Year 3 Maths Autumn medium Term plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Number: Multiplication and Division			Consolidation

Number: Place Value

NC objectives:

- **Identify, represent and estimate numbers using different representations.**
- **Find 10 or 100 more or less than a given number.**
- **Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).**
- **Compare and order number up to 1,000.**
- **Read and write numbers up to 1,000 in numerals and in words.**
- **Solve number problems and practical problems involving these ideas.**
- **Count from 0 in multiples of 4, 8, 50 and 100**

Week	Small step	Key Questions	Notes and Guidance	Assessment
	Hundreds	How many tens have you made? How else can we say this? What do these digits mean/represent? How many ones have you made? How else can you say this? If we continue counting in tens, what do we say after 100? What numbers wouldn't we say?	Children build on their understanding of tens and link this to 100. This is the first time they explore 100 explicitly. It is crucial children understand that ten tens make 100 and a hundred ones make 100 They use a variety of concrete equipment to see this relationship. Once children understand the concept of 100, they will count objects and numbers in multiples of 100 up to 1,000	
	Represent numbers to a 1000	Does it matter which order you build the number in? Can you have more than 9 of the same	In this small step, children will primarily use Base 10 to become familiar with any number up to 1,000	

		object? E.g. 11 tens. Do you prefer using the Base 10 or drawing the Base 10? Why? Can you create a part-whole model using or drawing Base 10 in each circle?	Using Base 10 will emphasise to children that hundreds are bigger than tens and tens are bigger than ones. Children need to see numbers with zeros in different columns, and show them with concrete and pictorial representations.	
	100s, 10s and 1s (1)	What is the value of the number shown on the place value chart? Why is it important to put the values into the correct column on the place value chart? How many more are needed to complete the place value chart? Can you make your own numbers for a friend using Base 10?	Children should understand that a 3-digit number is made up of 100s,10s and 1s. They read numbers shown in different representations on a place value grid, and write them in numerals. They should be able to represent different 3-digit numbers in various ways such as Base 10 or numerals.	
	100s, 10s and 1s (2)	What is the same and what is different about Base10 and PV counters? Why do we not call this number 300506? What number would be shown if 1/10/100 was added? Why is it important to put the values into the correct column on the place value grid? What do we need to do if there is a zero in the number we are representing?	Children use place value counters to represent different numbers and understand how a number is made. Their work with Base 10 should help them understand that the hundreds counter is worth more than the tens counter and the tens counter is worth more than the ones counter.	
	Number line to 1000	Children estimate, work out and write numbers on a number line. Number lines should be shown with or without start and end numbers, and with numbers already placed on it.	What intervals do the number lines go up in? Which side of the number line did you start from? Why? When estimating where a number should be placed, what facts can help you? Can you draw a number line where 600 is	

			the starting number, and 650 is half way along? What value can A definitely not be? How do you know?	
	Find 1, 10, 100 more or less than a given number.	What is 10 more than/less than? What is 100 more than/less than? Which column changes? What happens when I subtract 10 from 209	Building on children's learning in Year 2 where they explored finding one more/less, children now move onto finding 10 and 100 more or less than a given number. Show children that they can represent their answer in a variety of different ways. For example, as numerals or words, or with concrete manipulatives.	
	Compare objects to 1000	How do you know which number is greater? Do you start counting hundreds, tens or ones first? Why? What strategy did you use to compare the two numbers? Is this the same or different to your partner? Are the Base 10 and place value counters showing the same amount? How do you know? Is there only one answer?	Children use objects to represent numbers to 1,000 When given two numbers represented by objects, they use comparison language and symbols to determine which is greatest and which is smallest. Children can make the numbers using concrete manipulatives and draw them pictorially. Use stem sentences to ensure the correct vocabulary is being used e.g. _____ is greater than _____.	
	Compare numbers to 1000	What strategy did you use to compare the numbers? How do you know which number is the greatest? Which column do you start comparing from? Why? Can you find more than one way to complete the statements?	Children compare numbers as digits rather than objects. They need to be encouraged to use previous learning to choose an efficient method to compare the numbers. For example, children may choose to place the numbers on a number line, make them in concrete or draw them in a place value chart to compare.	
	Order numbers	How do you know you have created the	Children explore ordering a set of numbers	

