Year 2 Autumn Term	
Block 1 Place Value	
Step 1 Numbers to 20	In this small step, children revisit learning from Year 1 on numbers to 20. While children have already gone beyond this, the numbers from 11 to 15 often prove more difficult to understand, so this step provides an opportunity to revisit these numbers explicitly before moving on to look at numbers to 100 later in the block. If further consolidation is needed of numbers to 20, content from the previous year could be used. In Year 1, children mainly focused on being able to recognise numerals written as words. In this small step, they shift their focus to independently writing numerals as words and vice versa, which will be built upon later in the block
Step 2 Count objects to 100 by making 10s	Building on the previous small step, children revisit their earlier learning on numbers to 100 Children count objects to 100 by making tens. They see examples of objects that are grouped into tens and some that are not grouped, so they recognise the benefits of making groups of 10 to count. The use of straws can support this learning as children can physically bundle them into tens to support their counting. This then helps children to understand the structure of a number, for example 27 can be made up of 2 bundles of 10 straws and 7 more straws. In all the representations in this small step, the structure of the 10 is clearly visible. At this point, children do not need to be able to write these numbers in words, as this will be covered later in the block.
Step 3 Recognise tens and ones	In this small step, children start to unitise the idea of a ten. In all the examples seen previously in the block, the structure of the ten within a number has been clearly visible. In this step, children transition to recognising when something is labelled as "ten" and understand its value relative to the corresponding one. This transition is gradual, as children first compare familiar representations such as ten frames and base 10 to see how the counters in ten frames can be separated but a base 10 rod cannot. They then move on to look at boxes of ten things, starting with examples labelled as "10", with the individual objects visible, before moving to more abstract examples. Examples are carefully chosen so that physical size can support number sense and it is not necessary to introduce place value counters
Step 4 Use place value chart	So far, children have looked in detail at numbers to 100, with an explicit focus on making tens. They now build on this to organise their representations in a place value chart, placing pieces of equipment under the correct place value headings. Once children are comfortable with organising equipment into place value charts and understand the column headings, they begin to write numbers into place value charts with digits in the correct place and they will build on this throughout the block. Children will learn to recognise that they can only write the digits 0–9 in any single place value column, because if there were any more than this they would be able to make a ten. There is no need at this stage to introduce children to place value counters.
Step 5 Partition numbers to 100	In this small step, children use their understanding from earlier in the block and begin to partition numbers to 100. The focus here is on standard partitioning; flexible partitioning will be looked at later in the block. Counting objects to 100 with a focus on bundling tens, organising representations into place value charts and writing digits in place value charts are all essential prerequisite knowledge for this small step. Children understand that if, for example, 32 is made up of "3 whole tens" and "2 ones", then the 3 represents 30 and the 2 represents 2. Therefore, 32 can be partitioned into 3 tens and 2 ones or 30 and 2 Partitioning with representations should be looked at first, followed by abstract numbers. At this point, all partitioning will be recorded in part-whole models rather than as an addition statement.
Step 6 Write numbers to 100 in words	Earlier in the block, children wrote numbers to 20 in words. Since then, they have focused on numbers to 100, and while they may have seen numbers presented in words, they have not been expected to write them in words. In this small step, they do this for the first time. The focus is first on the tens within 100 and understanding that, for example, 4 tens are forty. It is essential that children grasp this first, as this will form the basis for all other numbers. Once children have this understanding, they begin to write numbers with both tens and ones in words. When working beyond 20, our number system follows a more logical pattern and children should be encouraged to spot this to support them in writing. If they know that 4 tens are forty, and that 3 ones are three, then using previous learning on partitioning they can write 43 as forty-three.
