

Whitgreave Primary School

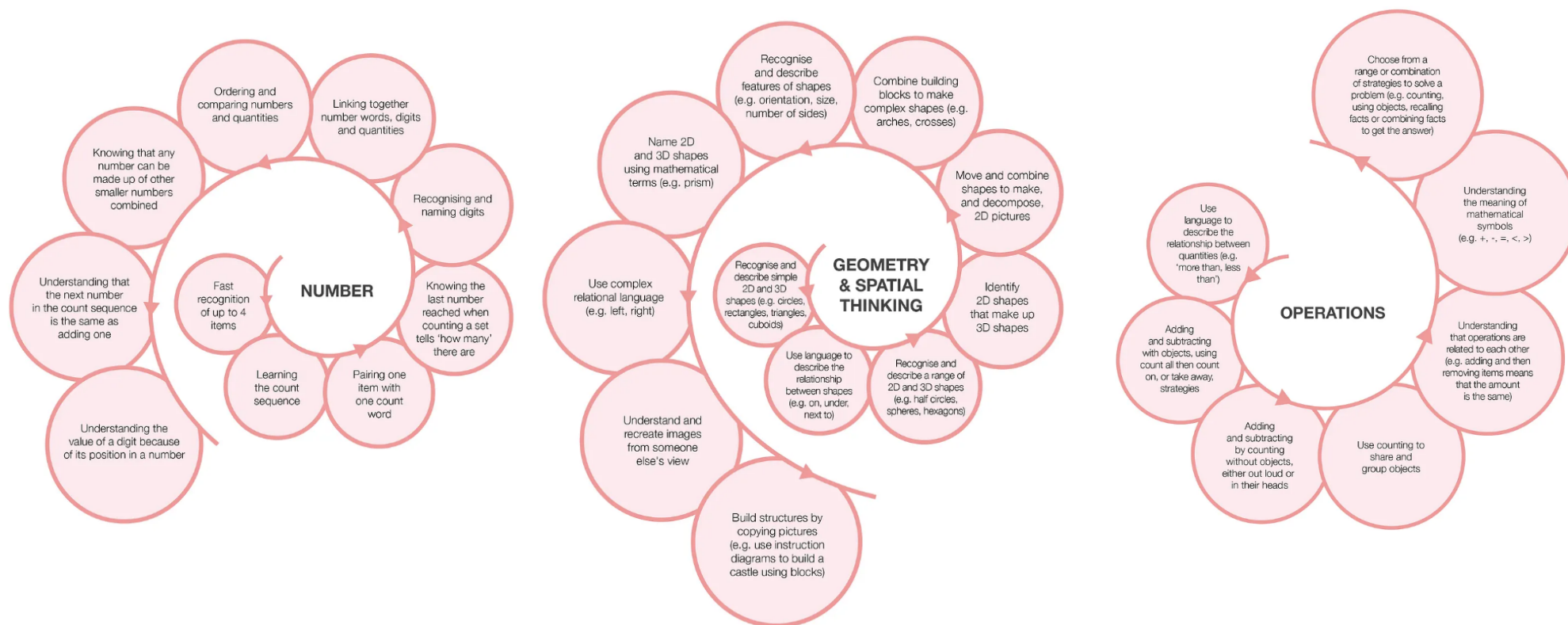
EYFS Mathematics Progression



Linking to later learning...					
Mathematics	Computing	Geography	Science	D&T	PE
Developing number sense and place value. Calculating using addition and subtraction. Recognising and explaining patterns. Reasoning and problem solving. Understanding shape, measure and geometry.	following sequences and algorithms. Recognising patterns and relationships. Using logical thinking to solve problems. Interpreting data and information. Understanding positional language and directions.	Using positional and directional language. Reading and creating simple maps. Understanding distance, space and location. Sequencing events and understanding time. Collecting, comparing and interpreting information.	Measuring and comparing accurately. Recording observations and results. Looking for patterns and relationships. Sorting, classifying and grouping objects. Using mathematical language to explain findings. Design Technology	Measuring, estimating and comparing. Selecting appropriate tools and resources. Solving practical design problems. Evaluating and improving outcomes.	Understanding position, direction and movement. Following sequences and patterns. Applying spatial awareness. Estimating distance and speed.



