AGEC Grade 9 Accounting Teacher Lesson Plan

Calculating Cost Price, Selling Price and Mark-up Percentage

The Allan Gray Entrepreneurship Challenge (AGEC) offers lesson plans that are interactive and CAPS-aligned, encouraging teachers to bring gamified learning into the classroom. These lesson plans enhance the CAPS curriculum per grade by highlighting one or two learning outcomes per subject that links to the AGEC High School Game, enabling fun integration and learning opportunities.

Subject: Economic and Management Sciences (EMS) **Strand: Financial Literacy**

Topic: Cost and Profit Calculations	**Part A:** Class discussion. Definitions, calculations and relevant formulas.	**15 minutes**
	Part B: Learners work with a partner to play the AGEC game and complete the worksheet.	**35 minutes**
	Part C: Class Discussion. Review the calculations and discuss how pricing decisions affected the business performance in the game.	**10 minutes**

Resources: Access to internet, AGEC (www.theentrepreneurshipchallenge.com) and the "Worksheet for Lesson."
Vocabulary: Sales, Selling Price, Cost Price, Cost of Sales, Gross Profit, Net Profit, Operating Expenses, Mark-up and Mark-up Percentage.
Advance preparation: Print one worksheet for each learner. Ensure that all learners (working in pairs) have access to the AGEC website and Online High School Game (available on all devices - cellphone, laptop, computer, tablet).

Part A 15min Set the scene — Whole Class

Hold a class discussion. Define key terms, distinguish between the calculations for one product and totals for a business, and work through the relevant formulas:

- **Sales:** The total selling value of all goods sold by the business during a specific period.
- **Selling Price**: The amount a customer pays to buy a product or service from the business.
- **Cost Price**: The amount the business pays to buy or produce a product before any profit is added.
- **Cost of Sales**: The total cost price of the goods that were sold by the business during a specific period. In simple terms, it is what the business paid for the goods it has sold.
- **Operating Expenses:** The costs of running a business that are not included in the cost of sales, such as rent, salaries, electricity, advertising and stationery.
- **Gross Profit**: The profit made **before** operating expenses are deducted. It is calculated as: **Sales - Cost of Sales = Gross Profit**.
- **Net Profit**: The final profit left **after** all operating expenses have been deducted from the gross profit. This is calculated as: **Net Profit = Gross Profit - Operating Expenses**
- **Mark-up**: The amount added to the cost price to determine the selling price. It is the difference between the cost price and the selling price. Calculated as: **Selling Price - Cost Price = Mark-up**.
- **Mark-up Percentage**: The mark-up amount expressed as a percentage of the cost price. It shows how much profit is added to the cost price. This is calculated as: **Mark-up Percentage = Mark-up ÷ Cost Price × 100.**

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Part A 15min Set the scene

Understanding the different calculations

Explain to learners that the terms used depend on what is being calculated:

- **Cost Price (CP) and Selling Price (SP)** refer to one product or unit.
- **Cost of Sales (COS) and Sales** refer to the total goods sold during a period.

These terms should not be used interchangeably.

CALCULATIONS FOR ONE PRODUCT

Term	Abbreviation	Calculation
Cost Price	CP	The amount the business pays for one product before mark-up is added
Mark-up Amount	MU	**MU = SP - CP**
Selling Price	SP	**SP = CP + MU**
Mark-up Percentage	MU%	**MU% = MU ÷ CP × 100**

Calculating the Selling Price when the Mark-up Percentage is known
SP = CP x (100 + MU%) ÷ 100

Calculating the Cost Price when the Selling Price and Mark-up Percentage are known
CP = SP x 100 ÷ (100 + MU%)

CALCULATIONS FOR A BUSINESS OVER A PERIOD

Term	Abbreviation	Calculation
Sales	-	Total selling value of the goods sold
Cost of Sales	COS	Total cost price of the goods sold
Gross Profit	GP	**GP = Sales - COS**
Operating Expenses	OE	The cost of running the business
Net Profit	NP	**NP = GP - OE**

Calculating Cost of Sales when Sales and Mark-up Percentage are known
COS = Sales × 100 ÷ (100 + MU%)

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Part A 15min Set the scene

The difference between Gross Profit amd Net Profit

- **Mark-up Amount = Selling Price – Cost Price**
- **Gross Profit = Sales – Cost of Sales**
- **Net Profit = Gross Profit – Operating Expenses**

To assist learners in their understanding of these terms, draw up the below calculations, asking learners to make notes on their Worksheet.

