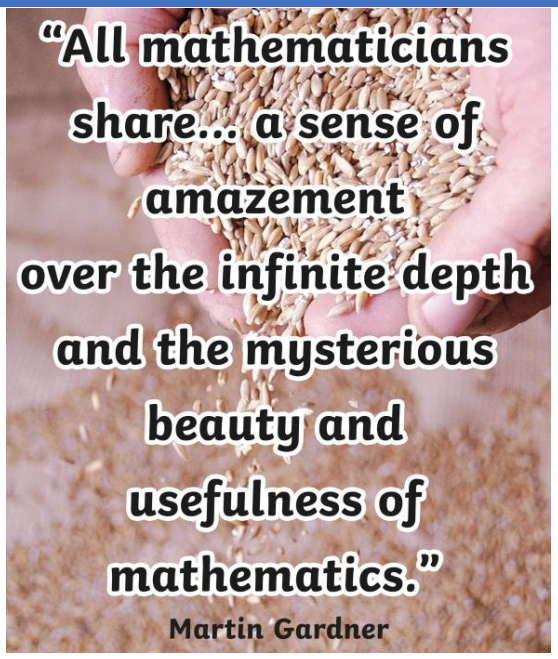
Belton Church of England Primary School

MATHS CURRICULUM STATEMENT

Achieving the Best Together

I have come that they may have life in all its fullness – John 10:10

Curriculum Vision



At Belton C of E Primary School, our maths curriculum is designed to provide children with the opportunity to expand upon and develop their mental maths skills, and prepare them for the wide variety of problem-solving opportunities that they will encounter in their lives.

Our Whole-School Maths Vision is:

- To foster positive attitudes, fascination and excitement of discovery through the teaching and learning of mathematical concepts.
- To develop a 'can do' attitude in our children, especially when problem solving and pattern sniffing.
- To broaden children's knowledge and understanding of how mathematics is used in the wider world by making rich and varied real life connections.
- To enable our pupils to confidently reason about their mathematics, using a suitable range of mathematical language, recognising its importance for communication and deep thinking.
- To use a wide range of models, visual manipulatives and practical resources to develop a deep conceptual understanding alongside procedural fluency.
- To implement the current legal requirements of the Foundation Stage (EYFS) and the New National Curriculum.

Through our maths vision, we are passionate and fully committed to developing a balance between the children's procedural fluency and a conceptual understanding.

Intent

The 2014 National Curriculum for Maths aims to ensure that all children:

- Become fluent in the fundamentals of Mathematics

- Are able to reason mathematically
- Can solve problems by applying their Mathematics

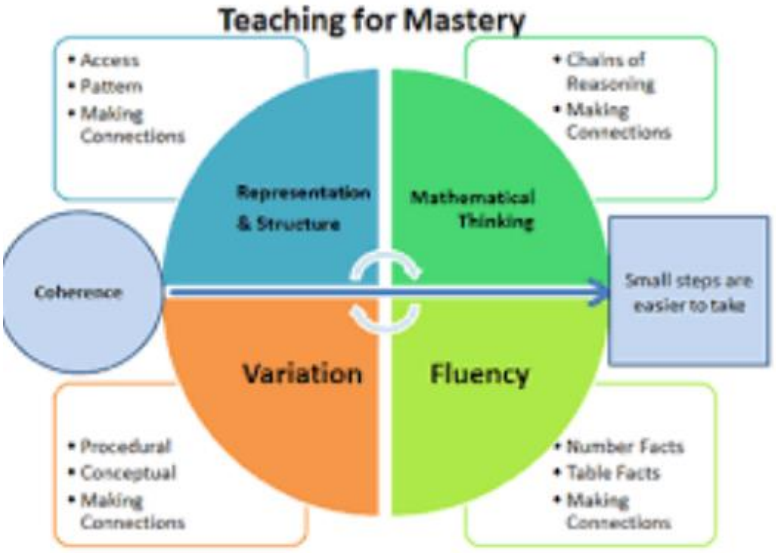
At Belton C of E Primary School, these skills are embedded within Maths lessons and developed consistently over time, starting with the EYFS. We are committed to ensuring that all children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts.

We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics. Our mathematics curriculum has been tailored to provide children with a foundation for understanding number, reasoning, thinking logically and problem solving with resilience so that they are fully prepared for the future. Through our Learning Powers we foster positive can do attitudes and we promote the fact that 'We can all do maths!' . We instil confidence in our children by providing them with the building blocks that they need before moving onto the next stage.

By adopting a Mastery approach, it is also intended that all children, regardless of their starting point, will maximise their academic achievement and leave Belton C of E Primary School with an appreciation and enthusiasm for Maths, resulting in a lifelong positive relationship with Mathematics.

Implementation

As a school we have a whole school approach to the teaching of Mathematics which includes EYFS. (See separate policy below).
Our teaching for mastery is underpinned by the NCETM's 5 big ideas.



These principles and features characterise this approach and convey how our curriculum is implemented:

- Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics.
- The large majority of children progress through the curriculum content at the same pace; Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.
- If a pupil fails to grasp a concept or procedure, this is identified quickly and early intervention ensures the pupil is ready to move forward with the whole class in the next lesson.
- The structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be sustained.
- Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning. In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.

- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts.
- Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up.
- Children's explanations and their proficiency in articulating mathematical reasoning, with the precise use of mathematical vocabulary, are supported through the use of stem sentences provided by the teacher.
- Key facts such as multiplication tables and addition facts within 10 are learnt to automaticity to avoid cognitive overload in the working memory and enable pupils to focus on new concepts.

To ensure whole consistency and progression, the school uses the nationally recognised White Rose Maths scheme. This has been chosen as it follows the Five Big Ideas, Ready to Progress and the 2014 National Curriculum. The White Rose curriculum is a cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. For example, place value is revisited in addition and subtraction and multiplication and division. The curriculum is designed to have an emphasis on number, with a large proportion of time spent reinforcing number to build competency.

Lessons are planned to provide plenty of opportunities to build reasoning and problem solving elements into the curriculum. When introduced to a new concept, children have the opportunity to use concrete objects and manipulatives to help them understand what they are doing. Alongside this, children are encouraged to use pictorial representations. These representations can then be used to help reason and solve problems. Both concrete and pictorial representations support children's understanding of abstract methods.

Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. These teaching blocks are broken down into smaller steps, to help children understand concepts better. This approach means that children do not cover too many concepts at once which can lead to cognitive overload. Each lesson phase provides the means for children to achieve greater depth, with children who are quick to grasp new content, being offered rich and sophisticated problems, within the lesson as appropriate.

As a school we believe fluency in Mathematical concepts is key therefore in KS1 we have joined the Maths Hubs Mastering Number scheme while in KS2 we have a half termly focus on KIRFs (that are picked up in morning retrieval work) and Friday fluency sessions using assertive mentoring or strawberry jam for example.

Assertive Mentoring

These provide regular coverage of the essential skills needed to ensure good pupil progress in maths across the whole school. Pupils take the Weekly Basic Skills Check once a week using a positive 'beat your own score' approach. It takes approximately 30 minutes to complete.

