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 31 – When calculating the value of one expression to be able to find the missing number in the other is one strategy that the children can use, but this lesson makes children aware that there isn't always one 'best' strategy. A range of examples are worked through, including larger numbers and decimal fractions.

Lesson 32 – This step looks at the final type of equation when there is an addition expression on one side of the equals symbol and a subtraction expression on the other. The children begin by exploring whether a given expression is balanced or not, and then look at balancing such equations using a variety of strategies. Part- part-whole diagrams are used to support children to see the connections between the known and unknown values before focusing in on how to work out the solution.

Lesson 33 – This is the final lesson from this segment. Children now have a range of strategies for balancing equations and they are encouraged to always look first to see if they can efficiently use the compensation property of addition/subtraction to solve the problem and only to calculate if that is not the case. The sum of the interior angles of a triangle is used to apply the same sum strategy and data about rainfall is used to look at same difference.

These lessons have been planned from the NCETM Mastery PD Materials. Please access the original materials here.

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