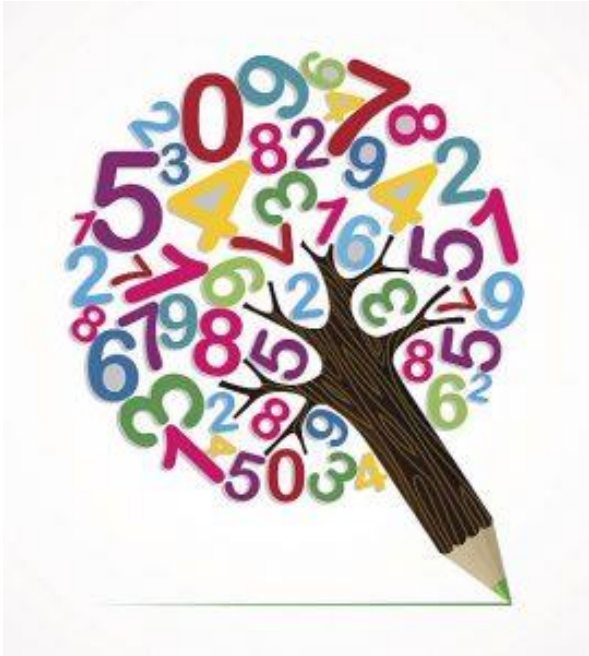
Maths at
Worth Valley Primary School



Why we teach maths at Worth Valley Primary School

It is our belief that every child can become a successful mathematician.

Our curriculum allows children to become fluent and confident with mathematical concepts which can then be applied to allow them to solve problems, preparing them for their future.

All of our children, regardless of any barrier to their learning, have the opportunity to explore mathematical concepts using concrete resources to help develop their understanding.

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

- increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions
- become fluent in the fundamentals of mathematics, including through varied and frequent practice

Our values

One team	Respect	Trust	High expectations	Community
We work together as one team throughout our maths curriculum. Children will use their oracy skills to discuss new concepts and to help them to explore and solve mathematical problems. In order to overcome any barriers to their learning, children seek guidance from their peers as well as the staff, we work together to ensure all children develop their knowledge and understanding.	Having respect in all maths lessons allows children to develop their mathematical thinking as it provides opportunities for students to improve their own mathematical strategies. Children accept that everyone works at different rates as well as understanding that making errors is necessary to improve.	Trust shows throughout our maths curriculum, where children learn to trust their peers to provide feedback to each other. They listen to each other's advice and take feedback positively during discussions. Our children trust us to deliver and teach an exceptional curriculum that they all enjoy and access daily.	At Worth Valley primary school, our children always work to their full potential, achieving realistic milestones towards their progress. Our high expectations allow children to achieve in a space that encourages exploration and investigation; both of which help children to solve problems and reason successfully.	Children at Worth Valley Primary School will relate maths to their daily life and will understand how it helps us to make sense of the world around us. Children develop an understanding of how the subject is critical in many areas including science and technology and how a solid understanding of mathematical concepts are vital to them becoming a contributing part of our community.

Key Concepts

Children will develop a deep understanding of key concepts in maths as they move through our maths curriculum. Key concepts have been identified as the core knowledge and skills required to successfully progress in maths. Opportunities to revisit and develop these key concepts are planned out carefully as the children move through the school to ensure that they are firmly embedded within their long-term memory. The expectation is that, by the end of primary School, children will know and understand these key concepts to continue to build on their mathematical knowledge as they enter KS3.

The key concepts identified in maths are:

- Number and Place Value
- The four operations
- Fractions, Decimals and Percentages
- Geometry
- Statistics
- Shape
- Measures

Curriculum Delivery

Daily Arithmetic

This occurs daily from years 1-6 focusing on common gaps identified in our weekly arithmetic tests.

Maths across the curriculum

Mathematics is integrated throughout our curriculum. Children learn the importance of maths and the impact it has on our daily lives. An example of some curricular subjects that rely on maths are; Science, DT and Geography.

Discrete maths lessons

Maths is taught discretely across school. Children experience daily maths lessons that include concrete resources, opportunities for oracy and a chance for children too develop their apply their understanding of mathematical concepts.

Weekly arithmetic test

Every week, our children complete the PiXL weekly arithmetic tests. Key gaps in knowledge are taught and practiced as part of daily arithmetic

Mastery of Number

Our reception, year 1 and year 2 children take part in the NCETM mastery of number programme, developing their understanding of basic number skills and enhancing their vocabulary.

Curriculum Delivery

Our curriculum is delivered using the WhiteRose Education maths scheme, supported by Master the Curriculum, Deepening Understanding and I see Reasoning. In addition to this, we are also part of the NCETM mastery of number programme.

We closely follow the long term plan provided by WhiteRose Education, placing more emphasis on place value, as we believe that this underpins the rest of the maths curriculum. We ensure that children have a full understanding of the concepts being taught through the small steps prior to moving on; this allows them to become confident mathematicians so they can apply their learning across the curriculum.

The NCETM mastery of number programme 'will develop solid number sense, including fluency and flexibility with number facts, which will have a lasting impact on future learning for all children'.

All learners will use concrete resources when introduced to new concepts, allowing them to enquire and explore. They will use this understanding to apply their knowledge to pictorial representations which will eventually lead to them confidently answering abstract questions which include the ability to problem solve and reason.