The same knowledge and skills are 'tested' every week, in the same order at the same level of difficulty making gradual weekly progress inevitable as they become embedded over time. These ensure that essential knowedge is embedded in the long term memory.

Lemon Curs, Strawberry Jam & Chocolate Spread

These help children with their fluency by rapidly recalling recalling number facts.

Impact

The school has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Students can underperform in Mathematics because they think they cannot do it or are not naturally good at it. The school's use of White Rose Maths addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mindset. We have fostered an environment where maths is fun and it is 'OK to be wrong' because the journey to finding an answer is most important.

Our maths books show a range of activities that demonstrate progress and confidence in maths across the school. While pupil voice shows that children enjoy maths lessons and enjoy a challenge. They feel able to try different strategies when they need extra help and can articulate this by using their mathematical vocabulary.

Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child with achievement at the end of KS2 above the national average for ARE+. This means that children leave our school being confident Mathematicians that shape the future.

We would like all children to leave Belton Primary School being confident Mathematicians that shape the future.

SEN Statement

At Belton Primary School Mathematics, enables children in understanding the world, it is an integral part of the curriculum. It provides important tools to solve all manner of problems in different situations.

- We take a maths for mastery approach so every child learns in small steps building on prior knowledge.
- Children have pre-teaching so that they can feel confident in achieving despite challenges they may face.
- In every classroom, children have access to manipulatives and every teacher uses these to support understanding to reveal useful information and relationships and promote independence.
- Children from EYFS to year 6 have core Stem sentences and sentence stems which they learn to support understanding and give children opportunity for more thinking time.
- Children have access to a clear progression of vocabulary that supports small steps and enables children to achieve as they deepen their understanding.
- Lemon Curds and Strawberry Jam are used to support memory and recall of key bonds and multiplication facts which support learning within maths lessons.
- Assertive Mentoring is implemented to help children put different concepts into long term memory. Through quality teaching and feedback and the use of prompt sheets children can work at their appropriate level and succeed.

British Values

	Democracy	Rule of Law	Individual Liberty.	Respect and Tolerance
EYFS	Teamwork in group work. Taking turns to listen to everyone speak and give their answers and explanations	Following rules when playing maths games	Being allowed to make mistakes and learn from them. In problem solving taking risks to build self	Teamwork in groupwork Respecting other children's views which may differ from their own (e.g., the best way/most efficient way to solve a problem). Use maths to learn about different faiths and cultures around the world (e.g., looking at patterns/shapes within Islam/Hindu religions).

KS1	Teamwork in group work. Taking turns to listen to everyone speak and give their answers and explanations	Following rules when playing maths games	Being allowed to make mistakes and learn from them. In problem solving taking risks to build self	Teamwork in groupwork Respecting other children's views which may differ from their own (e.g., the best way/most efficient way to solve a problem). Use maths to learn about different faiths and cultures around the world (e.g., looking at patterns/shapes within Islam/Hindu religions). Work within boundaries to make safe choices during practical activities.
LKS2	Teamwork in group work. Taking turns to listen to everyone speak and give their answers and explanations Maths parliamentarians to support with the development of maths across the school from the children's perspectives (taking part in pupil voice, data collection for votes, etc.) School council to conduct voting exercises where data collection is involved (e.g. voting for the colours of the friendship bench).	Following rules when playing maths games Applying rules in calculations, algebra and geometry.	Being allowed to make mistakes and learn from them. In problem solving taking risks. Devising own ways to present ideas and solutions	Teamwork in groupwork Respecting other children's views which may differ from their own (e.g., the best way/most efficient way to solve a problem). Use maths to learn about different faiths and cultures around the world (e.g., looking at patterns/shapes within Islam/Hindu religions). Use of oracy hand gesture to disagree in a respectful way with the answers of others whilst in class. Work within boundaries to make safe choices during practical activities.
UKS2	Teamwork in group work. Taking turns to listen to everyone speak and give their answers and explanations Maths parliamentarians to support with the development of maths across the school from the children's perspectives (taking part in pupil voice, data collection for votes,	Following rules when playing maths games Applying rules in calculations, algebra and geometry.	Being allowed to make mistakes and learn from them. In problem solving taking risks. Devising own ways to present ideas and solutions Challenge stereotypes (e.g., assemblies about maths in the wider world and how	Teamwork in groupwork Use of oracy hand gesture to disagree in a respectful way with the answers of others whilst in class. Work within boundaries to make safe choices during practical activities. Make own choices within data handling activities.

	etc.) School council to conduct voting exercises where data collection is involved (e.g. voting for the colours of the friendship bench).		women can be engineers / men can be hairdressers etc	Respecting other children's views which may differ from their own (e.g., the best way/most efficient way to solve a problem). Use maths to learn about different faiths and cultures around the world (e.g., looking at patterns/shapes within Islam/Hindu religions).

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MATHS PROGRESSION STATEMENT

Achieving the Best Together

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Substantive Knowledge (Facts)

Number	• have a deep understanding of number to 10, including the composition of each number. • 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) and some number bonds to 10, including double facts.
Numerical Patterns	• verbally count beyond 20, recognising the pattern of the counting system. • compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. • explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value	• use number lines, objects and pictures to identify and represent numbers. • count, read and write numbers to 100 in numerals. say what is one more or one less than a number up to 100.	• read and write numbers to at least 100 in numerals and in words. • count in 10's from any number, forwards and backwards. • recognise the place value of each digit in a two-digit number (tens, ones)	• read and write numbers up to 1000 in numerals and in words. • understand the place value of each digit in a three-digit number (hundreds, tens, ones). • compare and order numbers up to 1000.	understand the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). • order and compare numbers beyond 1000.	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. • count forwards and backwards in steps of powers of 10 for any	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. • use negative numbers in context and calculate intervals across zero eg.

	• count to 100 and above, forwards and backwards, starting at any number.	• compare and order numbers from 0 up to 100, using the <, > and = signs. • use place value and number facts to solve problems.	• find 10 or 100 more or less than a given number.	• count backwards through zero to include negative numbers. • round any number to the nearest 10. • round any number to the nearest 100. • round any number to the nearest 1000. • compare numbers with the same number of decimal places up to two decimal places. • round decimals with one decimal place to the nearest whole number.	given number up to 1,000,000. • count forwards and backwards with positive and negative whole numbers, including through zero. • round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000. • read, write, order and compare numbers with up to three decimal places. • round decimals with two decimal places to the nearest whole number and to one decimal place.	find the difference between - 25 and 15. • state the value of each digit in numbers given to three decimal places. • multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places. • solve problems which require answers to be rounded to specified degrees of accuracy – whole numbers or decimals.
Addition and Subtraction	• say a number one more or one less than a given number • read, write and solve numbers sentences using + - and = • add and subtract one-digit and two-digit numbers to 20. • use addition and subtraction bonds up to 20 • solve one-step problems that involve addition and subtraction, using objects and pictures if needed.	• recall and use addition and subtraction facts to 20 fluently, and use this for facts up to 100 eg. 7+2=9 so 70+20=90. • mentally add three single digit numbers • mentally add or subtract a two-digit number and a single digit number. • mentally add or subtract a two digit number and tens eg. 23+30, 55-20 • mentally add or subtract two two-digit numbers	• add or subtract mentally a three-digit number and ones, crossing the tens boundary. • add or subtract mentally a three-digit number and tens, crossing the hundred boundary. • add or subtract mentally a three-digit number and hundreds. • add and numbers with up to three digits using column addition. • subtract numbers with up to three digits using column	• add numbers with up to 4 digits using the formal written method of columnar addition where appropriate. • subtract numbers with up to 4 digits using the formal written method of columnar subtraction, including borrowing. • estimate the answer to a calculation and use inverse operations to check answers. • solve addition and subtraction two-step problems	• use the column method to add numbers with at least 4 digits. • use the column method to subtract numbers with at least 4 digits, including double borrowing. • add and subtract numbers mentally with increasingly large numbers. • use rounding to check answers to calculations.	• use effective strategies for mental addition and subtraction calculations • use the column method to add whole numbers and numbers with up to three decimal places. • use the column method to subtract whole numbers and numbers with up to three decimal places. • use estimation to check answers to calculations.

