Year 4 Autumn Term	
Block 1 Place Value	
Step 1 Representing numbers to 1000	Children learned how to represent numbers to 1,000 in Year 3 – a concept that will be reinforced in this small step to ensure they have a sound understanding. This understanding will be important later in the block, as children begin to explore numbers over 1,000 Examples have been chosen to ensure that children look at representing and interpreting numbers that have no tens or no ones, to reinforce the idea of using zero as a placeholder. Base 10 and place value counters are used throughout. Base 10 can help children understand the size of a number, while place value counters are more efficient later in the block, when working with 4-digit numbers.
Step 2 Partition numbers to 1000	In this small step, children partition numbers up to 1,000 into hundreds, tens and ones. Children represent numbers in a part-whole model and identify missing parts and wholes. They write numbers in expanded form, using the part-whole model as support where needed, and identify the number of hundreds, tens and ones in a 3-digit number. Particular attention should be paid to numbers that include zero as a placeholder, to build on learning from the previous step. Base 10 and place value counters can continue to be used to support children's understanding.
Step 3 Number line to 1000	In this small step, children revisit the number line to 1,000, which they were first introduced to in Year 3 Children label, identify and find missing values on blank or partially completed number lines. Using real-life scales, such as rulers and measuring jugs, can be helpful here. When looking at partially completed number lines, it is important that children become confident in finding the difference between the start and end points and dividing to find the value of each interval. Explicit examples should be used that have a varying number of intervals and unmarked values in different positions. Children also learn how to work out the value at the midpoint of an interval.
Step 4 Thousands	Building on previous steps where children explored numbers up to 1,000, they now explore numbers beyond 1,000 The initial focus of this small step is counting in 1,000s forwards and backwards from any given multiple of 1,000. Number tracks can be used to support this. Children then look at the composition of multiples of 1,000 by exploring how many hundreds they are made of. They unitise the hundred, being able to state the number of hundreds that make up any 4-digit multiple of 100 or 1,000 such as "20 hundreds are equal to 2,000" Base 10 and place value counters in a ten frame are helpful when identifying the connection between the number of hundreds that are equal to a multiple of a thousand.
Step 5 Represent numbers to 10,000	Building on earlier work, where children looked at numbers to 1,000, this small step focuses on representing numbers to 10,000 Children use different representations such as place value charts and Gattegno charts, which highlight the place value of the digits in the numbers. It is important that children explore the relationship "both ways" between the place value columns, for example, 100 is 10 times the size of 10 and a tenth the size of 1,000 It may be helpful to discuss with children how and why we use a comma when writing numbers, as it can help with reading and writing larger numbers. Children should experience questions that include zero as a placeholder to represent a blank column in a place value chart.
Step 6 Partition numbers to 10,000	The focus of this small step is to ensure that children have a secure understanding of place value with 4-digit numbers. Children partition a number up to 10,000 by identifying the number of thousands, hundreds, tens and ones. They should give their answers using numerals, words and expanded form, for example 5,346 = 5 thousands, 3 hundreds, 4 tens and 6 ones or 5,000 + 300 + 40 + 6 The familiar representations used earlier in the block can help children to understand the value of each digit. A part-whole model can also support children in partitioning numbers. Children should experience questions that include zero as a placeholder, so they understand this cannot be omitted, minimising the misconception that 5,006 = 56
Step 7 Flexibly partition numbers to 10,000	In this small step, children explore flexible partitioning of numbers up to 10,000, understanding that the whole number can be split into parts in many different ways. Children use numerals, words and expanded form in their partitioning. A key focus should be appreciating that, for example, 6,000 + 400 + 20 + 9 = 5,000 + 1,400 + 20 + 9, as this is crucial to understanding addition and subtraction of 4-digit numbers in future blocks. The representations used in previous small steps can provide support, arranging place value counters or base 10 to appreciate that the different partitions give the same number. When working in adjacent columns in a place value chart, links should be made to exchanges as this will support learning in later blocks.
