Guidance for teachers – Upper KS2 Fractions, Decimals, Percentages

Segment 3.10 Linking fractions, decimals and percentages

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 5 – Fractions provide one way to describe the proportion of a number being considered. This lesson looks at a different way to describe the proportion of a number or amount: percentages. The etymology of the word 'per cent' is looked at: 'for/out of every hundred', and a range of examples are shown and discussed with a focus on whether a large part of the whole or a small part of the whole is being considered.

Lesson 6 – Percentages can easily be written as fractions with a denominator of 100. Using a number line these equivalent percentages and fractions are explored. Once children are comfortable with some common equivalences, some percentages are looked at which fall between the labelled intervals, such as 31% and 68%. Some of the fractions can be simplified, but at this stage we stick with working with hundredths.

Lesson 7 – Children should be confident recognising equivalences between decimals and fractions with a denominator of 100. This is now connected to percentages and then equivalences for fractions with a denominator of a hundred. Introduction to decimal equivalents is done initially through using the hundred grid.

Lesson 8 – In this lesson a rectangle that has been divided into ten equal parts is also used alongside the hundred grid with the focus on multiples of 10%. Number lines with percentages, fractions with a denominator of 100 and then 10 as well as decimals are explored. This supports the understanding, for example, that 80% can be written as 0.8 which is equivalent 80 hundredths or to 8 tenths, and that this connection can be used to convert a fraction with a denominator of 100 (or 10) into a percentage.

Lesson 9 – Varied practice is used so that there is consolidation of learning moving between fractions, decimals and percentages, including working with equivalent fractions. There is a return to some memorised key fraction-decimal equivalents, and these are now extended to include percentages. Having quick recall of these equivalents is important going forward as children begin to calculate percentages of quantities**.**

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

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