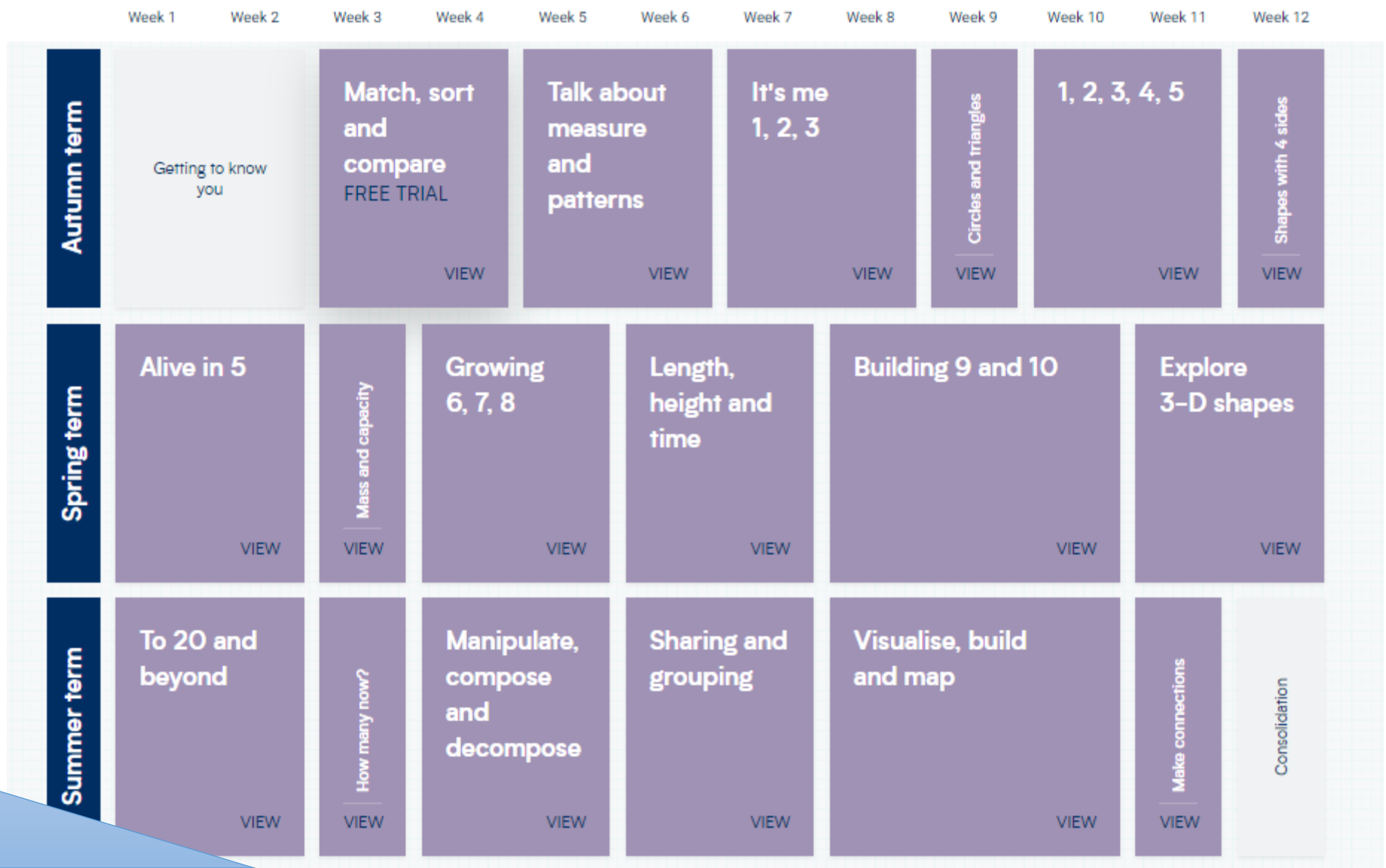
Curriculum Coverage
Pre-School

In preschool at Worth Valley Primary School, our maths curriculum is grounded in the Development Matters framework, which emphasizes the importance of building early number sense and spatial awareness. Children are introduced to mathematical concepts through playful, hands-on experiences that include counting, sorting, pattern-making, and exploring shapes. They are encouraged to use everyday language to describe quantities, sizes, and positions, laying the foundation for future mathematical thinking. Through activities like number songs, visual aids, and practical exploration, children begin to understand the concept of numbers and their relationships, preparing them for a smooth transition into more formal mathematical learning in Reception.