		greatest/smallest number? What number is being represented by the place value counters/Base 10? What does the word ascending/descending mean? Can you find more than one way to order your numbers?	from smallest to greatest and greatest to smallest. They need to be able to explain their reasoning throughout. At this point, children are introduced to the words ascending and descending.	
	Count in 50's	What is the same and what is different between counting in 5s and counting in 50s? Hence, what is the connection between the 5 times table and the 50 times table? Can you notice a pattern as the numbers increase/decrease? Can you correct the mistakes in each?	Children use their knowledge of the patterns in the 5 times table to count in steps of 50 They should start from any given multiple of 50 and be able to count both forwards and backwards.	
Addition and Subtraction **NC Objectives:** **•Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds.** **•Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.** **•Estimate the answer to a calculation and use inverse operations to check answers.** **•Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction**				
	Add and Subtract multiples of 100	What is the same and what is different about 2 ones and 3 ones, 2 tens and 3 tens and 2 hundreds and 3 hundreds? What is ____ hundreds and ____ hundreds equal to? How many different ways can you represent 200 + 300?	Children are introduced to numbers greater than 100 They will apply their prior knowledge of adding and subtracting ones and tens to adding and subtracting multiples of 100 Using concrete manipulatives and pictorial representations throughout is important so the children can see the value of hundreds.	
	Add and subtract 3 digit and 1 digit	Which column do I need to focus on? Do we need to make and use the whole	During this small step, children add and subtract ones from a 3-digit number.	

	numbers= not crossing 10	number? Why? How can you explain your method? Is there another way of checking? What do we do when there are no ones left? Can you use <and >to compare Sam and Tim's team points?	Children don't exchange or cross the ten, so they can build number sense. For example, if a child is completing 214 − 3 and 214 +3 they should learn that they can ignore the hundreds and tens at this stage. Therefore, all they need to do is 4 +3 and 4 − 3 respectively. The use of the column method can be used but mental arithmetic is the best strategy.	
	Add 3 digit and 1 digit numbers – crossing 10	When you add ones to a number does it always, sometimes or never affect the tens column? What is the largest number you can have in each column? Why?	Children add ones to a 3-digit number, with an exchange. They must understand that when adding ones it can affect the ones column and the tens column. Children must also know that we can only hold single digits in each column, anything over must be exchanged. The use of0, e.g. 145 –5 is important so they know to use zero as a place holder	
	Subtract a 1 digit number from a 3 digit number – crossing 10	How can we partition the number 321? How else could we partition it to make it easier to subtract 4? What calculation is the word problem representing? What does each number represent in the word problem?	Children subtract a 1-digit number from a 3-digit number using an exchange. Children need to be secure in the fact that 321 is 3 hundreds, 2 tens and 1 one but that it is also 3 hundreds, 1ten and 11 ones. If children are not secure on regrouping, it is important to revisit this before subtracting.	
	Add and subtract 3 digit and 2 digit – not crossing 100	How else can you represent this calculation? Do we need to make this number? How is the similar and different to subtracting ones? What do you notice about the columns that change?	Children look at what happens to a 3-digit number when a multiple of 10 is added or subtracted. Different representations such as Base 10, arrow cards, place value charts should be used. The use of the column method is exemplified in this example, but children should explore whether or not	

		Why don't we have to calculate for each? Give a reason.	this is needed and explain why. Mental methods should be encouraged throughout.	
	Add 3 digit and 2 digit numbers – crossing 100	How many tens do we have? What can we do with the tens? If we know how to count in tens, do we always need to use the column method or other methods? Would it be easier for us to just count up in our heads?	Children add multiples of 10, to a 3-digit number with an exchange. They will recognise that when adding tens, it can change the tens and hundreds column. The column addition method has not been used within this small step because it is not the most efficient method. Children should be counting in tens. Draw on knowledge of inverse to be able to work out missing number problems.	
	Subtract a 2 digit number from a 3 digit number crossing 100	How can we use the number line? Why are the numbers 23 and 57 shown on the part-whole model? Is there another question we can use to test this strategy?	Children subtract multiples of10 from a 3-digit number, with an exchange. The examples show different ways this concept could be taught using number lines and part whole models. The column method could be used, however, it is not the most efficient method. Counting backwards in tens or using 100 to help will support mental strategies	
	Add and subtract 100s	What do you notice when we add and subtract 100s from a 3 digit number? What is the calculation that matches the word problem? What does each number in your calculation represent? Is there more than one way to complete the questions?	Children build on their knowledge of adding 100s together, e.g. 300 +500 by adding ones and tens to solve calculations such as 234 +500 It is important to build 'number sense' and ask the children why the column method isn't the most effective method to solve questions like the ones modelled. We can 'bypass' the tens and ones column because of the zeros in 500	
	Spot the pattern-	What do you notice? Which strategy	Children consolidate adding ones, tens and	

