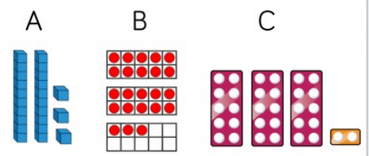
Maths Medium Term Plan 2024-25:
Year 3 Autumn Term 1

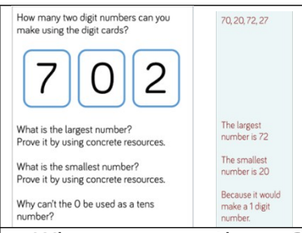
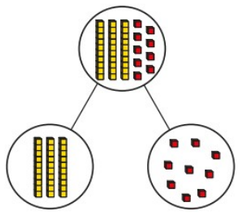
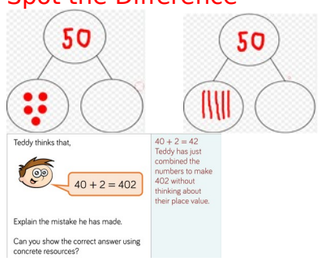
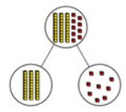
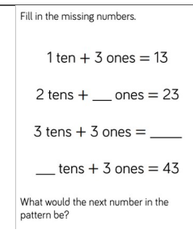
Autumn 1 – Place Value (3 weeks)
Ready to progress:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf
Teaching for mastery:
https://www.ncetm.org.uk/media/oaqfcvjq/mastery_assessment_y3.pdf

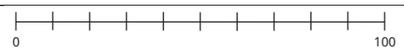
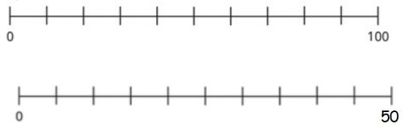
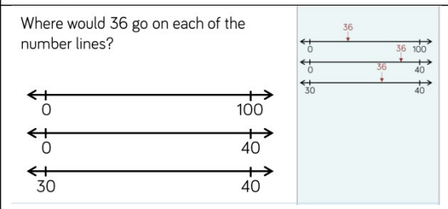
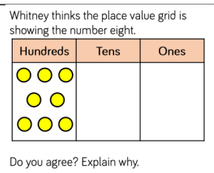
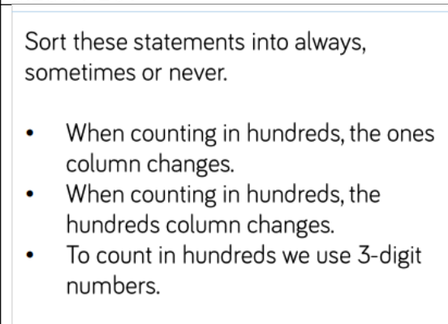
Prior learning (Y2) - Number and place value
Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning.
Reason about the location of any two digit number in the linear number system, including identifying the previous and next multiple of 10.

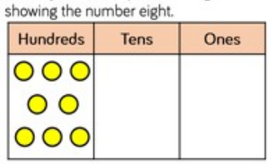
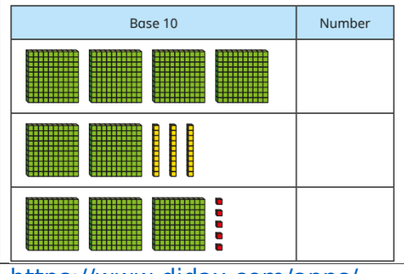
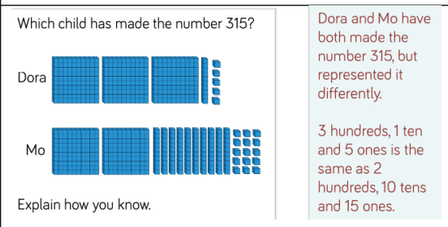
National curriculum – Number and place value
- Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Compare and order numbers up to 1000
- Identify, represent and estimate numbers using different representations
- Read and write numbers up to 1000 in numerals and in words
- Solve number problems and practical problems involving these ideas