The EEF provide these helpful visuals to demonstrate the development of skills and concepts across three domains.



The development of each skill or concept is not discrete, instead there is considerable overlap in development so children may develop several skills in parallel. Children may also move through the spiral in different orders.

There is considerable overlap in development across these topics. In particular, understanding of Operations builds upon children's understanding of Number.

The Number diagram is based on a large body of research on development and the Operations diagram is based on a moderate body of research about development. The Geometry & Spatial Thinking diagram is based on a small body of research on development.

	Number	Spatial Reasoning	Shape	Pattern	Measures
RANGE 3 18-24 months	Comparison - I know when there are more or lots of something. Counting - I can say some counting numbers. - I can join in with counting by pointing, making sounds or saying some numbers in order. Cardinality - I can use number words such as one and two. - I can give one or two objects when someone asks me.	- I can fill containers and empty them again. - I enjoy filling and emptying containers. - I can explore how I fit into different spaces. - I can move through spaces in different ways. - I know that some spaces are big enough for me to fit inside and some are not.	- I can push objects through different shaped holes. - I can fit shapes into puzzles and shape boards. - I am beginning to know which shape will fit into a space. - I can choose a shape to match a space. - I can use blocks to build simple structures. - I can make towers, lines and other simple arrangements with blocks. - I enjoy building and creating with blocks.	- I am beginning to know the patterns in my daily routines. - I can join in with familiar stories and rhymes. - I can tell what might happen next in a familiar story or rhyme. - I know what comes next in some familiar routines, stories and rhymes. - I can arrange objects to make my own patterns. - I can line up toys and objects in a pattern.	- I can explore objects of different sizes and weights. - I show an interest in how big, small, heavy or light things are. - I can choose containers to fill and empty. - I can put objects into containers and take them out again. - I can explore how much different containers can hold. - I can fit toys and objects into containers, such as a pram or a box. - I am beginning to understand that some things happen now and some happen at another time. - I know what happens next in some familiar routines. - I am beginning to understand the order of events in my day.
RANGE 4 2 year olds (On Entry Nursery)	Comparison - I am beginning to know when there are more, lots or the same number of things. - I can compare groups of objects and notice changes in how many there are. Counting - I can say some numbers in order.	- I can move my body and toys around objects. - I can explore how I fit into different spaces. - I am beginning to remember my way around familiar places. - I can find my way around places I know well. - I can respond to words that tell me where things	- I can choose puzzle pieces and try to fit them into the right place. - I am beginning to know which puzzle piece might fit a space. - I can recognise when two objects have the same shape. - I know that some shapes are the same, even if they	- I can join in with repeated sounds, words and actions in familiar stories, rhymes and songs. - I know what comes next in some repeated sound and action patterns. - I can anticipate and join in with familiar patterns.	- I can explore objects of different sizes, lengths and weights. - I can notice when things are bigger, smaller, longer, shorter, heavier or lighter. - I can explore how much different containers can hold.

