

**Planning Overview**  
**Year 1 Place Value to 20**

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number

Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens

Given a number, identify one more and one less

Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least

Read and write numbers from 1 to 20 in numerals and words.

1NPV–1 Count within 100, forwards and backwards, starting with any number

1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using  $<$   $>$  and  $=$

1NF–2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.

*Please note that Place Value is repeated again to deal with numbers to 100. The teaching for mastery documents will be used as guidance of the pitch needed by the end of the year so if numbers are over 20 these will need to be adapted to numbers to 20 in this unit of work.*

	<b>Teaching and Learning</b>
<b>Introduce the concept of 1 ten and its equivalence to ten ones</b>	<p>Use a range of resources where single items can be joined into groups of 10 e.g. multilink cubes, straws. Count out 10 cubes – join them together – are there still 10? Compare stick of 10 to ten unjoined cubes, ten cubes of different colours, cubes in different arrangements.</p> <p>Introduce the vocabulary <b>ten ones, and one ten / one group of ten</b>. Simple reasoning could be to give a tower of 11 cubes or a bundle of 9 straws and ask if it is a ten. Why not?</p> <p>Introduce special apparatus where ten ones are already grouped into one ten to help us with maths e.g. numicon, dienes, pictures of tens frames. Compare ten ones and one ten using these apparatus / pictures. Introduce idea of efficiency by giving one child the ten sticks and another child the ones and asking both to give you 10 as quickly as quickly as possible.</p>
<b>Count sets of 11–19 objects – exposing the one ten and ___ ones structure in the teen numbers</b>	<p>Count sets of real objects from 11–19 by making a group of 10 and then the rest on ten frames.</p> <p>Count pictures of real objects by circling 10 and then the rest.</p> <p>Children to use the vocabulary <b>There is one ten and ___ ones</b>.</p> <p>Make the explicit link between saying the sentence There is one ten and 5 ones and recording 1 and then 5 for 15</p>

<p><b>Show given teen numbers using different representations</b></p>	<p>Give children a number between 11 and 19 and ask them to represent it using ten frames, dienes or numicon. Encourage them to use their knowledge that 14 is 1 ten and 4 ones to quickly get those pieces.</p> <p>Begin to record teen numbers with drawings of dienes using a line for a ten and small circles for ones.</p> <p>Remind them of part-whole models. Can they represent teen numbers by partitioning into tens and ones?</p> <p>‘Throw’ teen numbers with your fingers to another child. They say what number it is, then choose to throw a different teen number to someone else.</p> <p>Play Tic-Tac-Teen game from Kendragarten Kindergarten.</p>
<p><b>Understand that in teen numbers the 1 is 10 because where the 0 was there is now a different number of ones (zero as a place holder)</b></p>	<p>Introduce arrow cards to represent teen numbers alongside apparatus.</p> <p>Play Go Teen in pairs (<a href="https://nzmaths.co.nz/resource/teen-numbers-building-ten">https://nzmaths.co.nz/resource/teen-numbers-building-ten</a>)</p> <p>Children have digit cards (1 – 9), a set of arrow cards 1–9 plus 7 ten arrows, apparatus where tens are pre-grouped (e.g. dienes). Turn over 2 cards. Find the corresponding number of ones for each card and count them altogether. If less than 10 play moves on. If more than 10 exchange ten ones for one ten and keep your dienes. Make the number with the arrow cards underneath. Players take turns. If the number has already been made (1–9 arrow card has gone) then return the cubes. Winner has most tens arrows when all the tens arrow cards have gone</p> <p>GD – develop reasoning after the game. Was there a digit card you didn’t want to turn over? Why? Was there a way to make every teen number? Why? Why not? Did you make some teen numbers more often? Why do you think that was? Encourage children to record all the ways to make 11, 12, 13 etc. with just one each of digit cards 1–9. Introduce place value grid alongside apparatus to reinforce the idea that the 1 in 17 is really 1 ten and we know this because of its place in the number. We call this <b>place value</b>.</p>
<p><b>Counting forwards and backwards and dual counting</b></p>	<p>Use dual counting to expose the pattern in the numbers from 11–19 which is not readily shown in their names. Look at numberlines, hundred squares, gattegno charts and arrow cards and count 11, 12, 13 as well as one ten and one, one ten and 2, one ten and 3. (You can tell the children that in some languages like Welsh this is how you say these numbers but English numbers only have a proper pattern after 20)</p>

