Planning Overview
Year 2 - Topic Place Value

Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
Recognise the place value of each digit in a two-digit number (tens, ones)
Identify, represent and estimate numbers using different representations, including the number line
Compare and order numbers from 0 up to 100; use <, > and = signs
Read and write numbers to at least 100 in numerals and in words
Use place value and number facts to solve problems.TAF Statements

2NPV–1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.
2NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.

Partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus (TAF ARE)
Read scales* in divisions of ones, twos, fives and tens (TAF ARE)
Read scales* where not all numbers on the scale are given and estimate points in between (TAF GD)
Partition a two-digit number into tens and ones to demonstrate an understanding of place value, though they may use structured resources to support them (TAF WT)
Read and write numbers in numerals up to 100 (TAF WT)

	Teaching and Learning
Introduction and initial assessments	Give the children a range of numbers on cards (start with 1 – 30 and increase size as appropriate) and a range of resources. What numbers are children able to make? Are they able to order numbers? Say numbers? Are they confident with the resources? Can they use pegs and post its to mark multiples of 10 on a beadstring?
Read and write numbers up to 100	Begin by counting with the children alongside images such as a hundred square and beadstring. A beadstring is good to show the quantity of the number as well as the count. Mark the multiples of 10 on a beadstring and reinforce the patterns of counting after each multiple of ten. Can children understand the difference between the -teen and -ty numbers? Can children peg a given amount on a beadstring? What was the ten before our number? After our number? Can they show you a higher number? What number would that be on the 100 square?

<table>
<tr>
<td></td>
<td>Encourage the children to fill in the missing numbers in sequences such as;

<table><tr><td>37</td><td></td><td>39</td><td></td><td>41</td><td>42</td><td></td><td>44</td></tr></table>
Can the children order numbers both in words and numbers?

Can children fill in missing parts of a 100 square or put together a cut up 100 square? Can they cut up a 100 square into 10 pieces for their partner and challenge them to put it back together in less than a minute? 30 seconds? How did they make it tricky? Easy?

Will you introduce a number line at this point or after the Place Value of a 2-digit number work? Can children look at the link between the beadsting and number line, identify the multiples of 10 and some numbers in between? **Initial TAF Evidence linked to number lines**

Add this range of resources to your working wall and continually refer to the range of representations.</td>
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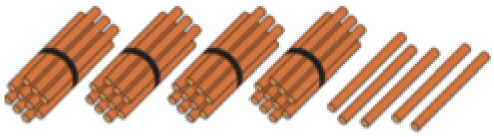
<tr>
<td>**Recognise Place Value in a 2-digit number**</td>
<td>Using bundles of straws, make 2-digit numbers and discuss the value of the straws. How does this link to how we write the number?



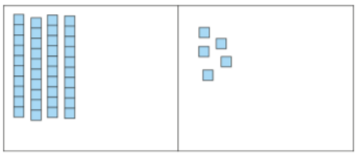
4 groups of ten and 5 ones is 45
Repeat and gradually drop the words groups of, so 4 tens and 5 is 45.

Can children roll a 0-9 dice to determine how many bundles of 10 to take and then again to determine how many ones. What number have you made. Record this as a pictorial and number representation.

Use the number 45 again keep adding 1 straw until you get to 50 and show that we need to make another bundle of 10. Repeat with different amounts of straws until the next bundle of 10.

Show 2 digit numbers in other representations and discuss the value of the number.

What number is shown here? How do you know?

</td>
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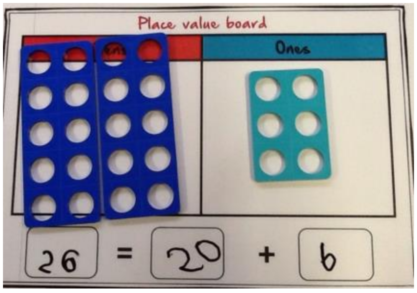
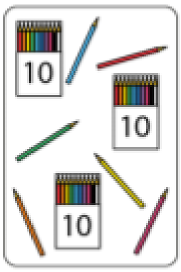
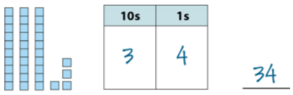
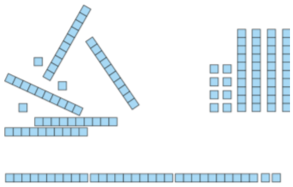
Link to representations in a Place Value Chart and record as a number sentence.







Variation:



(Some images taken from NCETM – professional development materials)

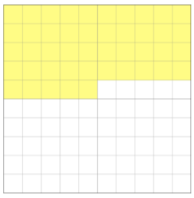
Repeat using a range of representations and recording strategies until the children are confident answering the mastery question below.

