**Let’s go shopping!**

|  |  |
| --- | --- |
| Year levelStrand(s)Lesson lengthCD Code | * Year 6
* Number
* 2 x 60 mins
* [AC9M6N07](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/content-description?subject-identifier=MATMATY6&content-description-code=AC9M6N07&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-i)
* [AC9M6N08](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/content-description?subject-identifier=MATMATY6&content-description-code=AC9M6N08&load-extra-subject=MATMATY6&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&ac)
 |
| Lesson summary | In this lesson, we use the context of grocery shopping to engage students in calculating percentage discounts and the discovering real cost of items offered through different pricing discounts and offers.  |
| Learning intention | * We are learning to calculate percentage discounts.
* We are working out the value of discounts commonly offered by stores.
 |
| Success criteria | By the end of this lesson, students can: * convert percentages to a fraction
* calculate percentages involving money problems
* determine the value of a discount
* calculate the best offer and justify my choice.
 |
| Why are we learning about this? | • Knowing how percentages, decimals and fractions are related can help us make reasonable estimates, calculate efficiently and compare two or more items. Understanding how to derive the unit can simplify calculations and is a valuable skill to use, particularly when grocery shopping.• Completing this lesson will help us make informed decisions when shopping and understand the various factors that impact decision-making, such as time and convenience rather than cost. It will also develop an understanding of the marketing tactics used by retailers, often at the cost of the consumer.• Percentages, fractions and decimals are often used in retail to calculate discounts on items; in sport to share player statistics for a game or season; to convert, adjust or amend measurements when cooking or building; and many other activities. We usually see percentages marketed as sales, especially in June before the end of the financial year. |
| Prerequisite student knowledge and language | * Represent the same number as a percentage, decimal and fraction.
* Use place value to describe decimal numbers.
* Identify familiar common fractions, such as $\frac{1}{2},\frac{1}{3},\frac{3}{4} ,\frac{1}{10}$.
* Explain that per cent means ‘out of one hundred’; it shows an amount out of 100, so 10 per cent is 10 out of 100.
* Use the symbol % to represent a percentage.
* Use percentage to describe the size of a change in a number or measurement; this change is referred to as a percentage increase or decrease (when shopping, the decrease is called a discount).
* Add, subtract, multiply and divide fractions and decimals.

**Terminology**Discount, sale, percentage, buy one get one free |
| **Resources** | * Lesson plan (Word)
* Teacher’s slides (PowerPoint)
 |

Curriculum information

|  |  |
| --- | --- |
| Achievement standard | By the end of Year 6, students solve problems involving finding a fraction, decimal or percentage of a quantity and use estimation to find approximate solutions to problems involving rational numbers and percentages. |
| Content description(s) | Students solve problems that require finding a familiar fraction, decimal or percentage of a quantity, including percentage discounts, choosing efficient calculation strategies and using digital tools where appropriate. [AC9M6N07](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/content-description?subject-identifier=MATMATY6&content-description-code=AC9M6N07&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-i)Students approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies. [AC9M6N08](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/content-description?subject-identifier=MATMATY6&content-description-code=AC9M6N08&load-extra-subject=MATMATY6&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&ac)  |
| General capabilitiesCross-curriculum priority | General capabilities Numeracy* Interpreting fractions [Level 7](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/general-capability-snapshot?subject-identifier=MATMATY6&content-description-code=AC9M6N07&general-capability-code=N&element-code=NN&sub-element-index=0&sub-element-code=NNInF&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick)
* Multiplicative strategies [Level 9](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/general-capability-snapshot?subject-identifier=MATMATY6&content-description-code=AC9M6N07&general-capability-code=N&element-code=NN&sub-element-index=1&sub-element-code=NNMuS&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick)
* Understanding money [Level 8](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/general-capability-snapshot?subject-identifier=MATMATY6&content-description-code=AC9M6N07&general-capability-code=N&element-code=NN&sub-element-index=3&sub-element-code=NNUnM&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick)
* Number and place value [Level 8](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/general-capability-snapshot?subject-identifier=MATMATY6&content-description-code=AC9M6N08&general-capability-code=N&element-code=NN&sub-element-index=1&sub-element-code=NNNPV&load-extra-subject=MATMATY6&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&achievement-standard=fd946fb0-8c14-44f8-919a-b7f401d94188&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick)
* Proportional thinking [Level 2](https://v9.australiancurriculum.edu.au/f-10-curriculum/learning-areas/mathematics/year-6/general-capability-snapshot?subject-identifier=MATMATY6&content-description-code=AC9M6N07&general-capability-code=N&element-code=NN&sub-element-index=2&sub-element-code=NNPrT&detailed-content-descriptions=0&hide-ccp=0&hide-gc=0&side-by-side=1&strands-start-index=0&subjects-start-index=0&view=quick)

