

Guidance for teachers – Upper KS2 Number, Addition and Subtraction

Segment 1.29 Using equivalence and the compensation property to calculate

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.

Lesson 24 – After reviewing the question where the minuend changes and the subtrahend is kept the same, this lesson now looks at where the minuend is kept the same and the subtrahend changes. This teaching point builds on all the others covered so far, but this compensation property is probably the one that children will find most challenging as they often assume that if the subtrahend increases the difference will increase. The following generalisations are used: ‘The more we subtract, the less we are left with.’ and ‘The less we subtract, the more we are left with.’ alongside representations to support understanding of this property.

Lesson 25 – Contexts are used to draw attention to the relationship between the values that change. For example, Harvey buys some groceries and thinks he has a discount voucher for £20. If his voucher is actually worth £30, will he have to pay more or less than he thought he would? Number lines and bar models are used to help children see the maths: how an increase in the subtrahend brings about a related change in the difference which is a decrease.

Lesson 26 – This lesson now uses contexts where if the minuend is kept the same and there is a decrease in the subtrahend, the difference increases by the same amount. For example, Raf wants to buy a games console and has saved some money, which costs more than he has saved. If he spends some of his savings, will he have to save more or less money than before?

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

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