Step 8 Find 1, 10 or 100, 1000 more or less	In Year 3, children found 1, 10 and 100 more or less than a 3-digit number. In this small step, they find 1, 10, 100 and 1,000 more or less than a number with up to four digits. Using base 10, place value counters and plain counters in a place value chart will support understanding, particularly when multiples of 10/100/1,000 are crossed. It is also important to explore examples that result in zero as a placeholder, as this concept needs regular reinforcing. Draw attention to which place value columns change and which stay the same in each example. This allows children to generalise that, for example, when finding 100 more/less, the ones and tens never change, the hundreds always change and the thousands sometimes change.
Step 9	Building on previous learning of number lines to 1,000, children now move on to look at number lines to 10,000 Children label, identify and find missing values on blank or partially completed number lines. Using real-life scales, such as rulers and measuring jugs, can be helpful here. When looking at partially completed

Number line to 10,000	number lines, it is important children become confident in finding the difference between the start and end points and dividing to find the value of each interval. Examples should be used that have a varying number of intervals and unmarked values in different positions. Children should also be able to work out the value at the midpoint of an interval.
Step 10 Estimate numbers on a number line to 10,000	In previous years, children explored estimating on number lines. In this small step, they estimate on number lines up to 10,000 Children discuss suitable estimates from the information given on the number line and the value of each interval, justifying their choices. Encourage children to identify the midpoint and to mark on additional points, for example one-quarter and three-quarters of the way along, to help them position the numbers. It may be useful to consider the position of numbers relative to the midpoint of a number line, for example 6,429 is closer to 6,000 than 7,000 and it is less than halfway between the two points. This will be a useful skill later in the block when children look at rounding.
Step 11 Compare numbers to 10,000	This small step focuses on comparing numbers up to 10,000 using language such as greater/smaller than, less/more than. Once they are confident with the language used for comparisons, children progress to using the inequality symbols, and =, which they have encountered in previous years. Representations such as base 10, place value counters and charts, and number lines support children's understanding of place value, allowing them to compare numbers visually before moving on to more abstract forms. Demonstrate to children that when comparing numbers, they need to start with the greatest place value. If the digit in the greatest place value is the same, they need to look at columns to the right until they find different digits.
Step 12 Order numbers to 10,000	In this small step, children order a set of numbers up to 10,000 Children order numbers from the smallest to the greatest and the greatest to the smallest. They also use language such as "ascending" and "descending" when putting the numbers in order. Children are given examples where the same digit is used in the thousands or the hundreds column so that they need to look at the other digits to determine the value. They also include zero in different places to check understanding of placeholders. Base 10 and place value counters are used to represent numbers to help children make comparisons. Making links with numbers in real-life situations, such as prices and measurements, is also useful.
Step 13 Roman numerals	Children build on their knowledge of Roman numerals from 1 to 12 on a clock face, and learn that L represents 50 and C represents 100 Children explore the similarities and differences between the Roman number system and our number system, understanding that the Roman system does not have a zero and does not use placeholders. They are already familiar with the idea that, for example, 4 is written as IV rather than IIII, and they apply the same concept to write 40 as XL and 90 as XC. Roman numerals can be revisited later in this block (for example, rounding XXV to the nearest 10) or within the addition and subtraction block.
Step 14 Round to the nearest 10	In this small step, children are introduced to rounding for the first time, starting with rounding to the nearest 10 Children begin by focusing on rounding 2-digit numbers, as it is clearer what the previous and next multiples of 10 are. When building on this and starting to round 3-digit numbers, it is important to include examples that have zero as a placeholder in the tens column, for example 304, as children can often think that 300 is not a multiple of 10 because it is a multiple of 100 Number lines can be used not only to identify the previous and next multiple of 10, but also which multiple of 10 a number is closer to. Children should understand the convention that when the ones digit is 5, they round to the next multiple of 10 Avoid using language such as "round up" and "round down", as this can create misconceptions.
Step 15 Round to the nearest 100	Building on the previous step, children now begin to round numbers to the nearest 100 Children begin by focusing on rounding 3-digit numbers, as it is clearer what the previous and next multiples of 100 are. It is important to discuss what is the same and what is different when rounding numbers to 10 and 100. By doing this, children can begin to understand that when asked to round to a given amount, they need to look at the next place value column to the right. It is helpful to use examples that are less than 50, so children see that these round to the previous multiple of 100, which is zero. As in the previous step, avoid using language such as "round up" and "round down", as this can create misconceptions.