	- I am beginning to count using the correct number sequence. - I can join in with counting and say some numbers in the right order. Cardinality - I can take two or three objects from a group when asked. - I can give two or three objects to someone when asked. - I am beginning to notice numerals and number symbols around me. - I know that numerals represent numbers. - I can use my fingers to help me count. - I am beginning to count objects using my fingers.	are, such as in, on, under and behind. - I am beginning to understand positional and spatial language. - I can look at things from different places and viewpoints. - I can notice when things are near to me or far away. - I know that objects can look different depending on where I am standing.	are different sizes or colours. - I can use shapes to solve simple puzzles. - I can make simple constructions using different materials. - I can build and create my own models and structures.	- I am beginning to understand that patterns repeat. - I am interested in what happens next in my daily routines. - I know what happens next in some familiar routines. - I can predict what might happen next during familiar parts of the day. - I am beginning to understand that routines follow a pattern.	- I am beginning to compare size, length, weight and capacity. - I am beginning to understand when people talk about things that have already happened and things that will happen later. - I can talk about some things that happened before and some things that will happen next. - I know that events can happen in the past, now or in the future. - I am beginning to anticipate familiar times in my day, such as mealtimes and home time. - I know what usually happens at different times of the day. - I can recognise and talk about familiar parts of my daily routine.
RANGE 5 3-4 year olds (Nursery)	Comparison - I can compare two groups of objects and say when they have the same number. - I can use words such as same to describe groups that match. - I am beginning to put numbers in order. - I can place some numerals in the correct order. - I can compare small quantities by looking. - I can notice when a group has more or fewer objects.	- I can use words that describe position and direction. - I can follow and respond to positional language such as on, under, behind, next to and in front of. - I can talk about where things are and how they move. - I am beginning to understand direction and position. - I can move and turn objects to make them fit.	- I can choose shapes that are right for what I want to make or do. - I know that different shapes can be used for different purposes. - I can select shapes and objects to help me solve problems and build models. - I can recognise and respond to common shape names. - I can talk about shapes using the words I know.	- I can create my own patterns using objects, colours, shapes or movements. - I can make patterns that show organisation and order. - I know that patterns follow a rule. - I can continue simple repeating patterns with two or three different items. - I can spot what comes next in an AB or ABC pattern.	- I can compare two objects and find which is longer or shorter. - I can compare two objects and find which is heavier or lighter. - I can compare containers and find which is more full or less full. - I know how to use what I can see and feel to compare objects. - I can use words such as longer, shorter, heavier, lighter, more full and less full.

	Counting • I can count aloud and enjoy saying numbers. • I know counting words must be said in the correct order. • I can count objects accurately by matching one number word to one object. • I know that each object is counted once. • I can say numbers in the correct order to count up to five objects. • I can use number words when I play. • I can recognise some numerals from 0 to 10. • I know that numerals are symbols that represent numbers. Cardinality • I know that numbers can tell us how many. • I can count up to five objects accurately. • I know that the last number I say tells me how many there are altogether. • I can match numerals to amounts up to 5 and sometimes beyond. • I know that numerals represent different quantities. • I can use my own marks, drawings and symbols to represent mathematical ideas.	• I can predict whether an object will fit into a space. • I can rotate shapes and objects to match a space. • I can choose and manipulate shapes to create the models and designs I want. • I know that turning an object can help it fit. • I can solve simple spatial problems through trial, prediction and exploration.	• I know that shapes have different names and properties. • I can spot similarities and differences between shapes. • I can compare shapes and objects. • I know that some shapes are alike and some are different. • I can join shapes together to make new shapes. • I can take shapes apart and put them together in different ways. • I can explore creating new shapes using 2D and 3D shapes. • I am beginning to understand how shapes can combine to make other shapes. • I can build arches, enclosures and other structures. • I can try different blocks to see which ones work best. • I can change my ideas and try again when something does not work. • I know that different shapes and blocks can be used to make strong structures. • I can solve building problems through trial and improvement. • I can see shapes in my environment.	• I know when a pattern repeats. • I can add to a pattern and keep it going correctly. • I can join in with patterns in sounds, actions, games, stories, dance and movement. • I can recognise repeated patterns in different situations. • I can predict what comes next in a pattern. • I know that patterns help me work out what is coming next. • I am beginning to explain the rule of a simple pattern.	• I can remember and talk about events that have happened. • I can recall the order of events in my daily life. • I can retell familiar stories in the correct sequence. • I know that events happen in a particular order. • I can talk about what happened first, next and last.
--	---	--	---	--	--

- I can record my mathematical thinking in different ways.

Subitising

- I can recognise small groups without counting.
- I can see when a group has changed.
- I can compare small quantities by looking.
- I can notice when a group has more or fewer objects.
- I can notice smaller groups within a larger group.
- I can recognise groups of up to 5 objects without counting.
- I can see different parts within a group.
- I can explain what I notice about groups and quantities.

Composition

- I am beginning to understand that numbers can be made from smaller numbers.
- I can explore how numbers are put together through play and practical activities.
- I can use my understanding of number to solve simple problems.
- I know that each number is one more than the number before it.
- I can find one more than a number.
- I can split a group of three or four objects in different ways.