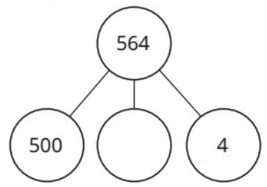
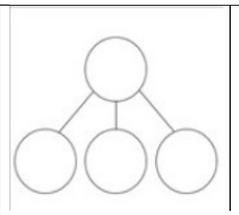
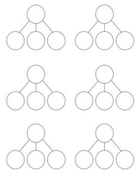
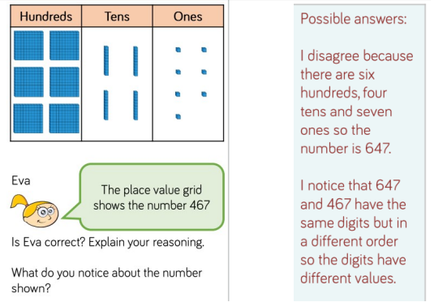
Ready to progress criteria (end of Y3) – Number and place value
Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three digit multiples of 10.
Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.
Reason about the location of any three digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.
Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts

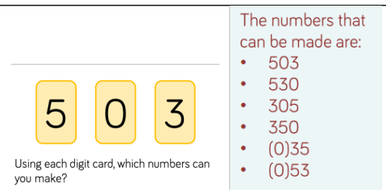
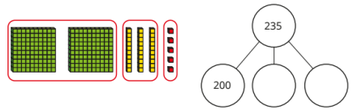
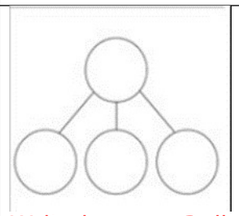
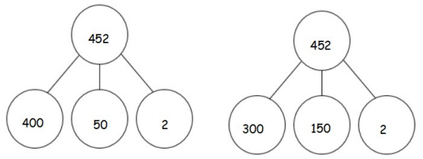
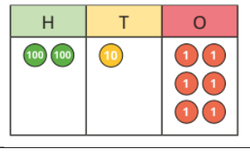
Small steps	Mental & Oral	Prior knowledge/starting point	Common misconceptions/Activities	Key questions/Plenary	Vocabulary
1. Represent numbers to 100 (using concrete resources, objects and pictorially)	Count in 2s Recall multiplies of 2 up to 12x2 in any order	Partitioning objects into 10s and 1s 	• Children may count 1 ten as 1 rather than 10 Using bundles of straws is useful here as children can physically count out 10 ones and then bundle them to make 1 ten. • When asked to draw, children can often draw too much detail. Ensure you give clear instructions, for example a line means 1 ten; a dot means 1 one. • Children may not recognise that when there are 10 or more ones they need to make an exchange.	• How have the beads been grouped? How does this help you to count? • Is it quicker to count in ones or tens? • How many tens do you have? How many ones do you have? • How many ones make 1 ten? • How else can you show this number?	• There are tens and ones. The number is • The represents groups of ten. The represents extra ones.
	Use a blank counting stick Hit the Button 2x tables	Provide pupils with PVG and dienes. Model that ten ones makes one ten. Ask them to partition 2 digit numbers into tens and ones using their dienes. Check children are correctly partitioning and counting correctly ion tens and then counting on in ones. Tens | Ones |	Display a 2 digit number and model making this with the dienes or PVC. Ask pupils to make the same number. How can we represent this as a drawing? Model drawing the number. Ask pupils to make 2 digit numbers and record them on PVG. Challenge: Pupils to partition the 2 digit numbers in different wats e.g. 45 could be 40+5, 30+15 etc. Pupils record in the same way.	One of these images **does not** show 23 Can you explain the mistake? A B C  C does not show 23, it shows 32 They have reversed the ten and ones.	

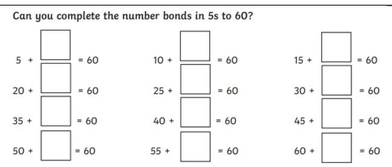
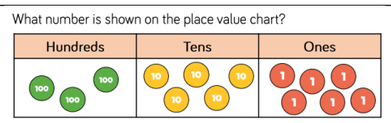
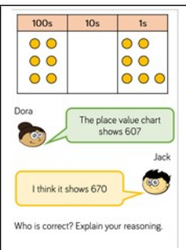
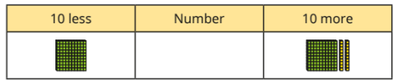
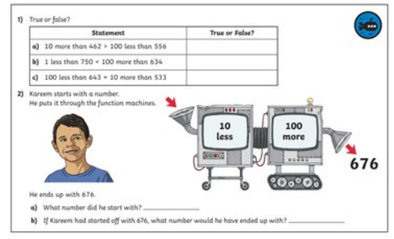
					