Step 16 Round to the nearest 1000	Building on the previous small steps, children round numbers to the nearest 1,000 Children begin by discussing which multiple of 1,000 a number is closest to. They can then identify that if the digit in the hundreds column is between zero and 4, they round to the previous multiple of 1,000, but if the digit in the hundreds column is 5 or above, they round to the next multiple of 1,000 Children make links with rounding numbers to the nearest 10 or 100, all of which are explored in the next step. It is helpful to use examples that are less than 500, so children see that these round to the previous multiple of 1,000, which is zero. As in the previous steps, avoid language such as "round up" and "round down", as this can create misconceptions.
Step 17 Round to the nearest 10, 100 or 1000	In this small step, children round to the nearest 10, 100 or 1,000, choosing the appropriate columns to look at. Discuss with children what is the same and what is different when rounding numbers to the nearest 10, 100 or 1,000. Ensure children understand that when asked to round to a given amount, they need to look at the place value column to the right of that of the required accuracy to decide whether to round to the previous or next multiple. It is worth discussing with children

	when each degree of accuracy is more appropriate. As with the previous steps, avoid language such as "round up" and "round down", as this can create misconceptions.
Block 2 Addition and Subtraction	
Step 1 Add and subtract 1s, 10s, 100s and 1000s	In Year 3, children explored adding and subtracting 1s, 10s and 100s to/from any 3-digit number, including using a mental strategy when crossing a multiple of 10 or 100 In this small step, children recap this learning and extend their understanding to dealing with 4-digit numbers and adding and subtracting multiples of 1,000. The focus is on mental rather than written strategies, which are covered later in the block. It is important to explore the effect of either adding or subtracting a multiple of 1, 10, 100 or 1,000 by discussing which columns always, sometimes and never change. For example, when adding a multiple of 100, the ones and tens never change, the hundreds always change and the thousands sometimes change, depending on the need to make an exchange.
Step 2 Add up to two 4DN (no exchange)	In Year 3, children used the formal written method to add two 2- or 3-digit numbers, with up to two exchanges. In this block, that learning is extended to include 4-digit numbers. In this small step, they add 3- or 4-digit numbers with no exchanges, using concrete resources as well as the formal written method. The numbers being added together may have a different number of digits, so children need to take care to line up the digits correctly. Even though there will be no exchanging, the children should be encouraged to begin adding from the ones column. When working within each column, ask, "Do you have enough ones/tens/hundreds to make an exchange?" This will prepare them for future small steps where exchanging will be necessary.
Step 3 Add two 4DN (one exchange)	Building on the previous small step, children now add two 4-digit numbers with one exchange in any column. In Year 3, they explored 3-digit addition with up to two exchanges, so they should be familiar with the process. The numbers can be made using concrete manipulatives such as place value counters in a place value chart, alongside the formal written method. When discussing where to start an addition, it is important to use language such as begin from the "smallest value column" rather than the "ones column" to avoid any misconceptions when decimals are introduced later in the year. After each column is added, ask, "Do you have enough ones/ tens/hundreds to make an exchange?" This question will be an important one in this small step, as the children do not know which column will be the one where an exchange is needed.
Step 4 Add two 4DN (more than one exchange)	Building on the previous small step, children now add two 4-digit numbers with more than one exchange. The numbers are made using place value counters in a place value chart alongside the formal written method. The addition begins from the smallest value column. After each column is added, ask, "Do you have enough ones/tens/hundreds to make an exchange?" This question is important at every stage as there will be more than one exchange to make. With more than one exchange, it is important to model the correct place to write the number exchanged and to add it to the next column.
Step 5 Subtract two 4 DN (no exchange)	In Year 3, children used the formal written method to subtract two 2- or 3-digit numbers with up to two exchanges. In this block, that learning is extended to include 4-digit numbers. In this small step, children subtract up to a 4-digit number from a 4-digit number with no exchanges, using concrete resources as well as the formal written method. Even though there is no exchanging, children should subtract from the smallest value column first. Before subtracting each column, ask, "Do you have enough ones/tens/hundreds to subtract ? " If not, an exchange is needed. Encouraging children to subtract from the "smallest value column" first, rather than referring to it as the "ones column", will avoid a misconception when decimals are introduced later in the year.
