**MATHEMATICS LESSON PLAN**

**GRADE 9**

**TERM 1: JANUARY – MARCH**

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| PROVINCE: |  |
| DISTRICT: |  |
| SCHOOL: |  |
| TEACHER’S NAME: |  |
| DATE: |  |
| DURATION: | 1 Hour |

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| 1. **TOPIC: WHOLE NUMBERS:** Solve problems in financial context (Lesson 5) |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **Learners must be able to solve problems that involve whole numbers, percentages and decimal fractions in financial contexts such as:**   * profit, loss, discount and VAT * budgets * accounts and loans * simple interest and higher purchase * exchange rates and commission * rentals * compound interest |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook, Sasol-Inzalo Book, Calculator |
| 1. **PRIOR KNOWLEDGE:** | Substitution into formulas, four basic operations with whole numbers  and percentages |
| 1. **REVIEW AND CORRECTION OF HOMEWORK** (suggested time: 10 minutes)   Homework provides an opportunity for teachers to track learners’ progress in the mastery of mathematics concepts and to identify the problematic areas which require immediate attention. Therefore it is recommended that you place more focus on addressing errors from learner responses that may later become misconceptions. | |
| 1. **INTRODUCTION** (Suggested time: 10 Minutes) | |
| Revise with Learners the definitions of the following financial terminology done in grade 8.  **Hire purchase** is a system by which a buyer pays for an asset in regular instalments, while enjoying the use of it.  **Exchange rate** is the current market price for which one currency can be exchanged for another.  **Discount** is a reduction in the original price of something.    **Vat -**a value added tax on goods and services.  **Budget -**a plan to show how to spend a certain amount of money  **Accounts** a business arrangement between bank and a client or shop and a customer.  **Commission-** money that one is paid for every the goods sold.  **Rental-** money that you pay to use something for certain period  **Interest is w**hen a person borrows money from a bank or some other institution, he or she  normally has to pay for the use of the money  **Loan** arrangement is amount of borrow money or property and return it with interest  Simple Interest  **Profit** is the difference between cost price and selling price of something.  **Loss** is when selling price is less that cost price. | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | Learning activities  (Learners are expected to: ) |
| 1. **BUDGET**   Ask learners questions that will assist them to analyse the budget below.  The Noxi’s family budget for August looks as follows**:**   |  |  | | --- | --- | | **Category** | **Budgeted amount** | | **INCOME** |  | | **Salaries** | **R 10 000** | | **EXPENDITURE** |  | | **Water and Sewerage** | **R 350** | | **Rent and Electricity** | **R 1 000** | | **Phone** | **R 250** | | **Food** | **R 3 000** | | **School** | **R 2 000** | | **Transport** | **R 800** | | **Entertainment** | **R 1 000** |   **Solution:** Yes   1. **VAT**   All the marked prices (i.e. selling price) in the shop include VAT. If the selling price is R175,   * 1. What was the original price (i.e. the amount excluding VAT)?   Round your answer off to the nearest 50c.   * 1. How much of the selling price is VAT?  1. **SIMPLE INTEREST**   Is when interest is calculated for a number of years on an amount (i.e. a fixed  deposit) without the interest being added to the amount each year. Interest  rates are normally expressed as percentages. This makes it easier to  compare rates.  **Example 1**   1. Express each of the following as a percentage:   (a) A rate of R5 for every R100  (b) A rate of R7,50 for every R50   1. Annie deposits R8 345 into a savings account at Bonus Bank. The   interest rate is 9% per annum.  (a) How much interest will she have earned at the end of the first year?  ( or for )  (b) Sam borrows R7 000 from a bank at 14% interest for 2 year. How much  does he have to pay back to the bank at the end of the period? | Learners work in pairs to analyse the activities and give the answer.  Learners work in groups to complete the activity and give the responses.  Learners work in groups to do the calculations, but first highlight the key words. |
| 1. **COMPOUND INTEREST**   Is when the interest earned each year is added to the original amount,  and the interest for the following year is calculated on this new amount,  **Example 2:**  R2 000 is invested for 3 years at 10% per annum compound interest:     1. Calculate the final amount after 3 years. 2. What is the total value of the investment after 2 years?   **End of 1st year**: Amount = R2 000 = R200 interest = R2 200  **End of 2nd year**: Amount = R2 200 R220 interest = R2 420  **End of 3rd year**: Amount = R2 420 = R242 interest = R2 662  NB Limit your calculation of interest using repeated calculation to 3 years.    **OR**  Using the formula to calculate the final amount.         1. **ACCOUNT AND LOANS**   **Example**   1. Thabo has an account with his pharmacy which is interest free. Complete the following table and answer question which follow:  |  |  |  |  | | --- | --- | --- | --- | | **Month** | **Purchases** | **Total amount paid** | **Account balance** | | Balance brought forward |  |  | R 425,00 | | January | R 100,00 | R 80,00 |  | | February | R 289,00 | R 80,00 | R 654,00 | | March | R 43,84 |  | R 597,84 | | April | R 578,50 | R 300,00 |  | | May | R 0.00 |  | R 576,34 | | June |  | R 200,00 | R 468,69 | | July |  |  |  |  1. If his purchases in July were to the amount of R 153, how much would Thabo have to pay in order to have a balance of R 100? | Learners use repeated calculation and formula to calculate interest.  Learners work in pairs to complete the activity and discuss their responses. |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| A new TV costs R6 900 cash. It is available on hire purchase with a deposit of 15% followed by 12 instalments of R558, 50. Find the total hire purchase price and the extra amount that you would pay (on top of the cash price) using hire purchase. |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. Emphasise the difference between simple and compound interest and ensure that repeated calculation of compound interest is understood. 2. The primary purpose of Homework is to give each learner an opportunity to demonstrate mastery of mathematics skills taught in class. Therefore Homework should be purposeful and the principle of ‘Less is more’ is recommended, i.e. give learners few high quality activities that address variety of skills than many activities that do not enhance learners’ conceptual understanding.   Carefully select appropriate activities from the Sasol-Inzalo books, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Recommended Homework**  1. Sindi deposits R9 800 in a savings account. The interest rate for the first 4 years is 8,5% per  annum compounded annually. The bank then decides to decrease the interest rate to 8% per  annum. How much money will there be in the account after 6 years? Also find the amount  available in the account at the end of 10 years.  2. R1000 is invested at r% per annum simple interest for the period of 5 years yield R340.  Calculate the value of r.  3. Thabang bought a movie projector for R26 000. He pays 12% in cash and the balance using a hire  purchase loan. He repays the loan in 3 years. The interest charged on the loan is 11% per annum.  (a) How much does he pay in cash?  (b) Calculate the total amount he must repay on the loan, including the interest over 3 years.  (c) How much should he pay each month, assuming that he makes equal payments?  4. Show by calculation which is the better investment?  R14 000 invested at 5,6% compound interest per annum for 9 years, or  R14 000 invested at 6,5% simple interest per annum for 9 years  5. A loan of R5 600 is to be repaid in two years at 5% per annum simple interest. Calculate the  total amount to be repaid at the end of 2 years. |