Year 6 Unit 9: Percentage and Statistics (2 weeks)

Video: Introduction to percentage

How many ways can you describe this relationship?

Understanding the mean average
This article from Cambridge Mathematics summarises research into teaching mean average.

80									
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40					40				

There are lots of opportunities when working with percentages to consolidate number sense and efficient strategies. Consider how you will generate dialogue in your classroom to discuss strategies for calculating e.g. 49% or 51%, or finding 90% by subtracting 10%. Flexibility in strategy will deepen pupils' conceptual understanding.
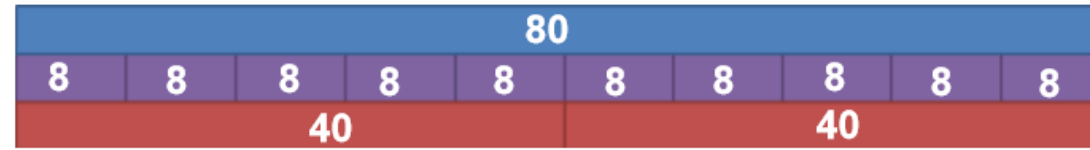
Developing an understanding of percentage
L1 Understand percentage
L2 Fraction, decimal and percentage equivalence

Pupils begin by deepening and consolidating their understanding of percentage as 'parts per hundred' using a hundred square to emphasise this. Opportunities are provided for pupils to revisit number facts including multiples, factors and square numbers. In lesson 2, pupils consolidate articulating the relationships between Cuisenaire rods and apply their understanding of fraction and percentage equivalence to do so. They then use their understanding of equivalence to compare and order mixed fractions, decimals and percentages. A bead string is a key representation for developing number sense through emphasising the 'parts per hundred' relationship.

? *How will you make connections between representations of decimals, fractions and percentages to support understanding?*

Solving percentage problems
L3 Find percentages of amounts
L4 Use percentages to compare

Pupils apply their understanding of percentage to solving problems. In lesson 3, pupils explore different strategies for finding percentages of amounts, making connections between this and finding fractions of amounts. Take time to explore and compare strategies and consider efficiency. In lesson 4, pupils learn how to calculate percentage increase and decrease in contexts such as shopping. They continue to build on their understanding of percentage and fraction equivalence to discuss which is the better deal. Bar models are a useful representation across both lessons to represent problems.

? *What difficulty points might pupils encounter when calculating with percentages and how might you overcome these?*
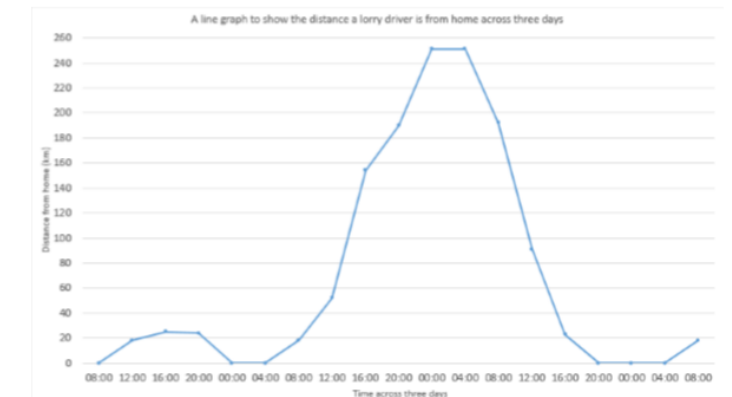
Using the mean average
L5 Calculate the mean average

Pupils develop an understanding of the mean average. They consider how to calculate the mean in different contexts before finding a data set from a given mean. The Task Bank for Year 5 Unit 14 contains further additional problems related to the mean which you may wish to make use of.

? *How will you expose pupils to other averages not included in the Y6 curriculum?*

■ Russia ■ USA ■ France

Representing data in line graphs
L6 Interpret line graphs
L7 Draw line graphs

Pupils should be familiar with data represented in line graphs and lesson 6 provides opportunities to consolidate the skill of interpreting these. Ensure modelling includes deliberate errors in reading line graphs to help support pupils' strategies with this. They consider graphs showing cumulative data as well as applying calculation strategies when interpreting. In lesson 7, pupils consider appropriate scales for axes before accurately drawing their own line graphs. Data is provided but you may wish to change the context to suit.

? *How will you model drawing a line graph so all pupils understand the necessary steps?*

Representing data in pie charts
L8 Interpret pie charts
L9 Draw pie charts
L10 Interpret and compare pie charts

Pupils learn about data represented in pie charts, making connections between fractions, percentages and angles within a full turn. In lesson 8, they interpret data from a range of charts, posing and answering questions to interpret. Take time to allow pupils to interpret without numbers attached to develop a sense of the relative size of segments. In lesson 9, pupils use their protractor skills to draw pie charts. Careful thought needs to be done in terms of modelling this skill, making links between percentage and degrees of rotation, to support understanding. You may wish to adapt the lesson so pupils complete pie charts as opposed to drawing their own entirely. In lesson 10, pupils apply their understanding in comparing pie charts. Take time to focus attention on the whole (the total data set) when making comparisons. Through comparison of a range of pie charts, pupils make connections between the whole and the proportion of the data set indicated.

? *How will you ensure pupils make connections between this representation of data and fractions and percentage?*