Year 2 Unit 1: Numbers within 100 (2 weeks)
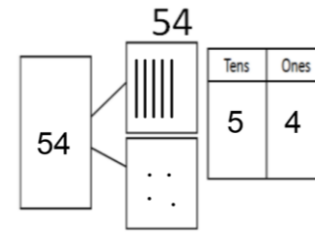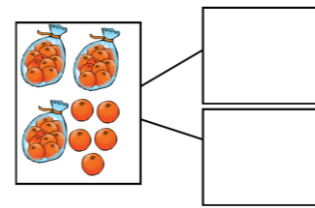
Before you start…

Pupils were introduced to numbers within 100 in the Summer term of Year 1. How securely can pupils recall…
- *Reading, recognising and writing numbers to 100?*
- *Identifying groups of tens and ones?*
- *Representing numbers to 100 on a number line and a place value chart?*
- *Comparing and ordering numbers to 100?*

Pupils may benefit from additional time exploring how to partition more numbers non-canonically. You may wish to use a consolidation lesson here.

54 = 50 + 4

Identifying tens and ones in 2-digit numbers

L1 Explore 2-digit numbers by grouping in tens
L2 Identify tens and ones in a 2-digit number

Using the Big Picture to contextualise place value, pupils organise fruit into bags of ten and leftover ones. Providing pupils with practical experiences of organising everyday objects into groups of ten helps them to make sense of our abstract number system (place value). These experiences are essential in developing conceptual understanding before working with bead strings and Dienes on a place value chart.

? *What does each representation stress and ignore about place value? How can you continue to embed this as the unit progresses?*

Partitioning 2-digit numbers into different combinations

L3 Partition 2-digit numbers
L4 Partition 2-digit numbers

Pupils use part-whole models to partition numbers into tens and ones. Make connections across pictorial (fruit), concrete (Dienes and bead strings) and abstract (numerals) representations. Links to commutativity can also be made – changing the order the parts are added does not affect the value of the whole. Exposing pupils to non-standard equations (34 = 30 + 4) can deepen their understanding. Lesson 4 applies this learning to non-canonical partitioning (34 = 24 + 10).

? *How can modelling part-whole language make connections to place value? E.g. '34 is my whole, 30 is one part and 4 is my other part'.*

Problem solving with place value

L5 Represent 2-digit numbers

Pupils apply their learning so far to represent a range of 2-digit numbers on a number line as well as identifying mystery numbers from clues. Encourage pupils to go beyond simply finding an answer for each clue - engage in mathematical thinking by using a range of representations to find all possibilities.

? *What opportunities will you provide for learners to reflect on the types of thinking they have done and the choices they have made, so that they can deploy these actions again in future problem solving?*

Comparing and ordering numbers to 100

L7 Compare numbers to 100
L8 Order numbers to 100
L9 Explore number patterns

Pupils apply their learning from lessons throughout this unit to compare numbers to 100, with < and > symbols introduced in lesson 7. Pupils use familiar representations such as Dienes and bead strings to support them in coming to generalisations such as '*when the tens values are the same, the value of the ones is compared*' and '*when the tens values are different the value of the tens is compared*'. Pupils can apply these generalisations when ordering multiple numbers. Lesson 9 focuses on counting forwards and backwards in threes, applying knowledge of ordering numbers. Pupils engage in mathematical thinking when predicting and justifying the value of numbers in sequences.
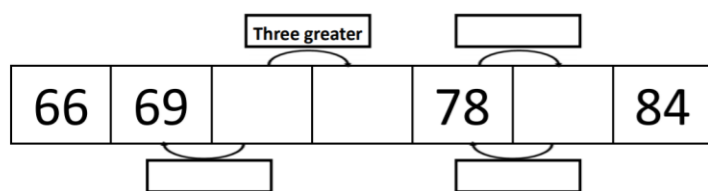
? *What questions and prompts might you offer to encourage pupils to wonder if something that has happened in a particular case, will always happen (e.g. engaging in generalising)?*

Representing 2-digit numbers with words

L6 Read and write numbers to 100 in words

Pupils explore patterns in writing 2-digit numbers in words. Make connections to corresponding abstract representations (numerals) and to previous learning in this unit on partitioning using part-whole models. Pupils might find teen numbers challenging. They may apply their knowledge of place value (tens then ones) and write 'ten three' instead of 'thirteen'. Plan to spend time exploring this in the Develop Learning
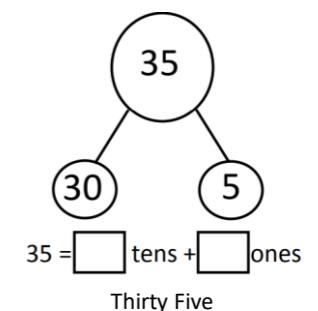
? *How could you consolidate writing numbers to 100 in words within Maths Meetings throughout the year?*

Three greater

| 66 | 69 | | | 78 | | 84 |

Will I say the number thirteen if I count forwards in threes from five?

