

Guidance for teachers – Upper KS2 Number, Addition and Subtraction

Segment 1.29 Using equivalence and the compensation property to calculate

Overall, this unit will consolidate and strengthen pupils' understanding of an equation and provide a good foundation for the introduction of formal algebra at KS3.

These short videos are intended to provide your pupils with interactive lessons whilst 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 to extend practice and develop fluency in counting in steps of 2, 5 and 10.

Lesson 1 - This lesson starts off with a review of some of the terminology used, as the use of precise language will support the children with their explanations throughout this sequence of learning. It then moves on to how to make a calculation easier to solve by redistributing the addends, keeping the sum the same, that the children will have encountered previously as a mental strategy to transform calculations.

Lesson 2 - Because the children now understand the structure of the maths, this lesson moves on to looking at the addition of larger numbers and using the 'same sum' strategy to transform calculations to make them easier to solve. The generalisation is used: **'If one addend is increased by an amount and the other addend is decreased by the same amount, the sum remains the same.'**

Lesson 3 - This lesson will support children to deepen their understanding of the value of decimal fractions related to whole numbers. Children are encouraged to look out for addends that can be increased or decreased to make a multiple of 1, 10, 100 etc where redistribution makes the arithmetic easier, still using the 'same sum' strategy.

Lesson 4 - This lesson now explores how the 'same sum' rule can be used not only to make calculations easier to solve, but also to balance equations. Using contexts such as mass – and the generalisation from previous lessons – the children are encouraged to look at the connection between numbers either side of the = sign and consider how they have been adjusted to make the equation balance.

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

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