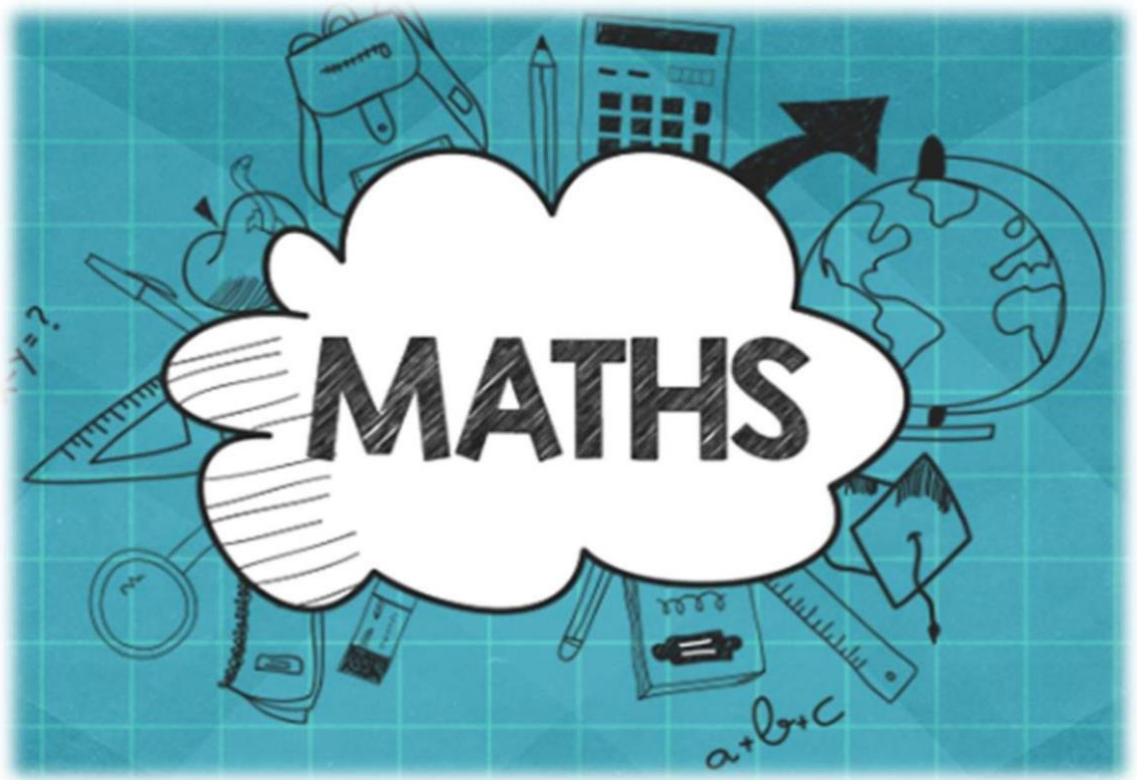




Intent – What do we want for our children as Mathematicians?

At Keyworth, we believe that mathematics is an essential part of everyday life and that we have a responsibility to ensure that all children leave Keyworth being confident users of mathematics. We recognize that confidence in mathematics will allow children to subsequently become confident students in many other subjects, including science, technology and engineering, in addition its fundamental importance in most forms of employment. We use White Rose Education as our curriculum and are part of a Maths Hub coordinated by NCETM.

At KPNS, we aim to:

- Enable all children to develop fully as independent mathematicians who select the best tools for them to solve mathematical problems.
 - Offer a range of mathematical experiences that allow children to maximise their potential.
- Promote a positive self-image, self-motivation and flexibility, and to show initiative in the learning of mathematical principles.
 - Arouse children's curiosity in mathematics and to encourage risk-taking.
- Promote a fascination with, and enjoyment of mathematics through purposeful learning experiences which are related to real life.
 - Recognise that mathematics is a powerful means of communication with a language of its own.
 - Recognise that patterns and relationships can help us to make predictions and generalisations.

Implementation – How will we carry out our vision?

