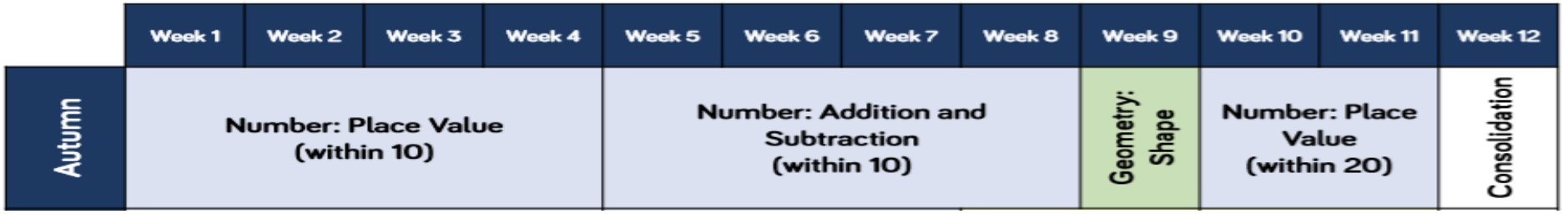
Year One Maths Medium Term Plan: Autumn Term



Number: Place Value (within 10)

NC objectives:

•Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number.
•Count, read and write numbers to 10 in numerals and words.
•Given a number, identify one more or one less.
•Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.

Week	Small step	Key Questions	Notes and Guidance	Assessment
	Sort objects	**To sort groups in different ways** **To explain how groups have been sorted** **Key Questions:** *Line up the objects. Is it easier to count now? Why?* *What does one _____ represent?* *What number will we say first? Why?* *How many are there in total?* *When would we count 0?* *What does zero look like?* *Can you show me zero with your fingers?*	Children need to sort groups by characteristics before they count. Children should be encouraged to sort objects into groups in a variety of ways. For example, sorting a group of children into girls and boys or sorting counters by colour. Children should be encouraged to line sorted objects up to link to the early representations of bar models.	
	Count objects	**To count a set of objects accurately to find a total** **To understand what zero means** **Key Questions:** *How can the 5 frame help you?* *Where you have written the 3, can you write the word too?*	Once objects are sorted, children begin to count from 1 to 10 to work out how many there are. It is important that they count one object at a time and that they understand the last number they count is the total amount. Children should be encouraged to place the objects in a line to improve accuracy when	

		How many ways can you draw 3? *Do we always have to use counters to show an amount?* *What can we use to represent the _____?* *What does each _____ represent?* *How many different ways can we represent _____?*	counting. They should also be exposed to what zero looks like.	
	Represent objects	**To understand that one object can be represented by another** **To represent numbers to 10 in different ways** **Key Questions:** *How can our counting skills help us complete a number track?* *Do we always have to count from 0 or 1?* *Can anything in our classroom help you with the words? (on a number line/working wall ensure words are matched with the numeral)* *Are the numbers getting bigger or smaller? What comes next?* *Can you use the resources/images to help you count?*	Children develop counting to continue a number sequence forwards. Problems should be presented in a variety of ways e.g. numerals, words and images. Children should be able to find consecutive and non-consecutive missing numbers in sequences. When counting a set of objects, children need to be able to visualise what zero looks like and know that this comes before one.	
	Count, read and write forwards from any number 0 to 10 **Count, read and writing backwards from any number 0 to 10**	**To Count to ten, forwards, beginning with 0 or 1, or from any given number** **To find the missing number in a number sequence** **Key Questions:** *How can we use our counting skills?* *Do we always have to start at 10 when counting backwards?* *Will all the boxes have dots in?* *Are the numbers getting bigger or smaller?* *What comes before?* *Can you use the manipulatives/images to help you count?*	Children develop counting to continue a number sequence backwards. Problems should be presented in a variety of ways, e.g. numerals, words and images. Children should continue sequences, and also find consecutive and non-consecutive missing numbers in sequences.	
	Count one more	**To know which number is one more when given a number to 10.** **To say which number is one more than any given number to 20.** **Key Questions:**	Once children are confident placing numbers on a track, the language of one more can be introduced. Children need to know that one more is the number after and they should use their counting skills or a number track to help them. The use of a dice and	