3. Partition numbers to 100	Count in 5s Recall multiplies of 5 up to 12x5 in any order	Ensure children can partition numbers into tens and ones, for example 58 has 5 tens and 8 ones. They should be able to write this as an addition sentence such as 58 = 50 + 8 	• When representing a 2-digit number, children may not understand that tens and ones have a different value. For example, they may use 5 ones to represent 50 instead of using 5 tens. • Children may complete a part-whole model or number sentence incorrectly, forgetting the zero that is needed to represent tens, for example 58 = 5 + 8 instead of 58 = 50 + 8 • Representations may be interpreted incorrectly, for example 40 + 2 = 402	• Which part do you know? How can you use the whole and this part to work out the missing part? • How can you use base 10 or draw a picture to help you partition? • How can you complete the part-whole model in a different way?	• There are tens and ones. The number is • The whole is One part is . The other part is
	Use a blank counting stick Hit the Button 5x tables	Provide children with blank part whole model and dienes and ask them to partition different 2 digit numbers.	Spot the Difference   39= 3+9 39=30+9 Ask children to make 2 digit numbers on the PWM chart and record as a number sentnece. Challenge: Pupils partition in different ways and record the different number sentneces e.g. 39= 30+9, 39= 20+19 etc		
6. Number line to 100	Count in 3s up to 36 Recall multiplies of 3 up to 12x3 in any order	Retrieval practise – the number line Draw number lines together Count on number lines	• Children may assume that all number lines count in 1s or 10s and hence incorrectly label the divisions. • Children may count the number of divisions, rather than the intervals. •	• What is the start point? What is the end point? • How many intervals are there? What is each interval worth? • What is the number line counting up in? How do you	Interval Start point End

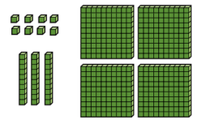
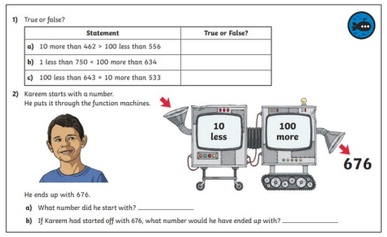
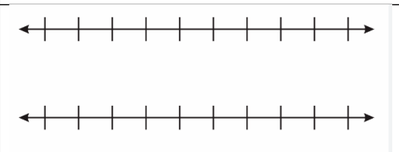
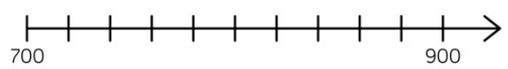
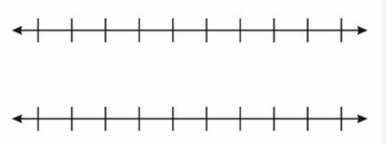
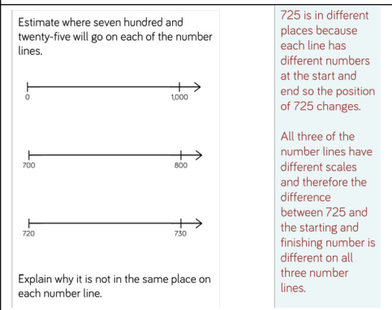
			Children may incorrectly count the number of intervals and therefore label the positions of numbers incorrectly	know? • Where would be on the number line? How do you know? • Why can you only estimate the position of on the number line?	point
	Use a blank counting stick Hit the Button 3x tables	Provide children with a blank number line template (this could be laminated to they can write on it). Tell them the starting number is 0 and the end number is 100. What are the divisions going up in? Where would the number e.g. 60, 40 etc. go? Where would 55 go?	Spot the difference  Model placing the same numbers on each number line. Activity (pupils need iPad or laptops) Challenge children with different levels. https://mathsframe.co.uk/en/resources/resource/37/placing-numbers-on-a-number-line		
8. Hundreds	Recall multiplies of 10 up to 12x10 in any order	Visually compare ones, tens and hundreds. Ensure children understand that 10 is 10 times bigger than 1 and 100 is 10 times bigger than 10. Use number tracks. 	• Children may not recognise or distinguish between a 10 piece and a 100 piece in base 10, and count each piece as “1” • Children may not be using the most efficient method of counting. • Children may not be using placeholders when writing numbers in numerals	• When counting in 10s, what number comes after 90? • If you count from zero in 100s, will you say 40? • When counting in 100s, what comes after 500? How do you know? • How many tens are there in 100? • If there are 10 tens in 100, how many tens are there in 200? • How does the base 10 show that 100 is 10 times the size of 10?	There are tens in 100 and hundreds in This means there are tens in
	Use a blank counting stick Hit the Button 3x tables	Give children HTOs (dienes) to handle. Model writing the number 111 on a PVC and ask children to make it. Make sure they use the correct dienes and don’t just put a ‘one’ in each column. Talk about the digits being 10x bigger. Ensure pupils understand that 10 ones make a ten and ten tens make 100.	 Show me the correct way of making 8. Introduce the children to counters and ask them to make the numbers e.g. 200, 500, 600. Discuss why there is nothing in the TO column and model how we would write the numbers down using 0 as a place value holder. Move onto different 3 digit numbers asking the childrne to make them on their PVG. Display different counters on PVG and ask children to write down the numbers on their W/Bs. **Investigation:**		