We will implement our vision by teaching through a mastery approach and asking questions like a mathematician.

- Fluency: Quick, efficient recall of facts and procedures and the flexibility to move between different contexts and representations in mathematics.
- Reasoning: Why? How do you know? What do you notice? The anchor task is the best time for free reasoning as children are freely looking for and talking about the signs of maths.
- Problem Solving: Opportunities to apply our fluency in different contexts by identifying key vocabulary in the question.
- Different representations: Children are exposed to a variety of representations in each lesson. They are encouraged to show their answers in different ways and use alternative representations to prove their answer.
- Vocabulary: Relevant vocabulary is introduced at a point at which a concept is first explored and stays with the children on their journey throughout school. New vocabulary is introduced to the children as part of the lesson structure and this vocabulary is applied using stem sentences to allow the children to see the clear link to their learning.
- Spaced retrieval: Children are given opportunities to revisit previous learning using White Rose Flashback 4 slides and other appropriate morning activities. The recap section of the mastery lesson will also require children to draw on previous learning and therefore be ready to apply it to new learning.

Planning:

- All planning should either be recorded on detailed slides or on the maths planning document. Skills, knowledge and vocabulary are clearly identified, and lesson planning is supported by the use of key mathematical questions with opportunities for spaced retrieval practice.
- Planning and lesson structure is driven by a 'mastery approach':
 - Recap – a quick starter to rehearse a known skill which will support the new learning for the lesson.
 - Anchor Task – an activity or question that is to be discussed and not answered to start children thinking about the lesson's learning.
 - Guided practice – Teacher models new learning and children are given chance to apply this new skill. The teacher will change the context and introduce misconceptions. This will be done in small steps and alternated with independent practice to avoid cognitive overload.
 - Independent practice – Children apply the new learning independently. This will be alternated with guided practice to ensure the steps for the learning are small.
- All planning should be uploaded onto 'All Staff' at the start of every week.

Inclusion:

Teachers set high expectations for all pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEND
- Pupils with English as an additional language (EAL)

(Further information can be found in our statement of equality information and objectives, and in our SEND policy and information report.)

Impact – How will we assess what the children know, remember, and understand?

Teachers will monitor the impact of their teaching using:

- AFL during lessons
- Spaced retrieval activities embedded into planning and practice
- Cold and warm tasks at the start and end of each unit to assess what knowledge has been remembered and what skills have been mastered. Cold tasks are to be done in advance of starting a new unit to allow teachers to plan effectively.

The Subject Leaders monitor the way their subject is taught throughout the school by looking at the intent, implementation and impact using:

- Planning scrutiny & book dips (work scrutiny)
- Pupil Interviews & Learning Walks
- External & internal moderation
- SIL & Governor visits
- Planning and delivering CPD