Step 7 Flexibly partition numbers to 100	So far, children have only partitioned numbers in a standard way. In this small step, they are introduced to the idea of flexible partitioning. The use of straws or other familiar representations can support children with this. If children know that 27 is made up of 2 bundles of 10 straws and 7 more straws, then by physically unbundling 1 group of 10 straws they see that 27 could also be made up of 1 bundle of 10 straws and 17 more straws. While there are numerous ways to partition numbers flexibly, the focus here is on "unbundling" 10s rather than more unusual partitions. This knowledge will prove essential later in the year when looking at calculations that cross a ten boundary and is also fundamental to later learning in higher key stages
Step 8 Write number to 100 to expanded form	By this stage, children should be confident in partitioning numbers to 100 in a standard way, and also understand that numbers can be partitioned more flexibly. The purpose of this small step is to formalise this partitioning to further support children's understanding of the structure of numbers. From earlier steps, children can explain that 32 is made up of 3 tens and 2 ones, or 30 and 2. The difference between that learning and the learning in this step is the way it is presented. By

	the end of this small step, children should be able to write this as 32 = 30 + 2 and say "32 is equal to 30 plus 2". Children were introduced to the + and = symbols in Year 1, but may need reminding of them.
Step 9 10s on the number line to 100	Children were introduced to the number line to 100 in Year 1, and in this small step and the next they look at it in more detail. The focus of this small step is the position of 10s on the number line. Children should be exposed to examples with different start and end point values, as well as the standard 0 to 100 number line. Children use their knowledge of counting in multiples of 10 to label number lines. Building on this, they identify and find the position of given numbers on the number line. While it is not always necessary to label every division when identifying or finding the position of a number, it can promote good habits, so encourage children to do this step as a method of checking their answers.
Step 10 10s and 1s on the number line to 100	In the previous step, children looked only at intervals on a number line that were multiples of 10. In this small step, they consider the numbers that lie between multiples of 10 as they look at 10s and 1s on a number line. Children start by considering number lines with start and end points that are a multiple of 10, before exploring other number lines with more varied start and end points and a different number of intervals. All the number lines count up in 1s. As in the previous small step, it is important that children can label a number line. Using this knowledge, they can identify and find the position of given numbers on the number line. Encourage children to complete the labels on a number line as a method of checking answers, in order to promote good habits.
Step 11 Estimate numbers on a number line	In the previous two steps, children considered exact positions of numbers on the number line to 100, focusing first on multiples of 10 and then on the values in between. In this small step, children estimate the position of numbers on number lines. Using the number lines counting in 10s that they worked with in Step 9, they position numbers made up of tens and ones. Encourage children to use their number sense to first decide which two intervals a number lies between, before going further with their thought process to consider its position relative to halfway by deciding which multiple of 10 a number is closer to. Examples include both estimating the position and estimating the value of a given position.
Step 12 Compare objects	In this small step, children combine all their learning so far from this block as they begin to compare objects to 100 Children identify which quantity is greater, explaining their reasoning. The language of "more than" and "fewer than" will be used in the context of quantity. When using objects as a representation of number, children should use the language of "greater than", "less than" and "equal to" alongside the inequality symbols to compare. This will be explored further when comparing numbers in the next small step.
Step 13 Compare numbers	In the previous small step, children looked at comparing quantities using objects and compared objects where the objects were used as a representation of number. In this small step, children compare numbers in a more abstract way. The language of "greater than", "less than" and "equal to" should be used alongside the inequality symbols throughout. The use of a number line supports children's understanding. They understand that the further to the right on a number line a number is, the greater it is in value. Concrete resources can continue to be used in this small step. For children who require more support, this can help them with comparing numbers: for children who are more confident, concrete resources can be used as a method of justifying their answers.
Step 14 Order objects and numbers	In this small step, children use their knowledge of comparing both objects and numbers from the previous two steps to order objects and numbers. The language of "most", "fewest", "least" and "greatest" will be used throughout, as sets of objects and numbers are ordered. Notice the difference in language: when comparing two numbers or objects, we refer to one being "more" or "greater", whereas when working in a set, the one with the highest value is the "most" or the "greatest". Children should be encouraged to use concrete resources and other representations to support their thinking. Incorporating the earlier learning of number lines can also help children with ordering lists of numbers, as when positioned on a number line the values will naturally be in ascending order. The use of the inequality symbols continues throughout this small step.
Step 15 Count in 2s, 5s and 10s	In Year 1, children covered counting in 2s, 5s and 10s. This small step provides an opportunity to revisit those skills in preparation for later in the year when working on topics such as money. It is essential that children can count both forwards and backwards in 2s, 5s and 10s. When counting in 2s and 5s, the starting number should be a multiple of 2 or 5 respectively. Children should, however, be able to count both forwards and backwards in 10s from any number. The use of concrete resources such as counters and Rekenreks can support children's understanding of counting in multiples of 2, 5 and 10. Encourage them to spot patterns within numbers when counting, for example recognising that when counting in 10s, the ones digit does not change.