Step 6 Subtract two 4DN (one exchange)	Building on the previous small step, children subtract up to 4-digit numbers, with one exchange. In Year 3, children subtracted 2- and 3-digit numbers with up to two exchanges. It is important that children complete the formal written method alongside any concrete manipulatives to support understanding. Before subtracting each column, ask, "Do you have enough ones/tens/hundreds to subtract ?" If not, then an exchange is needed. For this small step, the exchange could take place from the tens, hundreds or thousands, but there is only one exchange per calculation.
Step 7 Subtract two 4DN (more than one exchange)	In this small step, children subtract up to 4-digit numbers with more than one exchange, using the written method of column subtraction. Children perform subtractions involving two separate exchanges (for example, from the thousands and from the tens) as well as those with two-part exchanges (for example, from the thousands down to the tens if there are no hundreds in the first number). To support understanding, continue solving these subtractions alongside the concrete resources of base 10 and place value counters. When completing the written method, it is vital that children are careful with where they put the digits, especially those that have been exchanged. Two-part exchanges can be confusing for children if they are unsure what each digit represents or where to put it.
Step 8 Efficient subtraction	Having explored both mental and written methods of subtraction in this block, the purpose of this small step is to encourage children to make choices about which method is most appropriate for a given calculation. Children can often become reliant on formal written methods, so it is important to explicitly highlight where mental strategies or less formal jottings can be more efficient. Children explore the concept of constant difference, where adding or subtracting the same amount to/from both numbers in a subtraction means that the difference remains the same, for example 2,832 – 1,999 = 2,833 – 2,000 or 400 – 193 = 399 – 192. This can help make potentially tricky subtractions with multiple exchanges much simpler, sometimes even becoming calculations that can be performed mentally. Number lines can support understanding of this concept.

Step 9 Estimate answers	In Year 3, children explored the idea of estimating without explicitly using the language of rounding. Now that children have covered rounding in Autumn Block 1, they are familiar with the language of "rounding to the nearest ". In this small step, children estimate by rounding to the nearest ten, hundred and thousand. Number lines are a useful representation to support this understanding. Discuss why estimates are important, particularly in real-life situations such as population statistics. They allow us to quickly and easily get an idea of what an answer should be near to or if an already calculated answer is appropriate. It is important to discuss whether an actual answer will be greater or less than an estimate. For example, 333 + 524 may be estimated as 300 + 500, and the precise answer will be greater than the estimate because both the numbers were rounded to the previous multiple.
Step 10 Checking strategies	In this small step, children explore the inverse relationship between addition and subtraction. From learning in earlier years, children know that addition and subtraction are inverse operations and they should also be aware that addition is commutative and subtraction is not. Bar models and part-whole models are useful representations to help establish families of facts that can be found from one calculation. Children use inverse operations to check the accuracy of their calculations, rather than simply redoing the same calculation and potentially repeating the same error. Estimations can be used alongside inverse operations as an alternative checking strategy.
Block 3 Measurement	
Step 1 What is area	In this small step, children encounter area for the first time. They learn that area is the amount of space taken up by a two-dimensional shape or surface. They explore different ways of working out the area of a shape, and it is important that children recognise that some ways are better than others. In this small step, area is found by practically counting squares and not through any formal calculations. This topic lends itself to practical activities such as finding the area of classroom objects using square pieces of paper. Activities such as this can be extended by using different-sized squares and discussing why this gives a different answer. Children also explore the idea that counters are not suitable for finding area, as the whole area cannot be covered.
Step 2 Count squares	In the previous small step, children learnt that area is the space taken up by a two-dimensional shape or surface, and measured it practically. In this small step, they use the strategy of counting the number of squares inside a shape to find its area. If appropriate, children can move on to finding the areas of shapes that include half squares. Marking or noting which squares they have already counted supports children's accuracy when finding the area of complex shapes. Using arrays relating to area can be explored, but children are not expected to recognise the formula. Knowledge of the properties of squares and rectangles can help children to find the areas of shapes with parts missing.