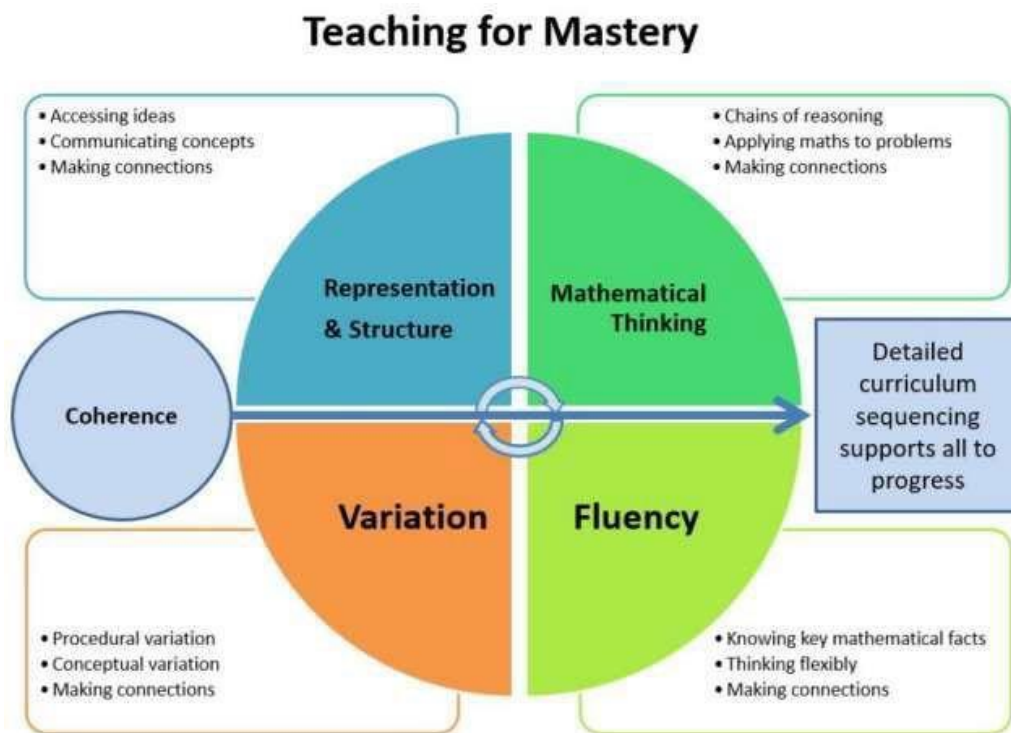
The Subject Leaders also have responsibility for monitoring the way in which resources are stored and managed. All the monitoring information is used by the Subject Leaders to ensure our provision and pupil outcomes are the very best they can be. Any next steps to move the subject and the children's learning forward are fed into the Subject Leader's monitoring and action plans, which form part of the whole school improvement plan.

Governors monitor whether the school is complying with its funding agreement and teaching a "broad and balanced curriculum" which includes the required subjects, through:

- Governor monitoring visits
- Head Teacher reports
- The School Development Plan

Mastery in Maths

Drawn from research evidence, there are 5 big ideas which underpin our teaching of Maths.



Coherence

Teaching is designed to enable a coherent learning progression through the curriculum, providing access for all pupils to develop a deep and connected understanding of mathematics that they can apply in a range of contexts.

Representation and Structure

Teachers carefully select representations of mathematics to expose mathematical structure. The intention is to support pupils in 'seeing' the mathematics, rather than using the representation as a tool to 'do' the mathematics. These representations become mental images that students can use to think about mathematics, supporting them to achieve a deep understanding of mathematical structures and connections.

Mathematical Thinking

Mathematical thinking is central to how pupils learn mathematics and includes looking for patterns and relationships, making connections, conjecturing, reasoning, and generalising. Pupils should actively engage in mathematical thinking in all lessons, communicating their ideas using precise mathematical language.

Fluency

Efficient, accurate recall of key number facts and procedures is essential for fluency, freeing pupils' minds to think deeply about concepts and problems, but fluency demands more than this. It requires pupils to have the flexibility to move between different contexts and representations of mathematics, to recognise relationships and make connections, and to choose appropriate methods and strategies to solve problems.

Variation

The purpose of variation is to draw closer attention to a key feature of a mathematical concept or structure through varying some elements while keeping others constant.

- Conceptual variation involves varying how a concept is represented to draw attention to critical features. Often more than one representation is required to look at the concept from different perspectives and gain comprehensive knowledge.
- Procedural variation considers how the student will 'proceed' through a learning sequence. Purposeful changes are made in order that pupils' attention is drawn to key features of the mathematics, scaffolding students' thinking to enable them to reason logically and make connections.