	• solve missing number problems, using objects and pictures if needed	• understand and can show that addition can be done in any order but subtraction cannot (commutative law)	subtraction, including borrowing. • solve missing number problems, using number facts, place value and more complex addition and subtraction.	in context, deciding which operations and methods to use and why eg. Written or mental methods with jottings	• solve addition and subtraction multi step problems in context (eg. money).	• solve addition and subtraction multi step problems in a range of contexts
Multiplication	• show an understanding of multiplication by grouping objects. • count in twos. • count in fives. • count in tens. • double numbers and quantities up to 10 • double numbers and quantities up to 20 • solve one-step problems involving x, using objects and pictures to help me.	• recall and use multiplication facts for the 10 times table. • recall and use multiplication facts for the 2 times table. recognise odd and even numbers. • recall and use multiplication facts for the 5 times table. • I know that multiplication of two numbers can be done in any order (commutative law) • write multiplication statements using the symbols x and = • solve problems involving multiplication. I might use equipment, arrays, repeated addition, mental methods or known multiplication facts to help me.	• recall and use multiplication facts for the 3 times table. • recall and use multiplication facts for the 4 and 8 times tables. • derive new facts using known multiplication tables eg. 3x2=6, 30x2=60 • calculate two digit numbers multiplied by a one-digit number using mental methods and jottings. • solve missing number problems involving multiplication.	• recall and use multiplication facts for the 6 and 12 times tables. • recall and use multiplication facts for the 7 and 9 times tables. • recall and use multiplication facts up to 12x12 • use place value and known facts to multiply mentally, including: multiplying together three numbers or using multiples of 10 and 100 eg. 6x4=24 so 600x4=2400 • understand the distributive law ie. use partitioning (eg. The grid method) to solve calculations. • multiply two-digit numbers by a one-digit number using short multiplication. • multiply three-digit numbers by a one-digit number using short multiplication.	• multiply whole numbers and those involving decimals by 10, 100 and 1000. • multiply numbers with up to 4 digits by a one-digit number using short multiplication. • establish whether a number up to 100 is prime and recall prime numbers up to 19. • identify multiples and common multiples of pairs of numbers. • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • multiply numbers with up to 4 digits by a two-digit number using long multiplication.	• multiply one-digit numbers with up to two decimal places by whole numbers. • identify common factors, common multiples and prime numbers. • multiply multi-digit numbers by a 2 digit whole number using the formal written method of long multiplication. • solve problems involving addition, subtraction, multiplication and division. • use my knowledge of the order of operations to carry out calculations involving all four operations.
Division	• count in tens. • count in twos. • count in fives.	• recognise odd and even numbers (linked to halving)	• recall and use division facts for the 3, 4 and 8 division tables	• recall division facts for the 6 and 12 times tables. • recall division facts up to 12x12.	• identify factors, including finding all factor pairs of a number,	• divide numbers up to 4 digits by a two-digit whole number using the

	• use grouping or sharing to show an understanding of division • solve one-step problems using ×, using objects and pictures to help me.	• recall and use division facts for the 2, 5 and 10 multiplication tables. • write division statements using the symbols ÷ and = • solve division problems (in context) in different ways eg. Using equipment, using a number line.	• write and calculate mathematical statements for division using the multiplication tables that I know • solve missing number problems involving multiplication and division. • solve word problems or puzzles involving division.	• divide mentally using place value and known or derived facts. Eg. 600÷3=200 because 6÷3=2 • use partitioning to help me divide larger two digit numbers by a one digit number eg. 72÷3 – splits into 60÷3=20 and 12÷3=4 so 72÷3=24	and common factors of two numbers • divide whole numbers and those involving decimals by 10, 100 and 1000. • divide numbers up to 4 digits by a one-digit number using the formal written method of short division • interpret remainders appropriately for the context by rounding up or down. • record and interpret a remainder as a fraction. • record and interpret a remainder as a decimal. • solve problems involving multiplication and division. • solve problems involving factors, multiples, squared and cubed numbers.	formal written method of long division. • interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • solve problems by scaling quantities up and down • solve multi-step problems involving multiplication and division.
Fractions	• find half of an object, shape or quantity. • find a quarter of an object, shape or quantity. • explain that halves are two equal parts and quarters are four equal parts of the whole.	• recognise the equivalence of 2/4 and 1/2. • recognise, find, name and write fractions ¼, 2/4 (½) and 3/4 of a set of objects, shape or quantity.	• recognise, find and write fractions of a set of objects. (Unit fractions and non-unit fractions with small denominators) compare and order fractions with the same denominators.	• recognise and show, using diagrams, families of common equivalent fractions. • add and subtract fractions within the same denominator. • recognise and write decimal equivalents to 1/4, 1/2 and ¾.	• identify, name and write equivalent fractions of a given fraction, including tenths and hundredths. • recognise mixed numbers and improper fractions and convert	• use common factors to simplify fractions. • use common multiples to find a common denominator for a set of fractions.