Mastery

Write the missing numbers in the boxes.

1) In the number 47, there are ☐ groups of 10 and ☐ ones.
2) The number that is ten groups of 10 is ☐.
3) The number 75 shows ☐ in the tens place, and ☐ in the ones place.

How do you know this number shows 45?

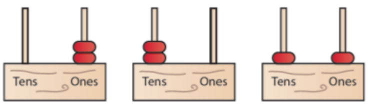


What would change if I wanted to show 55? 49?

Use counters to represent numbers on a Place Value Chart and then complete the problem below.

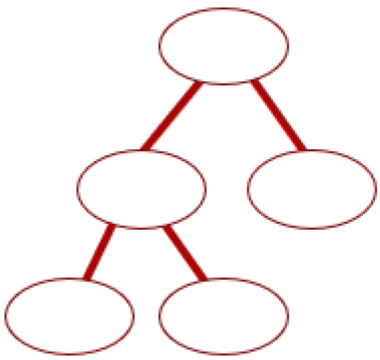
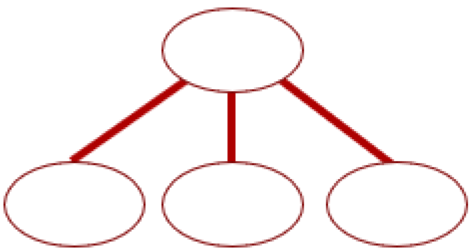
Mastery with Greater Depth

If you put 2 beads onto a tens/ones abacus you can make the numbers 2, 20 and 11.



Do the same with 3 beads. How many different numbers can you make?

How many different numbers can you make using 4 beads?

Partition numbers into different combinations of tens and ones	Discuss with the children that the way that we have been partitioning numbers so far is by partitioning into tens and ones. Use Part Whole Model or Bar Model to show this e.g. 64 split into 60 and 4 What facts can you record from this? Use resources to model this? 60 + 4 = 64 4 + 60 = 64 64 – 4 = 60 64 – 60 = 4 Can the children complete the missing box questions e.g. 50 + ? = 54, 45 - ? = 40 Encourage children to partition numbers in a variety of ways. E.g. 65 show with resources (PV Counters, dienes, money or straws) **TAF evidence** 60 and 5 6 tens and 5 ones 50 and 15 5 tens and 15 ones 40 and 25 4 tens and 25 ones 30 and 35 3 tens and 35 ones 20 and 45 2 tens and 45 ones 10 and 55 1 ten and 55 ones 0 and 65 0 tens and 65 ones Ensure that children are confident with the method above and can work systematically to find different ways of partitioning numbers before moving onto partitioning methods below. Can children partition numbers into 3 parts or extend the Part Whole Model further? Consider the addition and subtraction facts they can make from it.  
Examine patterns using place value & counting in tens	Rehearse counting in 10s from 0. Complete sequences forward and backward. 20, _, 40, 50, 60, _, _ Spot the mistake 40, 50, 70, 80, 90

	Take a pair of counters the same colour. Using a 100 square put one counter on a 1-digit number. Count on 10 and place the other counter where you land. What do you notice? What is the same and different about the start and end number? What would happen if we counted on another 10? Check. Repeat with a different colour. Use dienes, straws or numicon to model adding 10 to a number. Continue the sequences and look at what changes and what stays the same. Rehearse counting in 10s from any number. Complete sequences forward and backward. 22, _, 42, 52, 62, _, _ Spot the mistake 13, 23, 33, 34, Sometimes, always or never When you count in 10s, only the 10s digit changes. Look at pattern 10+4 = 14 20+4 =24 30+4 =34 What do the children notice? Also look at 10+14 = 24 10+24 = 34 10+34 = 44 Show the patterns using the part/part/whole model, on a place value chart and using Numicon. How can the children use place value to help them calculate?
Compare and order numbers including relative positions on a number line	Compare two numbers using resources. Which number is bigger and why? Start with obvious numbers and move to less obvious numbers. E.g. 2 and 98, 14 and 84, 34 and 45, 56 and 58. Numicon is weighted so this can be a good example to use. Which is the largest 54 or 63? Place 6 ten pieces in one side of a scale and 5 ten pieces in the other. Which is more how do we know? Repeat for other examples. Are they bigger or smaller? How do we know? How many tens in the number? Reinforce that if the tens are different this will help us to determine the larger number but if the tens are the same, we then need to look to the ones column.

Complete fluency questions, including the use of the Greater and Less than symbols.

Mastery

Put a circle around the larger number.

1) 50 48   2) 77 81   3) 78 87

Use < > and = signs to make these number sentences correct.