Step 3 Make shapes	In this small step, children make rectilinear shapes using a given number of squares. Children learn that a rectilinear shape is a shape that has only straight sides and right angles. They explore the idea that rectilinear shapes need to touch at the sides and not just at the corners. Children may notice that a rectilinear shape looks like two rectangles joined together, but should be careful not to calculate the area as two rectangles added together, as this will sometimes include an overlap. Children should work systematically to find all the different rectilinear shapes using a given number of squares by moving one square at a time, before moving on to drawing their own shapes with a given area.
Step 4 Compare areas	Building on previous steps, children compare the areas of rectilinear shapes where the same size square has been used. Marking or noting which squares they have already counted will support children's accuracy when finding the area of complex shapes. Children begin by using the symbols and = to compare the areas of different shapes, before drawing their own shapes to satisfy an inequality. They also compare the areas of different shapes and put them in size order. Children could move on to finding the area of shapes that include half squares. This is another opportunity for children to explore the most efficient method for finding the area.
Block 4 Multiplication and Division	
Step 1 Multiples of 3	This small step revisits learning from Year 3 around multiplying by 3 and the 3 times-table. Children explore the link between counting in 3s and the 3 times-table to understand multiples of 3 in a range of contexts. They use familiar representations such as number tracks and hundred squares to represent multiples of 3. They explore how to recognise if a number is a multiple of 3 by finding its digit sum: if the sum of the digits of a number is a multiple of 3, then the number itself is also a multiple of 3 This small step includes multiples of 3 up to 3 × 12 and will be useful support for learning multiples of 6 and 9 in future steps.
Step 2 Multiply and divide by 6	In this small step, children build on their knowledge of the 3 times-table to explore the 6 times-table. The step aims to embed the children's fluency skills with the 6 times-table, while also providing them with strategies to use the multiplication facts they know to find unknown facts. Children explore the fact that the 6 times-table is double the 3 times-table. Children who are confident in their times-tables can also explore the link between the 5 and 6 times-tables. They use the fact that multiplication is commutative to derive values for the 6 times-tables. This is developed further with division facts, where children explore fact families to embed their understanding of division as the inverse of multiplication.

Step 3 6 times-tables and division facts	Building on the previous step, children use known facts to become more fluent in using the 6 times-table. As in the previous step, they apply knowledge of the 3 times-table and understand that each multiple of 6 is double the corresponding multiple of 3 Children use their knowledge of other times-tables to find values for the 6 times-table, for example finding that 6 × 7 = 42 because 5 × 7 = 35 and 1 × 7 = 7, so 35 + 7 = 42 It is important that children practise the related division facts as well as the multiplication facts associated with the 6 times-table. Fluency with the 6 times-table will also help children to work out the 12 times-table in future steps.
Step 4 Multiply and divide by 9	In this small step, children are introduced to the 9 times-table. They use a range of strategies to support their fluency, such as looking for number patterns and finding unknown number facts from known facts, for example subtracting from the 10 times-table or tripling the 3 times-table, and these will be built upon later in the block. Children explore the structure of the 9 times-table using a range of models and pictorial representations, and by exploring multiples of 9 in context. They also use commutativity with the facts they already know from other times-tables. Children find division facts and explore fact families to embed their understanding of division as the inverse of multiplication.
Step 5 9 times tables and division facts	Building on the previous step, children become more fluent using the 9 times-table and apply the multiplication and division facts in a wide variety of contexts. To establish the facts, children use strategies such as using the 10 times-table to derive the 9 times-table, and understanding that each multiple of 9 is triple the equivalent multiple of 3 They investigate finding the digit sum and look for patterns that will support them in identifying multiples of 9: if the sum of the digits of a number is a multiple of 9, then the number itself is also a multiple of 9. This, and the corresponding rule for the 3 times-table, will support their learning in the next step, where they compare the 3, 6 and 9 times-tables.
Step 6 The 3, 6, 9 times tables	In this small step, children make links between the 3, 6 and 9 times-tables to deepen their understanding and embed fluency with these times-tables. This is done by exploring the structure of the times-tables using resources such as arrays and hundred squares, as well as via tasks that require children to reason and explore number facts to look for structural patterns. On completion of this step, children should be confident with their 2, 3, 4, 5, 6, 8, 9 and 10 times-tables before moving on to look at the remaining times-tables later in the block.