		• recognise, find, name and write 1/3, of a set of objects or quantity eg.1/3 of 6 = 2 • count in fractions up to 10, starting from any number and using the 1/2 and 2/4 equivalence on the number line.	• compare and order unit fractions. • add and subtract fractions with the same denominator within one whole. (eg 5/7 + 1/7 = 6/7) • recognise and show, using diagrams, equivalent fractions with small denominators.	• solve problems involving increasingly harder unit fractions to calculate quantities. • solve problems involving increasingly harder non-unit fractions to calculate quantities.	from one form to the other. • compare and order fractions whose denominators are multiples of the same number. • add and subtract fractions with the same denominator and denominators that are multiples of the same number. • multiply proper fractions and mixed numbers by whole numbers.	• compare and order fractions, including fractions >1. • multiply simple proper fractions, writing the answer in the simplest form. • add and subtract fractions with different denominators and mixed numbers. • divide proper fractions by whole numbers. • solve a range of fraction word problems, including improper fractions and mixed numbers.
Measures	• measure and begin to record lengths and heights. • measure and begin to record mass/weight. • measure and begin to record capacity and volume. • compare or describe lengths, weights and volumes eg. Longer, heavier, half full. • solve practical problems involving length, weight or volume.	• choose and use appropriate standard units to estimate and measure length/height (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit. • compare and order lengths, mass, volume/capacity and record the results using >, < and =	• measure and compare: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). • add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). • measure the perimeter of simple 2-D shapes.	• use decimal notation to record metric measures eg. Kilograms, kilometres, metres and litres. • convert between different units of measure [for example, kilometre to metre; litre to millilitre] • measure and calculate the perimeter of a rectilinear figure (a shape whose all edges meet at right angles), including squares, in centimetres and metres • find the area of rectilinear shapes by counting squares	• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. • calculate and compare the area of rectangles	• use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. • solve problems involving the calculation and conversion of units of measure, using decimal notation up to

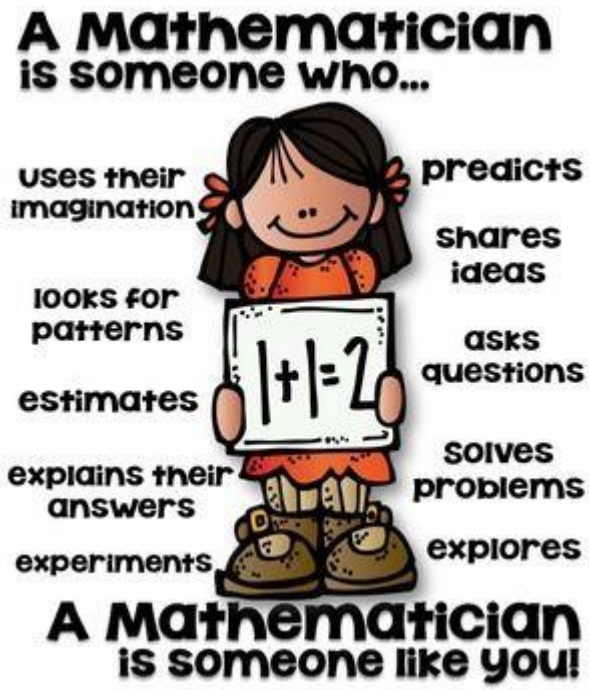
				. • estimate, compare and calculate different measures	(including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. • use all four operations to solve problems involving measure [for example, length, mass and volume] using decimal notation, including scaling.	three decimal places where appropriate. • substitute values into a simple formula to solve problems e.g. perimeter of a rectangle, the area of a triangle or the volume of a cuboid. • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].
Time	• recognise and use language relating to dates, including days of the week, weeks, months and years. • tell the time to the hour and draw the hands on a clock face to show these times. • tell the time to half past the hour and draw the hands on a clock face to show these times.	• compare and sequence intervals of time. • tell and write the time to quarter past/to the hour and draw the hands on a clock face to show these times. • tell and write the time to five minutes 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.	• tell and write the time from 12-hour and 24-hour digital clocks. • tell and write the time from an analogue clock, including using Roman numerals from I to XII. • know the number of seconds in a minute and the number of days in each month, year and leap year. • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours.	• read, write and convert time between analogue and digital 12- and 24-hour clocks. • convert between different units of time eg. hours to minute, minutes to seconds. • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	• solve problems involving converting between units of time. • complete, read and interpret information in timetables.	

Money	recognise and know the value of the different coins and notes.	- combine amounts to make a particular value. - find different combinations of coins that equal the same amounts of money. - solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	- add and subtract amounts of money to give change, using both £ and p in practical contexts.	- use decimal notation to record money as pounds and pence.	- use all four operations to solve problems involving measure [for example, money] using decimal notation, including scaling.	- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
Geometry	- recognise and name common 2D shapes – rectangles (including squares), circles and triangles. - recognise and name common 3D shapes – cuboids (including cubes), pyramids and spheres.	- identify and describe the properties of 2D shapes eg. The number of sides and lines of symmetry. - identify the 2D shapes that make the faces of 3D shapes eg. Circle on a cylinder. - identify and describe the properties of 3D shapes eg. The number of edges, vertices and faces.	- identify right angles and the number of right angles in half, three-quarter and full turns. - identify whether angles are greater than or less than a right angle. - identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	- identify acute and obtuse angles and order angles by size. - compare and classify geometric shapes eg. Quadrilaterals and different triangles based on their properties. - identify lines oy symmetry in 2D shapes presented in different orientations. - complete a simple symmetric figure/pattern with respect to a specific line of symmetry.	- calculate angles at a point and in one whole turn. - draw and measure different angles, including acute, obtuse and reflex angles. - calculate angles on a straight line - use the properties of rectangles to deduce related facts and find missing lengths and angles. - identify regular and irregular polygons based on reasoning about equal sides and angles.	- compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangle, quadrilateral or regular polygon. - recognise angles where they meet at a point, are on a straight line or are vertically opposite and find missing angles. - draw and translate simple shapes in all four quadrants of the coordinate grid and reflect them in the axes.
Statistics		- interpret simple pictograms, tally charts, block diagrams and simple charts.	- solve one and two step problems using information presented in scaled bar charts, pictograms and tables.	- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs (including time graphs).	- solve comparison, sum and difference problems using information presented in a line graph	- interpret pie charts and line graphs and use them to solve problems. - calculate and interpret the mean of a set of data.

Ratio and Proportion					- write percentages as a fraction with denominator 100 and as a decimal. - solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5, and fractions with a denominator of a multiple of 10 or 25.	- solve problems involving the calculation of percentages of numbers or quantities. - solve problems which require scaling up or down of a number/quantity by using multiplication and division facts.
Algebra						- use simple formulae - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.

Disciplinary Knowledge (Skills)

The children are taught these disciplinary concepts within all domains of mathematics across all year groups: Using and applying, investigating, reasoning, problem solving, analysing and justifying and proving.



Procedural Knowledge (Methods)

Children need to know specific methods (both mental and written) and be able to apply these skills with any numbers. Methods include: Partitioning, Number lines, Column method, Short multiplication, Long multiplication, Short division

Please see separate calculation policy

Mathematics
Key Vocabulary Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number and Place Value	One more One less Place Order Number Count Numbers up to twenty Number line Pictorial Answer Equals Read Write	*Same as EYFS, plus:* Forwards Backwards Numerals Words Multiples Equal to More than Less than Fewer Most Least Identify Represent Digit Calculate Odd Even Pattern Numbers up to one hundred	*Same as EYFS & Year 1, plus:* Ones Tens Two- digit Estimate Place Value Solve Problems Greater than > Less than < Nearest ten Number facts Partition Count in steps Zero Compare Determine Value	*Same as EYFS & KS1, plus:* Hundreds Three-digit ten more one hundred more ten less one hundred less Roman numeral Numbers up to one thousand	*Same as previous year groups, plus:* Thousands Four- digit Negative number One thousand more One thousand less Decimal Decimal place Rounding Place holder Nearest ten Nearest hundred Nearest thousand One place Whole number Integer Tenths Hundredths	*Same as previous year groups, plus:* Ten thousands Hundred thousands Millions Context Steps of powers Decimal equivalents Two decimal places Thousandths Numbers up to one million	*Same as previous year groups, plus:* Intervals across zero Three decimal places Hundredths Thousandths Ten thousandths Numbers up to ten million