Teacher note: These calculations apply to the business's total sales and Cost of Sales over a period. Use the Cost Price and Selling Price formulas when calculating amounts for one product.

Additional calculations for a business over a period

When the following information is known	Calculate	Formula
Sales and Mark-up Percentage	Cost of Sales	**COS = Sales × 100 ÷ (100 + MU%)**
Cost of Sales and Mark-up Percentage	Sales	**Sales = COS × (100 + MU%) ÷ 100**
Sales and Cost of Sales	Mark-up Percentage	**MU% = (Sales – COS) ÷ COS × 100**
Gross Profit and Cost of Sales	Mark-up Percentage	**MU% = GP ÷ COS × 100**

Part B Prep Ensure that learners have access to the online game

What they will need: Any device (phone, tablet, or computer); internet or data to register; your school's details; an email address or mobile number; access to the AGEC website **www.theentrepreneurshipchallenge.com**.

Registration: Learners can register with an email address/mobile number. They have to choose their profile role type as 'High School Learner', complete the registration form and click on "start playing".

Logging into their gaming account: Once their email address or mobile number has been verified, they can log in again at any time on the AGEC website.

PREPARATION FOR NEXT STEPS:

- Read through the worksheet with learners. Make sure that they understand what is required of them. Point out that it will take time to play the game as they have to discuss as they go along.
- Support learners as they log in to the AGEC game. Preferably learners work in pairs so that they can collaborate.

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Part B 35min Play the game and do the worksheet — With a partner

WORKSHEET INSTRUCTIONS:

- To complete the worksheet, learners should apply what they just learned about cost calculations for a business combining that with information from the AGEC game.
- Once learners have played through **six payday cycles** of the game, hold a short whole class discussion to check whether learners need any further support before they complete the worksheet.

TIP: At the end of gameplay, it could also be fun to reward the pair with the highest Business Value.

Part C 10min Discussion and Reflection — In pairs and whole class

Hold a class discussion: Learners provide answers to the below questions based on their worksheet answers.

Learner Worksheet Questions:

1. The business earns total milkshake **Sales of R70.** The milkshakes were sold at a **150% Mark-up Percentage on cost**. Calculate the **Cost of Sales.**
2. One milkshake has a **Cost Price of R5** and a **Mark-up Percentage of 150%**.
   a. Calculate the Mark-up Amount.
   b. Calculate the Selling Price.
   c. Compare your answer with the selling-price range available in the AGEC High School Game.
3. One milkshake has a **Selling Price of R12** and a **Cost Price of R5**.
   a. Calculate the Mark-up Amount.
   b. Calculate the Mark-up Percentage.
4. The business earns a **Gross Profit of R7** on milkshakes with a **Cost of Sales of R5**. Calculate the Mark-up Percentage.
5. Check your answers using the appropriate formulas:
   a. Use the Cost of Sales formula to check your answer to Question 1.
   b. Use the Selling Price formula to check your answer to Question 2.
6. Choose one product that you launched in the AGEC High School Game.
   a. Record its Cost Price.
   b. Record its Selling Price.
   c. Calculate the Mark-up Amount.
   d. Calculate the Mark-up Percentage.
7. Record your Business Value after six paydays. Explain how your pricing decisions affected your Business Value.

Additional Review Questions:

- In the game, what did you think of the ability to select your selling prices?
- How did you decide on your pricing strategy?
- Why do you think it is important for businesses to have an accurate mark-up percentage for sales?

Learners can play the Allan Gray High School game throughout the year to improve their business acumen.

For more information about AGEC please visit www.theentrepreneurshipchallenge.com or send an email to info@theentrepreneurshipchallenge.com