/ short, Longest, shortest, heavy Light, heaviest, lightest, full, empty, more, less, most, least, compare, order, size **Patterns and relationships** Copy, continue and create patterns including repeating patterns. Vocabulary Pattern, same, different, repeating, symmetrical, asymmetrical	just over, just under too many, too few enough, not enough teens balance equal **Shape** Know that a circle has one curved side. Know that a triangle has three straight sides and three corners. Vocabulary Square, circle, rectangle, triangle, side, corner **Position** Use positional language to describe how an item is positioned compared to another item. Vocabulary in front, behind, on top, of, under, above, below next to **Time** Talk about key events in daily routines. Vocabulary Quicker, slower, before, after, next, first, today, yesterday, tomorrow,	Link the number symbol (numeral) with its cardinal number value. **Measure** Compare objects by size, mass and capacity. Compare objects by height and length. Use indirect comparisons about length. Vocabulary Long, short, tall/ short, Longest, shortest, heavy Light, heaviest, lightest, full, empty, more, less, most, least **Time** Talk about key events in daily routines. Recognise that some events happen on the same day each week. Use yesterday and tomorrow.	develop spatial reasoning skills. 2D/ 3D shapes: compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. Vocabulary Square, circle, rectangle, triangle, side, corner, pyramid, cone, cube, cuboid, sphere **Patterns and relationships** Copy, continue and create patterns including repeating patterns. Vocabulary Pattern, same, different, repeating, symmetrical, asymmetrical **Money** Using language of money/ role-play shop linked to topic. Vocabulary Coin, note, one pence	structure and concrete resources. Vocabulary number sentence, add, more, and, make, total, altogether, double, one more How many more to make …? How many more is … than …? How much more…? Equals, balances, take away How many are left/left over? How many have gone? one less How many fewer is … than …? difference between, equals, balances **Shape/Spatial reasoning** Know that shapes can be combined or separated to make new shapes.	Copy, continue and create a widening range of repeating patterns. Copy, continue and create a widening range of symmetrical constructions. Vocabulary Pattern, same, different, repeating, symmetrical, asymmetrical **Spatial reasoning** Know that we can make maps and plans to represent places and show where something is. Vocabulary in front , behind, on top, of , under, above, below next to, first, second…

		morning, afternoon, evening, clock, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday Sunday	Talk about significant events in their lives.			
Number Sense Reception	**Number Sense animations run through all topics:** Book 1- Subitising 1 and 2 Book 2- Subitising 1 to 3 Book 6- Partitioning 2 Book 7- Partitioning 3		**Number Sense animations run through all topics:** Book 3- Subitising 1 to 4 Book 4- Subitising 1 to 5 Book 5- Subitising 6 to 10 Book 8- Partitioning 4 Book 9- Partitioning 5 Book 10- Partitioning 10 Book 11- Composition of 6 to 9 Book 12- Comparing quantities to 10 Book 13- Patterns in numbers to 10		**Linked Number Sense animations run through all topics:** Book 13- Patterns in numbers to 10	
Key Assessments	**Baseline - Statutory** Aut 2 - Number fluency		Spring 2 - Number fluency		**EYFSP – Statutory** Summer 2 - Number fluency	
Year 1	**Number and place value (within 10)** Count to and across 100, forwards and backwards. Count, read and write numbers to 100. Identify and represent numbers using	**Addition and Subtraction (within 10)** Read, write and understand calculations with +, - and = signs. Represent and use number bonds and related subtraction facts. Add and subtract one-digit and two-digit numbers to 10, including zero	**Number and place value (within 20)** Count to and across 100, forwards and backwards. Count, read and write numbers to 100. Find one more or one less of a given number. Read and write numbers from 1 to 20 in digits and words.	**Addition and Subtraction (within 20)** Read, write and understand calculations with +, - and = signs. Represent and use number bonds and related subtraction facts. Add and subtract one-digit and two-digit numbers to 20, including zero	**Multiplication and Division** Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher **<u>Vocabulary</u>**	**Number and place value (within 100)** Count to and across 100, forwards and backwards. Count, read and write numbers to 100. Find one more or one less of a given number.

	objects and pictures Find one more or one less of a given number. Read and write numbers from 1 to 10 in digits and words. **Vocabulary** Sort, First, second, third… Represent, Number, Numeral, Multiples, Partitioning, Ones, Tens, Equal to, More than, Less than (fewer), Most, Least, Odd, Even **Addition and Subtraction (within 10)** Read, write and understand calculations with +, - and = signs. Represent and use number bonds and related subtraction facts.	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 3 =? – 5 **Vocabulary** put together, add, altogether, total, take away, distance between, difference between, more than and less than **Geometry-Shape** Recognise and name 2-D shapes. Recognise and name 3-D shapes. **Vocabulary** sides, vertices, faces, edges, properties, pyramids	**Vocabulary** Sort, First, second, third… Represent, Number, Numeral, Multiples, Partitioning, Ones, Tens, Equal to, More than, Less than (fewer), Most, Least, Odd, Even **Addition and Subtraction (within 20)** Read, write and understand calculations with +, - and = signs. Represent and use number bonds and related subtraction facts. Add and subtract one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 =? – 9 **Vocabulary** put together, add, altogether, total, take away, distance between, difference between, more than and less than **Measurement – Length, height, mass and volume** Compare, describe and solve practical problems for: - lengths and heights] - mass/weight - capacity and volume Measure and begin to record the following: - lengths and heights - mass/weight - capacity and volume **Vocabulary**	Arrays, lots of, multiplication, division, grouping, sharing **Fractions** Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. **Vocabulary** whole, half, quarter, equal parts, unequal parts **Geometry – Position and direction** Describe position, direction and movement, including whole, half, quarter and three quarter turns. **Vocabulary** position, direction, motion, left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and	Count in multiples of 2. Count in multiples of 5. Count in multiples of 10. **Vocabulary** Sort, First, second, third… Represent, Number, Numeral, Multiples, Partitioning, Ones, Tens, Equal to, More than, Less than (fewer), Most, Least, Odd, Even **Money** Recognise and know the value of different denominations of coins and notes **Vocabulary** Coin, note 1p,2p,5p,10p,20p,50p, £1,£2,£5,£10 **Time** Compare, describe and solve practical problems for time Measure and begin to record the time