Addition and Subtraction	Add Subtract Addition Subtraction Adding Subtracting Number Number line Single digit Count on Count back Answer Doubling Halving Sharing Numbers to twenty Check	*Same as EYFS, plus:*	*Same as EYFS & Year 1, plus:*	*Same as EYFS & KS1, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*
		One step problem Concrete object Pictorial representation Missing number Problem Read Write Interpret Equals = Signs One-digit Two-digit Ones Mental Mentally	Columnar addition Columnar Subtraction Tens Order Inverse Relationship Calculation Solve problems Missing number problems Quantities Measures Formal Written method Mental method Method Operation Apply Whole number	Three-digit number Hundreds Estimate Number facts	Two step problems Context Four-digit	Increasingly large numbers More than 4 digits Rounding Determine Context Multi-step problems	Estimation Mixed operations
Multiplication and Division	sharing doubling halving number pattern	*Same as EYFS, plus:*	*Same as EYFS & Year 1, plus:*	*Same as EYFS & KS1, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*
		Multiples Twos Fives Tens Number Multiply Divide Multiplication Division One step problem	Multiplication facts Division facts Multiplication tables Odd numbers Even numbers Share Equally Repeated division	Missing number problem Estimate Inverse Formal written method Mathematical statement Recall Integer Two- digit	Derived facts Factors Factor pairs Scaling problems Three-digit	Decimals Four-digit Long multiplication Short division Remainders Context Common factors Common multiples	Scale factor Long division Whole number remainders Fractions Rounding Mixed operations

		Answer Concrete object Pictorial representation Arrays Count Equals Write	Calculate	One- digit		Prime numbers Prime factors Composite numbers Square number Cube number Notation Squares Cubes	
Measure	Measure Measurement Size Weight Capacity Compare Solve Problems Object Time	*Same as EYFS, plus:*	*Same as EYFS & Year 1, plus:*	*Same as EYFS & KS1, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*
		Length Height Long Short Longer Shorter Tall Double Half Mass Heavy Light Heavier than Lighter than Volume Full Empty More than Less than Half Half full Quarter Quicker Slower Earlier Later	Greater than >
Less than <
Equals =
Intervals
Standard units
Estimate
Direction
Temperature
Unit
Scales
Rulers
Thermometers
Measuring vessels
Metres
Centimetres
Kilograms
Grams
Degrees Celsius
Litres
Millilitres
Symbols
Money
Pounds (£)
Pence (p)
Different combinations	Duration Time taken Nearest minute Record Seconds a.m. p.m. noon midnight kilometre add subtract millimetres perimeter simple 2-D shapes analogue clock roman numerals 12-hour 24-hour Leap year	Estimate Rectilinear figure Area Rectilinear shapes Convert	Square centimetres (cm2) Square metres (m2) Irregular shapes Volume (cm3) Cubes Cuboids Square numbers Cube numbers Metric measure Metric units Imperial units Inches Pounds Pints	Decimal notation Cubic centimetres (cm3) Cubic metres (m3) Cubic millimetre (mm3) Cubic kilometre (Km3) Decimal places formulae Miles

		Sequence events Chronological order Before After Next First Today Yesterday Tomorrow Morning Afternoon Evening Record Hours Minutes Hour Half past O clock Hands Clock face Seconds Coins Notes Dates Days Weeks Months	Change Five past Ten past Quarter past Twenty past Twenty-five past Half past Twenty-five to Twenty to Quarter to Ten to Five to				
Geometry (Position and direction)	Position Distance Direction Move Movement Patterns	*Same as EYFS, plus:*	*Same as EYFS & Year 1, plus:*	*Same as EYFS & KS1, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, <u>plus:</u>*
		Half turn Quarter turn Three-quarter turn Left Right Up	Rotation Right angle Clockwise Anti-clockwise Order Arrange Sequence		Co-ordinates Quadrant Grid Translate Translation Axis X- axis	Reflection	Four quadrants

		Down			Y-axis Spaces Unit Plot Point Polygon		
Geometry (Properties of Shape)	Shape Square Rectangle Circle Triangle Sides Straight side Curved side	*Same as EYFS, plus:*	*Same as EYFS & Year 1, plus:*	*Same as EYFS & KS1, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*	*Same as previous year groups, plus:*
		2-D Shapes 3-D Shapes Two-Dimensional Three-Dimensional Cuboid Cube Pyramid Cone Cylinder Sphere	Properties Compare Common Line symmetry Vertical line Edges Faces Vertices Pentagon Hexagon Heptagon Octagon Nonagon Decagon Kite Rhombus Polygon Square-based pyramid Triangular pyramid Triangular prism Rectangular prism Pentagonal prism Hexagonal prism Octagonal prism	Angle Turn Right angles Quarter of a turn Half-turn Three quarters of a turn Complete turn Horizontal lines Vertical lines Perpendicular lines Parallel lines	Lines of symmetry Symmetric figure Classify Geometric shapes Quadrilaterals Acute angle Obtuse angle	Angles Measure Degrees Missing lengths Missing angles Regular polygons Irregular polygons Degrees Estimate compare Reflex angle Point Straight line Multiples	Radius Diameter Circumference Nets

			Octahedron Dodecahedron Tetrahedron Rectangular pyramid Pentagonal pyramid Hexagonal pyramid Octagonal pyramid				
Fractions, Decimals and Percentages		Fraction Half Equal parts One whole Object Shape Quantity Quarter	*Same as Year 1, plus:* Simple fractions Equivalent equivalence Count	*Same as KS1, plus:* Tenths Unit fractions Non- unit fractions Numerator Denominator Compare Order Add Subtract Solve problems	*Same as previous year groups, plus:* Hundredths Decimal Decimal place One decimal place Two decimal places Round decimals Whole number Common equivalent fractions Decimal equivalents Dividing Ones Tenths Hundredths Simple measure Money problems	*Same as previous year groups, plus:* Thousandths Multiples Three decimal places Per cent Number of parts per hundred Percentages Decimal fraction Mixed numbers Improper fraction Proper fraction Convert Mathematical statements Multiply Percentage and decimal equivalents	*Same as previous year groups, plus:* Common factors Common multiples Decimal fraction equivalents Simplest form

Statistics			Interpret Construct Pictogram Tally chart Block diagrams Horizontal Vertical x- axis y-axis key title chart title Simple tables Ask Answer Questions Counting Objects Category Sort Quantity Total Compare Data	*Same as KS1, plus:* Present Presented Graph Statistics Bar charts Tables Solve One- step questions Two- step questions Information	*Same as previous year groups, plus:* Time graphs Comparison Problems	*Same as previous year groups, plus:* Timetables Line graph	*Same as previous year groups, plus:* Pie chart Calculate Mean Average
Algebra		Solve One-step problem Missing number Check Calculate problem Sequence Chronological	*Same as Year 1, plus:* Inverse Relationship Compare Order Arrange Pattern		*Same as previous year groups, plus:* Perimeter Algebra Algebraically	*Same as previous year groups, plus:* Properties Rectangles Deduce Related facts Missing lengths Missing angles	*Same as previous year groups, plus:* Missing number Problem Pairs Number sentence Variables Combination Possibility Enumerate Equation Formulae