	<p>Once they are comfortable with the pattern, sit in a circle. Choose a starting number and ask children to count in ones around the circle either forwards or backwards. Who do you think will say the number 17?</p> <p>Play lots of counting game variations e.g. pass the count – 1 child counts a few numbers then points to next child to carry on. When count gets to 20 the count could go backwards. Clap 1, clap 2, etc. around the circle.</p> <p>Have the numbers, words and visual representations of each number visible to support the children’s understanding.</p> <p>Choose a starting number and ask them to count either forwards or backwards moving a counter along the track as they count.</p> <p>Choose a number card from 10–19. Can they identify the card that comes next when they count forwards? And the next one...and the next one? Choose a different number card. Can they identify the number that comes before it when they count backwards? And the next one? And the next one?</p> <p>Complete number sequences such as: 13, 14, 15, 16, <u>  </u>, <u>  </u>, <u>  </u> 19, 18, 17, 16, <u>  </u>, <u>  </u>, <u>  </u></p> <p>Spot mistakes in a number sequence: 14, 15, 16, 17, 19</p> <p>True or False: I am counting forwards from 13 in ones. Will I say 11? How do you know? I am going to count backwards from 18 to 10 will I say 9? How many numbers do I say to get from 18 to 10?</p>
<p><b>One more and one less</b></p>	<p>Make a numicon number line from 0–10. Add a base 10 plate below each number to change it into a number line from 10–20. Choose a number. What can you tell me about your number? – Encourage children to discuss the number that is one more or less than their number. Can they find that number on their number track? What is the number before and after? Make link between this and terms <b>one more/one less</b>?</p> <p>Child closes their eyes while you remove a shape from the ordered Numicon. Can they identify the missing shape and the number that it represents? How do they know? Can they write the number that the shape represents?</p>

**Missing number sequences**

Children to complete missing number sequences.

Complete:

19		21	22		
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Varied questions including questions that show that children understand the language of more than and less than.

? is one more than 16

? is one less than 18

Adapt numbers to evaluate mastery of numbers to 20

**Mastery**

Write the missing number in each box.

19  $\xrightarrow{\text{is 1 less than}}$

33  $\xrightarrow{\text{is 1 less than}}$

54  $\xrightarrow{\text{is 1 less than}}$

59  $\xrightarrow{\text{is 1 less than}}$

Look at the grid. Choose a number and complete the second grid.

		50	
Count in 1s	49	50	51
Count in 10s	40	50	60

		?	
Count in 1s			
Count in 10s			

Can children work in a system to find numbers 1 more or less than each number to 20.

**Mastery with Greater Depth**

Complete:

$\xrightarrow{\text{is 1 less than}}$

$\xrightarrow{\text{is 1 more than}}$

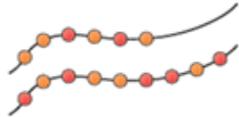
Sarah thought of a number – one more than her number was 16, what was her number?

**Position 1–20 on different number lines (marked and unmarked)**

Recap learning from PV to 10 unit. Encourage children to place numicon plates on a 0–10 number line with intervals marked. Can they place the 8 plate in the correct place without all the other plates on there? Which number will be in the middle? Which one just before this one?

Change the number line start and end points to be 10 and 20. Can children place the teen numbers in the correct place using numbers already there to help them?  
What about on a 0–20 number line?

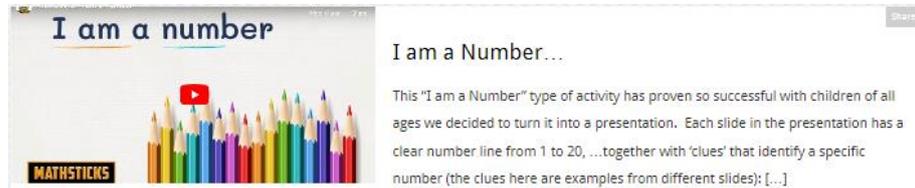
Place numbers on marked number lines 1–20 and 10–20. Reason about the positioning e.g. 18 goes there because it is 2 places before 20. I know 16 is the one after 15.

	<p>Move on to estimate where numbers would go on un-marked number lines 1–20 and 10–20. Start by finding the midpoint then roughly estimate where other numbers would go explaining your thinking.</p> <p>Use the questions from the DfE ready to progress materials to assess the children’s understanding at a mastery level.</p>
<p><b>Comparing amounts and using associated vocab</b></p>	<p>Compare two sets of objects and say which has <b>more than, fewer than, less than, the same amount as</b>.</p> <p>Extend to more than one set and introduce the terms <b>most</b> and <b>fewest/least</b>.</p> <p>Give children cards with these new vocab words on and encourage them to choose one and then say a sentence about sets of objects or pictures of sets of objects. Using the word on their card E.g. The dog has more apples than the bird. The cat has the fewest apples.</p> <p>(NB: less/least are used for uncountable nouns like flour, money)</p>
<p><b>Comparing numbers and using associated vocab and symbols &lt; &gt; and =</b></p>	<p>Look at numbers – can you say which number is more without counting? How? Can you say which number is less? Look at relative positions on a number line . Use correct vocab. <b>15 is more than 13 and 12 is greater than 3, 2 is less than 14</b> Elicit that 2-digit numbers will always be more than 1-digit numbers. In teen numbers you need to look at the ones.</p> <p>I'm giving each of you a strip of card with some numbers on [five numbers at random from 0 to 20].</p> <p>Point to the number which is worth the most. Now point to the number which is worth the least. Can you find a number that is more than 10.</p> <p>Can children use a pan balance with numicon or multilink to show greater than and less than? When children are secure with the words, introduce (or revisit) &lt; &gt; = symbols.</p> <div data-bbox="517 1637 1326 1921" style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p style="text-align: center; background-color: #008080; color: white; padding: 5px;"><b>Mastery</b></p> <p>Compare amounts. What’s the same? What’s different? <i>Children compare the bead strings and notice: One has 9 beads and the other has 6 beads. 9 is 3 more than 6. 6 is 3 less than 9.</i></p>  </div>