		How can counting help us with finding 1more? Where can one more than _____ be found on a number track? *What does one more mean?* *Will the number get bigger or smaller? Why?* *How can we show one more?* *Do we need to count from 0 every time we find one more?*	dominoes should be used to reinforce subitising skills.	
	Count one less	**To know which number is one less when given a number to 10.** **To say which number is one less than any given number to 20.** **Key Questions:** *How can counting help us with finding 1 less? Where can 1 less than _____ be found on a number track?* *What does one less mean?* *Will the number get bigger or smaller? Why? How can we show one less?*	Children should relate one less to one more and understand that it is the opposite. It should be made clear that 1 less is the number before the starting number. The use of dice and dominoes should be used to reinforce subitising skills.	
	One to one correspondence to start to compare groups	**To match one object to another and say if there is 'too many', 'not enough' or the 'right amount'.** **To explain how you know and prove your answer using pictorial representation.** **Key Questions:** *How can we show we've matched the objects/images?* *What does match mean?* *Are there enough objects/images to match them all up?* *Are there any left over? Why has that happened?*	Children match one object with another. Children should be exposed to situations where there are too many, not enough or just the right amount. Children do not need to know the exact difference between the groups.	
	Compare groups using language such as equal, more/greater, less/fewer	**To use the language of: equal to, more than, less than (fewer), most, least.** **To explain and use this language correctly when comparing.** **Key Questions:** *Can you compare the same objects using the word 'fewer' and then using the word 'more'?* *Is there more than one answer?*	Children use the language 'equal to', 'more', 'less', 'greater than', 'fewer' and 'less than' to compare groups of objects. Children do not need to know the difference between the groups, just that one group is greater or less than another or that the groups are equal to each other.	

	Introduce = , > and < symbols	*How many answers can you find?* *What do you notice about the numbers/amounts less/less than/fewer?* *How can you tell which has the least/most?* *What does more/greater mean?* *What does less/fewer mean?* *What does equal to mean?* **• To understand the symbols which show less than, equal to and greater than.** **•To use these symbols correctly when comparing two objects or numbers.** **Key Questions:** *Is there more than one answer? How can you check?* *Can you show the sentence in a different way? Which symbol shows greater than?* *Which symbol shows less than?* *Which symbol shows equal to?* *Is _____ greater than, less than or equal to _____?* *How can we show that using a written statement?*	Inequality symbols are not introduced in the National Curriculum until Year 2. However, it is a good opportunity to introduce them when working with smaller numbers and concrete materials.	
	Compare numbers	**•To use the correct symbol when comparing 2 numbers** **•To choose an efficient method to compare numbers** **Key Questions:** *What happens to the sign when you swap the numbers around?* *Will zero always be the smallest?* *What strategies did you use?* *Which number is the largest? How do you know?* *Which number is the smallest? How do you know?* *Which symbol represents _____?* *How can you describe these two numbers?*	Children use previous learning to choose an efficient method to compare numbers. They will use their understanding of a numbers worth/value to compare them. Children may draw on prior knowledge such as counting, sorting, grouping etc. to help them compare. Children should be given access to a variety of concrete resources/images to aid them.	
	Order groups of objects	**To compare and order three groups of objects** **To explain how groups have been ordered using 'greatest' and 'smallest'.** **Key Questions:** *How do you know group _____ is the greatest?*	Children should order three groups of objects. They should be exposed to different methods for comparing such as comparing two groups initially, and lining groups up. Children should be introduced to the vocabulary 'greatest' and 'smallest' and begin to use it	

		How do you know group _____ is the smallest? *How did you compare the groups?* *Group_____ has the greatest amount of _____* *Group_____ has the smallest amount of _____*	correctly.	
	Order numbers	**To order numbers from smallest to greatest or greatest to smallest** **To use < and > symbols to show the order of numbers** **Key Questions:** *Explain how you ordered the dominoes.* *Can you use the inequality symbols to compare/order numbers?* *How many answers are there?* *Can you prove it with cubes?* *Which is/has he greatest? How do you know? Which is/has the smallest? How do you know? How are you going to order the amounts?* *How have these objects/numbers been ordered? How do you know?*	Children order numbers from smallest to greatest or greatest to smallest. Children should use concrete and pictorial representations to prove or check their answers. Children use the vocabulary 'smallest' and 'greatest' and may also use the <or >symbols to show the order of their numbers.	
	The number line	**To use a number line to compare numbers.** **To explain which way we jump on a number line when finding 'more' or 'less'.** **Key Questions:** *Can you label the number line?* *How do you know where to put the numbers?* *How are numbers presented on a number line?* *What does each mark on the number line represent?* *Where does the number line start?* *How did you choose where to put them?* *Where does the number line end?* *Do we have to start counting from 0 every time? Which way will we 'jump' when we find one more/less?*	Children will use a number line to practise and consolidate skills learnt so far. They should use the number line to: • Count to 10 • See one more/one less • See greater than/less than statements • Order numbers Using a number line gives children the opportunity to count from zero.	

