

Year 1 Unit 5: Addition and Subtraction within 20 (2 weeks)

Progression in Calculation

This [document](#) provides useful guidance on the Augmentation and Reduction change structures for additive reasoning.

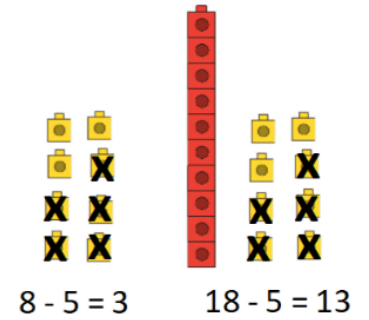
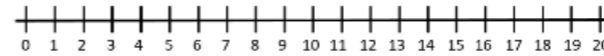
Before starting:

- How familiar are pupils with part-whole relationships for combining and partitioning numbers?
- Are pupils able to recognise the numbers and count on and back from 0 to 20?
- What time is needed to develop fluency with recall of number bonds to ten through Maths Meetings and transitions?



The Big Picture for this unit is Elves getting toys ready for Christmas. This provides a context for maths stories throughout the unit.

First	Then	Now
	$+$ 	$?$
First there were 11 acorns on the tree.	Then 3 more acorns grew.	How many acorns are there now?



Addition and subtraction using counting on and back

- L1: Add by counting on
- L2: Subtract by counting back

Pupils are introduced to the 'change' additive structure of augmentation (increasing) and reduction (decreasing) for addition and subtraction using a story setting. They will build on their idea of 'adding on' or 'taking away' one number to or from another and should be encouraged to make links between the inverse relationship of addition and subtraction. The 'first, then, now' pictorial model for their change stories supports reasoning and provides linguistic scaffolding to write abstract equations. Conceptual understanding is further developed using number lines and a number track to count on or back, supporting pupils to create a mental image of the process which they can apply to later lessons.

? What does each representation stress and ignore to support pupils' conceptual understanding of addition and subtraction?

Addition and subtraction using known facts

- L3: Add a 1-digit number to a teens number by using known facts
- L4: Subtract a 1-digit number from a teens number by using known facts

Pupils continue to use 'first, then, now' maths stories alongside cubes to understand and model scenarios before writing and solving related equations. Encourage pupils to develop efficient strategies for addition and subtraction, focusing on **reasoning** how to use known bonds within 10 to derive bonds within 20.

- ? How does the suggested sequence of learning develop pupils' conceptual understanding?
- ? What questions and prompts will provoke the intended mathematical thinking?

Place Value as a Building Block

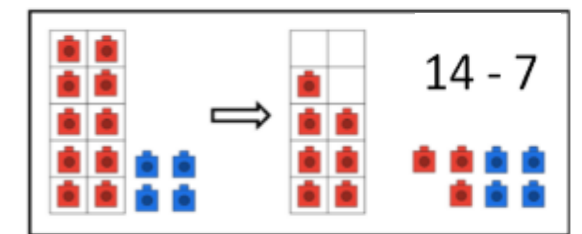
This [article](#) from NRICH provides insight into place value and the importance of developing 'a strong sense of ten' and 'unitising'.

First	Then	Then	Now
6	?	?	17

Pupils may benefit from additional time exploring the various strategies for addition and subtraction learnt in this unit. A consolidation lesson could be useful before Lesson 9.

First	Then	Now
	$+$ 	$?$

$$\square + \square = \square$$



Application of addition and subtraction strategies

- L9: Apply mathematical models and strategies for addition and subtraction

Through a real-life situation of passengers getting on and off a bus, pupils will learn to create mathematical models to make sense of mathematical problems. They use concrete representations as well as pictorial and abstract markings. This exploratory activity will be an opportunity to build on and apply the strategies learnt in this unit. It could be used as an opportunity to assess which pupils are beginning to use number bonds.

- ? What is the intended thinking for learners to engage with? How will this be modelled?
- ? What opportunities will pupils have to reflect on the types of thinking they have done and the choices they have made?

Video: The Make Ten strategy

Addition and subtraction using the 'Make ten' strategy

- L5 & L6: Use the 'Make ten' strategy to add two 1-digit numbers
- L7 & L8: Use the 'Make ten' strategy to subtract a 1-digit number from a teens number

Pupils will explore adding two 1-digit numbers where the total is a teen number by using the 'Make ten' strategy to bridge through ten before applying the 'Make ten' strategy to subtract a 1-digit number from a teens number. Watch the video to ensure you are confident in modelling this for pupils. Throughout, pupils apply their knowledge of number bonds and partitioning within ten; many pupils will still be developing these skills and therefore the use of concrete and pictorial representations should be modelled to develop their conceptual understanding.

- ? What are the underlying ideas in applying the 'Make ten' strategy? What prompts and support will pupils need to apply those ideas?
- ? What opportunities will pupils have to discuss their strategies and representations to verbalise their mathematical reasoning?