- I notice shapes in buildings, pictures and objects.

	- I know that the total stays the same even when a group is separated into parts. - I am beginning to understand that numbers can be partitioned and recombined in different ways. Reasoning - I can explain what I notice.				
RECEPTION AUTUMN	Comparison - I can compare groups of objects and quantities. - I can say which group has more, fewer or the same number of objects. - I know when two groups are equal. - I can compare quantities using mathematical language. Counting - I can count reliably to 10. - I can say numbers in the correct order to 10. - I can count objects accurately, touching or moving each object once. - I can match numerals to quantities to 10. - I can recognise and order numerals to 10. - I know that numerals represent numbers and quantities. Cardinality - I can count a group of objects and say how many there are altogether. - I know that the last number I count tells me	- I can use positional language accurately during my play and daily routines. - I can describe where things are using words such as in, on, under, behind, next to and between. - I know that positional words help me explain where things are. - I can explore turning, rotating and fitting shapes. - I can rotate shapes and objects to make them fit into spaces. - I know that a shape can look different when it is turned. - I can choose and manipulate shapes to solve simple spatial problems. - I can describe routes around familiar environments. - I can talk about how to get from one place to another. - I know and remember the way around familiar places.	- I can name common 2D shapes. - I can name common 3D shapes. - I know that shapes have different names and properties. - I can use shapes to create pictures. - I can use shapes to build models and structures. - I can choose shapes for a particular purpose when creating. - I can sort shapes into groups. - I can sort shapes by simple features such as shape, size or colour. - I can explain why I have sorted shapes into different groups. - I know that shapes can be grouped by their similarities and differences. - I can talk about the sides and corners of shapes. - I can notice similarities and differences between shapes.	- I can create simple repeating patterns. - I can make and continue repeating patterns using objects, colours, sounds and movements. - I know that patterns repeat following a rule. - I can recognise patterns in the environment around me. - I can spot patterns in nature, routines, pictures and everyday objects. - I know that patterns can be found in many different places. - I can predict what comes next in a pattern. - I can continue a repeating pattern correctly. - I know the rule of a simple pattern and can use it to work out what comes next. - I can explain how I know what the next part of a pattern will be.	- I can use words such as longer, shorter, heavier and lighter accurately. - I can compare objects and describe their size, length and weight. - I know how to use mathematical language to explain my comparisons. - I can talk about my daily routines. - I can describe events in the order they happen. - I know that activities and events follow a sequence. - I can talk about what happens first, next and last. - I can measure using non-standard units. - I can compare and measure objects using items such as cubes, blocks or footsteps. - I know that measuring helps me find out how long, tall, heavy or full something is. - I can use non-standard measures to investigate

	the total number of objects. - I can match quantities to the correct numeral to 10. Subitising - I know how many objects there are by looking carefully at small groups. - I can recognise groups of up to 5 objects without counting. - I can spot smaller numbers within larger numbers. - I can explain how I can see a quantity. - I can notice different arrangements of the same quantity. - I can recognise a quantity even when it is arranged in different ways. Composition - I am beginning to understand that numbers can be made up of smaller numbers. - I can explore number bonds within 5 using objects and practical resources. - I know that a number can be split into parts in different ways. - I can combine groups of objects to find a total. - I can take away objects to find how many are left. - I know numbers can be made in different ways. - I know that numbers can be partitioned and	I can use positional and directional language to explain a route.			and solve practical problems.
--	--	---	--	--	-------------------------------