<p><b>Ordering Numbers</b></p>	<p>Make these 3 numbers with equipment and put them in order. Extend to making 5 different numbers.</p> <p>Why have you put this number there? Do children use the language of partitioning to support their reasoning?</p> <p>Do children use their knowledge of counting or the number line to help do this? Can they explain how?</p> <p>Give the children 2 numbers e.g. 4 and 16 and ask them to give you 3 numbers in between. They can then challenge each other. Extend so can't have consecutive numbers.</p> <p>Mastery assessments – adapt to numbers to 20</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center; background-color: #008080; color: white; margin: 0;">Mastery</p> <p>Write the numbers in order of size.</p> <table border="1" style="margin: 5px auto;"> <tr> <td style="padding: 5px;">15</td> <td style="padding: 5px;">16</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">71</td> <td style="padding: 5px;">50</td> </tr> </table> <p>What is one more than...? What is one less than...? Complete:</p> <table border="1" style="margin: 5px auto;"> <tr> <td style="padding: 5px;">19</td> <td style="padding: 5px; width: 20px;"></td> <td style="padding: 5px;">21</td> <td style="padding: 5px;">22</td> <td style="padding: 5px; width: 20px;"></td> <td style="padding: 5px; width: 20px;"></td> </tr> </table> </div> <p><b>Greater Depth</b></p> <p>If Sam places these 5 numbers in order, starting with the smallest number, which number will be in fourth position?</p> <p style="text-align: center;">46    64    24    42    50</p> <table border="1" style="margin: 5px auto; text-align: center;"> <tr> <td style="width: 30px; height: 30px;"></td> <td style="width: 30px; height: 30px;"></td> <td style="width: 30px; height: 30px;"></td> <td style="width: 30px; height: 30px; border: 2px solid black;"></td> <td style="width: 30px; height: 30px;"></td> </tr> </table> <p style="text-align: center; margin: 0;">smallest <span style="margin-left: 150px;">largest</span></p>	15	16	5	71	50	19		21	22							
15	16	5	71	50													
19		21	22														
<p><b>Read and write numbers to 20 in words</b></p>	<p>Give out number name cards. Give instructions for people to stand up/do an action e.g. 'anyone holding a number which begins with t' 'a number with five letters in the name' 'ends in e' 'has ee phoneme in it'</p> <p>Divide into 2 teams. Give out number name cards. Teams to line up in random order. Put out pile of matching numeral cards for each team. First child in each team comes forward to turn over numeral card. Race to see who hands their matching word card over first.</p> <p>Roll and write. Choose a number word. Roll the dice and children have to write it in the style for that number. E.g. roll 1 v small, 2 very big, 3 with left hand, 4 with eyes closed, 5 backwards, 6 fancy writing (or roll again).</p>																

**Problem Solving and Consolidation**

Making up number riddles can be a nice way to consolidate learning in this unit. See 'I am a Number' PowerPoint from Mathsticks for examples.



**NRICH Noah – adjust number of legs as needed**

Age 5 to 7  
Challenge Level ★★



Noah saw 12 legs walk by into the ark.  
How many creatures could he have seen?

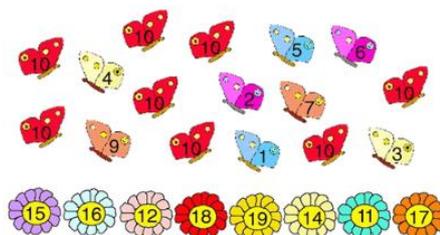
How many different answers can you find?  
Can you explain how you found out these answers?

NRICH – Butterfly Flowers – this leads really well onto looking at the additive structure  $10 + \_$  as you start the next addition and subtraction unit.

**Butterfly Flowers**

Age 5 to 7  
Challenge Level ★

Look at these butterflies and flowers. All of them have a number.



Can you find two butterflies to go on each flower so that the butterfly numbers add to the flower number?

Which pair of butterflies has no flower to go to? Why?

Which flower cannot have a pair of butterflies on it? Why?