Step 16 Count in 3s	In this small step, children count in 3s for the first time. They use concrete resources to physically make each number and begin to spot patterns when counting in 3s. Children explore problems in the abstract by drawing jumps on number lines, completing number tracks or using a hundred square to support them in counting and spotting patterns. Some children may need support when crossing a 10 boundary while counting in 3s and the use of the techniques outlined above can support with this. By the end of the small step, children should be able to count both forwards and backwards from any given multiple of 3 and recognise mistakes in any given number sequence.
Block 2 Addition and Subtraction	

Step 1 Bonds to 10	In Year 1, children looked at number bonds both to and within 10 in detail. This small step provides the opportunity for children to revisit and consolidate this learning, with a specific focus on number bonds to 10. This learning is essential prerequisite knowledge for later in the block. The use of concrete resources such as counters and ten frames, Rekenreks or even their fingers can support children in finding bonds for numbers within 10. While these manipulatives can be used to support children initially, they should ultimately become fluent in recalling their number bonds to 10, as this will improve their efficiency and reduce cognitive load when completing calculations with greater numbers later in this block.
Step 2 Fact families	Building on the previous small step, children look at number bonds to and within 20. Links should be made to number bonds to 10, so that children recognise how knowing these bonds supports this learning. As in the previous step, the use of concrete resources can support children in initially identifying bonds to a given number. While recall will ultimately improve efficiency, it is less essential for children to be able to automatically recall these bonds. Instead, they should have the strategies required to work them out quickly. Children looked at fact families in Year 1 and these are reintroduced here to write the addition and subtraction statements for number bonds. This is a good opportunity to remind children of the commutative property of addition. While they should know the effect commutativity has, they do not need to be able to describe it in these words.
Step 3 Related facts	In this small step, children use their knowledge of number bonds within 10, developed in the previous steps, to identify related facts for both addition and subtraction calculations. If children know that 2 + 5 = 7, then they should be able to use this knowledge to state that 20 + 50 = 70. Unitising tens and ones within a calculation can support children's understanding and help to avoid common misconceptions. If 2 ones plus 5 ones is equal to 7 ones, then 2 tens plus 5 tens must be equal to 7 tens. This will avoid errors such as 20 + 50 = 700, which stems from thinking that there must be two zeros in the answer. Concrete resources can be used to support understanding of this. Base 10 is particularly useful and will support children in not only identifying the correct answer, but also using the correct vocabulary of tens and ones when explaining their answers.
Step 4 Bonds to 100 (tens)	In this small step, children build on their previous learning of number bonds to 10 and related facts to find bonds to 100. The focus is on multiples of 10 that have bonds to 100. Children may have seen examples of these in the previous step, and here they focus on them explicitly. By this stage, children should be more confident in automatically recalling their number bonds to 10, and if they know that 4 + 6 = 10, then they also know that 40 + 60 = 100 A Rekenrek and base 10 are useful concrete resources to support this learning. While base 10 supports the link between related facts, the Rekenrek ensures that children keep the 100 visible at all times. A hundred square can also be used. As with number bonds to 10, the more fluent children are in their bonds to 100 made from multiples of 10, the more efficient they will be in later steps.
Step 5 Add and subtract 1s	In this small step, children add and subtract ones from a given number. Children should start to spot patterns when adding and subtracting 1s and link these to their knowledge of number bonds from earlier in the block. If children know, for example, that 3 + 1 = 4, then they can use this to understand that 23 + 1 = 24 and 53 + 1 = 54. The focus of this small step is the way in which the ones digit changes, and calculations that cross a 10 boundary are not included at this point. It is important that children make connections between adding 1 and, for example, adding 2, which is the same as adding 1 and then adding another 1. Once children are confident in adding and subtracting 1, they then go on to add and subtract different numbers of ones.