Addition and Subtraction (within 10)

NC objectives:

•Represent and use number bonds and related subtraction facts within 10

•Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.

•Add and subtract one digit numbers to 10, including zero.

•Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems.				
	Part whole model	**To understand that a number can be partitioned into two or more parts** **To use and understand the language 'Part, part, whole'.** **Key Questions:** *What does whole mean?* *What does part mean?* *How can we represent the whole/parts?* *Are the parts smaller or larger the more you partition them? Why?* *Can zero be a part?* *Can the parts be swapped around?* *Can the whole be swapped with a part?*	Children need to understand that a number can be partitioned into two or more parts. This will help them with number bonds and addition. They will be introduced to the part-whole model to show this concept clearly, and should get used to seeing it in different orientations. Children should use and understand the language part, part, whole.	
	Addition symbol	**To use the addition and equals symbol to create a number sentence.** **To use the correct language to explain the number sentence** **Key Questions:** *How many were there at the start?* *Then how many more were added?* *What is the total?* *What does the =mean?* *Which number tells us how many we had to start?* *Which number shows what has been added? Which number represents the total?*	Children are introduced to the addition symbol (+) for the first time. They combine this with the equal to symbol (=) to create their first number sentences e.g. 3 +2 =5 At this stage, children focus on a specific order to the number sentence (a +b =c). They focus on the language associated with this number sentence.For example, 7 apples plus 3 apples is equal to 10 apples. First, then and now stories and bar models may help children understand the number sentences.	
	Fact families - addition	**To understand what an addition fact family is** **To understand that the order of an addition sentence can be varied.** **Key Questions:** *Which number(s) represent a part?* *Which number represents the whole?* *Is the equals sign always at the end of a number sentence?* *What is the same/different about the four addition*	Children build on initial number sentences by looking at addition fact families. They can see that the order of an addition sentence can be varied, and they begin to discover that addition is commutative. E.g. 3 +2 =5 2 +3 =5 5 =3 +2 5 =2 +3	

		sentences? *If two of the numbers in the part-whole model are the same, can we still write four addition sentences? Prove it.* *Can we make another addition calculation using the same 3 numbers?* *Can the parts change place?* *Can the whole change place? Why?*		
	Number bonds within 10	**To represent and find number bonds facts within 10** **To record all the different ways of partitioning numbers up to 10.** **Key Questions:** *What is the whole?* *What are the parts?* *Does the whole always stay the same?* *How can we partition the whole?* *Do the parts stay the same or change?* *If 8 is the whole, what could the parts be?* *What number sentence would represent the parts we have partitioned the whole into?*	Children combine their knowledge of the part-whole model and addition facts to explore number bonds within 10. Starting with the whole, children break numbers into parts and explore how many different ways a number can be partitioned. E.g. 5=3 +2 5 =4 +1	
	Systematic methods for number bonds within 10	**To understand how to be systematic when partitioning.** **To find all addition facts for a number using a systematic approach.** **Key Questions:** *What two numbers can be added to make _____?* *Write the number sentence to represent this number bond.* *Are there any more ways to make this number bond?* *Can you see a pattern in the numbers?* *What is happening to the parts each time?* *Does the amount of number bonds change as the number gets bigger or smaller?*	Children apply their partitioning skills to work systematically starting with the whole. E.g. 7+0 =7 6 +1 =7 5 +2 =7 4 +3 =7 This is supported through the use of equipment, for example, cubes, bead strings, double sided counters	
	Compare number	**To compare numbers and number sentences**	Children use their knowledge of place value and	

