Year 1 Unit 9: Addition and Subtraction within 20 (2 weeks)

Before you start…

- *Are pupils familiar with using one-to-one correspondence to talk about more and fewer?*
- *How can fluency with their number bonds to ten be supported?*
- *How confident are they in using the 'make ten' strategy?*

How many cakes are at Anansi's feast?
How many cakes are at Turtle's feast?

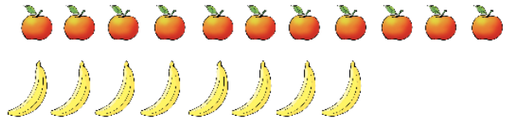
The Big Picture for this unit is Anansi and the Turtle which provides a relevant context for comparing the number of items at each feast.

Progression in Calculation

The introduction provides useful guidance on the comparison structures for additive reasoning.

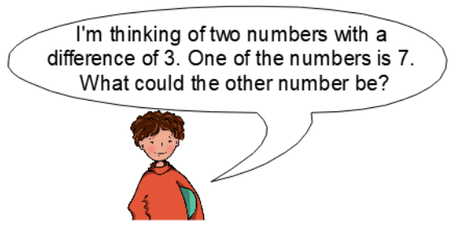
Differentiation through support and challenge

This article by Sara Castledine provides a wide range of ideas for addressing the needs of pupils based on the Dimensions of Depth



1 + 1 = 2
2 + 1 = 3
3 + 1 = 4
4 + 1 = 5

20 - 1 = 19
19 - 1 = 18
18 - 1 = 17
17 - 1 = 16



Comparing and finding difference

L1 Compare sets using 'more', 'fewer' and 'difference'
L2 Compare two sets by finding the difference

By focusing on understanding the reciprocal relationship between two numbers, pupils are introduced to the comparison structure of addition and subtraction. They begin by quantifying and comparing the items at each feast in the Big Picture which depicts the story of Anansi and the Turtle. In L1 they use concrete manipulatives to represent items and compare using 'more' and 'fewer'. In L2 they deepen their understanding through pictorial representation of two sets and draw lines to show one-to-one correspondence between the sets and identify the 'difference'.

- ? *What do the comparison structure of addition and subtraction stress and ignore? What are the difficulty points of the concept?*
- ? *How will you plan to develop meaningful understanding of the key language needed for this learning?*

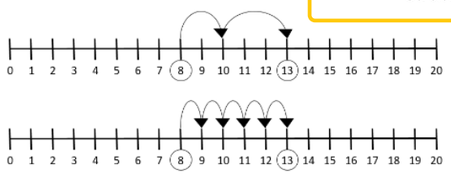
Comparing numbers using a number line

L3 Explore numbers with a difference of one and two
L4 Compare numbers using 'greater', 'less' and 'difference'

Pupils develop conceptual understanding of difference by exploring pairs of numbers on a number line with a difference of one and understand these to be adjacent numbers. They move on to using manipulatives alongside the number line to identify pairs of numbers with a difference of two. In L4 they begin to draw jumps on a number line to explore differences of one, two and three which leads to using reasoning to solve problems involving difference.

- ? *What practical experiences can support confidence in using a number line?*
- ? *How does this concept link to other concepts learners will encounter in the future?*

***Video:** 'Make ten' strategy*



What's the same? What's different?

Applying 'make ten' to find difference

L5 Use the 'make ten' strategy to identify difference on a number line

Pupils develop a more efficient way of seeing difference by applying their previous learning of the 'make ten' strategy to jump to ten first on the number line. They need encouragement to work in both directions: jumping forwards and backwards bridging ten.

- ? *What are the key features, misconceptions and difficulty points of the concept?*

Writing equations to compare numbers

L6 Write subtraction equations to represent comparison situations
L7 Write addition equations to represent comparison situations

Pupils develop conceptual understanding by representing scenarios with concrete and pictorial representations to support them to write abstract subtraction and addition equations to explain difference. In L6 one-to-one correspondence and recognising when someone does not have a partner is used to understand difference.

- ? *What does each representation of the concept stress and ignore?*
- ? *What questions will support pupils to make connections between different representations of the same concept?*

Let's write an equation to answer the question: how many boys do we need so all girls have a partner?

Solve comparison problems

L8 Interpret and solve comparison problems

Pupils are encouraged to develop mathematical thinking around word problems involving comparison through creating representations which line up in one-to-one correspondence. This supports them to use the relationship between numbers in context to create equations and explain what each number represents.

- ? *What is the thinking that you intend the pupils to engage in? What questions and prompts could provoke the intended thinking?*
- ? *What thinking will you model aloud? When?*

There are two consolidation lessons in this unit. Pupils may benefit from a consolidation lesson after L4 to deepen their understanding of comparing numbers and the concept of difference. Further problem solving using multiple representations after L7 will support pupils' grasp of the reciprocal relationship between addition and subtraction.