Step 6 Adding by making 10	In this small step, children use their knowledge of number bonds to 10 to add numbers within 20. Children are familiar with using the counting on method for calculations that cross a 10, but the purpose of this step is to improve both efficiency and accuracy using number bonds. Children need to be able to partition a number into two parts in order to use number bonds to 10 to simplify a calculation. Different concrete resources and representations can support children's understanding. Counters and ten frames, Rekenreks and number lines can help children to represent a calculation and work out the answer, and part-whole models can provide support when partitioning a number. Children can then use the knowledge gained from this to move towards a mental strategy.
Step 7 Add three 1-digit numbers	Children should now be confident in adding two 1-digit numbers. In this small step, they explore adding three 1-digit numbers. The use of concrete resources can support with this, and counters with ten frames or a Rekenrek are particularly helpful. Children recognise that to add three numbers, they just need to add two of them and then add the third to the answer. Initially, the focus is just on completing the calculations, but children then use their knowledge of the commutative property of addition to complete calculations in the most efficient way. For example, when working out 4 + 3 + 6, while children would get the correct answer by working out 4 + 3 and then adding on 6, using the number bond to 10 within the calculation simplifies their workings.
Step 8 Add to the next 10	In this small step, children add to the next ten using their knowledge of number bonds, adding by making 10 and related facts. They also identify missing numbers in a given calculation using the learning from earlier in the block. For example, to find the missing number in 28 + = 30, they can use the fact that 8 + 2 = 10 Encourage children to make connections between the ones in calculations. For example, if they know that 25 + 5 = 30, they can use this to identify the missing number in 26 + = 30: 26 is 1 more than 25 so the missing number must be 1 less than 5 Useful concrete resources to support this learning are base 10 and

	Rekenreks, as children can physically see the 10 they are making. It is important they do not rely on counting the individual ones and so move towards a mental strategy.
Step 9 Add across a 10	Now that children can add to the next 10, in this small step they perform additions that cross a 10 The calculations within this step all require children to add a 1-digit number to a 2-digit number, and knowledge of place value, in particular the fact that 10 ones make up 1 ten, is essential prerequisite knowledge and should be reinforced throughout. Links can be made to the learning from an earlier step where children partitioned a 1-digit number to make 10, and this idea can be applied to support working with greater numbers. Base 10, Rekenreks and number lines can continue to be used and a part-whole model can support children in partitioning the 1-digit number in the calculation. Children are not required to set their calculations up using the formal written method, but they should be encouraged to set concrete resources out in a methodical way.
Step 10 Subtract across 10	So far in this block, children have added and subtracted 1s without crossing a 10 and have added across 10 or a multiple of 10. In this small step, children subtract from 2-digit numbers less than 20 where they are required to cross 10. They use strategies similar to those that they used for addition, partitioning the 1-digit number in order to get to 10 and then subtracting whatever is remaining. The use of concrete resources such as ten frames and counters, base 10 and Rekenreks can support children in choosing the most efficient way to partition the 1-digit number they are subtracting and can also aid their understanding. Other representations, such as number lines for representing calculations and part-whole models for partitioning, are also useful throughout. All of these will support children as they start to move towards a mental strategy for subtracting across a 10
Step 11 Subtract from a 10	In this small step, children subtract a 1-digit number from any multiple of 10 within 100. Their knowledge of fact families for number bonds is particularly helpful here. For example, if they are calculating 50 – 6, they can use the fact that 6 + 4 = 10, so 10 – 6 = 4, and so 50 – 6 = 44 Rekenreks and number lines can be used to support children. Base 10 could be used, but might be less helpful for some children since they cannot physically break up the 10 rod. Counters and ten frames are less useful, because of the size of the numbers children are working with. While children might initially count back using the chosen representations as support, it is essential that they do not rely too heavily on counting the individual ones, as they need to move towards a mental strategy. Children are often more confident working out the missing number in 24 + = 30 than they are calculating 30 – 6, so links to fact families and number bonds can provide support.
Step 12 Subtract 1DN from a 2DN (across 10)	Now that children can subtract from a multiple of 10, in this small step they perform subtractions that cross a 10 All the calculations within this step require children to subtract a 1-digit number from a 2-digit number and, as with addition, knowledge of place value, in particular the fact that 10 ones make up 1 ten, is essential prerequisite knowledge and should be reinforced throughout. Links can be made to the learning from Step 10, where children partitioned a 1-digit number to make 10, and this idea can be applied here to support working with greater numbers. Base 10, Rekenreks and number lines can continue to be used and a part-whole model can support children in partitioning the 1-digit number. Children are not required to set out their calculations using the formal written method.