	Add and subtract one-digit and two-digit numbers to 10, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 3 =? – 5 **Vocabulary** put together, add, altogether, total, take away, distance between, difference between, more than and less than		problems such as 7 =? – 9 **Vocabulary** put together, add, altogether, total, take away, distance between, difference between, more than and less than	mass, volume, long/short, longer/shorter, tall/short, double/half, heavy/light, heavier than, lighter than, full/empty, more than, less than, half, half full, quarter full/empty	outside, half, quarter and three quarter turns	Sequence events in chronological order using mathematical language Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. **Vocabulary** quicker, slower, earlier, later, hours, minutes, seconds, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening, week, month, year, o'clock, half past
Number Sense Year 1	**Number Sense** Stage 1 - Visual Number Foundations Stage 2 Make and Break numbers to ten Books 1 - 4	**Number Sense** Stage 2 Make and Break numbers to ten Books 5-7 Consolidation	**Number Sense** Stage 3 Facts and strategies within ten Books 1-3	**Number Sense** Stage 3 Facts and strategies within ten Books 4-6 Consolidation	**Number Sense** Stage 3 Facts and strategies within ten Books 7-9 Consolidation	**Number Sense** Stage 4 Ten and a Bit – Book 1 Consolidation
Assessment Year 1	Number Fluency	Number Fluency	Number Fluency	Number Fluency	Number Fluency	Number Fluency

Year 2	**Number, place value and rounding** *Partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus* Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line Compare and order numbers from 0 up to 100; use and = signs	**Addition and Subtraction** *Add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48 + 35; 72 – 17)* *Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14)* Solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing	**Measures – Money** *Find different combinations of coins that equal the same amounts of money* Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change **Vocabulary** total cost, change **Multiplication and Division** *Recall multiplication facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary* Recall and use multiplication and	**Measurement - Time** *Read the time on a clock* Compare and sequence intervals of time Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times Know the number of minutes in an hour and the number of hours in a day **Vocabulary** minute hand hour hand quarter past quarter to 5 past, 10 past,20 past, 25 past 5 to, 10 to , 20 to, 25 to 24 hours in a day **Measures – Capacity, Mass, length and height and temperature** *Read scales in divisions of ones, twos, fives and tens*	**Statistics** *Read scales in divisions of ones, twos, fives and tens* Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data **Vocabulary** block graph / bar charts Venn diagram, Carroll diagram, table, category total, compare, scale calendar, How many more? How many fewer? **Geometry -2** Order and arrange combinations of mathematical objects in patterns and sequences Use mathematical vocabulary to describe position, direction and movement, including	**Fractions** *Identify fractions of a number or shape, and know that all parts must be equal parts of the whole* Recognise, find, name and write fractions 3 1 , 4 1 , 4 2 and 4 3 of a length, shape, set of objects or quantity Write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1. **Vocabulary** third equivalence **Consolidation**

	Read and write numbers to at least 100 in numerals and in words Use place value and number facts to solve problems. **Vocabulary** two hundred … one thousand count on in 3s, tally twenty-first, twenty-second … greater than, > less than, < equal (to), = column partition most/greatest number pattern equivalent to multiple of	knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one	division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and = **Vocabulary** standard unit kilogram half a kilogram quarter of a kilogram grams degrees positive/negative estimate measure	movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). **Vocabulary** clockwise anticlockwise rotation	

		number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. **Vocabulary** Increase, tens boundary, Commutative, partition fact family, regrouping, partitioning, crossing, empty box, inverse, ten more, number bonds for 20 number bonds within 20, check, difference, between, equals, is the same as, minus, order	materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts **Vocabulary** times table multiplication, row, column, fact family odd, even, commutative multiplication fact, multiplication table, repeated addition, multiple of 2, multiple of 5, multiple of 10, multiply			

		Geometry 1 Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] Compare and sort common 2-D and 3-D shapes and everyday objects. **Vocabulary** Vertices, heptagon, nonagon, octagon, decagon, semi-circle, line of symmetry, vertical line, reflection, symmetry compare, vertices, edges prism, surface, compare				

Number Sense Year 2	Stage 3 Facts and strategies within ten – Consolidation Stage 4 Ten and a Bit – Consolidation Stage 5 - Facts and Strategies across ten. Books 1-2	Stage 5 - Facts and Strategies across ten. Books 3-7	2,5 and 10 times tables	Stage 5 - Facts and Strategies across ten - Consolidation. Stage 6 - Extending Facts and Strategies Beyond the Grids	Consolidation (including multiplication and division) & SATs	Number Sense Stage 6 - Extending Facts and Strategies Beyond the Grids – Consolidation 2,5 and 10 times tables
Assessment Year 2	Number Fluency	Number Fluency	Number Fluency	Number Fluency	**SATs – Statutory (Optional from 2024)** Number Fluency	**TAF – Statutory** Number Fluency
Year 3 Greenway Junior School	**Pupils transitioning to Greenway Junior School will continue to follow the White Rose Scheme of Learning for maths.** **https://whiterosemaths.com/** **https://www.greenwayschool.org.uk/50/subjects/subject/20/maths**					