	making it explicit	can we use to add these numbers? Do we need to write a zero in the hundreds column when there are no hundreds left? Do we always need to work out each calculation or can we use what we already know?	hundreds to 3digit numbers. It is important in this step that children don't end up with the misconception that adding and subtracting ones only affects the ones column, because they need to identify it can affect the tens column too	
	Add and subtract a 2 digit and 3 digit number – crossing 10 or 100	Where would these digits go on the place value chart? Why? When we subtract, why do we not make both numbers? Why do we make both numbers when we add? Can you represent using the equipment?	Children focus on the position of numbers and place value to add and subtract 2-digit and 3-digit numbers. The use of concrete equipment will support understanding at this stage.	
	Subtract a 2 digit number from a 3 digit number crossing 10 0r 100	What happens when we have 10 ones? Can we exchange them for anything? Why? Where does this ten go? How does that help us? What happens when we have 10 tens? Can we exchange them for anything? Why? Where does this hundred go? How does that help us?	Children add 3 and 2 digit numbers that cross both the 10 and 100 barrier. They build upon the previous small steps and the concept of 'exchange' is explored. They focus on the position of numbers and place value. The placement of numbers is also key, i.e. 'Does it matter which number goes on top?' The use of concrete equipment will support understanding at this stage.	
	Add two 3 digit numbers – not crossing 10 or 100	What happens when we are subtracting more ones than we have? Can we exchange anything? (1 ten for 10ones) Where do the 10 ones go? How does this help us solve the problem? What happens if there are ones remaining after exchanging for 1 ten?	Children focus on the position of numbers and place value to subtract 2-digits from 3-digits using the column method. The term 'exchange' will be key and understanding of place value will help children to recognise when they should be exchanging.	

	Add two 3 digit numbers – crossing 10 or 100	Where would these digits go on the place value chart? Why? Why do we make both numbers when we add? Can you represent using the equipment? Can you draw a picture to represent this? Why is it important to put the digits in the correct column?	Children add two 3-digit numbers with no exchange. Use of place value counters builds on children's understanding of Base 10 equipment, as the individual units can no longer be seen.	
	Subtract a 3 digit number from a 3 digit number – no exchange	Where would these digits go on the place value chart? Why? Why do we make both numbers when we add? Can you represent using the equipment? Can you draw a picture to represent this? Why is it important to put the digits in the correct column?	Children continue to add two 3-digit numbers, this time where an exchange is required. Use of place value counters builds on children's understanding of Base 10 equipment, as the individual units can no longer be seen.	
	Subtract a 3 digit number from a 3 digit number - exchange	Which method would you use for this calculation and why? What happens when you can't subtract 9 from 7? 50 from 30 etc. How would you teach somebody else to use column subtraction with exchange? Why do we exchange? When do we exchange?	Children explore column subtraction using concrete manipulatives. It is important to show the column method alongside so that children make the connection to the abstract and understand what is happening.	
	Estimate answers to calculations	What would you estimate this to be? Why did you choose this number? Why is/isn't this a sensible estimation to an answer? How did they work out this answer?	Children check how reasonable their answers are. While rounding is not formally introduced until Year 4, it is helpful that children can refer to 'near numbers' to see whether an estimate is	