							Generate Linear number sequence
Ratio and Proportion							Ratio Proportion Size Quantity Missing value Integer Multiplication Division Multiply Divide Solve Problem Calculate Percentage Comparison Unequal sharing Grouping Fractions Multiples

Manipulatives Progression

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Linking cubes Numicon Counters Tens frames Bead strings (to 10 and 20) Straws Number lines - labelled (to 20)	Linking cubes Numicon Counters Tens frames Bead strings (to 10 and 20) Straws Number lines – labelled and blank (to 20) Hundred square Base 10 (hundreds, tens, ones) Place Value counters (hundreds, tens, ones)	Counters Base 10 Place Value counters (thousands, hundreds, tens, ones) Hundred squares Straws Numicon (times tables) Bead strings (times tables)	Counters Base 10 Place Value counters (thousands, hundreds, tens, ones, 0.1, 0.01) Hundred squares Numicon (times tables) Bead strings (times tables)	Counters Base 10 Place Value counters (including decimals to 0.001)	Counters Place Value counters (including decimals to 0.001)

Belton Church of England Primary School

Maths Yearly Overview

Key Instant Recall Facts at MGPS (KIRFs)

By the end of each half term, children should know the following facts and be able to recall these facts instantly.

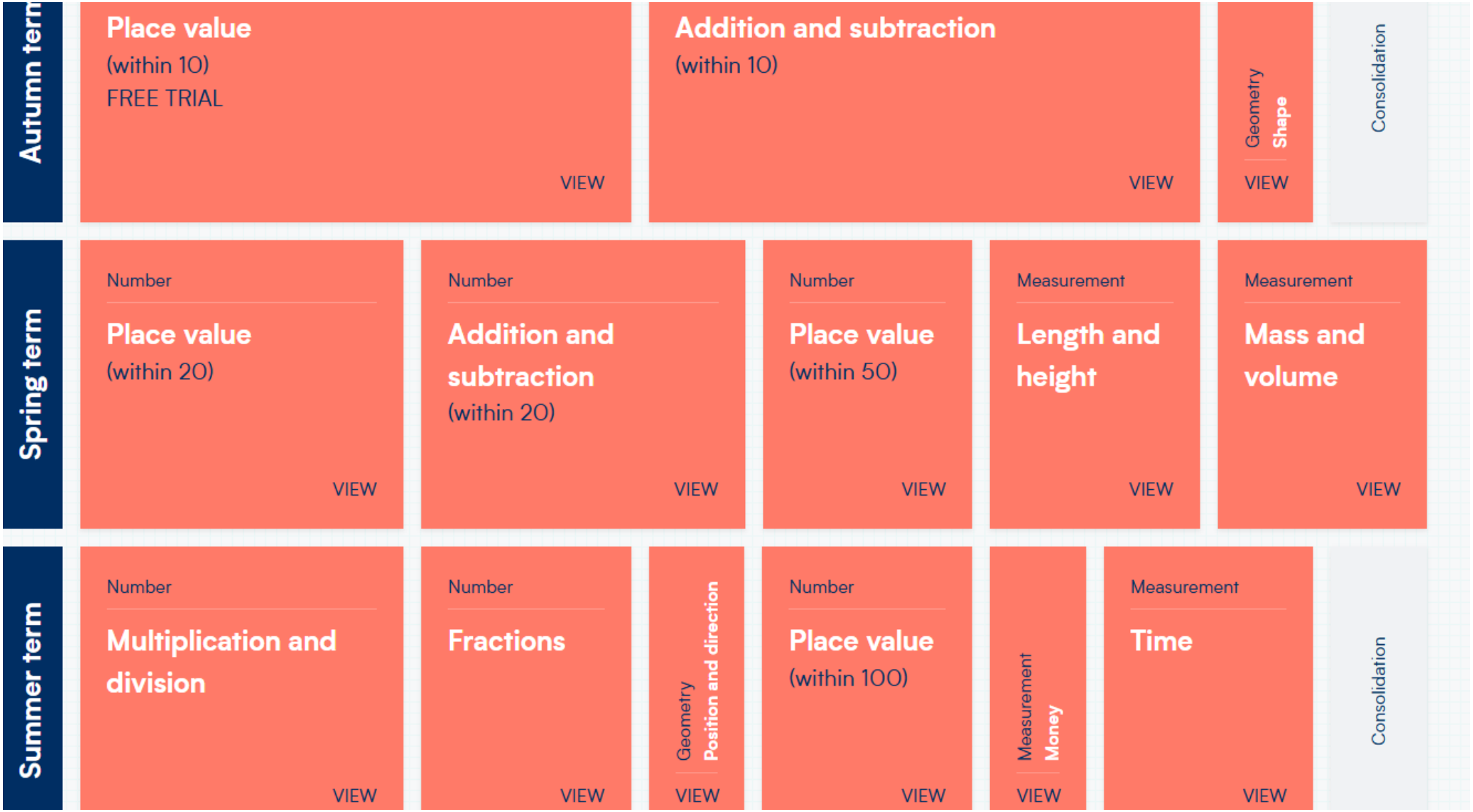
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
A1	Name numbers in order to 10 and compare 2 numbers by saying which is more or less.	Recite the number names in order to 50 and beyond.	Recite the number names in order to 100. I know number bonds to 10. I know number bonds to 20.	I know number bonds for all numbers up to 20. Count in 50s and 100s.	I know number bonds to 100. Count in 25s and 1000s.	I know the multiplication and division facts for all times tables up to 12 × 12.	I know the multiplication and division facts for all times tables up to 12 × 12.
A2	Recognise quantities, without counting, up to 5. (Subitise)	I can add 0 or 1 to a number. I can add 2 to a number.	I know doubles and halves of numbers to 20. I know near doubles to 10. I can use bridging and compensation for addition to 10+10.	Count in 3s. I know the multiplication and division facts for the 3 times table. (up to 12x3)	Count in 6s. I know the multiplication and division facts for the 6 times table. (up to 12x6)	I can find factor pairs of a number.	I can identify common factors of a pair of numbers.
Sp1	I can say 1 more than a given number up to 10.	I know number bonds to 10. I know odd and even numbers to 20.	Count in 2s. I know the multiplication and division facts for the 2 times table. (up to 12x2)	Count in 4s. I know the multiplication and division facts for the 4 times table. (up to 12x4)	Count in 9s and 11s. I know the multiplication and division facts for the 9 and 11 times tables. (up to 12x9 and 12x11)	I can identify prime numbers up to 20. I can recall square numbers up to 144 and their square roots.	I can identify prime numbers up to 50. Know the square roots of square numbers to 15 x 15
Sp2	Partition numbers to 5 into 2 groups.	Count in 2s to 20. Count in 10s to 100. Count in 5s to 50.	Count in 5s and 10s. I know the multiplication and division facts for the 10 and 5 times table. (up to 12x10 and 12x5)	Count in 8s. I know the multiplication and division facts for the 8 times table. (up to 12x8)	Count in 7s and 12s. I know the multiplication and division facts for the 7 and 12 times table. (up to 12x7 and 12x12)	Know the decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{3}$, $\frac{2}{3}$, tenths and fifths	Know the decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{3}$, $\frac{2}{3}$, tenths and fifths
Su1	Recall number bonds of numbers 0-10, including partitioning facts. Know some odd and even numbers to 10.	I can add 10 to a number.	Count in 3s to 36.	Count up and down in tenths. I can recognise decimal equivalents of tenths.	I can recognise decimal equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, tenths and hundredths.	I know decimal number bonds to 1 and 10.	Revisit previous KIRFS
Su2	Recite number names in order to 20. Automatically recall doubles facts up to 5+5.	I know doubles and halves of numbers to 10. I know near doubles to 5.	To begin to know the 3 times tables. (up to 10x3)	I can multiply and divide 1 digit numbers by 10.	I can multiply and divide 1 and 2-digit numbers by 10 and 100.	Revisit previous KIRFS	Revisit previous KIRFS