Step 13 10 more. 10 Less	Earlier in this block, children added and subtracted 1-digit numbers, both with and without crossing a 10. In this small step, they focus on finding 10 more and 10 less than a given number within 100, in preparation for calculating with two 2-digit numbers that are not multiples of 10 Children should already be able to count in 10s from earlier learning, and this will help when finding 10 more or 10 less than a multiple of 10. The use of concrete manipulatives such as base 10 and Rekenreks can support children's understanding. Other representations such as hundred squares and number tracks can also be helpful. Children need to pay close attention to the digits in the number before and after finding 10 more/less to recognise that the tens digit increases/decreases by 1, while the ones digit remains unchanged.
Step 14 Add and subtract 10s	In this small step, children add and subtract multiples of 10 from a given number, working within 100 Children can use their learning from the previous step where they recognised the effect that finding 10 more/less has on the tens digit. By unitising the tens in the number, they can also make connections to their earlier learning on adding ones and apply that here. For example, when calculating 43 + 20, they should recognise that they are adding 2 tens, so they can find 10 more and then 10 more again. Base 10, Rekenreks and hundred squares can continue to be used to support children's understanding. In the next step, children will add two 2-digit numbers, so secure understanding of this step is essential before moving on.
Step 15 Add two 2DN (not across 10)	This small step brings together all the learning on addition from earlier in the block, with children adding two 2-digit numbers composed of both tens and ones. The calculations in this step do not require children to make an exchange, as this will be covered explicitly at a later point. Base 10 is a useful manipulative to support children with the learning in this step. Encourage them to set their numbers out in an organised way, for example one above the other with the tens together and the ones together. Setting them out in this way will support children later when they look at the column method for addition. While it will be tempting for children to consider the tens first, as they are used to working from left to right, encourage them to first consider how many ones they have altogether before looking at the tens. This will help to prevent misconceptions later in the block, when performing exchanges.

Step 16 Add two 2DN (across 10)	In the previous step, children added two 2-digit numbers where there was no exchange. In this small step, they look at additions where they must exchange 10 ones for 1 ten. Their knowledge of place value will be used throughout to support their understanding of exchanges. Base 10 can continue to be used to support learning. Encourage children to explain why they need to make an exchange when they have more than 10 ones. As in the previous step, children should first consider how many ones they have before looking at the tens. They could also be encouraged to think about why they need to do it in this order. Children do not need to set out their calculations using the column method, but should be encouraged to organise their manipulatives in a structured way.
Step 17 Subtract two 2DN (not across 10)	This small step brings together all the learning on subtraction from earlier in the block, with children subtracting two 2-digit numbers composed of both tens and ones. The calculations in this step do not require children to make an exchange, as this will be covered explicitly once they are confident in completing calculations with no exchange. Base 10 is a useful manipulative to support children with the learning in this step. Unlike addition, children will only need to make one of the numbers in the calculation: the number they are subtracting from. While it will be tempting for children to consider the tens first, as they are used to working from left to right, encourage them to first consider how many ones they have left before looking at the tens. This will help to prevent misconceptions later in the block when performing exchanges
Step 18 Subtract two 2DN (across 10)	In the previous step, children subtracted two 2-digit numbers where there was no exchange. In this small step, they look at calculations where they must exchange 1 ten for 10 ones in order to complete the subtraction. Their knowledge of place value will be used throughout to support their understanding of exchanges. Base 10 can continue to be used to support learning, and children should be encouraged to explain why they need to make an exchange when the number that they are subtracting has more ones than the number they are subtracting from. As in the previous step, children first consider how many ones they have left before looking at the tens. Encourage them to think about why they need to do it in this order. Children do not need to set out their calculations using the column method, but should be encouraged to organise their manipulatives in a structured way.