		Could you do it in a different/better way?	sensible.	
	Check	How can you tell if your answer is sensible? Does knowing if a number is close to a multiple of 100 help when adding and subtracting 3-digitnumbers? How does it help? Does it help to check your answer if you spot which numbers are near to multiples of 10? How does counting 10s, 50s and 100shelp?	Children explore ways of checking to see if an answer is reasonable. Checking using inverse is to be encouraged so that children are using a different method and not just potentially repeating an error, for example, if they add in a different order.	
Multiplication and Division **NC Objectives:** **•Count from 0 in multiples of 4, 8, 50 and 100.** **•Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.** **•Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two digit numbers times one-digit numbers, using mental and progressing to formal written methods.** **•Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objectives.**				
	Multiplication –equal groups	What is the same and what is different between each of the groups? What does the 3 represent? What does the 8 represent? How can we represent the groups?	Children recap their understanding of recognising, making and adding equal groups. This will allow them to build on prior learning and prepare them for the next small steps.	
	Multiply by 3	How many equal groups do we have? How many are in each group? How many do we have altogether? Can you write a number sentence to show this? Can you represent the problem in a picture?	Children draw on their knowledge of counting in threes in order to start to multiply by 3 They use their knowledge of equal groups to use concrete and pictorial methods to solve multiplication.	

		Can you use concrete apparatus to solve the problem? How many lots of 3 do we have? How many groups of 3 do we have?		
	Divide by 3	Can you group the numbers in threes? Can you share the number into three groups? What is the difference between sharing and grouping?	Children explore dividing by 3 through sharing into three groups and grouping in threes. They use concrete and pictorial representations and use their knowledge of the inverse to check their answers.	
	The 3 x table	Can you use concrete or pictorial representations to help you? What other facts can you link to this one? What other times tables will help you with this times table?	Children draw together their knowledge of multiplying and dividing by three in order to become more fluent in the three times table. Children apply their knowledge to different contexts	
	Multiply by 4	How many equal groups do we have? How many are in each group? How many do we have altogether? Can you write a number sentence to show this? Can you represent the problem in a picture? Can you use concrete apparatus to solve the problem? How many lots of 4 do we have? How many groups of 4 do we have?	Building on their knowledge of the two times table, children start to multiply by four. They link to the idea of doubling the number and doubling again. They link multiplying by four to repeated addition and counting in fours. To show the multiplication of four, teachers may use Numicon, cubes, counters, bar models etc.	
	Divide by 4	Can you group the numbers in fours? Can you share the number into four groups? What is the difference between sharing and grouping?	Children explore dividing by 4 through sharing into four groups and grouping in fours. They use concrete and pictorial representations and their knowledge of the inverse to check their answers.	
	The 4 x table	What do you notice about the pattern? Can you use concrete or pictorial	Children use knowledge of known multiplication tables (2, 3, 5 and 10 times	

		representations to help you? What other facts can you link to this one? What other times tables will help you with this times table?	tables) and understanding of key concepts of multiplication. Children who have learnt 3 ×4 =12 can use understanding of commutativity to know 4 ×3 =12	
	Multiply by 8	How many equal groups do we have? How many are in each group? How many do we have altogether? Can you write a number sentence to show this? Can you represent the problem in a picture? Can you use concrete apparatus to solve the problem? How many lots of 8 do we have? How many groups of 8 do we have? We have 8 groups, how many are in each group?	Building on their knowledge of the four times table, children start to multiply by eight. They link to the idea of doubling the number twice and then doubling again. They link multiplying by eight to previous knowledge of equal groups and repeated addition. Children explore the concept of multiplying by 8 in different ways; when 8 is the multiplicand and where 8 is the multiplier.	
	Divide by 8	What concrete/pictorial representations might help you? Can you group the numbers in eights? Can you share the number into eights groups? Can you use any prior knowledge to check your answer?	Children explore dividing by 8 through sharing into eight groups and grouping in eights. They use concrete and pictorial representations and their knowledge of inverse operations to check their answers	
	The 8 x table	Why is it helpful to partition the number you are multiplying by? Can you use concrete or pictorial representations to help you? What other facts can you link to this one? What other times tables will help you with this times table?	Children use prior knowledge of multiplication facts for 2, 3, 4 and 5 times tables (from prior learning), along with distributive law in order to calculate unknown multiplication facts.	