There are only nine planned lessons in this 2-week unit which allows you to respond to how pupils are progressing. Although there is only one suggested consolidation lesson, use your professional judgement to add further consolidation lessons to pre-teach, post-teach and break learning across multiple lessons according to your pupils' needs. When adapting, keep in mind the yearly planner to ensure curriculum coverage.

35
30   5
35 = ☐ tens + ☐ ones
Thirty Five

Lesson 1: Place value

Key Learning: To recognise the place value of each digit in numbers within 1000
Lesson Overview: Pupils recognise and describe concrete representations of numbers to 100 and apply knowledge of place value to represent numbers using cubes.
TAF statement link: 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 (WT); Count in twos, fives and tens from 0 and use this to solve problems (WT); Read and write numbers in numerals up to 100 (WT)
Resources: Cubes, mini whiteboards, Task sheet
Transitions: Counting forward in twos starting from different numbers

	Do Now: *Introducing the Big Picture* Show pupils the Big Picture for this unit. **?**What maths can they see in the Big Picture? Encourage pupils to notice that the fruit is grouped in tens.
	New Learning: *Grouping in tens and ones* Introduce the story on the slide and ask questions to ensure pupils have understood. Invite pupils to explore, providing each pair with 34 "apples" (represented as cubes) as well as mini whiteboards to record their jottings. Pause part-way through to share pupils' representations with the class. Some may be inefficient (e.g. 34 dots on a whiteboard) and some may be more efficient (e.g. dots grouped into tens). Allow more time for discussion and exploration; highlight how and why particular strategies and representations may be more efficient.
	Talk Task: *Using efficient strategies when problem solving* Pupils continue to explore Gemma's fruit stall with other problems shown on the slide. Partner A chooses a problem and counts out the number of cubes. Partner B solves the problem using cubes and Partner A solves the problem using jottings on a mini whiteboard. Swap and repeat. Encourage pupils to group their "fruit" into tens, so that they can easily visualise the number of bags needed.
	Develop Learning: *Groups and leftovers* Encourage pupils to explore other situations involving the fruit stall using concrete and pictorial representations of their choice, in pairs. Share their findings, making connections between different representations. Pupils should identify that three bags of satsumas is the same as three groups of ten, which is 30. There are also 5 more satsumas: 30 + 5 = 35. Repeat by creating further examples using different 2-digit numbers and different fruit. Discuss the statement provided and use this to identify any misconceptions.
	Independent Task: *How many groups of ten?* Pupils investigate more fruit stall problems in pairs. Ensure pupils still have access to cubes and mini whiteboards. Once pupils have solved a problem, they should record in some way. *Teacher note: some pupils may benefit from scaffolding to organise their findings.* Pupils who have completed several problems can begin to pattern seek. **?**What patterns can they see about the between the number of pieces of fruit, the groups of ten and the number of leftovers? **Possible adaptations:** • Some pupils may not be ready to make the link between the pictorial representations of jottings and the concrete cubes. These pupils should remain working in the concrete stage throughout the lesson. They could be given bags to place their groups of ten cubes on as well as placing the leftovers beside the bags. • Some pupils may be challenged to find examples where there are the same number of bags as there are left-overs (e.g. 11, 22, 33, 44, etc.).
	Plenary: *Pattern seeking* Share findings from the fruit stall problems, recording pupils' findings. Discuss the patterns pupils have explored about the relationship between the number of fruit, groups of ten and leftovers. Use this to emphasise that our place value system, and the way we record numbers in tens and ones, shows us how many "groups of ten" there are in each number (by looking at the "tens" column) and how many ones there are in each number (by looking at the "ones" column – which were the "left-over" fruit in today's problem).

How many bags?