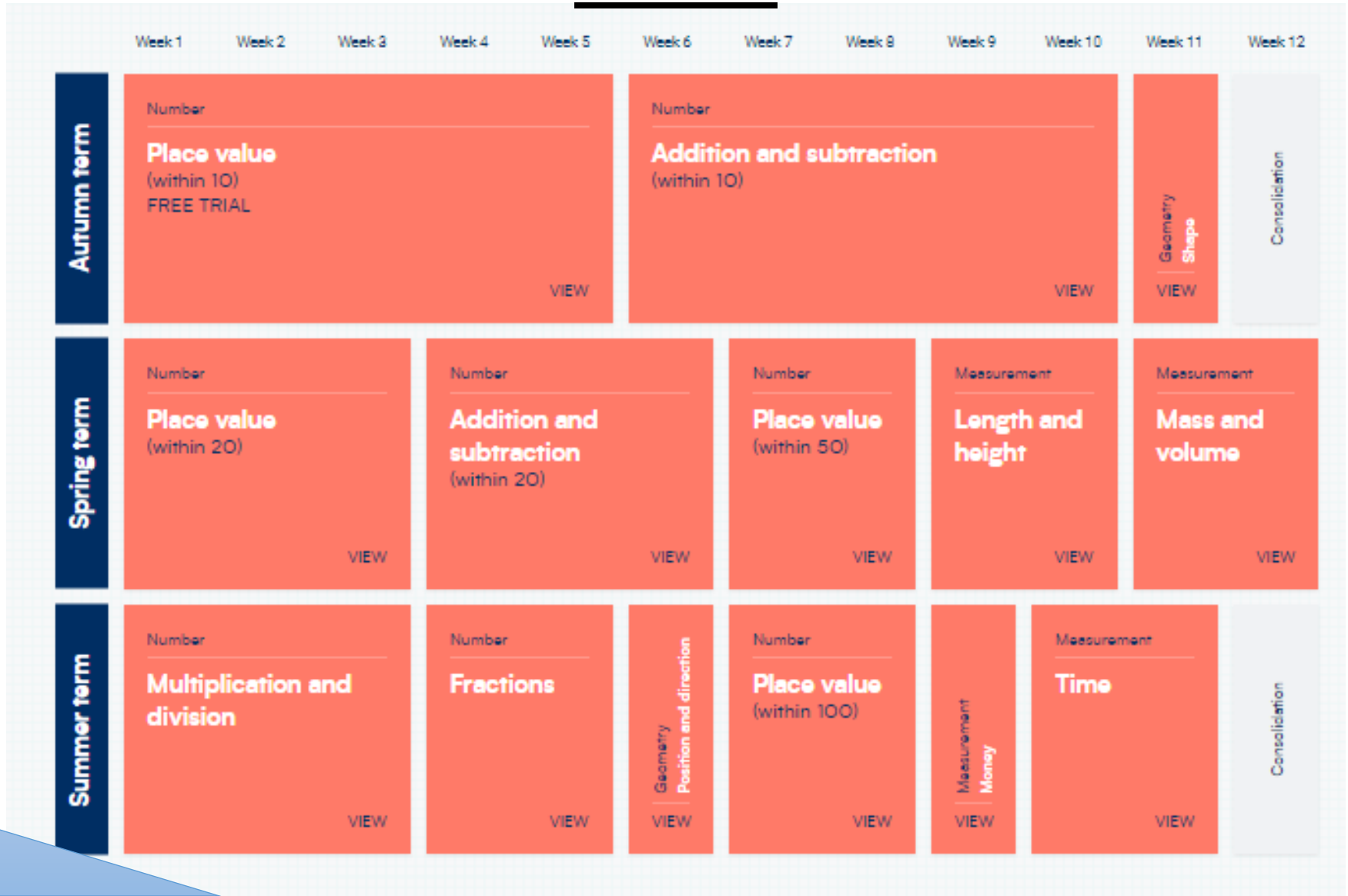
Nursery

Comparison 1 **More than, fewer than, same** VIEW	Shape, space and measure 1 **Explore and build with shapes and objects** VIEW	Pattern 1 **Explore repeats** VIEW	Counting 1 **Hear and say number names** VIEW	Counting 2 **Begin to order number names** VIEW	Subitising 1 **I see 1, 2, 3** VIEW
Pattern 2 **Join in with repeats** VIEW	Shape, space and measure 2 **Explore position and space** VIEW	Subitising 2 **Show me 1, 2, 3** VIEW	Counting 3 **Move and label 1, 2, 3** VIEW	Shape, space and measure 3 **Explore position and routes** VIEW	Pattern 3 **Explore patterns** VIEW
Counting 4 **Take and give 1, 2, 3** VIEW	Shape, space and measure 4 **Match, talk, push and pull** VIEW	Subitising 3 **Talk about dots** VIEW	Comparison 2 **Compare and sort collections** VIEW	Pattern 4 **Lead on own repeats** VIEW	Shape, space and measure 5 **Start to puzzle** VIEW
Pattern 5 **Making patterns together** VIEW	Subitising 4 **Make games and actions** VIEW	Counting 5 **Show me 5** VIEW	Pattern 6 **My own pattern** VIEW	Counting 6 **Stop at 1, 2, 3, 4, 5** VIEW	Comparison 3 **Match, sort, compare** VIEW

Reception


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 term
Getting to know you
Match, sort and compare
FREE TRIAL
VIEW
Talk about measure and patterns
VIEW
It's me 1, 2, 3
VIEW
Circles and triangles
VIEW
1, 2, 3, 4, 5
VIEW
Shapes with 4 sides
VIEW
Spring term
Alive in 5
VIEW
Mass and capacity
VIEW
Growing 6, 7, 8
VIEW
Length, height and time
VIEW
Building 9 and 10
VIEW
Explore 3-D shapes
VIEW
Summer term
To 20 and beyond
VIEW
How many now?
VIEW
Manipulate, compose and decompose
VIEW
Sharing and grouping
VIEW
Visualise, build and map
VIEW
Make connections
VIEW
Consolidation

Year 1


Week 1
Week 2
Week 3
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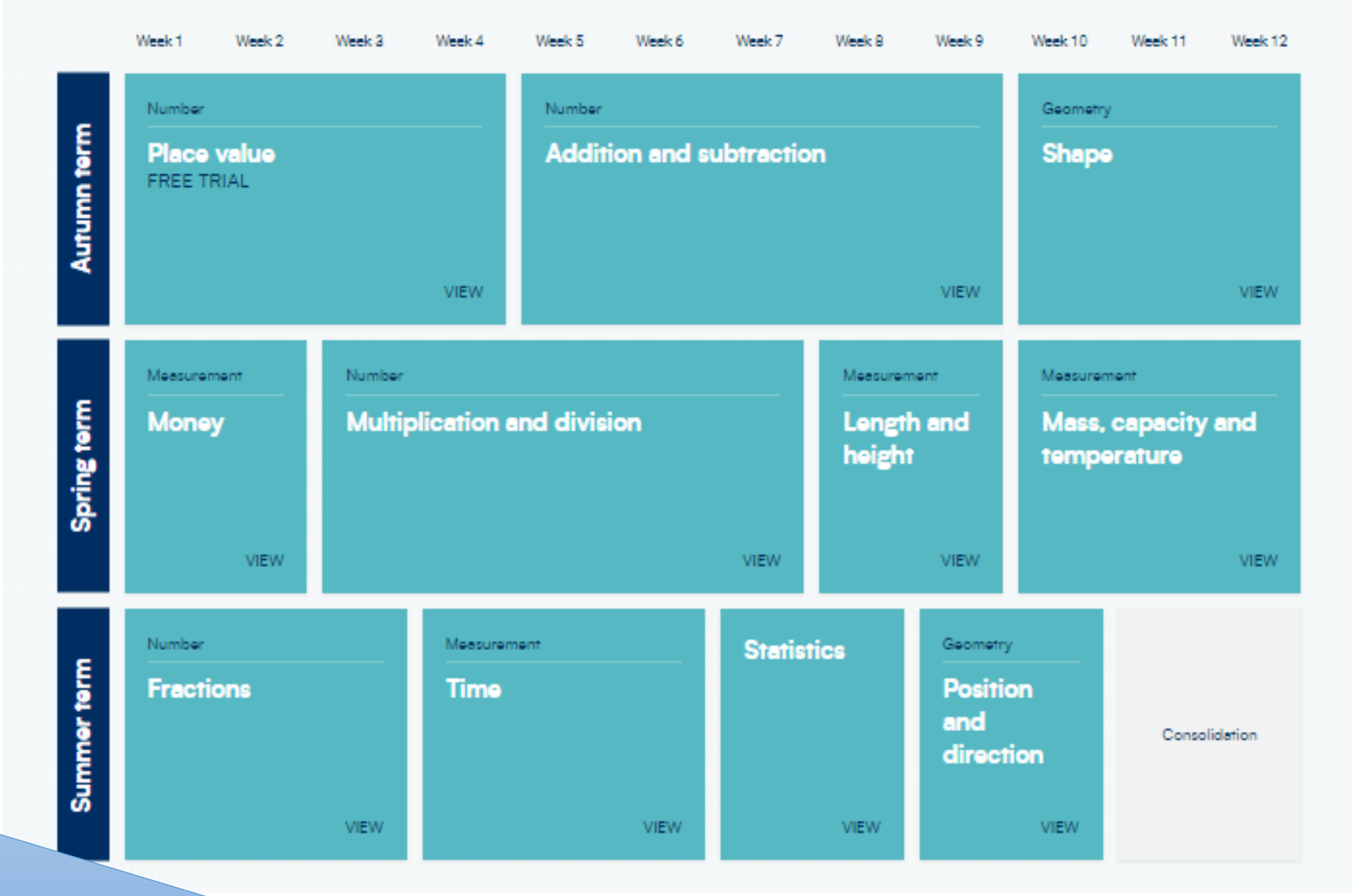
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
(within 10)
FREE TRIAL
VIEW
Number
Addition and subtraction
(within 10)
VIEW
Geometry
Shape
VIEW
Consolidation
Spring term
Number
Place value
(within 20)
VIEW
Number
Addition and subtraction
(within 20)
VIEW
Number
Place value
(within 50)
VIEW
Measurement
Length and height
VIEW
Measurement
Mass and volume
VIEW
Summer term
Number
Multiplication and division
VIEW
Number
Fractions
VIEW
Geometry
Position and direction
VIEW
Number
Place value
(within 100)
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Consolidation