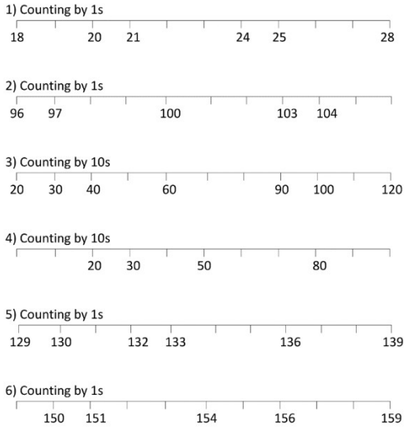
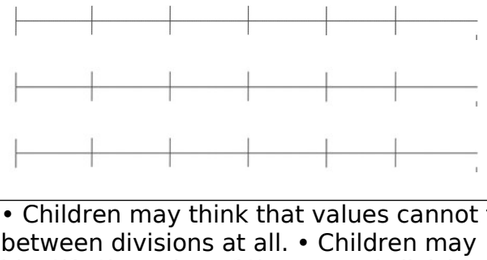
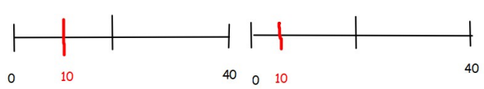
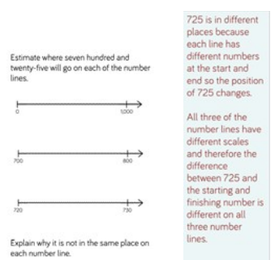
			Whitney thinks the place value grid is showing the number eight.  Do you agree? Explain why. What other numbers could you make using the counters? (80, 170, 323, 350 etc.) Children can work with counters and record the numbers they make. Challenge: Children should be challenged to work more systematically. What do you notice about the sum of the digits used?		
10. Represent numbers to 1,000	X 10	They use base 10 as the main concrete representation, along with a variety of pictorial representations. Using base 10 helps children to see that hundreds are 10 times the size of tens, in the same way that tens are 10 times the size of ones. Building numbers in a variety of ways emphasises these relationships.  	• Children may write numbers incorrectly, for example writing 423 as 400203 • Children may not understand the value of each part of a number, for example confusing 240 and 204 • Children may miscount the number of hundreds, tens and ones in a number. • Children may have difficulty exchanging when representations show more than ten of one part of a number.	• What is the value of each of the base 10 pieces? • How many hundreds are in the number? How many tens are in the number? How many ones are in the number? • Why do you need to make an exchange when you have 12 tens? • Does the order in which you build the number matter? • How else can you represent the number?	There are hundreds, tens and ones. The number is
	10x table flashcards https://www.totcards.com/documents/free-10-times-table-flashcards.pdf	https://www.didax.com/apps/base-ten-blocks/ Make sure children see numbers with zero in different columns and model how to write these using 0 as a place value holder.	https://www.didax.com/apps/base-ten-blocks/ Make the number 240 (using the online base 10 tool) but write it as 204. What is the mistake? Ask children to make numbers using their dienes and a PVG if needed: 700, 120, 407, 999 (repeat with other numbers until children are secure). How can we represent these as pictures? Model drawing the numbers. Give children 3	 	