Mastering Number

Reception Overview

Term 1	Term 2	Term 3
Pupils will build on previous experiences of number from their home and nursery environments, and further develop their subitising and counting skills. They will explore the composition of numbers within 5. They will begin to compare sets of objects and use the language of comparison. Pupils will: • identify when a set can be subitised and when counting is needed • subitise different arrangements, both unstructured and structured, including using the Hungarian number frame • make different arrangements of numbers within 5 and talk about what they can see, to develop their conceptual subitising skills • spot smaller numbers 'hiding' inside larger numbers	Pupils will continue to develop their subitising and counting skills and explore the composition of numbers within and beyond 5. They will begin to identify when two sets are equal or unequal and connect two equal groups to doubles. They will begin to connect quantities to numerals. Pupils will: • continue to develop their subitising skills for numbers within and beyond 5, and increasingly connect quantities to numerals • begin to identify missing parts for numbers within 5 • explore the structure of the numbers 6 and 7 as '5 and a bit' and connect this to finger patterns and the Hungarian number frame • focus on equal and unequal groups when comparing numbers	Pupils will consolidate their counting skills, counting to larger numbers and developing a wider range of counting strategies. They will secure knowledge of number facts through varied practice. Pupils will: • continue to develop their counting skills, counting larger sets as well as counting actions and sounds • explore a range of representations of numbers, including the 10-frame, and see how doubles can be arranged in a 10-frame • compare quantities and numbers, including sets of objects which have different attributes • continue to develop a sense of magnitude, e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2

- connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers - hear and join in with the counting sequence, and connect this to the 'staircase' pattern of the counting numbers, seeing that each number is made of one more than the previous number - develop counting skills and knowledge, including: that the last number in the count tells us 'how many' (cardinality); to be accurate in counting, each thing must be counted once and once only and in any order; the need for 1:1 correspondence; understanding that anything can be counted, including actions and sounds - compare sets of objects by matching - begin to develop the language of 'whole' when talking about objects which have parts	- understand that two equal groups can be called a 'double' and connect this to finger patterns - sort odd and even numbers according to their 'shape' - continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern - order numbers and play track games - join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers	- begin to generalise about 'one more than' and 'one less than' numbers within 10 - continue to identify when sets can be subitised and when counting is necessary - develop conceptual subitising skills including when using a rekenrek
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Mastering Number

Year 1 Overview

Term 1	Term 2	Term 3
Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system. Pupils will: • subitise within 5, including when using a rekenrek, and re-cap the composition of 5 • develop their understanding of the numbers 6 to 9 using the '5 and a bit' structure • compare numbers within 10 and use precise mathematical language when doing so • re-cap the order of numbers within 10 and connect this to '1 more' and '1 less' than a given number	Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols). Pupils will: • explore the composition of each of the numbers 7 and 9 • explore the composition of odd and even numbers, seeing that even numbers can be made of two odd or two even parts, and that odd numbers can be composed of one odd part and one even part • identify the number that is two more or two less than a given odd or even number, identifying that two more/ less than an odd number is the next/ previous odd number, and two more/ less than an even number is the next/ previous even number	Pupils will explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories'). Pupils will: • explore the composition of the numbers 11 to 19 as '10 and a bit' and compare numbers within 20 • connect the composition of the numbers 11 to 19 to their position in the linear number system, including identifying the midpoints of 5, 10 and 15 • compare numbers within 20 • understand how addition and subtraction equations can represent previously explored structures of addition and subtraction (aggregation/ partitioning/ augmentation/ reduction)

• explore the structure of even numbers (including that even numbers can be composed by doubling any number, and can be composed of 2s) • explore the structure of the odd numbers as being composed of 2s and 1 more • explore the composition of each of the numbers 6, 8, and 10 • explore number tracks and number lines and identify the differences between them	• explore the aggregation and partitioning structures of addition and subtraction through systematically partitioning and re-combining numbers within 10 and connecting this to the part-part-whole diagram, including using the language of parts and wholes • explore the augmentation and reduction structures of addition and reduction using number stories, including introducing the 'first, then, now' language structure	• practise retrieving previously taught facts and reason about these
This term will build and consolidate the Early Learning Goals and support the teaching and consolidation of the following RtP criteria: • 1AS-1 • 1NF-1 • 1NPV-2	This term will particularly support the teaching and consolidation of the following RtP criteria: • 1AS-1 • 1NF-1	This term will particularly support the teaching and consolidation of the following RtP criteria: 1AS-2 1NF-1 1NPV-2