Year 2


Week 1
Week 2
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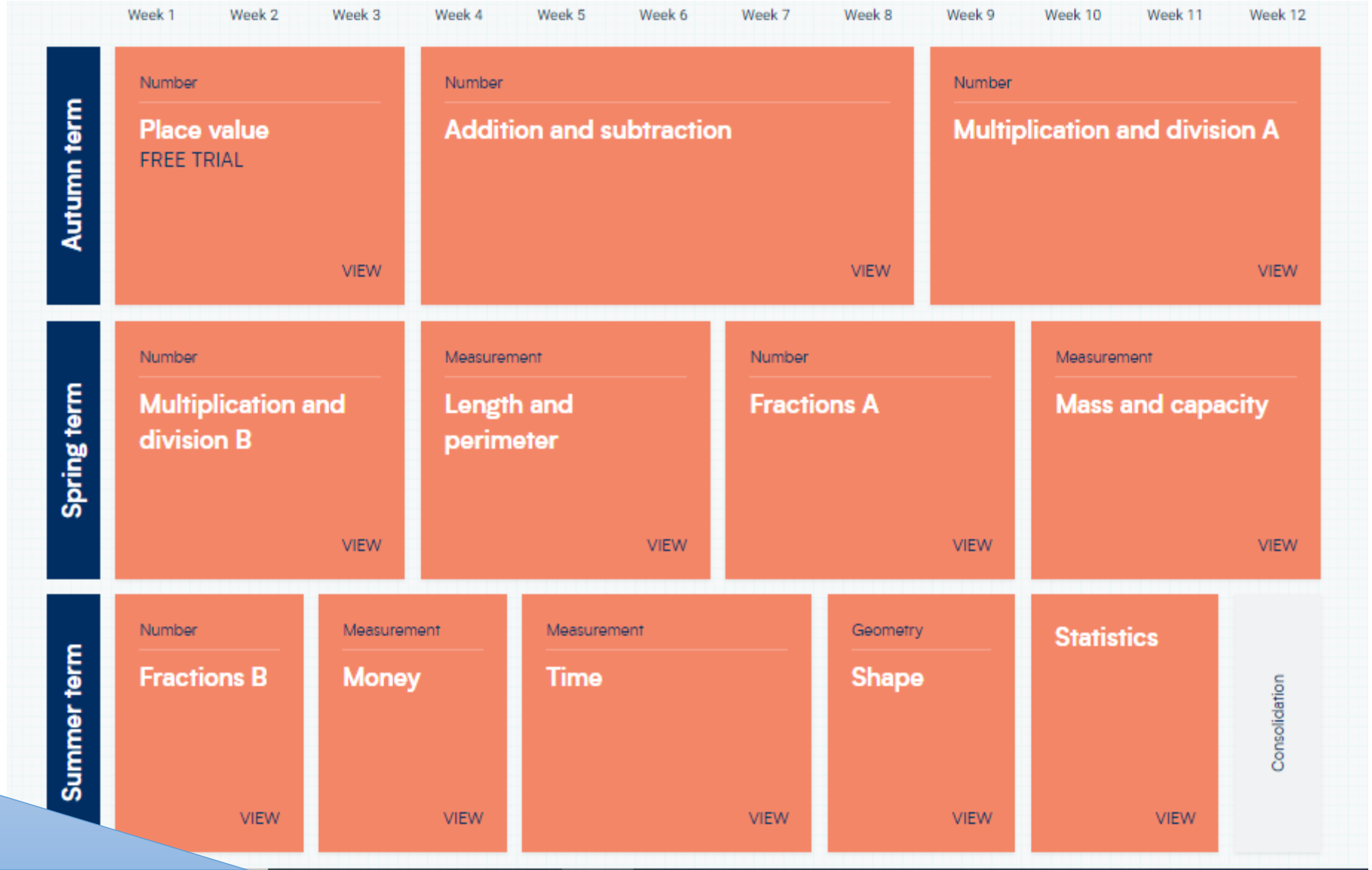
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
FREE TRIAL
VIEW
Number
Addition and subtraction
VIEW
Geometry
Shape
VIEW
Spring term
Measurement
Money
VIEW
Number
Multiplication and division
VIEW
Measurement
Length and height
VIEW
Measurement
Mass, capacity and temperature
VIEW
Summer term
Number
Fractions
VIEW
Measurement
Time
VIEW
Statistics
VIEW
Geometry
Position and direction
VIEW
Consolidation