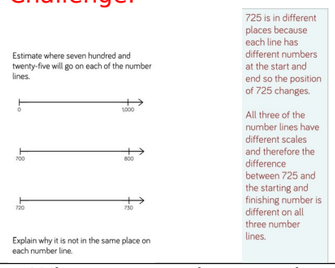
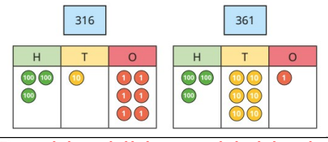
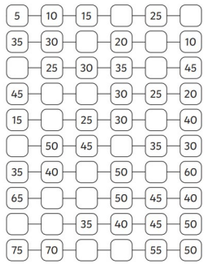
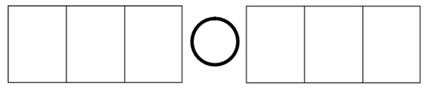
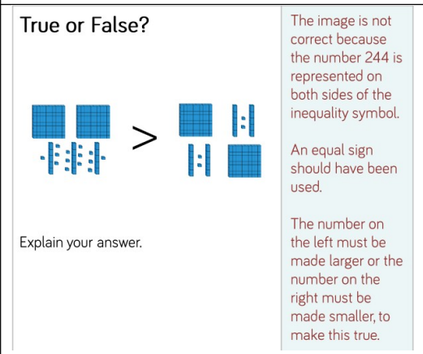
			digit numbers and ask them to make them and draw them. Challenge: Mo is drawing numbers. Can you complete them for him? 246 390 706 		
12. Partition numbers to 1,000	X 100	Retrieval – partition numbers to 100. Ensure children are confident in this. 	• Children may not correctly assign place value to each digit of a number, for example 423 = 4 + 2 + 3 • Where the parts of a part-whole model are not given in value order, children may incorrectly interpret the number. • Children may be confused by the language relating to place value, for example saying that 423 has 20 tens rather than 2 tens. • Children may omit zeros needed as placeholders.	• How many hundreds/tens/ones are there in 465? • How do you write a number that has zero tens? • How do you write a number that has zero ones? • What number is equal to 300 + 70 + 9? • What is the value of the missing part? How do you know? • What is the value of the digit 6 in 465?	Partition Ones Tens Hundreds
	Count up and down a blank number line in 100s. Give pairs of children a 1 -12 dice and ask them to roll it and multiply the number by 100. They both write it on their W/B and score a point for each correct answer.	 Write in different 3 digit numbers and ask children to quickly partition on their W/B. You may want to model this with dienes so children can see the numbers. Use a number with 0 as place value holder and ensure children write this correctly.	Spot the difference  Ask children to partition different 3 digit numbers and record on part whole model and write as a number sentnece.  https://www.tes.com/teaching-resource/white-rose-part-whole-model-blank-template-editable-3-sheets-inc-extended-part-wholes-free-11974422 (templates) Children could work on the model templates or draw into books. Some pupils may still require dienes. Challenge: Use a part whole model to help you. Record your answers as a number sentnece. E.g. 503=500+3	 	

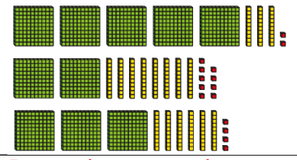
					
14. Flexible partitioning of numbers to 1,000	Count in 4s up to 48 Recall multiplies of 4 up to 12x4 in any order	Retrieval – partition numbers to 1000. Ensue children are confident in this before moving on to flexibly partitioning numbers. 	• Without the support of concrete resources, children can find this concept difficult. Ensure children have access to concrete resources for support in working out and checking answers. • Children may be confident experimenting with different amounts of full hundreds, tens and ones such as 452 = 300 + 100 + 40 + 10 + 2, but struggle when partitioning numbers further such as 452 = 340 + 110 + 2	• Can you partition the number in more than one way? • How do you write a number that has zero tens? • How do you write a number that has zero ones? • Explain why 300 = 200 + 100 • Is 200 + 100 + 50 + 16 equal to 300 + 60 + 6? How do you know? • What number is made of 3 hundreds and 15 tens?	• Hundreds can be partitioned into hundreds and hundreds.
		 Write in some 3 digit numbers and ask the children to partition on their W/B. CHALLENGE (HAP) – Ask children to work systematically to find all ways of partitioning a number.	What is the same? What is different?  Model using dienes so children can see that they are the same by moving one of the hundreds into the tens. Provide children with a blank part whole model and dienes and ask them to practise partitioning flexibly. **Investigation** Investigate different ways of partitioning 453. Pupils use dienes if needed. Record all your answers. Challenge: Can you work systematically? Can you work without dienes?	https://www.didax.com/apps/base-ten-blocks/ Make 3 digit numbers and ask children to record on their W/B as a part whole model and number sentence. Check children are secure with this.	
16. Hundreds, tens and ones	Bonds to 60 (multiples of 5)	Formally introduce the place value chart with Hundreds, tens and ones (this is the first time the children will have seen a place value chart with hundreds on). Use place value counters 	• When working with place value counters, the fact that the physical size of the object does not reflect its value may cause some difficulties. • Children may place counters in the wrong columns of a place value chart. • Children may think that plain counters cannot be used to represent a number in a place value chart because they do not have a value.	• What is the same about representing a number using base 10 and using place value counters? What is different? • How do you know the value of the counter? • How do you know which column to place the counter in? • How many hundreds, tens and ones is made up of? • How can you use plain counters to represent a number in a place value chart?	• __ can be made using hundred counters, ten counters and one counters.