Critical and Creative Thinking * Analysing (Interpret concepts and problems Inquiring)
* Inquiring (Identify, Process and Evaluate information)
 |
| Areas of challenge | Some students may:* confuse whole-number language and decimal fraction language, for example, tens (10) and tenths (0.1)
* not recognise that finding a percentage is finding one part out of a whole, for example, 32 per cent is 32 parts out of 100
* have difficulties converting a decimal percentage, as they consider it a decimal rather than a percentage, and do not see the need to do so.
 |
| Strategies | * Explicit teaching
* Differentiated teaching
 |

Lesson structure

|  |  |
| --- | --- |
| Learning hook10 mins | * **Download and use the teacher’s slides to accompany your teaching. You will find this in the ‘What you need’ section.**
* **Begin with the learning intention and success criteria (provided on Slide 2). Unpack and discuss and key vocabulary and clarify students’ understanding.**
* **Use Slides 3-4 to review either the table highlighting the connection between fractions, decimals and percentages or the empty number line. Ask students to determine the missing numbers and explain their thinking used to identify the missing number; record any strategies used by students here for use later in the lesson. Address and re-teach any misconceptions demonstrated here before continuing with the focus of the lesson.**
* **Use slides 6-8 to present the problem context to students. Read through the three discount options offered by each store. Allow time for students to clarify any questions they have.**

**Explicit teaching (Use slides 7-9)*** Organise a teaching group for students that require support to calculate the different types of discounts. Use teacher modelling to work through the different types of discounts and strategies to solve the problem. Ensure that students:
	+ can use subtraction to work out problems that are based on a number of ‘cents off’
	+ understand percentage off and how to carry out the calculation to work out the sale price
	+ understand you can use halving strategy when calculating ‘buy one get one free’ deals.
 |
| Explore40 mins | Challenge 1 (Slide 12)* Students work individually or in pairs to calculate the cost of shopping at each of the three stores.
* Ask students to show their calculations using two or more processes (calculating the percentage discount and subtracting from the total, using the unitary method ‘using 10% to find larger percentages’, using the percentage that remains.
* Allow time for students to grapple with the problem.
* If required, work with individuals, small groups or the whole class to explicitly teach and model how to calculate the percentage of an item or the other discount options. Use questioning and feedback to assist students in their learning.
* Use slide 15 to check student calculations.

Challenge 2 and 3 (Slides 13-14)* As students demonstrate understanding and have been successful in the first challenge task, offer them Challenge 2 and 3 to continue to deepen their conceptual understanding. The challenge tasks likely require more time to complete than what can be covered in an hour lesson. You may need a follow up lesson to complete the challenge tasks 2 and 3.

Differentiation * Support prompt: How do you work out the sale price? Choose an item and work out the amount you save and the discounted price. Reduce the number of examples for students to work through.
* Enabling prompt: What do the items cost at one of the stores? What is the total cost of the four items? How much do you save? How does this compare to one of the other stores? Compare the cost of items using two stores.
* Extending prompt: Which store offers the best price on each item? How can you save the most amount of money? Compare all costs across the three stores.
 |
| Summary and reflection10 mins | * Ask the question which store is cheapest? What is the best way to shop so that you spend the least amount of money?’
* Ask students to share their strategies and responses and how they used this to complete the challenges. Try to include a mixed level of responses to highlight the increasing sophistication with each new sharing of work and strategies.
 |
| Assessment5 mins | * Review student work samples from the challenge tasks to assess their proficiency with converting decimals and percentages, use of the operations to calculate percentage and the use of varied strategies to find the cost of items.
* Use slide 15 to check student calculations for challenge tasks.
 |