Year 3


Week 1
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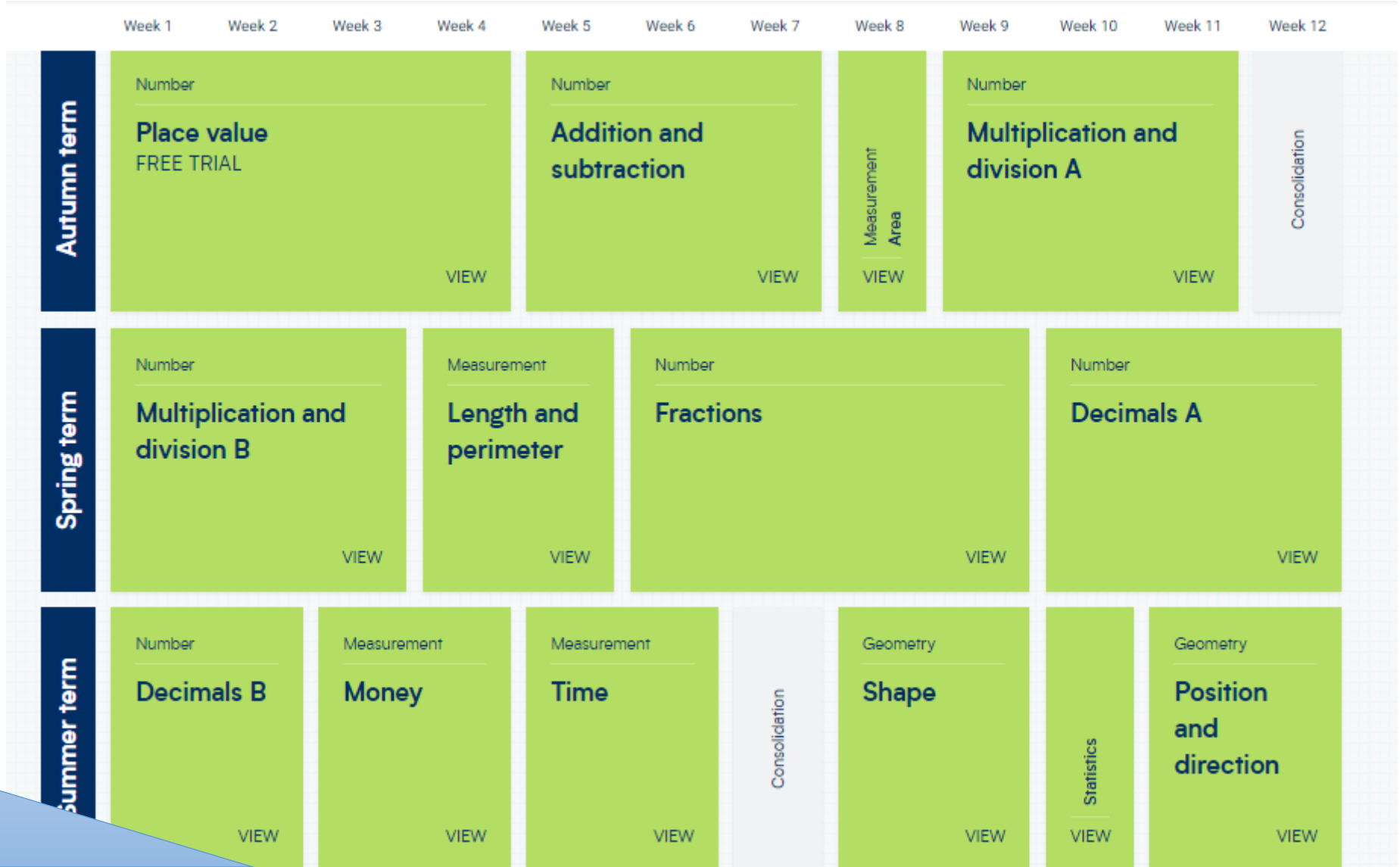
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
FREE TRIAL
VIEW
Number
Addition and subtraction
VIEW
Number
Multiplication and division A
VIEW
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions A
VIEW
Measurement
Mass and capacity
VIEW
Summer term
Number
Fractions B
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Geometry
Shape
VIEW
Statistics
VIEW
Consolidation

Year 4


Week 1
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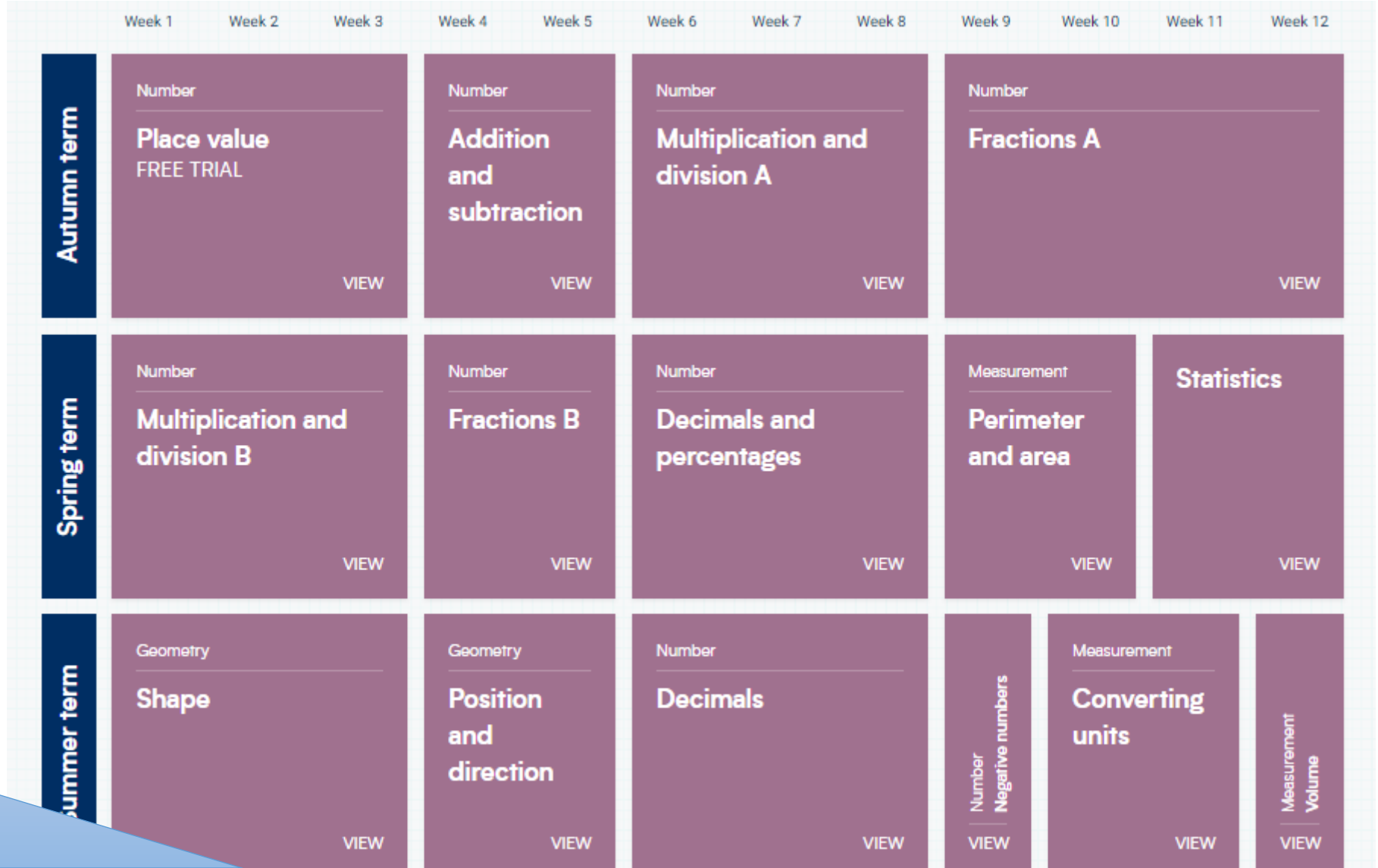
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
FREE TRIAL
VIEW
Number
Addition and subtraction
VIEW
Measurement
Area
VIEW
Number
Multiplication and division A
VIEW
Consolidation
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions
VIEW
Number
Decimals A
VIEW
Summer term
Number
Decimals B
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Consolidation
Geometry
Shape
VIEW
Statistics
VIEW
Geometry
Position and direction
VIEW

