

Guidance for teachers – KS1 Number, Addition and Subtraction

1.7 Addition and Subtraction: Calculation Strategies within 10

These short videos are intended to provide your pupils with interactive lessons while they are learning from home. You can choose how regularly you set them for your class. Some of the learning might be consolidation and practice which aids confidence and retrieval and helps build firm foundations for moving on to future areas of mathematics. It is important that pupils experience these in the suggested order. They have been designed to be a coherent sequence of learning which builds on previous understanding and exemplify a [teaching for mastery approach](#).

General features of a teaching for mastery approach, which can be found within these lessons:

- **Stem sentences** which promote precise mathematical vocabulary and generalisations for all pupils
- **Representations** which are carefully chosen and can be concrete, iconic, or abstract and that move between the three
- **Opportunities for deepening understanding for all pupils** - using small steps of learning enables pupils to learn together and gain deep conceptual understanding
- **Independent practice and retrieval** - you could ask the children to send you their practice activities so that you can check understanding. You could also set supplementary activities, maybe from a textbook to extend practice and develop fluency in counting in number bonds to 10.

Lesson 1 - The commutative law of addition using aggregation

Using an aggregation context, such as adding the number of two adult cats and four kittens, children are encouraged to write an equation to represent how many cats there are altogether. Attention is drawn to how we can write the addends in either order, but we still have six cats altogether.

Lesson 2 - The commutative law of addition using augmentation

Using the structure of augmentation through the predefined order of the 'first..., then..., now...', children will notice that when you change the order of the addends the sum remains the same. They use the generalised statement: 'We can change the order of the addends, the sum remains the same.'

Lesson 3 - Measures contexts to show the commutative law of addition

Through looking at measures contexts, children are encouraged to use the generalised statement from the previous lesson. This deepens understanding of the maths where the 'ones' can't be seen as easily - cardinality isn't visible. They explore pairs of expressions that are equivalent - where they have the same addends but are written in a different order.

Lesson 4 - Embedding understanding of equivalent expressions

This lesson reviews some of the equations of the form $a + b = b + a$. The emphasis is on the fact that there is an expression on both sides of the '=' sign encouraging the children to see that an equation does not always read as finding a solution to a calculation.

Lesson 5 - Ten can be partitioned into pairs of numbers that sum to ten

Numberblock characters land on the moon and children are encouraged to look at the composition of 10. Different representations are used to support children to build fluency and practise with pairs of numbers that sum to 10, such as the part-part-whole diagram and the tens frame. Reference is once again made to the fact that: 'We can change the order of the addends, the sum remains the same.' So if $7 + 3 = 10$ then $3 + 7$ must also equal 10.

These lessons have been planned from the NCETM Mastery PD Materials. Please access the original materials [here](#).

With thanks to Celestria Duerdoth (Jurassic Maths Hub), Kerry Harris (Cambridge Maths Hub), Sophie Skelley (London Thames Maths Hub), Emma Parr (Bucks, Berks and Oxon Maths Hub) and Katherine Costello (Central Maths Hub).