	bonds	**To use the correct language and symbols to compare number sentences** **Key questions:** *What does compare mean?* *Do we know what each side is worth?* *How can we work out the total of each side?* *Can you use equipment to prove that the number bonds are equal/unequal?* *Do I have to solve both sides to see if the number bonds are equal?* *Which calculation gives the largest answer? Which calculation gives the smallest answer?* *Which symbol can you use to show this?*	number bonds to compare numbers and number sentences. They should use the correct language and symbols to compare. E.g.5 +5 =10 and 10 is greater than 8, so 5 +5 >8	
	Addition: Adding together	**To use '+' and '=' sign accurately.** **To use the vocabulary 'total' and 'altogether' to explain a number sentence.** **Key Questions:** *What does each circle represent on a part-whole model?* *Which of the numbers are parts?* *Which of the numbers is the whole?* *What else can we use to represent the cars?* *Can we only use counters and ten frames?* *How many did you have to start with?* *Then what happened?* *How many do you have now?* *How does the ten frame help us when finding the total?* *Did we need two ten frames for 5 and 4? Why?* *What number sentence would represent this?*	Children will use a part-whole model to understand the concept of addition. They should be accurately using the '+' and '=' symbols. Children should also become familiar with language related to addition such as 'total' and 'altogether'.	
	Addition: Adding more	**To know how to 'count on' to find the answer to an addition** **To understand that addition can be done in any order.** **Key Questions:** *How many did you have to begin with?*	Children will move from counting all to counting on. It is important that they are exposed to calculations given to them in a different order, for example the smallest number first. This will lead to children understanding that addition can be done in any order.	

		How many more have been added? *How many do you have now?* *What number sentence will represent this?* *When using resources/images to find the answer, do I need to make/draw both numbers?* *Do I have to start with the largest number?* *Why is it more efficient to start with the larger number?*		
	Finding a part	**To find a missing number in an addition by 'counting on'.** **To apply understanding of number bonds to solve missing number problems.** **Key Questions:** *Do you know the value of both parts?* *Do you know the value of the whole?* *How can we count on to find the missing part?* *What number sentence would represent what we currently have/know?* *Where will the numbers from the word problem go in the part-whole model?* *Where are we counting on from? How do you know?* *Where are we counting to? How do you know?*	Children should apply their understanding of number bonds to solve missing number problems. Building from counting on, children should start from the given part and count on to the whole, to find the missing part. Children should also be exposed to problems with one part and the whole being the same so they understand the role of zero.	
	Subtraction: Taking away how many left? Crossing out	**To understand the language of subtraction** **To use the subtraction symbol to represent a calculation** How many objects were there to start with? Do we need to count all or can we count on? What could the story be? How many did we start with? What number can we use to show that nothing has gone away/been taken away? How many counters were there at first? How many were taken away? How many are there now? Can you draw an image to show this? What can we use to represent the cars?	**Children are introduced to the language of subtraction rather than the subtraction symbol being explored straight away. 'Taking away' is used in a range of real life contexts such as flying away and eating. The use of zero is important so children know that when nothing is taken away the whole remains the same.**	

		How many will you start with? Why? How many will you take away? Why? What is the same and what is different about the calculations?		
	Subtraction: Finding a part, breaking apart	**To subtract a part from the whole number** **To understand subtraction by partitioning** What is the whole? What are the parts? If ___ is the whole, and ___ is a part, what is the other part? How many ways can I partition 8 into parts? Use two hoops and 8 counters to support.	**Once children understand the concept of taking away, the subtraction symbol can be introduced. It is still important for children to create stories about the calculation so they can deepen their understanding of subtraction. Children continue using the subtraction symbol. Building on their understanding of finding a part, they are introduced to subtraction by partitioning. Children break apart a number into two parts using concrete and pictorial representations to support.**	
	Fact families – 8 facts	**To understand the relationship between addition and subtraction** **To write four subtraction sentences using same 3 numbers.** How many counters were there at first? How many were taken away? How many are left? Can you draw an image to show this? How many will you start with? Why? How many will you take away? Why? What is the same and what is different about the calculations?	**Children will link addition and subtraction facts for the first time. It is important that children are able to show and understand this relationship. They should continue to be exposed to the use of zero. Children can struggle with getting four calculations for subtraction e.g. 7 =9 −2 and 2 =9 −7 and should use concrete and pictorial representations to aid their understanding of this**	
	Count back	**To understand how to count back for subtraction** **To solve subtraction calculations by counting backwards.** What number comes before 6? What number should we start on? Which calculations do you know match straight away?	Children count backwards to subtract. It is an important step to help children work in the abstract. Common misconceptions could be that the children include their starting number when counting, e.g. 5 −3; 5, 4, 3 – therefore giving the wrong answer. It is vital to model how to count backwards by 'putting the start number in our head and counting backwards'.	