	recombined in different ways. Reasoning I can tell someone how I have worked something out.				
RECEPTION SPRING	Comparison - I can compare quantities accurately. - I can say which group has more, fewer or the same number of objects. - I can order numbers beyond 10. - I can compare numbers beyond 10 and explain which is greater or smaller. - I know that the position of a number in the counting sequence tells me its value. Counting - I can count confidently beyond 10. - I can count forwards and backwards through numbers beyond 10. - I can use counting to compare quantities and solve problems. - I know that each number has a place in the number sequence. - I notice patterns when counting. - I can predict the next number in a counting sequence. Cardinality - I know that the last number I count tells me	- I can give simple directions to help someone find their way. - I can follow simple directions and instructions. - I can use positional and directional language to describe movement. - I know how to explain where something is and how to get there. - I can predict how a shape will move when it is turned, flipped or moved. - I can work out whether a shape or object will fit into a space. - I know that changing the position of a shape can help it fit. - I can use my understanding of space and shape to solve problems. - I can create simple maps of familiar places. - I can use drawings, symbols and models to represent spaces. - I can use maps and representations to communicate my ideas. - I know that maps help us show where things are.	- I can describe shapes using mathematical language. - I can talk about the properties of shapes, such as their sides, corners and faces. - I know that shapes have different features that help me identify them. - I can compare shapes and explain how they are the same or different. - I can select shapes for a purpose. - I can choose shapes that will help me solve a problem, build a model or create a design. - I know that different shapes are useful for different tasks. - I can explain why I have chosen a particular shape. - I can sort shapes in different ways. - I can group shapes according to their properties. - I can explain how I have sorted shapes. - I know that shapes can belong to groups because they share similar features.	- I can spot mistakes in a pattern. - I can identify when a pattern does not follow the rule. - I can correct errors in repeating patterns. - I know how to check whether a pattern is correct. - I can describe the repeating part of a pattern. - I can explain how a pattern repeats. - I know that patterns are made up of repeating units. - I can identify and talk about the rule of a pattern. - I can explain my mathematical thinking. - I can tell others how I know a pattern is correct. - I can explain how I worked out what comes next in a pattern. - I know that there can be different ways to solve a problem. - I can give reasons for my answers using mathematical language.	- I can compare the length, height, weight and capacity of different objects. - I can estimate which object is longer, shorter, taller, heavier, lighter, fuller or emptier. - I am becoming more accurate when comparing and estimating measures. - I know how to use mathematical language to describe and compare measures. - I am beginning to use measuring tools with support. - I can use simple measuring tools to compare and investigate. - I know that measuring tools help us find out length, height, weight, capacity and time. - I can choose appropriate objects and tools to help me measure with guidance. - I can use time language to talk about events and routines. - I can talk about events in the order they happen. - I know that time can be described using words

	how many there are altogether. • I can count a set of objects and identify the total. • I can match quantities to numerals beyond 10. • I know that the total number stays the same even when objects are moved. • I can use my understanding of quantity to solve problems. Subitising • I can subitise groups of up to 5 objects in different arrangements. • I know how many there are without needing to count small groups. • I can recognise the same quantity even when the objects are arranged differently. • I can see smaller groups within a larger quantity. • I can explain how I know how many I can see. • I can use what I see to help me work out totals and number bonds. Composition • I can recognise different ways that numbers can be made. • I can partition numbers into smaller parts in different ways. • I know that numbers can be composed and recomposed using different parts.	• I can use simple representations to explain routes and locations.	• I can justify my sorting choices using mathematical vocabulary.		such as before, after, next, yesterday, today and tomorrow. • I can describe and sequence events from my day and from familiar stories. • I understand that chronology means events happen in a particular order. • I can use my understanding of time and sequence to explain my thinking and solve problems.
--	--	---	---	--	---