Year 5


Week 1
Week 2
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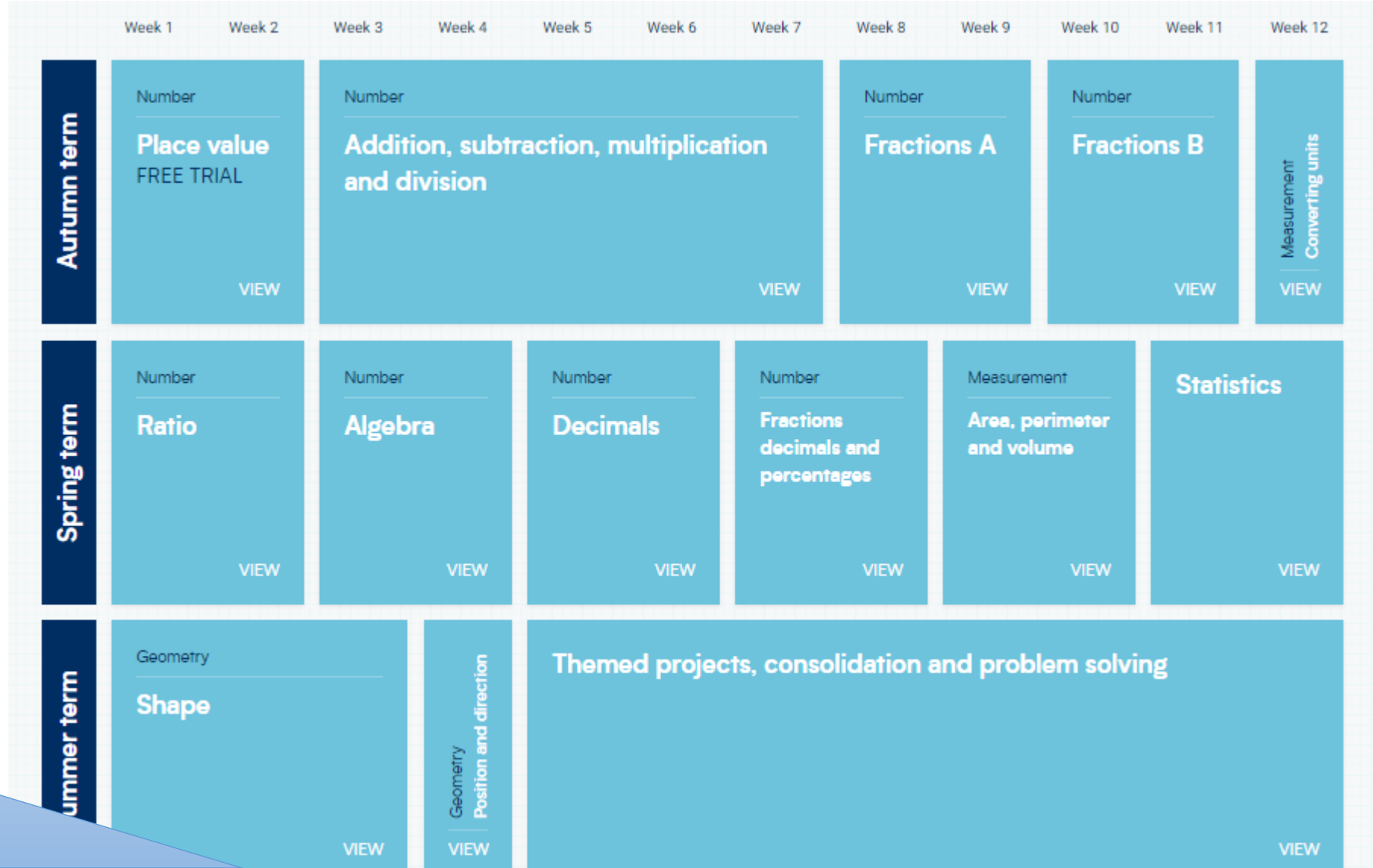
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
FREE TRIAL
VIEW
Number
Addition and subtraction
VIEW
Number
Multiplication and division A
VIEW
Number
Fractions A
VIEW
Spring term
Number
Multiplication and division B
VIEW
Number
Fractions B
VIEW
Number
Decimals and percentages
VIEW
Measurement
Perimeter and area
VIEW
Statistics
VIEW
Summer term
Geometry
Shape
VIEW
Geometry
Position and direction
VIEW
Number
Decimals
VIEW
Number
Negative numbers
VIEW
Measurement
Converting units
VIEW
Measurement
Volume
VIEW