EYFS

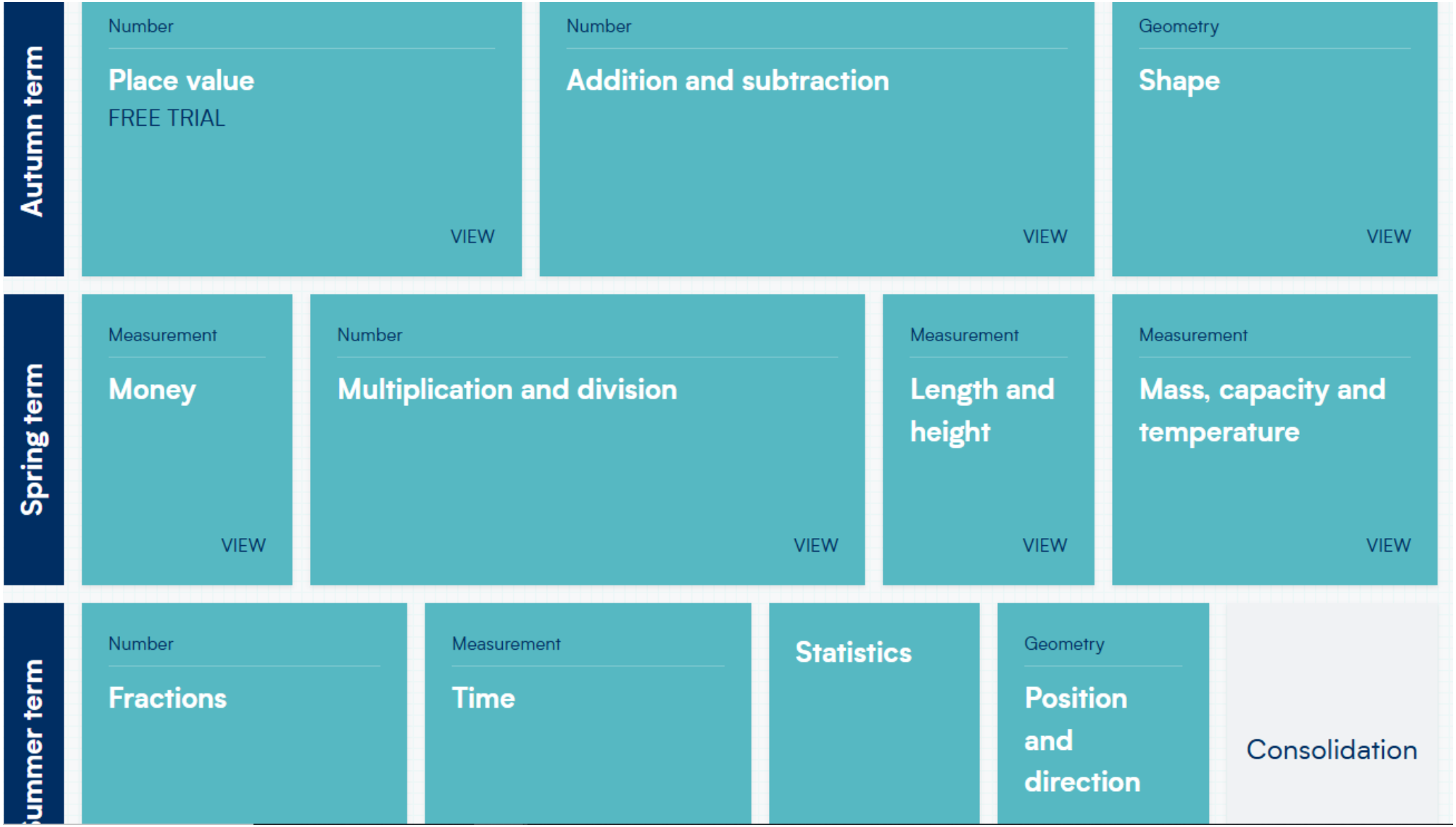

Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Getting to know you
Match, sort and compare
FREE TRIAL
VIEW
Talk about measure and patterns
VIEW
It's me 1, 2, 3
VIEW
Circles and triangles
VIEW
1, 2, 3, 4, 5
VIEW
Shapes with 4 sides
VIEW
Spring term
Alive 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

Due to the nature of the curriculum Maths in Year 1 and Year 2 are taught in separate year groups.