Mastering Number

Year 2 Overview

Term 1	Term 2	Term 3
Pupils will have an opportunity to consolidate their understanding and recall of number bonds within 10; they will re-cap the composition of the numbers 11 to 20 and reason about their position within the linear number system. Pupils will: - review the composition of the numbers 6 to 9 as '5 and a bit' - compare numbers using the language of comparison and use the symbols $<$ $>$ $=$ - review the structure of even numbers (including exploring how even numbers can be composed of two odd parts or two even parts) and the composition of each of 6, 8 and 10 - review the structure of odd numbers (including exploring how odd numbers can be composed of one odd part and one even part) and the composition of each of 7 and 9	Pupils will have an opportunity to use their knowledge of the composition of numbers within 10 to calculate within 20; they will explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50. Pupils will: - explore how the numbers 6 to 9 can be doubled using the '5 and a bit' and '10 and a bit' structure - use doubles to calculate near doubles - use bonds of 10 to reason about bonds of 20, in which the given addend is greater than 10 - use known number bonds within 10 to calculate within 20, working within the 10-boundary	Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities. Pupils will: - continue to explore a range of strategies to subtract across the 10-boundary - review bonds of 20 in which the given addend is greater than 10, and reason about bonds of 20, in which the given addend is less than 10 - practise previously explored strategies to support their reasoning about inequalities and equations - review doubles and near doubles and transform additions in which two addends are adjacent odd/ even numbers into doubles

- consolidate their understanding of the numbers 10 and 20 as '10 and a bit' - consolidate their understanding of the linear number system to 20 and reason about midpoints	- use their knowledge of bonds of 10 to find three addends that sum to 10 - use their knowledge of the composition of numbers within 20 to add and subtract across the 10-boundary - use their understanding of the linear number system to 10 to position multiples of 10 on a 0-100 number line and reason about midpoints	consolidate previously taught facts and strategies through continued, varied practice
This term will particularly support the teaching and consolidation of the following RtP criteria: 1NPV-2 2NF-1	This term will particularly support the teaching and consolidation of the following RtP criteria: 2NPV-2 2NF-1 2AS-1	This term will particularly support the teaching and consolidation of the following RtP criteria: 2NF-1 2AS-1 2AS-2

Maths Overview

Nursery MTP Overview

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	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 Starters: Number songs	Colours • Red • Blue • Yellow	Colours • Green • Purple • Mix of colours	Match • Buttons and colours • Matching towers • Matching shoes	Match • Match number shapes • Match shapes • Pattern handprints – big and small	Sort • Colour • Size • Shape	Sort • What do you notice? • Guess the rule • Guess the rule	Number 1 • Subitising • Counting • Numeral	Number 2 Subitising- dice pattern Subitising- random pattern Subitising – different sizes	Number 2 • Counting • Numeral • Numeral	Pattern • Extend AB Colour patterns • Extend AB Outdoor Patterns • AB Movement Patterns	• Fix my Pattern • Extend ABC Colour patterns • Extend ABC Outdoor Patterns	Consolidation Activities - Winter activity week
Spring Starters: Number songs	Number 3 Subitising Subitising Subitising	Number 3 3 Little pigs 1:1 counting Numerals/Tria ngles	Number 4 1:1 counting Numerals Squares/recta ngles	Number 4 Composition of 4 Composition of 4 Composition of 4	Number 5 1:1 counting Numerals Pentagon	Number 5 Composition of 5 Composition of 5 Composition of 5	Consolidate 1 - 5	Number 6 Introduce 10 frame	Height & Length • Tall and short • Long and short • Tall/long and short	Mass Relate to books 3 little pigs goldilocks	Capacity	Consolidation
Summer Starters – subitising and revision	Sequencing	Positional Language	More than/fewer than	Shape – 2D Revisit pattern from Autumn	Shape – 3D Revisit pattern from Autumn	Consolidation: More than/fewer one more and one less	Number composition 1 – 5 Revision	What comes after?	What comes before?	Numbers to 5	Consolidation / Activity weeks SUMMER	Consolidation / Activity weeks

