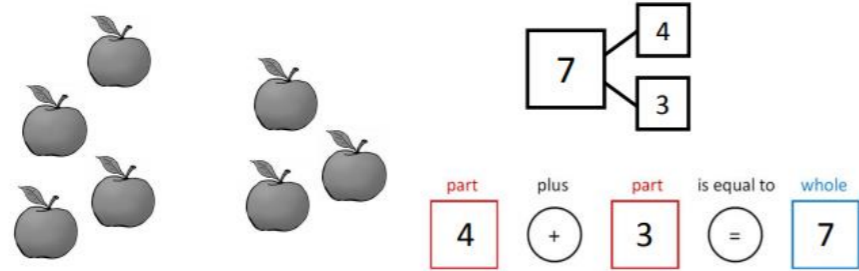


Year 1 Unit 2: Adding and subtracting within 10 (2 weeks)

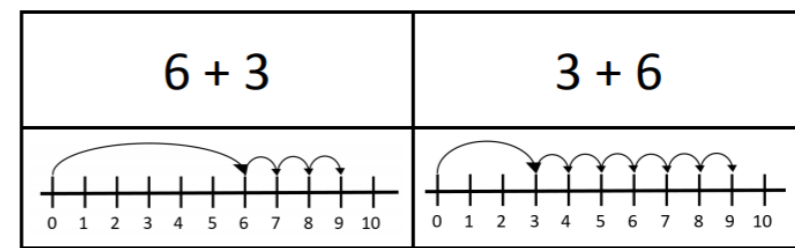
Video: The part-whole model

'Part-whole' modelling misconceptions
 Taking the example $3 + 2$, it can be tempting to start modelling this concretely by placing 3 cubes in one part, 2 cubes in the other part as well as placing 5 cubes in the whole. This means there are physically a total of 10 cubes instead of the required 5. Therefore, to ensure the modelling reflects the equation, place 3 cubes in one part and 2 cubes in the other before combining and moving them to the whole.

- Before you start...**
- How confident are pupils with one to one correspondence?
 - Have pupils been exposed to part-whole language? How confident are they in its use?
 - How secure are pupils with numbers within 10?



Video: Count on or count all?



Understanding addition
 L1 Use the count all strategy for addition
 L2 Use the count on strategy for addition
 L3 Link equations to problem solving contexts
 L4 Understand commutativity

Pupils explore two strategies for addition within 10. They begin with 'count all' before moving on to the more efficient 'count on' strategy for addition. The use of part-whole language, represented using the model, is key in developing pupils' understanding of the relationship between numbers, manipulatives and the abstract equation and it is important that this is modelled consistently, encouraging pupils to use the language. In Lesson 3, pupils consider a range of contexts and create problems, connecting this to part-whole models and equations. Number lines, tracks and a bead string support conceptual understanding. In Lesson 4, pupils apply their understanding of part-whole relationships to recognise that addition is commutative: it doesn't matter what order you add the parts in the whole will be the same.

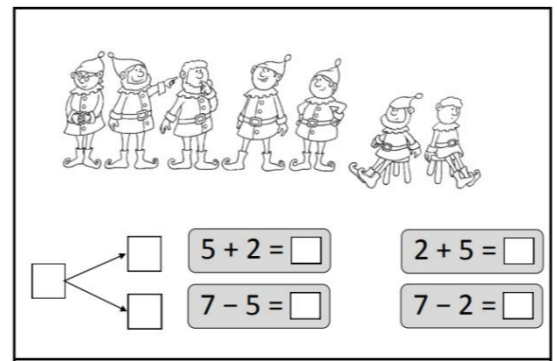
? How can you ensure that pupils have multiple opportunities to hear and use part-whole language?

Understanding subtraction
 L5 Subtract using partitioning
 L6 Count back in ones to subtract
 L7 Link equations to problem solving contexts

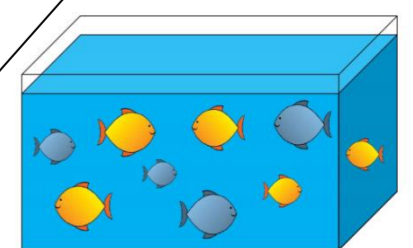
Pupils build on their understanding of part whole relationships to subtract using partitioning. The same models and language used in previous lessons are applied to subtraction to support pupils in making connections. In Lesson 6, pupils use representations to subtract by counting back in ones. Lesson 7 returns to the same problem contexts as Lesson 3 with pupils creating and representing their own subtraction problems using these contexts.

? What opportunities will you provide to allow pupils to make connections between different strategies and between addition and subtraction?

The language of subtraction
 Pupils have experienced different language for subtraction including 'subtract' and 'take away'. In these lessons, partitioning structures do not involve 'taking away'. This term should only be used when objects are being physically taken away and removed from the situation. In partitioning situations across this unit, consistently use 'subtract'.



There are five large fish and four small fish. Five plus four is equal to nine.
 There are nine fish altogether. Five are yellow. Nine subtract five is equal to four. Four are blue.



Lesson 10 is a suggested consolidation lesson. You may wish to extend Lesson 9 over two lessons, following pupil-generated lines of enquiry, or use the lesson as suits the needs of pupils.

Exploring the relationship between addition and subtraction
 L8 Recognise the relationship between addition and subtraction
 L9 Explore problems involving addition and subtraction

In the final two lessons of the unit, pupils build on their understanding of addition and subtraction. Using the models explored in earlier lessons, pupils apply their understanding of part-whole relationships to recognise the relationship between addition and subtraction. They write four possible equations for one part-whole model, explaining using the language of part and whole. Lesson 9 provides an opportunity to problem solve using addition and subtraction strategies explored within the unit.

? How will you effectively use part whole relationships to support pupils in recognising that you can use understanding of addition when working with subtraction?