Year 6


Week 1
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Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
FREE TRIAL
VIEW
Number
Addition, subtraction, multiplication and division
VIEW
Number
Fractions A
VIEW
Number
Fractions B
VIEW
Measurement
Converting units
VIEW
Spring term
Number
Ratio
VIEW
Number
Algebra
VIEW
Number
Decimals
VIEW
Number
Fractions decimals and percentages
VIEW
Measurement
Area, perimeter and volume
VIEW
Statistics
VIEW
ummer term
Geometry
Shape
VIEW
Geometry
Position and direction
VIEW
Themed projects, consolidation and problem solving
VIEW

Maths in EYFS

Continuous provision	Whole class teaching
Maths provision in EYFS is continuous, activities linked to the weeks learning are accessible throughout. Key words and vocabulary flowers are used to identify the words that they have learnt, with each activity being demonstrated by a staff member prior to this becoming independently accessed. Children develop their mathematical skills through other activities during the day and access outdoor learning where their knowledge of maths is used to take part in carefully planned activities.	Within Reception, children receive daily input following the White Rose Maths scheme. As a whole class they listen to the input, where the use of manipulatives is modelled to help develop their understanding. Activities linked to this are then completed. Our nursery and pre-school children take part in a teacher led activity in small groups, developing their maths knowledge and understanding in preparation for Reception.

Maths in our Resource Provision

All children at Worth Valley Primary School access maths. Children within our resource provision have a bespoke curriculum based on their learning needs. Where possible, children access maths within their year group classroom and take part is the same learning as their peers. For those children who are unable to do this, they access continuous provision which is supported or led by an adult.

Activities are carefully planned using manipulatives to develop their understanding of key concepts, these are modelled by staff and the children are then encouraged to repeat the activity independently.

Our end points:

From the moment children start at Worth Valley Primary School in preschool, they are exposed to mathematics through engaging activities such as singing, visuals, and hands-on counting. As they progress through the school, the math's curriculum builds on these early experiences, ensuring that by the end of Key Stage 1, pupils have a strong foundation in number sense and basic operations. By the end of Year 6, pupils have developed a deep understanding of a broad range of mathematical concepts, including problem-solving, reasoning, and fluency in key arithmetic skills, preparing them for success in secondary school and beyond. Please see our end point document from pre-school to year 6:

https://www.worthvalleyprimary.co.uk/wp-content/uploads/2024/09/End-points-for-maths.docx

Vocabulary across the curriculum

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
EYFS	Number; zero; numbers to 20; count, forwards, backwards; how many, more, fewer, equal, group; order, largest, smallest, less; even, odd	One more, one less, altogether, how many are left? Same, different, number bond, part-whole, add, take-away	Double, half, halve, halving, pairs, twice as many, share, equal, unequal, group, left over	Half, halve, halving	Now, before, soon, later, after, next, fastest; time, yesterday, today, tomorrow, day, week, weekend, month, year; Days of the week: Monday, Tuesday, etc. Seasons: spring, summer, autumn, winter; birthday, holiday; Morning, afternoon, evening, night, midnight bedtime, dinner/lunch time, playtime; length, height, breadth, tall, short, long, tallest, shortest, longest, longer/shorter, taller/shorter, wider/narrower, weigh, weight, heavy, heavier, heaviest, light, lighter, lightest, balance	Shape, circle, triangle, rectangle, square, side, straight, curved, cylinder, cube, cuboid, cone, sphere, pyramid, face, same, different, pattern.	On, next to, over, under, around, through.	

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
Year 1	Numbers to 100; place value; digit, integer; symbol; compare; equal to, more, less, greater than, fewer, less than, greatest, smallest; first, second, third…last; ones, tens, partition, exchange; order, largest, smallest, biggest, least, most.	Number bonds, part, whole; plus; fact family, addition sentence, number sentence; how many more; number line; commutative; addition, more, make, sum, total, add together, altogether; calculation; Inverse equals, is the same as (including equals sign); subtract, , subtraction, take away, minus; difference between, what is the difference? how many more?, how many less? how much more is?	How many altogether? How may are there?; groups, groups of, equal groups, unequal groups; row, column, array; number sentence; double, doubles; equal groups of 2, equal groups of 5, equal groups of 10; share, sharing, equally, odd, even,	Whole, parts, equal parts, the same; split; groups; share; equally; quarter; four equal parts One half, two halves A quarter, two quarters	Length, measure, measuring; ruler, cm; mass; balance, scale; volume, full, half full, quarter full, empty; capacity; holds, Container; money; value; coin; note; amount; 1p, 2p, 5p, 10p, 20p, 50p, £1, £2, £5, £10; hour, o'clock, half past, clock, watch, hands; hour, minute, second; before, after next, last now, soon, early, late quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly old, older, oldest, new, newer, newest	Polygon, 2D, 3D, group, sort, corner (point, pointed) Face, side, edge Make, build, draw.	Turn, full, half, quarter, three quarter; direction; movement, move; position; left, right, up, down; top, bottom, middle, above, below, between; in front, behind.	

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
Year 2	2-digit; base 10; pattern; sequence; Numbers to one hundred Hundreds Partition, recombine Hundred more/less	Bar model; operation, inverse operation; column; exchange; bridge; method;	Times-table; facts; multiples; repeated addition; lots of; of; multiply; multiplied by; times; commutative; twos, fives, tens, threes; array; go into; divide, divide between, division, dividing; grouping, sharing;	Two quarters, three quarters, one third, two thirds; unit fraction, numerator, denominator, vinculum; equivalence, equivalent.	Change, total; distance; metres; g/kg; ml/l; temperature, thermometer, degrees Celsius, increase, decrease, warmer, colder; quarter past/to, 5 past, 10 past, twenty to etc, start, duration, end, interval, how long…? When did it start /end /finish…?, seconds;	Pentagon, hexagon, octagon, quadrilateral; prism; vertices, vertex; rotate; Symmetry, symmetrical, line of symmetry; horizontal, vertical; Fold; pattern, repeating pattern.	Direction, forwards, backwards; right angle; rotation, Clockwise, anticlockwise.	Count, tally, tally chart, table; data, represent, sort; pictogram, symbol; block diagram, axis; label, title, scale; most popular, most common, least popular, least common; Venn diagram, Carrol diagram.