Step 7 Multiply and divide by 7	In this small step, children use their knowledge of multiples and count in 7s to make the link between repeated addition and multiplication. Children apply their knowledge of equal groups and use a range of concrete and pictorial representations to deepen their understanding of multiplying by 7. They also draw on ideas from previous steps to explore flexible partitioning to show, for example, 8 × 7 = 5 × 7 + 3 × 7 or 8 × 7 = 8 × 5 + 8 × 2 Children also explore dividing by 7 through sharing into 7 equal groups and grouping into 7s.
Step 8 7 times tables and division facts	In this small step, children bring together their knowledge of multiplying and dividing by 7 in order to become more fluent in the 7 times-table. Children construct fact families and use concrete and pictorial representations to make links between multiplication and division. It is important that children understand the structure of the multiplication table and can derive unknown facts from known facts. Children explore links between multiplication tables, investigating how this can help with mental strategies for calculation, such as 9 × 7 = 9 × 5 + 9 × 2. This step could also be an opportunity to use the 6 and 8 times-tables to derive the 7 times-table, for example 9 × 7 = 9 × 8 – 9 or 9 × 7 = 9 × 6 + 9. Drawing arrays is a useful way of helping children to see these links.
Step 9 11 times tables and division facts	In this small step, children build on their knowledge of the 1 and 10 times-tables to explore the 11 times-table. They recognise that they can partition 11 into 10 and 1 and use known facts to support their understanding, for example 7 × 11 = 7 × 10 + 7 × 1 = 77 They use a range of concrete and pictorial representations to deepen their understanding of multiplying by 11 and to make links between multiplying and dividing by 11. They explore dividing by 11 through sharing into 11 equal groups and grouping into 11s. At this stage, children should already know the majority of facts from other times-tables, so highlighting the importance of commutativity is key in this step.
Step 10 12 times tables and division facts	In this small step, children build on their knowledge of the 2 and 10 times-tables to explore the 12 times-table. They recognise that they can partition 12 into 10 and 2 and use known facts to support their understanding, for example 7 × 12 = 7 × 10 + 7 × 2 = 84. They also build on their knowledge of the 6 times-table, recognising that multiplying by 12 is the same as multiplying by 6 and then doubling. Children use a range of concrete and pictorial representations to deepen their understanding of multiplying by 12 and to make links between multiplying and dividing by 12. They explore dividing by 12 through sharing into 12 equal groups and grouping into 12s. At this stage, children should already know multiplication facts from other times-tables, so highlighting the importance of commutativity is key in this step.
Step 11 Multiply by 1 and 0	In this small step, children explore the effect of multiplying by 1. They notice that when they multiply a number by 1, the result will always be the number itself. This small step also focuses on multiplying by zero. Children learn that when multiplying any number by zero the result is always zero. A common misconception with this small step is that children confuse the result of multiplying by zero with multiplying by 1. Ensure pictorial representations are used to address this misconception, so that children can see that 4 × 0 is the same as 4 lots of zero, which is equal to zero.

Step 12 Divide a number by 1 and itself	In this small step, children apply their knowledge of division and explore what happens to a number when they divide it by 1 or itself. Children can sometimes confuse the result of dividing a number by 1 with dividing a number by itself. Ensure concrete and pictorial representations are used to address this misconception, including examples that involve both structures of division. Stem sentences can be used to encourage children to see this, for example: 5 grouped into 5s is equal to 1 ($5 \div 5 = 1$) and 5 grouped into 1s is equal to 5 ($5 \div 1 = 5$). Following on from the previous small step, children may try to divide a number by zero and it should be highlighted that this is not possible.
Step 13 Multiply three numbers	In this small step, children apply their knowledge of multiplication to multiply three numbers together. They are introduced to the idea of the associative law (but do not need to know it by name), which focuses on the fact that it does not matter how they group the numbers when they multiply. For example, $4 \times 5 \times 2 = (4 \times 5) \times 2 = 20 \times 2 = 40$ or $4 \times (5 \times 2) = 4 \times 10 = 40$ Encourage children to link this idea to commutativity and change the order of the numbers to group them more efficiently. Counters and cubes are effective concrete resources to use during this step to support children’s understanding of the associative law