EYFS yearly overview - Autumn

Week 1	Week 2	Week 3		Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Getting to Know You Opportunities for settling in, introducing the areas of provision and getting to know the children. Key times of day, class routines. Exploring the continuous provision inside and out. Where do things belong? Positional language.			Phase	Just Like Me!			It's Me 1 2 3!			Light and Dark		
			Number	Match and Sort Compare Amounts			Representing 1, 2 & 3 Comparing 1, 2 & 3 Composition of 1, 2 & 3			Representing Numbers to 5. One More and Less.		
			Measure, Shape and Spatial Thinking	Compare Size, Mass & Capacity Exploring Pattern			Circles and Triangles Positional Language			Shapes with 4 Sides. Time		

EYFS yearly overview - Spring

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Phase	Alive in 5!			Growing 6, 7, 8			Building 9 & 10		
Number	Introducing zero Comparing numbers to 5 Composition of 4 & 5			6, 7 & 8 Combining 2 amounts Making pairs			Counting to 9 & 10 Comparing numbers to 10 Bonds to 10		
Measure, Shape and Spatial Thinking	Compare Mass (2) Compare Capacity (2)			Length & Height Time			3d-shapes Patterns		

EYFS yearly overview - Summer

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Phase	To 20 and Beyond			First Then Now			Find my Pattern			On the Move		
Number	Building Numbers Beyond 10 Counting Patterns Beyond 10			Adding More Taking Away			Doubling Sharing & Grouping Even & Odd			Deepening Understanding Patterns and Relationships		
Spatial Thinking	Spatial Reasoning (1) Match, Rotate, Manipulate			Spatial Reasoning (2) Compose and Decompose			Spatial Reasoning (3) Visualise and Build			Spatial Reasoning (4) Mapping		

Year 1 yearly overview

	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	Number Place value (within 10)					Number Addition and subtraction (within 10)					Geometry Shape	Consolidation
Spring	Number Place value (within 20)		Number Addition and subtraction (within 20)			Number Place value (within 50)		Measurement Length and height		Measurement Mass and volume		
Summer	Number Multiplication and division			Number Fractions		Geometry Position and direction	Number Place value (within 100)		Measurement Money	Measurement Time		Consolidation

Year 2 yearly overview

	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	Number Place value				Number Addition and subtraction				Geometry Shape			
Spring	Measurement Money	Number Multiplication and division						Measurement Length and height	Measurement Mass, capacity and temperature			
Summer	Number Fractions			Measurement Time			Statistics		Geometry Position and direction		Consolidation	

Year 3 yearly overview

	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	Number Place value			Number Addition and subtraction				Number Multiplication and division A				
Spring	Number Multiplication and division B			Measurement Length and perimeter			Number Fractions A		Measurement Mass and capacity			
Summer	Number Fractions B	Measurement Money		Measurement Time			Geometry Shape		Statistics		Consolidation	

Year 4 yearly overview

	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	Number Place value				Number Addition and subtraction			Measurement Area	Number Multiplication and division A			Consolidation
Spring	Number Multiplication and division B			Measurement Length and perimeter		Number Fractions				Number Decimals A		
Summer	Number Decimals B		Measurement Money		Measurement Time		Consolidation	Geometry Shape		Statistics	Geometry Position and direction	

Year 5 yearly overview

	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	Number Place value			Number Addition and subtraction		Number Multiplication and division A			Number Fractions A			
Spring	Number Multiplication and division B			Number Fractions B		Number Decimals and percentages			Measurement Perimeter and area		Statistics	
Summer	Geometry Shape			Geometry Position and direction		Number Decimals			Number Negative numbers	Measurement Converting units		Measurement Volume

Year 6 yearly overview

	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	Number Place value		Number Addition, subtraction, multiplication and division					Number Fractions A		Number Fractions B		Measurement Converting units
Spring	Ratio		Algebra		Number Decimals		Number Fractions, decimals and percentages		Measurement Area, perimeter and volume		Statistics	
Summer	Geometry Shape		Geometry Position and direction		Themed projects, consolidation and problem solving							