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
Year 3	Numbers to one thousand; 3-digit; thousand; ascending, descending;	Column, column addition and subtraction; regroup; efficient; estimate.	Fours, eights; remainder; divisor, dividend, quotient.	Non-unit fraction; tenths, two tenths, three tenths etc; two thirds; fifth, sixth, ninth; decimal, decimal point;	mm; perimeter; leap year; minutes past/to; a.m., p.m.; analogue, digital; twelve-hour /twenty-four-hour clock; Roman numerals I to XIII.	Parallel, perpendicular; surface; acute angle, obtuse angle.	North, South, East, West; angle, point, acute, obtuse; ninety degrees Orientation (same orientation, different orientation)	Chart, bar chart; frequency table, Carroll diagram, Diagram

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
Year 4	Numbers to ten thousand; Roman numerals to one hundred; round, nearest; approximately; negative, minus, count through zero; tenths, hundredths, 0.25, 0.5, 0.75.	Formal method.	Sixes, sevens, nines; produce, poduct; associative law; commutativity; factor, factor pair; formal method;	Proper fraction, improper fraction, mixed number; hundredths; Gattegno chart.	Km; rectilinear; area, square centimetres; warmest, coldest.	Isosceles, scalene, equilateral; rhombus, parallelogram, trapezium; regular polygon; mirror line, reflect.	Coordinates, translation, first quadrant, x-axis, y-axis.	Continuous data, discrete data; line graph, xaxis, y-axis.

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
Year 5	Numbers to a million; Roman numerals to one thousand; powers of 10.	Place holder.	Common factor, prime number, composite number, prime factor, square number, cubed number; round up/down.	Common denominator; thousandth; simplify, simplified; convert; per cent, percentage, per hundred;	Imperial units, metric units, inches, lbs, pints; timetable; compound shape; volume, capacity, cm cubed/cubic cm.	Degrees, protractor, reflex angle; irregular polygon, dimensions; net.	Reflection, reflect.	

	Number- Place Value	Number- Addition and Subtraction	Number- Multiplication and Division	Number- Fractions	Measurement	Geometry- Shape	Geometry- Position and direction	Statistics
Year 6	Numbers to ten million. Algebra: Function, input, output; algebra, algebraic, rule; expression; substitute; formula, formulae; equation; value, possible values, enumerate.		Order of operations, BODMAS; common multiple, lowest common multiple.	Cancel, highest common factor, common numerator. Ratio, proportion; for every_there are_, :(to); enlargement, scale factor.	Tonnes, ounces, stone, miles.	Vertically opposite (angles), internal angles; circumference, radius, diameter, centre.	Four quadrants.	Mean, pie chart.

Our approach to times-tables

Times-tables underpin our ability to develop knowledge in Keystage 2; they form the basis across all areas of maths. At Worth Valley, we have weekly time-tables lessons as follows:

Year	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
1	Counting on in 1s, 2s, 5s and 10s					
2		2x	5x	10x	Mixed x	Revision
3	2x, 5x, 10x revision	3x	6x	4x	8x	Mixed times
4	Recap of Y3 3x, 6x, 4x, 8x mixed	9x	11x	7x	12x	MTC test
5 & 6	Continuous revision	Continuous revision	Continuous revision	Continuous revision	Continuous revision	Continuous revision

Our times-tables are supported through the use of TTRS. Each Keystage 2 class has a set session, allowing all children the access to improve their knowledge.

In order to prepare for the government MTC, our year 4 children have been taking part in the 'Official, Unofficial Multiplication Timestable Check' . This is to ensure the learning in place is having a positive impact on children's ability to recall throughout the year.

Official MTC results

	25/25	20 +	Mean
2022	6.6%	23%	13.3
2023	33.3%	53.3%	18.13
2024	18%	50%	18

Securing Early Number Facts

We are currently part of the NCETM Mastery of Number Programme, which is being applied from Reception to Year 2. Regular sessions take place, which reinforces basic number skills, along with vocabulary. The programme has had a positive impact on the confidence of our children in relation to maths.

To support the teaching and learning of early number skills, children have weekly access to Numbots, which helps to develop their recall of number bonds. This is predominately used for KS1, in support of our NCETM sessions.

Curriculum for all

How do we stretch and challenge pupils?

We teach for mastery, therefore all children access the same input from WhiteRose Maths Education and work through the fluency, reasoning and problem solving tasks using manipulatives to help secure their understanding. Our most able children will be challenged through further questions, linked to the small steps being taught using PlanPanion and I see reasoning. These tasks are completed either independently or as part of a team, where discussions take place to help deepen their knowledge.

How do we cater for SEND?

Support is provided as we work together as one team, to ensure all children can access the small steps being taught. This support is through the use of adaptive teaching, manipulatives, working with their peers and through targeted questioning and feedback from staff. Children with an EHCP access maths daily through a tailored curriculum, which is provided in class or within our resource provision. Children with SEND will be confident mathematicians, who accomplish tasks based on their individual needs.

Assessment

Formative

Ongoing daily assessment takes place based on children's understanding in lessons. Live marking has a positive impact on the teaching and learning allowing feedback to be instant and effective. Show me activities, using manipulatives, if children have misconceptions or make errors help children to consolidate learning and helps to deepen their learning. Throughout all learning, questioning allows us to assess the understanding of key concepts, helping to identify those pupils who would benefit from reactive interventions.

Summative

We use PiXL to assess children on a termly basis, or half termly, for y2 and y6. The data is then analysed through the use of Question Level Analysis to identify gaps within children's learning. Bespoke interventions are then planned to re-teach and consolidate learning.

Weekly arithmetic tests are completed in Keystage 2, the teacher uses this data to plan morning arithmetic sessions based on whole class gaps identified.

Pupil Voice

What do our children say about maths?

I like how there is never ending work. There is always something to challenge us after we think we have finished.

I love Maths! It is so fun and I am very good at it.

Maths is hard. Mrs Holmes helps me so I can do it.

'I used to be rubbish at maths but now I really enjoy it. Maths has been made fun and I am proud of myself.'

I SEE REASONING YEAR 6

Tasks to inspire mathematical thinking

NUMBOTS

White Rose Maths

TIMES TABLES ROCK STARS

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

Master the Curriculum