3 tens ☐ 30 ones

2 tens ☐ 9 ones

4 tens ☐ 33 ones

Steve says, 'My number has two tens and five ones.'
What is Steve's number?
Amy has two more tens than Steve. What is her number?
Sam says, 'My number has five tens.'
What numbers **can** it be?
What numbers **can't** it be?

Mastery with Greater Depth

Use < > and = signs to make these number sentences correct.

3 tens and 2 ones ☐ 2 tens 12 ones

4 tens and 3 ones ☐ 3 tens 14 ones

5 tens and 4 ones ☐ 4 tens 11 ones

Mastery with Greater Depth

Write all the 2-digit numbers greater than 40 using these digits.

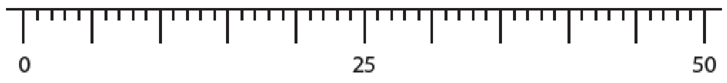
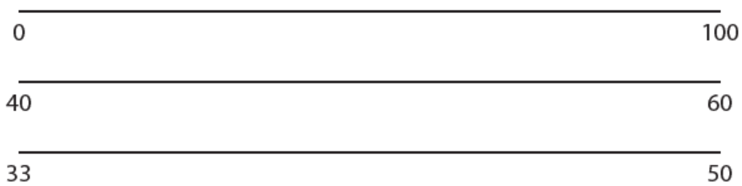
2 4 6 6

How do you know you have them all? Prove it.

Number lines – TAF Statement

Look at numbers on a number line alongside a beadstring. Peg each multiple of 10 and show where these markers would be on the number line. Each of the single beads would then represent 1 partition on our number line. Chose a number e.g. 24 what is the 10 before 24? What is the 10 after 24?

Complete fluency questions linked to Number lines – including the DfE Maths Guidance Assessment Questions.

	Mastery Place these numbers on the number line: 10, 48, 30  Greater Depth e.g. Place 45 on a number line from 0-100, then on a number line from 0 to 50 and finally on a number line 30-50. What do the children notice? **Mastery with Greater Depth** Place 47 on each of these empty number lines.  How many 2-digit numbers can you make from the digit cards 6, 3 and 4? What is the smallest and largest number you can make? Can you place them on a number line? What is the difference between the numbers?
Counting in steps of 10, 2, 5 and 3	Consider which elements of counting in 2s, 3s, 5s, and 10s you will complete at this stage and which will be covered in more detail in the multiplication and division unit. Counting in 10s would be useful to consolidate prior to addition and subtraction unit. **Counting in 10s may have been covered in the Pattern in Place Value section above. If not cover that now.** If appropriate at this stage, repeat this sequence of learning for 2s, 5s and 3s and continue to reinforce through daily fluency activities. Use coins, objects, eyes, wheels on a bike, fingers etc to reinforce understanding. Drop 2ps/5ps/10ps into a tin or money box. Can they identify the total amount after the coins have been dropped? How did they work it out? Can we count in order to check the total? Which number is the odd one out? How do you know?

Can the children work out?
How many eyes are there in the room? How many fingers? How many shoes?

Teaching for Mastery

Mastery	Mastery with Greater Depth
Here is part of a number square. What is the largest number on the whole square?	Here is part of a number square. What is the largest number on the whole square?

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16		
19	20	21			
25	26				
31	32				

3	6	9	12	15
18	21	24	27	
33	36	39		
48	51	5		
63	66			

Recognition of even and odd numbers is also needed to complete a number of the Place Value assessment questions and also for children to investigate patterns of adding odd and even numbers in the addition and subtraction unit of work.

Mastery

Think of an even number that is more than 30 and less than 50. And another. Can you find them all? How many are there?

Explain your reasoning.

Mastery with Greater Depth

Amy thinks of a number. Her number:

- is an even number
- is between 20 and 25
- has two different digits.

What is her number?

Explain your reasoning.

Numicon is a valuable resource to use in order to explain odd and even.

Children can cover Numicon pieces in 2s and see why numbers are odd or even.

Explore the fact that every other number is even.

Explore generalisations such as all multiples of 10 are even.

Sometimes, always or never
All numbers with a 7 in them are odd
All numbers with a 2 in them are even

NRICH - 2-Digit Targets

You have a set of the digits from 0 - 9.

0	1	2	3	4	5	6	7	8	9

Can you arrange these digits in the five boxes below to make two-digit numbers as close to the targets as possible? You may use each digit once only.

largest even number		
largest odd number		
smallest odd number		
largest multiple of 5		
number closest to 50		

How will you know that your solution is as close to the targets as possible?

NRICH -What number

I am less than 25.
My ones digit is twice my tens digit.
My digits add up to an even number.
What number am I?

Repeat with other clues. Can the children make their own clues up?