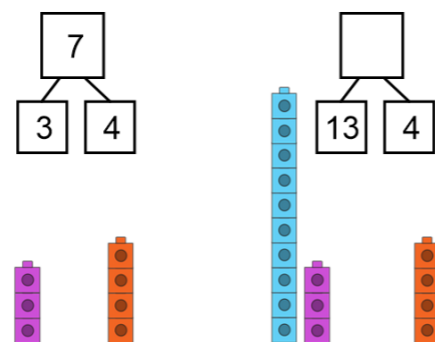


Year 1 Unit 7: Exploring calculation strategies within 20 (2 weeks)

Before starting:

- How secure are pupils in recalling composition of number within 10?
- What understanding of strategies introduced in Unit 5 have pupils retained? How has this been consolidated over time?
- What representations have pupils been exposed to for calculation strategies?



Choices in calculating

Unlike other units, the five lessons do not progress between one another; rather they deepen understanding of calculation strategies explored in previous units. The final lesson considers application of strategies covered within the lessons. The focus of the unit is to continue to develop pupils' flexibility in calculation. It is not expected that they should have mastered the strategies explored but begin to recognise that addition can be completed in different ways, and that some calculations suit a different strategy to others.

Language structures

The phrase 'If I know, then I know...' is a key language structure across the unit, used as a linguistic frame to support development of connections and flexibility within key facts. Take every opportunity to model and rehearse this with pupils.

Deriving related facts

L1: Use number bonds to derive facts

The first strategy explored in this unit is using known number bonds to derive addition and subtraction facts. Encourage pupils to focus on **reasoning** how to use known bonds within 10 to derive bonds within 20. Opportunities should be provided for pupils to explain related part-whole models and explore how they can use known facts to calculate using numbers greater than 10.

? What representations will you use to make explicit links between known facts and derived facts?

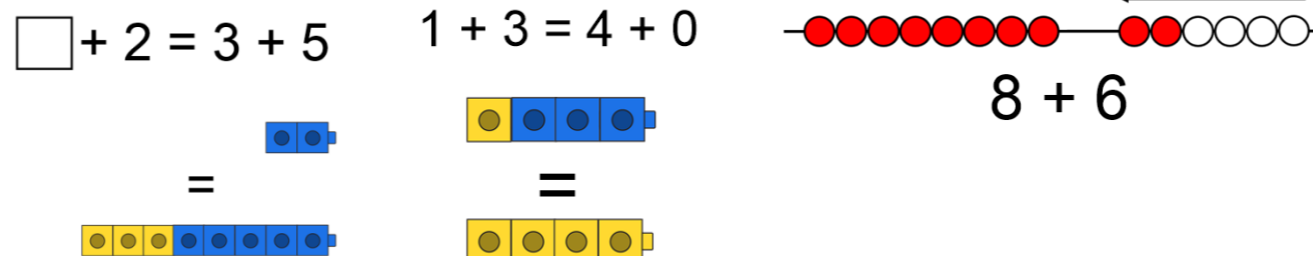
Using doubles

L2: Use doubles to calculate near doubles

Pupils begin by consolidating their understanding of doubles and teacher assessment should be used to ascertain how much time should be dedicated to this. The learning then extends to making use of known doubles to calculate near doubles: how can I use double 3 to calculate 3 + 4? Concrete manipulatives should be used when modelling and in pupil work to emphasise the use of the double fact to calculate.

? What representations to show doubles are pupils familiar with, and how will you use these to explore near doubles?

There are no consolidation lessons within this unit. Consider how Maths Meetings can be used to revisit these strategies as well as how they can be revisited in later units.



Using 'make ten'

L3: Represent the 'make ten' strategy on a bead string

Pupils revisit the 'make ten' strategy from an earlier unit, deepening understanding through the introduction of representing this on a bead string. 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.

? How will you make connections with previous representations used for this strategy?
 ? What are the underlying ideas in applying the 'make ten' strategy? What prompts and support will pupils need to apply those ideas?

Making choices

L5 Choose a strategy based on numbers in the calculation

Pupils apply the range of strategies explored within the unit to begin to develop flexibility in addition. It is important that pupils understand there is no right or wrong way to approach a calculation: indeed, at this stage some pupils may be less confident with certain strategies. The focus should be on pupils playing with different strategies and teacher modelling of reasoning in strategy selection.

? How will you make use of observation of pupil preferences to inform future teaching opportunities?

Understanding equality

L4 Recognise the equals sign = as balance

Pupils learn the importance of the equals symbol as a sign of equivalence or balance through applying known number bond knowledge e.g. recognising that 4 + 1 is the same as 3 + 2. Part-whole models are used to represent equations alongside cube 'trains' to clearly show equal length. These representations are connected to abstract equations e.g. 4 + 1 = 3 + 2. Pupils should also have opportunities to consider non-examples. Pupils then explore equations with missing parts, applying the representations developed to find missing parts and balance the calculation.

? How will you model clearly connecting language used to representations to enable pupils to use this independently?

Video: The importance of =