		How do you know this? Who has more? How do you know? How many more does Beth have? What does difference mean? Which is most? How do you know? What strategy can we use to help us find the difference? What image/resource can we use to show this? How can we complete the sentences?		
	Find the difference	**To understand finding the difference as subtraction** **To use skills of counting on or back to find the difference** Who has more? How do you know? How many more does Beth have? What does difference mean? Which is most? How do you know? What strategy can we use to help us find the difference? What image/resource can we use to show this? How can we complete the sentences?	Children explore finding the difference as a form of subtraction. They often struggle with this concept because both parts are given. Children could use their skills of counting back and counting on to help them find the difference. Alternatively, they can make both amounts and visually see how many more/less a number is.	
	Compare Statements	**To compare two number sentences** **To use the inequality signs correctly to compare statements.** To What does greater than mean? How do we know that ___ +___ is greater than ___? What else can it be greater than? What does less than mean? How do we know that ___ +___ is less than ___? What else can it be less than? What language is missing? What steps do we need to take to help us complete	Children use the inequality symbols to compare statements. It is important that 'equal to' is also recapped at this stage with the correct language used. Children should use concrete manipulatives and draw images to help them complete the statements.	

		the problem?		
Geometry: shape **NC objectives:** **•Recognise and name common 2-D shapes, including: (for example, rectangles (including squares), circles and triangles)** **•Recognise and name common 3-D shapes including: (for example, cuboids (including cubes), pyramids and spheres)**				
	Recognise and name 3d shapes	What makes a shape 3D? Can we see any 3D shapes in the classroom? Can you name this 3D shape? Which shape is a _____? Do cubes all look the same? Is a pyramid only a pyramid when the point is at the top? Does the shape change when we turn it around?	Children are introduced to simple 3D shapes: cuboids, cubes, pyramids, spheres, cylinders and cones. Children recognise3D shapes from a group and name them. They match the shape names to the shape and see how 3D shapes with the same name can look different in different orientations.	
	Sort 3D shapes	Do all shapes with the same name look the same as each other? Can you name these 3D shapes? What is the same and what is different? How could you sort the shapes? How have these shapes been sorted? Are there any other ways the shapes could be sorted?	Children sort and group3D shapes according to their names, orientations, size and colours. Children should recognise that the size, orientation and colour does not affect the name of the shape.	
	Recognise and name 2d shapes	What is the name of this 3D shape? What can you tell me about the surfaces? What are the names of the shapes on the surfaces? How many _____ are on the surface of this shape? Is there more than one type of shape on the surfaces?	Children see 2Dshapes on the surfaces of 3D shapes. They use the shapes they see to draw around and print. Itis important that children see 2D shapes are flat. Looking at 2D shapes, children name triangles, squares, rectangles and circles.	
	Sort 2d shapes	What is the name of this shape? Can you describe the shape? Compare your shape to a different shape –what is the same and what is different? Compare your shape to other shapes with the same name – what is the same and what is different? How have the shapes been sorted? Could the shapes have been sorted in a different way?	Children sort 2D shapes, initially by their name and then by other factors such as orientations, size and colour.	
	Patterns with 3D and 2D shapes	What is a pattern? What do you notice about this pattern?	This is a non-statutory objective within shape, space and measure. Children use 2D and 3D shapes to	