Step 19 Mixed addition and subtraction	So far, children have looked in depth at addition and subtraction separately, and at calculations with and without exchanges separately. Now that they have this knowledge, this small step provides the opportunity for children to consolidate this learning while also requiring them to think about how to tackle each question. Base 10 can continue to be used to support children, and they will need to think carefully about how they set this out for each question and whether they need to make both numbers or not. Word problems give rise to different structures of subtraction, so encourage children to explain what the numbers in the calculations represent in each case. Before they begin a question, encourage children to consider whether it will require an exchange, and ask them to explain their decision
Step 20 Compare number sentences	Children should already be familiar with the inequality symbols and in this small step they use them to compare number sentences. Encourage children to use correct mathematical language to say their answer in words, for example $4 + 7 > 4 + 5$ should be said as "4 plus 7 is greater than 4 plus 5". The focus of this small step is not just on working out the values of the calculations, but rather comparing the numbers within them. For example, when comparing $32 + 24$ and $32 + 27$, children do not need to work out both totals; instead, they should recognise that 32 is the same in each, and since 27 is greater than 24, this means that $32 + 27$ is greater than $32 + 24$ Children need to consider carefully when comparing subtractions, as even though 27 is greater than 24, $32 - 27$ is not greater than $32 - 24$, because they are subtracting more.
Step 21 Missing number problems	In this small step, children use their knowledge of place value and addition and subtraction in order to find missing numbers in calculations. The types of questions that they will see in this small step are, for example, $10 + 6 = 13 + \ $. They could partition the 6 into 3 and 3 to find the missing number, or they could consider that 13 is 3 more than 10, so the missing number must be 3 less than 6 in order for the two calculations to be equal. Correct mathematical language can support children's understanding. For example, if the example above is read as "10 plus 6 is equal to 13 plus something", this can support children in understanding what they need to do, whereas if the = symbol was read as something else, such as "makes", this understanding is likely to be hindered.
Block 3 Geometry	
Step 1 Recognise 2D and 3D shapes	Children begin this block by recapping their understanding of shape from Year 1 Before learning about the properties of shapes, children need to recognise and name both 2-D and 3-D shapes and differentiate between them. It is important that children have the chance to see and feel the shapes. They should begin to understand that 2-D shapes are flat and that the manipulatives they handle in class are representations of the shapes. Children should be able to recognise both standard and nonstandard representations of 2-D and 3-D shapes. For example, they should notice that there is no such thing as an 'upside down triangle'; instead, it is just a triangle in a different orientation.
Step 2 Count sides on 2D shapes	In the next few small steps, children explore in more detail the properties of 2-D shapes, starting by counting the number of sides. Children need to know that the sides of a shape are the straight lines that form its outline. They should have experience of feeling models of the shapes and running their fingers along each side as they count. They may not be accurate when counting the sides, so encourage them to develop strategies such as marking sides as they count them. Children need

	to know that they can use the number of sides to identify the shape. They may have a standard mental image of, for example, a triangle, but should be aware that any shape with three straight sides is a triangle.
Step 3 Count vertices on 2D shapes	Building from the previous small step, children count vertices on 2-D shapes. This is the first time that children have encountered the terms "vertex" and "vertices". They should understand that a vertex is formed where two sides meet, and "vertices" is used when referring to more than one vertex. Children may already know these as being a corner or corners, but should be encouraged to use the correct terminology from this point on. Children should notice that a shape has the same number of sides as it has vertices. As with the previous step, children should be able to feel the shape when counting the vertices and be taught efficient strategies for counting. Children count vertices of standard and non-standard versions of shapes and use this to identify and name shapes.
Step 4 Draw 2D shapes	In this small step, children use their knowledge of the properties of shapes to accurately draw 2-D shapes. Children begin by using straws and modelling clay to explore how to make shapes before using dotted and squared paper to draw them using a pencil and ruler. When making shapes, children should be encouraged to consider what the straws represent (sides) and what the modelling clay represents (vertices). For some children, accurately drawing shapes might be difficult, and drawing a shape using a ruler may need to be modelled. They should use their knowledge of vertices and sides when drawing shapes, to help with accuracy.
