Lesson 5 Overview

Percentage change and best buys

Activity	Time (min)	Description/Prompt	Materials
Explore/ Discuss 1	20	Introduce the context of three employees working for a packing tape company. Tell students that the company produces 120-metre rolls of clear tape and rolls of brown tape containing 50% more tape than the rolls of clear tape. Ask students how long the rolls of brown tape are. Use diagnostic questioning to establish students' existing knowledge. Once students have had an opportunity to calculate the percentage increase for themselves, tell them that employees Nel, Reuben and Saskia each used a different approach to work out the length of brown tape. Ask students to discuss in pairs what each employee has done. Encourage them to draw diagrams to explain how each approach works. Discuss the three approaches with students.	Mini whiteboards 'Approaches' handout (optional) Slides 2–11
Explore 2	10	Tell students that a 180-metre roll of brown tape is currently priced at £2.70. Ask students to find the new length after an increase of 20% and the new price after a decrease of 20%. Encourage students to draw a diagram to help explain their thinking. Once students have had some time to work alone, ask them to discuss their thinking with their partner. Avoid intervening as it is important that they have enough time to think before you explain. Make a note of the different approaches adopted by students.	Calculators Slide 12
Discuss 2	10	Discuss students' work, valuing both additive and multiplicative approaches to increasing and decreasing by 20%. Check that all approaches used by students have been explored. Discuss when you might use an additive approach and when you might use a multiplicative approach.	Slides 13–14

Explore 3	25	Ask students to find the price per metre for a 120-metre roll of clear tape priced at £2.40. Ask students to explain their thinking and use formative assessment approaches to check that students know which number to divide by, and why.	'Clear tape offers' handout Large paper Scissors (optional) Slides 15–17
		Explain that the packing tape company have asked Nel and Reuben to suggest possible special offers for the clear tape involving either increasing the length of tape on a roll, or decreasing the price. Ask students to work in pairs to explore Nel's and Reuben's suggestions. Providing the offers for the students, rather than asking them to determine these themselves, helps to build student confidence by giving them a starting point. As students work, observe how they are working and listen to their explanations to each other.	
Discuss 3	10	Discuss students' approaches to calculating percentage increase and decrease. Using double number lines helps to expose the multiplicative structure of percentage change, and can be used to support students' understanding and appropriate use of non-calculator additive and multiplicative approaches.	Slides 18–24
Practice questions	5	Ask students to work individually to answer two practice exam questions. Both questions are taken from non-calculator papers. However, consider allowing students access to a calculator. It is important that students can apply both non-calculator additive and calculator multiplicative approaches. Students need to develop fluency when using a calculator and in making the decision of when to use mental, written or calculator methods when they have the choice.	'Practice questions' handout Calculators (optional) Slide 25
Discuss 4	10	Discuss students' strategies for solving the two problems and their use of diagrams. Double number lines can be used to emphasise how the multiplicative relationships relate to additive approaches.	Slides 26–28