

Year 2 Autumn 1

Unit 1: Number and Place Value

Lesson 1: Place Value in Numbers to 50

Lesson Objectives:

Make and identify a two digit number up to 50 using concrete materials, e.g. bundles of straws, base 10 apparatus and arrow cards).

Read and write numbers up to 50.

Lesson Focus:

Children should understand that two digit numbers can be made with a group of ten plus another number; that the group of ten is represented by the first digit of the number and the ones is the second digit of the number. Children should be able to move between representations of the same number using different apparatus, identifying what is the same and what is different between each.

Starter (No more than 10 minutes)

Count on in steps of 10 from 0.

Show page 1 of the SMART Notebook file showing 20 represented in base 10.

- What does this represent? How do you know?
- How many are here?

Check counting by moving on screen as they are counted.

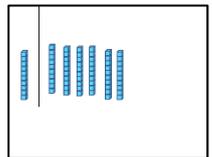
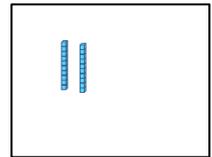
- What are we counting in? Do we need to count in ones? Why not?

Repeat with page 2 and 3 of SMART Notebook file showing 90 and 50 represented in base 10.

- How many are here?
- How can we check?
- What do you notice about the numbers we are counting in?

Children to discuss in pairs and identify that the numbers are all multiples of 10 / in the ten times table / all have no ones.

Use page 4 of the SMART Notebook file. Drag tens onto the main part of the screen for children to count along with the items as they are moved.



Initial Problem

Show page 5 of the SMART Notebook file with the initial problem.

I think this shows 32.

I think this shows 23.

I think this shows 5.

Who is correct? How do you know?

Scaffold

What do the different pieces of base 10 represent?

How many tens are there?

How many ones are there?

How many altogether?

Extension

Why might Ben have thought the base 10 showed 5? Explain your thinking.

Misconception

Children may think, like Ben, that 5 pieces of equipment represents 5. Ensure that children can recognise the pieces of base 10 as representing ten and one respectively. Encourage them to count the individual markings on the 10 piece of equipment if required.

Take feedback of children's responses.

Ask questions such as:

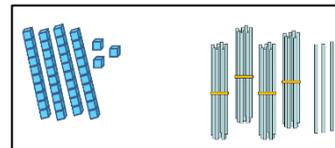
- Who is correct? How do you know?
- How do you know Ben is not correct?

How do you know Tom is not correct?

Guided Learning

Show page 6 of the SMART Notebook file, showing 43 represented in base 10 (structured equipment) and straws (unstructured equipment). Ask children to make the numbers in pairs.

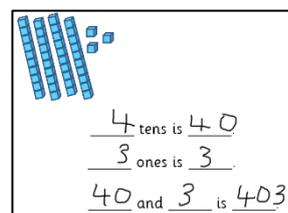
- Do they represent the same number? How do you know?
- What is different about the two representations?
- What is the same about the two representations?



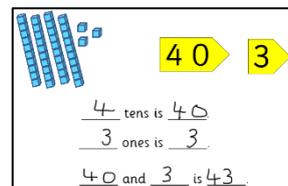
Encourage children to see that they both have four tens and three ones. The tens can be broken apart into ones with the straws, but can't with the base 10 (although the ones can be seen by the demarcation).

Show page 7 of the SMART Notebook file, showing 43 represented in base 10. This slide focuses on how the 43 is made from 40 and 3, rather than 4 tens and 3 ones.

- How many tens are there? How can we write this? Fill in the blanks on the first line of the slide (4 tens is 40).
- How many ones are there? How can we write this? Fill in the blanks on the second line of the slide (3 ones is 3).
- How do we write that number? Fill in the blanks on the last line, but write 40 and 3 is 403.
- Have I written this correctly? How do you know? Ask children to discuss in pairs.



Show page 8 of the SMART Notebook file, showing 43 represented in base 10 and place value cards. The place value cards can be used to demonstrate how 40 and 3 becomes 43. Fill in the blanks again to reinforce the recombining of tens and ones correctly.



Ask children to complete **Guided Learning Task 1** (fill in the blanks to match the representation).



___ tens is ___
___ ones is ___
___ and ___ is ___



___ tens is ___
___ ones is ___
___ and ___ is ___



___ tens is ___
___ ones is ___
___ and ___ is ___

For the next task, children should work in groups of three. One child selects from the arrow cards to make a two-digit number, the other two children make that number using either base 10 equipment or bundles of straws. Repeat with children swapping use of equipment.

Show slide 9 of the SMART Notebook file, showing 31 and 37 represented using base 10 equipment.

- What is different about the numbers?
- What is the same about the numbers?
- What is the same and different about how the numbers are written? Why?

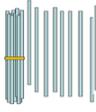
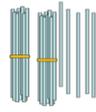
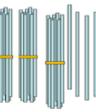
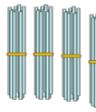
Encourage children to see that they have a different number of ones but the same number of tens.

Show slide 10 of the SMART Notebook file, showing 31 and 21 represented using base 10 equipment.

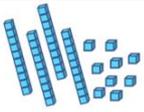
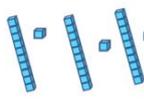
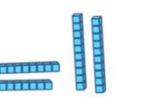
- What is different about the numbers?
- What is the same about the numbers?
- What is the same and different about how the numbers are written? Why?

Encourage children to see that they have a different number of tens but the same number of ones.

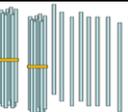
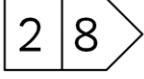
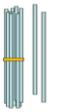
Independent Learning

 ___ ten and 9 ones is 19	 2 tens and ___ ones is ___
 ___ tens and ___ ones is 38	 ___ tens and ___ ones is ___

The first group of representations draws on children's knowledge of straws to represent place value. The first three questions have more scaffolding in terms of the ones, tens and whole number being already identified.

 ___ tens and ___ ones is ___	 ___ tens and ___ ones is ___
 ___ tens and ___ ones is ___	 ___ tens and ___ ones is ___

The second group of representations draws on children's knowledge of base 10 to represent place value. The sentence stem is the same as in the previous set of questions. In this set, however, the tens and ones are in different positions and orientations, rather than simply reading from left to right.

In this question, the children have to match different representations of the same number, using their knowledge of straws, base 10 and place value cards. To ensure children are thinking, there are some representations with more than one connection, and others which have none.

Deeper Learning

Children should consider the number representations shown and identify the odd one out, explaining their reasoning.

Children can record their answers to this in their maths book. They may represent it using jottings, pictures, words or symbols, modelling it first with equipment if required.

The aim is to develop children's understanding of patterns and relationships in place value.

		
Which is the odd one out? Explain how you know.		

Key Outcomes

Children recognise two-digit numbers as a group of tens and a group of ones.
They can represent numbers from 10 to 50 using unstructured and structured apparatus.
They understand that the tens and ones are not always represented in that order.
They can read and write numbers from 10 to 50.

Resources

Base 10 apparatus (tens and ones)
Bundles of straws (tens and ones)
Place value cards (10, 20, 30, 40, ones)
Children's task sheets copied (one per child)