Anne has a fruit stall. She sold her fruit in bags with ten pieces of fruit in each one. Here is the fruit she has:
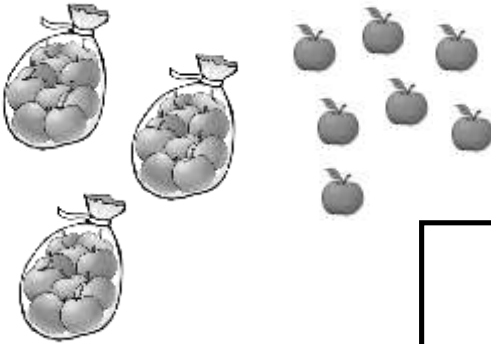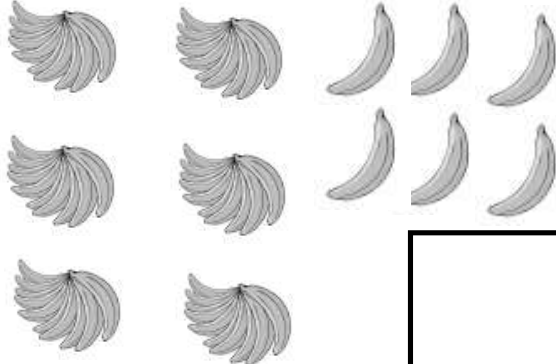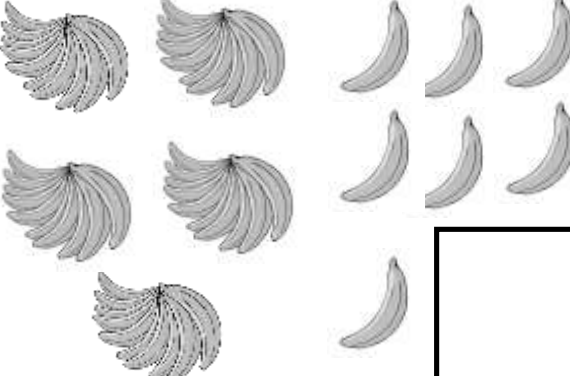
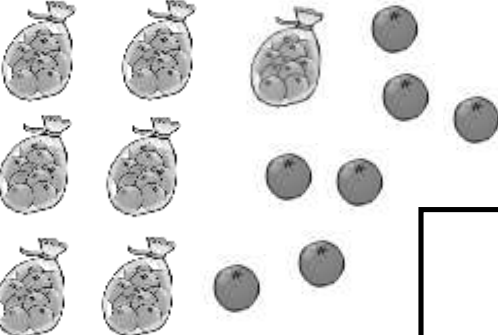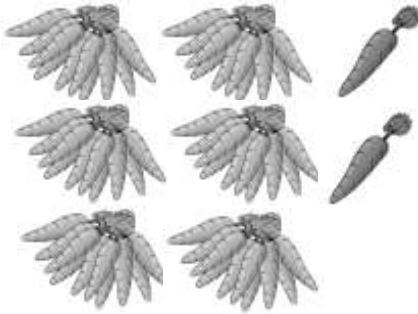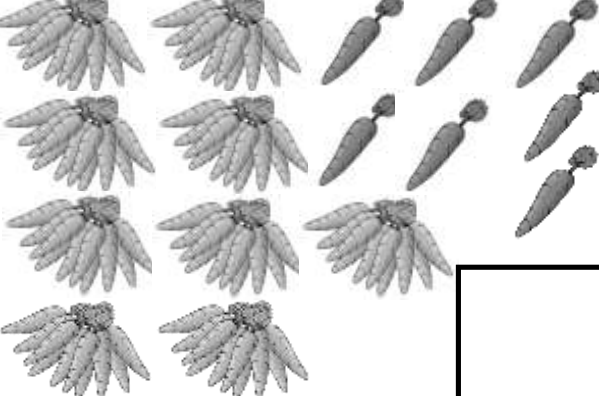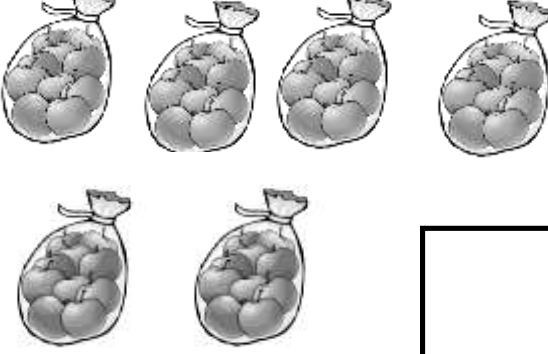| 26 satsumas	38 strawberries	42 bananas
13 kiwis	57 peaches	

How many groups of ten fruit is she able to put out on her stall?

Anne counts the fruit the next day. Here is the fruit she has:
· 2 bags of satsumas and 3 loose satsumas

· 3 bags of strawberries and 7 loose strawberries

· 4 bags of bananas and 5 loose bananas

· 7 loose kiwis and 2 bags of kiwis

· 6 loose peaches and 4 bags of peaches

How many of each type of fruit does Anne have?

Mathematics Mastery

Key Learning: To identify tens and ones in a 2-digit number.

Key Learning: To partition 2-digit numbers.