		 What if I add 1 more? What if I add 100 more? Children record answers on W/B.	Model some of the above misconceptions on the PVC using counters without values on. Use place value counters and a grid to make different 3 digit numbers. Make sure ther are numbers with 0 in so childnren recognize that althought there is no counter in a column they need to represent it with a 0 apart from when the hundreds column in blanks. Chldrne practise this practically. Challenge: Ask childrne to find all possibiities. https://media.hamilton-trust.org.uk/documents/y3_spring_investigations_week_1.pdf	 Dora is correct because there are six counters in the hundreds column, none in the tens column and seven in the ones column. If it was 670 there would be seven counters in the tens column and none in the ones column.	
18. Find 1, 10 or 100 more or less	Count in 8s up to 96	Use place value charts to show how numbers change and which column changes when 1 is added/taken away, 10 is added/taken away, 100 is added/taken away. 	• Children may struggle when the result of finding 1, 10 or 100 more or less crosses a boundary within the number. For example, 10 more than 297 is 307. The concept of an exchange should be reinforced here. • In questions such as “10 more than is 297”, children may find 10 more than 297 • When calculating 1, 10 and 100 more or less than a number, children may not refer to the original starting number and instead find 1 more, then 10 more than the result and so on.	• How can you show this using base 10? • How can you show this using a place value chart? • When finding 1/10/100 more/less, which place value columns does this effect? • Which digit(s) changes when you find 10 more? • What is the same and what is different about finding 1/10/100 more and 1/10/100 less?	• __more/less than __ is __.
	Samba Song https://www.youtube.com/watch?v=jooVb23ygS8	https://www.didax.com/apps/base-ten-blocks/ Model using online tool.	Model misconceptions using online tool. https://www.didax.com/apps/base-ten-blocks/ Provide children with dienes and a blank PVC. Practise making numbers and adding and subtracting hundreds, tens and ones. Challenge: Children complete the task without dienes. file:///C:/Users/flinta/AppData/Local/Temp/7/Temp1_tp2-m-2567356-classic-only-year-3-diving-into-mastery-find-1-10-and-100-more-or-less_ver_2%20(1).zip/Horizontal%20Format%20-%201%2010%20and%20100%20More%20or%20Less.pdf	Children explain their answers and model how they completed the task. 	