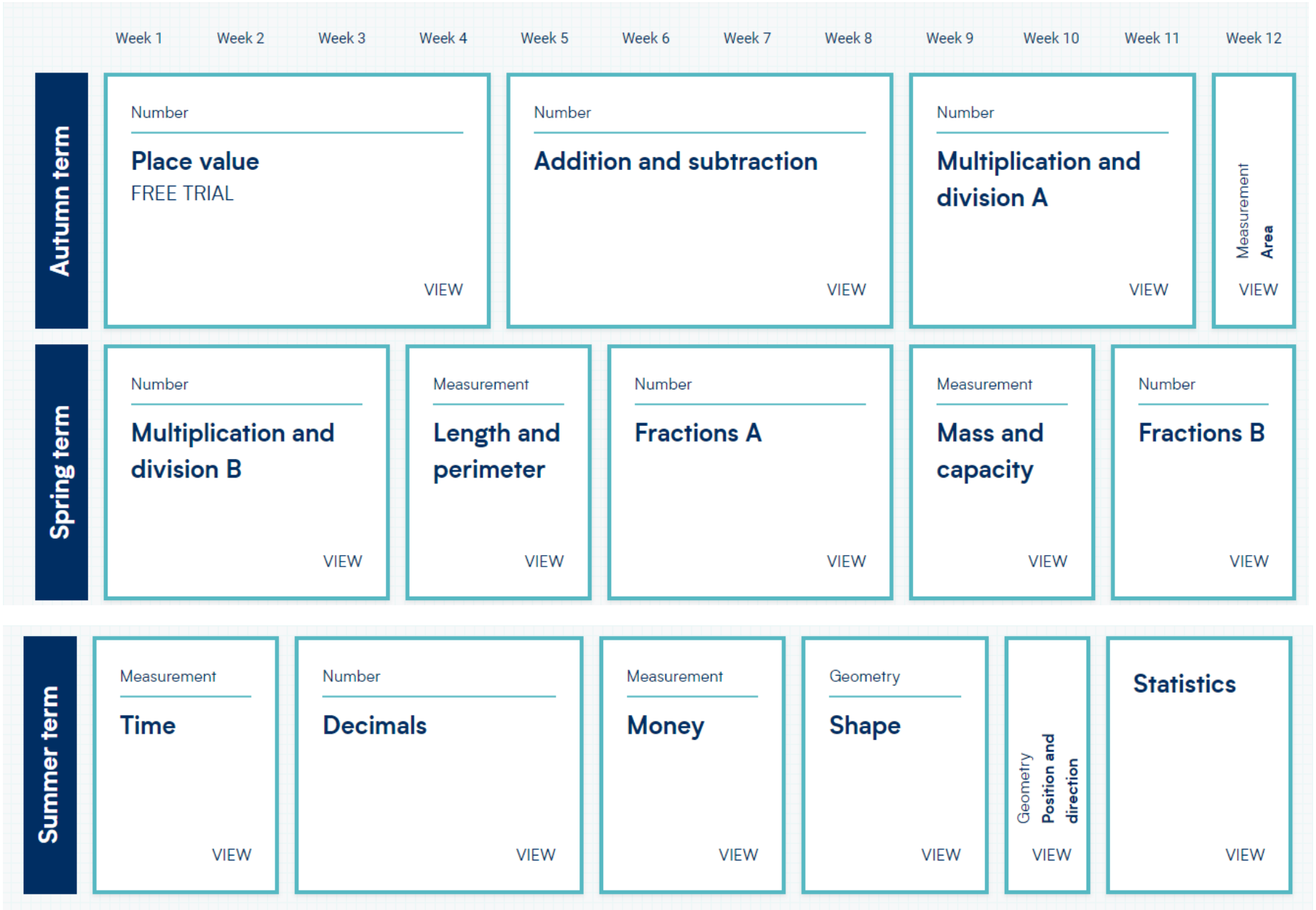
Year 1



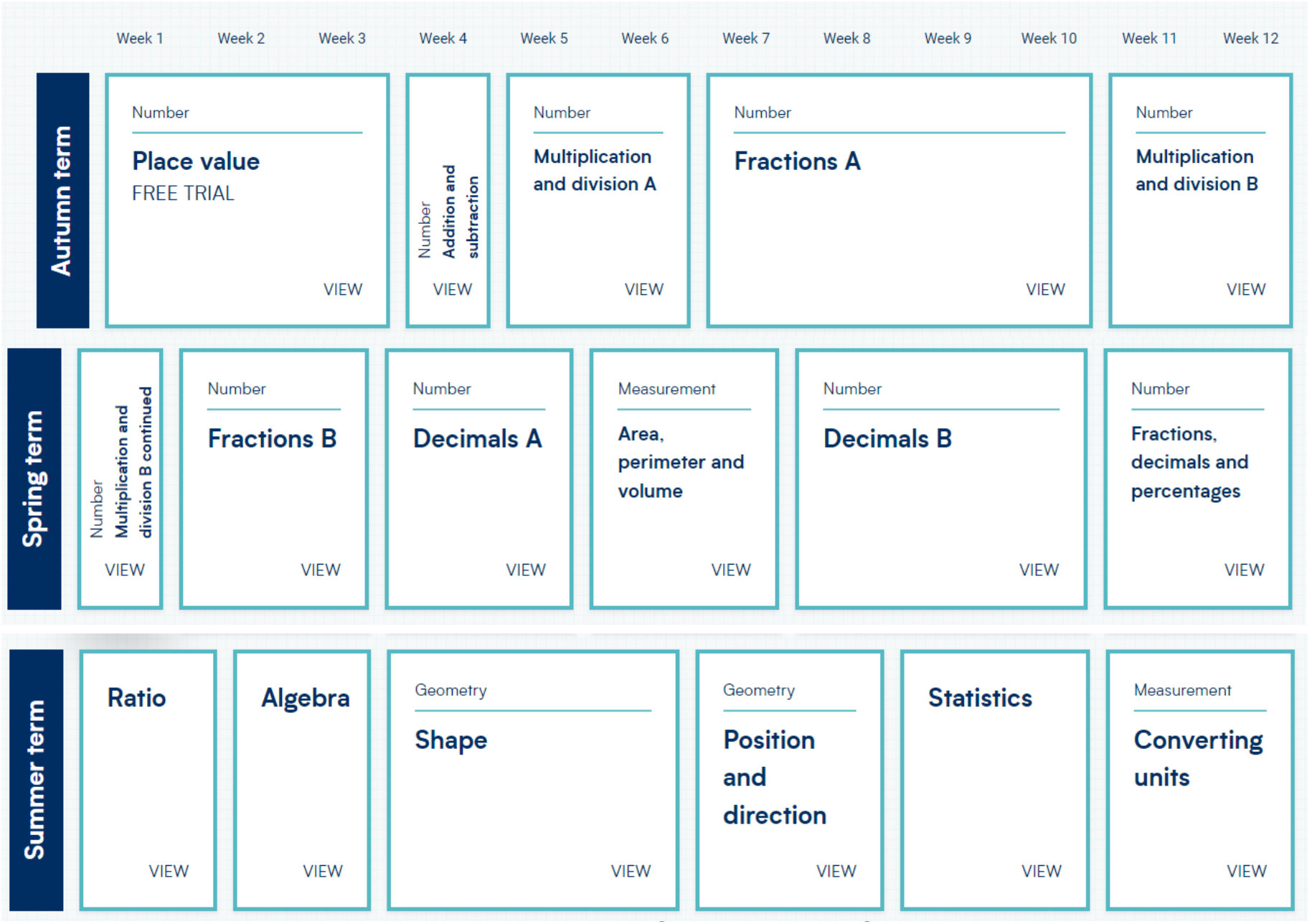
Year 2


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
ummer term
Number
Fractions
Measurement
Time
Statistics
Geometry
Position and direction
Consolidation

Year 3/4


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
Number
Place value
FREE TRIAL
VIEW
Number
Addition and subtraction
VIEW
Number
Multiplication and division A
VIEW
Measurement
Area
VIEW
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions A
VIEW
Measurement
Mass and capacity
VIEW
Number
Fractions B
VIEW
Summer term
Measurement
Time
VIEW
Number
Decimals
VIEW
Measurement
Money
VIEW
Geometry
Shape
VIEW
Geometry
Position and direction
VIEW
Statistics
VIEW

Year 5/6 - (some units may be changed in spring/ summer due to end of KS2 assessments)



Achieving the Best Together

I have come that they may have life in all its fullness – John 10:10