	• I know each number is one more than the number before. • I am beginning to remember number bonds within 5. • I can use my understanding of number composition to solve mathematical problems. • I can explain my mathematical thinking and how I found an answer. • I can talk about the strategies I use when solving problems. • I know that there may be more than one way to find a solution. Reasoning • I can explain why my answer is correct.				
RECEPTION SUMMER	Comparison • I can compare quantities and explain which has more, fewer or the same. • I can order small groups of objects by quantity. • I can use mathematical language to compare groups accurately. • I can compare numbers within 10 using practical resources. Counting • I can count reliably to 20 and beyond. • I can count forwards and backwards from different starting numbers. • I can recognise and correct mistakes when counting.	• I can describe positions and movements confidently. • I can use positional and directional language to explain where things are and how they move. • I can describe routes and give simple directions. • I know how to use positional language to communicate clearly. • I can picture shapes and objects in my mind. • I can think about how shapes will look when they are moved or turned. • I can rotate and manipulate shapes	• I can talk about the similarities and differences between shapes. • I can describe the properties of shapes using mathematical language. • I know that shapes have features that help me identify and compare them. • I can explain why shapes are the same or different. • I can compose shapes to make new shapes and pictures. • I can decompose shapes into smaller shapes. • I know that shapes can be combined and separated in different ways.	• I can explain the rule of a repeating pattern. • I can create complex repeating patterns using objects, colours, sounds and movements. • I know how a pattern repeats and can describe what comes next. • I can identify and correct mistakes in a pattern. • I can extend patterns and create my own pattern rules. • I can explore patterns within numbers. • I can spot number patterns when counting and solving problems.	• I can compare the length, height, weight and capacity of different objects. • I can explain which objects are longer, shorter, taller, heavier, lighter, fuller or emptier. • I know how to use mathematical language to describe and compare measures. • I can solve practical problems involving measure in everyday situations. • I can choose appropriate tools to measure different things.

	• I can notice patterns in the counting sequence. • I know that each number has a fixed place in the counting sequence. Cardinality • I know that the last number counted tells me how many there are altogether. • I can count objects accurately and say how many there are. • I know that the quantity stays the same when objects are rearranged. • I can identify when two groups have the same quantity. • I can find a given number of objects from a larger set. Subitising • I can subitise quantities to 5 in different arrangements. • I can recognise smaller groups within larger quantities. • I can explain what I can see when I subitise. • I can use subitising to help me compare quantities. • I can spot patterns in dot arrangements and familiar representations. Composition • I know that numbers can be made in different ways. • I can partition numbers within 5 into different parts.	mentally to solve problems. • I know that shapes can be transformed while still remaining the same shape. • I can use maps, plans and simple representations to show where things are. • I can use drawings and models to communicate my ideas about space. • I can follow and create simple maps of familiar environments. • I know that maps and representations help us understand and describe spaces. • I can use spatial representations to help me solve problems and explain my thinking.	• I can use my knowledge of shapes to solve problems and make designs. • I can investigate how shapes relate to one another. • I can recognise shapes within other shapes. • I know that shapes can be combined, transformed and rearranged while keeping their properties. • I can explore and explain patterns and relationships between shapes. • I can use what I know about one shape to help me understand another. • I can recognise shapes in different orientations. • I know a shape stays the same when it is turned.	• I know that numbers follow patterns and relationships. • I can use number patterns to help me work out answers. • I can investigate odd and even numbers. • I know that even numbers can be shared into two equal groups. • I know that odd numbers always have one left over when shared equally into two groups. • I can find doubles and use them to solve problems. • I know doubles facts and can use them in my mathematical thinking. • I can recognise and create equal groups. • I can explain patterns involving odd and even numbers, doubles and equal groups. • I can use pattern rules to predict, reason and solve mathematical problems.	• I can select suitable strategies to help me measure accurately. • I know that different measuring tools are used for different purposes. • I can use measuring tools and non-standard units to investigate and solve problems. • I can explain why I have chosen a particular tool or method. • I can use time language to talk about events and routines. • I can talk about events in the order they happen. • I know that time can be described using words such as before, after, next, yesterday, today and tomorrow. • I can describe and sequence events from my day and from familiar stories. • I understand that chronology means events happen in a particular order. • I can use my understanding of time and sequence to explain my thinking and solve problems.
--	---	---	---	---	--

	• I can recall number bonds within 5 without using equipment. • I can recall some number bonds within 10. • I can recall doubles facts to 10. • I can use manipulatives and representations to explore number bonds to 10. • I can investigate doubles using practical resources. • I can explain how numbers are composed of smaller numbers. Reasoning • I can convince someone that my answer is correct.				
--	--	--	--	--	--

Statutory ELGs Number	Statutory ELGs Numerical Patterns	Statutory Educational Programme: Mathematics
Children at the expected level of development will:- 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	Children at the expected level of development will:- 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.	In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.