			1) Find 10 more and 10 less than the number shown. Use base ten blocks to help you. 10 more = _____ 10 less = _____  2) Fill in the table below. The first row has been done for you. **Number** / **1 more** / **10 more** / **100 more** 146 / 147 / 156 / 246 573 /		
			Challenge: Tell children they will be presenting their work in the plenary and explaining how they did it.  1) True or false? **Statement** / **True or False?** a) 10 more than 462 > 100 less than 556 b) 1 less than 750 < 100 more than 634 c) 100 less than 643 = 10 more than 533 2) Kareem starts with a number. He puts it through the function machines. 10 less 100 more 676 He ends up with 676. a) What number did he start with? _____ b) If Kareem had started off with 676, what number would he have ended up with? _____		
20. Number line to 1,000	Count in 10s on a number line Count in 5s on a number line Count in 2s on a number line	Expose children to a range of number lines E.G.  Count on number lines and label number lines together – then move on to independently.	• Children may assume that all number lines count in 1s, 10s or 100s and hence incorrectly label the divisions. • Children may count the number of divisions, rather than the intervals. • Children may incorrectly count the number of intervals and therefore label the positions of numbers incorrectly. • Children may just look at the end point of the number line rather than both the start and end to find the difference.	• What is the start point? What is the end point? • How many intervals are there? What is each interval worth? • What is the number line counting up in? How do you know? • Where would be on the number line? How do you know? • What number would be halfway along the number line? How do you know?	Intervals Start point End point
	Have a blank counting stick and challenge the children to count up or down in the different amounts.	 Provide children with blank number lines to label and ask them to begin at different starting points and end points e.g. counting up in 1s, 10,s and 100's.	Do all number lines go up in 1s, 10s or 100s?  Use the blank number lines with different start and end numbers to model how to check what each interval is. Repeat for different numbers and intervals. Children discuss with their TP.  Ask children to complete different number lines e.g. Find some counting up in 100s. Remove	 Estimate where seven hundred and twenty-five will go on each of the number lines. Explain why it is not in the same place on each number line. 725 is in different places because each line has different numbers at the start and end so the position of 725 changes. All three of the number lines have different scales and therefore the difference between 725 and the starting and finishing number is different on all three number lines.	

			prompt on the sheet for HAPs.  Challenge: Choose a starting number and count up in 1s, 10s and 100s from that number. 		
22. Estimate on a number line to 1,000	Doubling Halving	Number lines 0 – 20 – looking at numbers in between for example 0 2 4 6 8 10, which number would come in-between 4 and 6? Progress onto number lines 0 – 100 looking at half way between 20 and 30. Then progress onto number lines 0-1000. 	• Children may think that values cannot fall between divisions at all. • Children may identify the value of the nearest division rather than considering the values that lie between divisions on the number line. • Children may position any number that lies between two divisions exactly at the midpoint of the interval, rather than considering which division the number is closest to.	• What is the number line counting up in? How do you know? • Where would be on the number line? How do you know? • Is closer to or ? How do you know? • Why can you only estimate? • What number is halfway between and ? • How accurate do you think your estimate is? How could you be more accurate?	• __ is closer to __than __ , so the position of __ on the number line is __ closer to__ than
	https://www.topmarks.co.uk/maths-games/hit-the-button Use Hit the Button to practise doubling and halving.	Use blank number line for retrieval practise. 	Small difference. I have placed the number 10on the number line. Which is correct? Make sure children know to find the mid-point (20) and then the midpoint between 0 and 20 before estimating where the number 10 goes.  Children estimate and place numbers on number lines.	HAP pupils present the challenge and explain their reasoning. 	

			https://www.tes.com/teaching-resource/estimating-numbers-on-a-number-line-6446078 Challenge: 		
24. Compare numbers to 1,000	Count in 5s	Look at a variety of ways to partition numbers – children will have been exposed to different methods and may have a method that works for them. E.G. place value grid, number line, part-whole model 	• When comparing numbers using concrete resources, children may think that the more pieces of equipment they have, the greater the number. For example, they may think that 1 hundred and 9 ones is greater than 2 hundreds because they have 10 individual objects compared to 2 • The greater than (>) and less than (>) are often mixed up.	• How do you know which number is greater? • Do you start comparing hundreds, tens or ones first? Why? • What strategy did you use to compare the two numbers? Is this the same as or different from your partner's? • Are the base 10 and place value counters showing the same number? How do you know?	Greater than Less than Equal to
	Count in 5s to fill in the missing numbers with your partner. 	Provide children with blank PVG or part whole model and ask them to partition 2 numbers e.g. 316 and 361. Discuss what the same is and what is different.	Make 109 and 200 with dienes. Ask the children if they think that 109 is bigger because you have more objects. Which statements shows 36 is greater than 29? **29<36 29>36** Provide children with blank PVC and dienes. Children work with a partner to make 2 similar numbers e.g. 341 and 314. They compare numbers and say which is greater and which is smaller. Model how to use < and > to compare the two numbers. **Game:** Children work in pairs. Each pair has a dice. They take it in turns to roll the dice and generate a 3 digit number. They can decide on where to put their digit each time e.g. in the HT or ones column. They then compare their numbers using < or >. They could draw this on their W/B when playing. 		