		What is the order of the shapes in the pattern? How can we describe the pattern? What is the same and what is different about the patterns? What will the next shape be? Can you predict the next 3 shapes? Which shape is first/second/third/last?	complete and make simple patterns focusing on different shapes, sizes and colours. Children have already been exposed to ordinal numbers so can apply this when describing and continuing patterns.	
Number: Place Value (within 20) **NC Objectives** **Count to twenty, forwards and backwards, beginning with 0 or 1, from any given number.** **Count, read and write numbers to 20in numerals and words.** **Given a number, identify one more or one less.** **Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.**				
	Count forwards and backwards and write numbers to 20 in numerals and words.	9, 10, 11, 12, 13, 14, 15, 16 what do you notice about the sounds of the numbers? Do you notice a pattern with the numbers? Do the ones always become greater when we count? What comes after the number 10? What do you notice about the ends of most of these numbers? What does 'teen' tell us about a number? How do we say this number? How would we write _____?	Children are building on their existing knowledge of counting forwards and backwards by introducing the numbers 11-20 Children should explore the meaning of the suffix 'teen' and what this tells us about a number. 11, 12, 13 and 15 are usually difficult for children to understand because they cannot hear the single digit in the name like others e.g. sixteen –six ones and a ten.	
	Numbers from 11 to 20	How many _____ will you need to make _____? How will you know if you've got enough? What's the same and what's different about these representations? How do we write the number _____? What will the number _____ look like in _____? What number has been made using the equipment? How did you find out? Do we have to count from 1 every time?	Children use concrete and pictorial representations to explore the different ways to represent a number. Base10 is formally introduced in the next step but if children are familiar with this model then they can use it. A four box diagram can be used to encourage multiple representations.	
	Tens and Ones	What numbers come after 10? What does the number _____ look like? Which is greater 1 ten or 1 one?	Children learn each number from 11 to 19 has '1 ten and some more'. They will see 10 and 20 as having just tens and no ones. Children still need to see numbers	

		How do you know? What does 'teen' tell us about a number? Can you swap tens for ones? Will it change the amount? Explain. Do we need to count the 10 individually? Do we need to start counting from 0 every time? Can you describe the number _____ using tens and ones?	can be seen in different ways and therefore discuss 1 ten being equal to 10 ones. Base 10 will be introduced in this step. Children can use these concretely but also draw them as 'sticks and bricks'. A line represents 1 ten and a dot represents 1 one.	
	Count one more and one less	How can you represent _____? How could we find one more? How does this change the number? Which digit changes? How would we find one less? How does this change the number? What's the same and what's different between 12 and 13? Is it only ever the ones digit that changes?	Children will apply their counting skills to find one more and one less. Children have already been exposed to the language of more and less and used resources such as number lines and number tracks. A misconception that children might come across, when using the language one more, is whether it is one more 1 or one more 10. Therefore this should be addressed with clear modelling, using practical resources.	
	Compare groups of objects	How many in each group? Which group has the most? Which group has the least? How do you know? What could you call the middle group? How many more does group _____ have than group _____? Could you use the inequality symbols to compare the numbers?	Once children are confident making and exploring numbers greater than 10, they can begin to compare groups of numbers. This builds on, and continues to use vocabulary of comparison such as; greater than, less than and equal to. Because children have explored finding the difference, they can use this as a strategy to find out how many more.	
	Compare numbers	What happens to the sign when you swap the numbers around? What does compare mean? What language will you use when comparing? Will zero always be the smallest? What numbers are you comparing? Which number is the largest/greatest? How do you know? Which number is the smallest? How do you know? Which symbol can you use in your statement?	Children build on comparing numbers to 10 by comparing numbers up to 20. In this step, children will be given abstract numbers and need to be encouraged to use previous learning to choose an efficient method to compare numbers. Within examples, make sure children are also continuing to compare numbers below 10 as well as 10 and above.	
	Order groups of	How can you order the groups?	Children build on ordering groups up to 10 by applying	

	objects	How can you work out which is the largest/smallest? Can you just look at two groups first? Why? What is happening to the numbers when we order from largest to smallest? Can you think of an amount less than the smallest group? How is your drawing different to your partners? Can you describe the order using largest and smallest? What would happen to your description if we changed the numbers around?	the same skills to numbers up to 20. It is important children recap ordering numbers below 10 Children order three groups of objects in this step to support them in ordering 3 abstract numbers in the following step. It is important to share different methods so children are continually exposed to more efficient ways.	
	Order numbers	How have you been asked to order the numbers? Which is the largest? How do you know? Which is the smallest? How do you know? Is it easier to order groups of objects or numbers? Why? If you have numbers, can you still use objects? Does this help? Why? What was your strategy for comparing numbers? Could you order the numbers in the opposite way? Does any number stay in the same place when we do this? Why?	Children now order abstract digits from 0-20. They can choose to represent these with concrete materials or draw them pictorially to help them order. Children need to apply their knowledge of tens and ones to help them work within the abstract. For example, when comparing 8 and 15 only one number has a ten therefore 15 must be greater.	