Step 5 Lines of symmetry on shapes	In this small step, children are introduced to the concept of vertical lines of symmetry. Show children symmetrical pictures and ask them to think about what "symmetrical" means. They could identify that a shape is symmetrical when both sides are the same. Give them shapes that they can cut out and fold to identify the shapes that have a vertical line of symmetry. After this, they look at shapes with a mirror line drawn to help identify whether a shape has a vertical line of symmetry. They could then draw their own mirror line or use mirrors to identify shapes with a vertical line of symmetry. Children may point out that there are other lines of symmetry, and this can be explored, although it is not taught in this step.
Step 6 Use lines of symmetry to complete shapes	In this small step, children use their knowledge of vertical lines of symmetry to complete shapes. Children start by completing rectangles. Explore different methods, such as using mirrors and counting squares away from the mirror line. They then move on to more complicated rectilinear shapes, before completing shapes with diagonal lines. Encourage children to plot the vertices first before joining up the shape. They should be encouraged to check each other's shapes using mirrors to ensure they are symmetrical. Once their understanding is secure, children could reflect complex images and create their own symmetrical pictures.
Step 7 Sort 2D shapes	In this small step, children continue to look at 2-D shapes and should be given the opportunity to explore similarities and differences between them as they play, and to sort them according to what they notice. Children may have naturally started to sort 2-D shapes based on what they noticed in the previous small steps. Here, they sort and group 2-D shapes according to simple properties, including size and colour, and more formal properties, such as number of sides and vertices. Children need to sort shapes into groups as well as identify how given groups of shapes have been sorted. Encourage children to explain in detail what they notice about groups of shapes and consider whether they could have been sorted another way. They should recognise that the orientation of a shape does not affect its properties. Take time to explore the similarities between squares and rectangles so that children see the connection.
Step 8 Count faces on 3D shapes	Children now move on to explore the properties of 3-D shapes. They begin by counting faces on 3-D shapes in this small step. Children first identify what a face is and develop efficient methods for counting them, for example marking on the shape or using sticky paper. They should be able to identify the 2-D shapes that make up the faces of 3-D shapes, including identifying pyramids according to the shape of their base. Children explore the difference between a face and a curved surface, describing a cylinder as having two faces and one curved surface. In the next two steps, they explore edges and vertices.
Step 9 Count edges on 3D shapes	In this small step, children explore the edges of 3-D shapes. It is important that children understand what an edge is and that it is formed where two faces meet. Discuss counting strategies and think about how they may be different from counting the faces of a 3-D shape. Children should first count the edges by holding 3-D shapes before looking at images of 3-D shapes. This is an important step as images can lead to mistakes. Once children are securely able to count edges, they explore the concept in more detail, such as ordering shapes by the number of edges they have or identifying patterns in the number of edges prisms have.
Step 10 Count vertices on 3D shapes	In this small step, children count the vertices on 3-D shapes. They also consider all the properties of 3-D shapes that they have explored so far. Children have looked at vertices in 2-D shapes earlier in the block, and now begin to understand vertices on 3-D shapes. They should first explore counting strategies by holding 3-D shapes and sharing different methods. When looking at images, it is important to discuss possible mistakes children may make, for example missing out hidden vertices. As well as counting the vertices of shapes, children continue to count the edges and faces; these are used in the next small step when children use their understanding of the properties of 3-D shapes to sort them in various ways.
Step 11 Sort 3D shapes	In this small step, children sort 3-D shapes in a variety of ways, including using the properties they learnt earlier in the block. Children begin by sorting a range of everyday objects, looking at groups of shapes and identifying the odd one out. Children explore sorting shapes into a range of different groups and thinking about how some shapes have been sorted. They may notice that some shapes go into similar groups, for example a cube and a cuboid, and could think about the reasons behind this. This step is an excellent opportunity to develop reasoning skills. Encourage children to explain fully why they have placed a shape in a certain group.

Step 12 Make patterns with 2D and 3D shapes	In this small step, children use their understanding of 2-D and 3-D shapes to identify and create patterns. Children need to be able to identify and name shapes to help them describe the patterns accurately. They look at patterns made up of only 2-D or only 3-D shapes, before looking at patterns that are made up of both. Encourage children to not only think about the next shape in the pattern but also identify what, for example, the 10th shape would be. Discuss strategies such as drawing out the pattern or spotting connections between the position number and the shape. Children should be shown both repeating and symmetrical patterns and be able to discuss the differences between these.