<table>
<tr>
<td rowspan="2">26. Ordering numbers to 1000</td>
<td>Count in 50s</td>
<td>Ensure children have a secure understanding of place value, as children need to understand that a digit in the hundreds column, for example, is worth more than a digit in the tens column.
  </td>
<td>• Children tend to order numbers from smallest to greatest, so ensure attention is drawn to those questions where they need to order from greatest to smallest. • Children may just look at the digits and not consider their place values. • When comparing numbers with different numbers of digits, children may focus only on the first digit of each number and not consider the place value of this digit.</td>
<td>• Can you show each number using base 10? • What is the same about each number? What is different? • Which number is the greatest? Which number is the smallest? How do you know? • When comparing two numbers, if the first digits are equal in value, what do you look at next? • What is different about comparing numbers with the same number of digits and comparing numbers with different numbers of digits?</td>
<td rowspan="2">Greatest
Smallest
Ascending
Descending</td>
</tr>
<tr>
<td>Use a counting stick to count up and down in 5s. Then in 50s discussing the links between the two. Repeat starting from different starting points.
Complete the number tracks.
<table>
<tr><td>50</td><td></td><td>150</td><td>200</td><td></td><td></td><td>350</td><td></td><td>450</td><td></td></tr>
<tr><td></td><td>750</td><td>700</td><td>650</td><td></td><td></td><td>500</td><td></td><td></td><td>350</td></tr>
</table></td>
<td>Draw these numbers on you W/B represented as dienes to show the value of each digit.
<table>
<tr><th>H</th><th>T</th><th>O</th><th>H</th><th>T</th><th>O</th><th>H</th><th>T</th><th>O</th></tr>
<tr><td>4</td><td>4</td><td>2</td><td>3</td><td>9</td><td>7</td><td>4</td><td>1</td><td>8</td></tr>
</table></td>
<td>Children work on W/B.
How have these numbers been ordered?

543 453 354
Can you order them form the smallest to the greatest?

Here are 3 numbers. Which digit should we look at first when ordering them? Which digit next? etc.

678 867 768

Here is a list of numbers.
312, 321, 123, 132, 213, 231
Place the numbers in ascending order.
Now place them in descending order.
What do you notice?
Investigate: You may want to give the children different number to repeat the activity with if they are unsure.
Here are three digit cards.
 
What is the greatest number you can make?
What is the smallest number you can make?

Challenge:
Record all possible solutions.

Whitney has six different numbers.

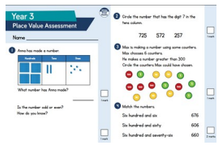
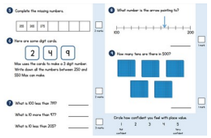
She put them in ascending order then accidentally spilt some ink onto her page. Two of her numbers are now covered in ink.
 
What could the hidden numbers be?
Explain how you know.

The first number could be anything between 215 and 242

The second hidden number could be anywhere between 257 and 288</td>
<td>True or False?

When ordering numbers you only need to look at the place value column with the highest value.

False.
For example, if you are ordering numbers in the hundreds you should start by looking at the hundreds column, but sometimes two numbers will have the same number of hundreds and so you will also need to look at other columns.</td>
</tr>
</table>

<table>
<tr><td>14. End of Block Assessment</td><td colspan="4">https://assets.whiteroseeducation.com/resources-2022/year-3/autumn-block-1-place-value/wrm-y3-autumn-b1-place-value-assessment.pdf
   </td></tr>
<tr><td>15. Post-assessment</td><td colspan="2">Pupils ready to move on:
Coded 100 square
https://nrich.maths.org/6554?utm_source=primary-map
Magic vs
https://nrich.maths.org/6274?utm_source=primary-map</td><td colspan="2">Pupils needing support:
Partitioning using part-whole models
How many 10s are there in 300? 400? 200? Etc</td></tr>
<tr><td>Assessment</td><td colspan="4">Ready to progress:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf
Teaching for mastery:
https://www.ncetm.org.uk/media/oaqfcvjq/mastery_assessment_y3.pdf</td></tr>
<tr><td>Assessment</td><td>Ready to progress criteria (end of Y3) – Number and place value
Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three digit multiples of 10.
Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.
Reason about the location of any three digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.
Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts</td><td>Pupils who need more practise/support:</td><td>Pupils who can move on:</td><td></td></tr>
</table>