**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: ALGEBRAIC EQUATIONS:**  Determining numerical value of expressions by substitution **(Lesson 4)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to:**   * determine numerical value of an expression by substitution * analyse and interpret equations that describe a given situation |

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| 1. **RESOURCES:** | Textbooks, Sasol-Inzalo book 1 and DBE workbook 1. |
| 1. **PRIOR KNOWLEDGE:** | * Algebraic expressions * Algebraic equations |
| 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)   Write the following example on the board . If the value of , ask the learners if it is true or false, if not, what would make the statement correct?  The expected answer is 6.  Therefore, when we figure out the number that makes the mathematical sentence true, we say that we are solving the problem (equation). An **equation** is a mathematical sentence that is true for some values but false for other values e.g. 8 in the above example is false and 6 is true.  For more complex ones, one will have to do the actual substitution before arriving at the answer. Substitution ensures the correctness of the answer in equations.  Allow your learners to work in pairs.  **Example 1**  Say whether the following statements are true or false. Justify your answer: | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| **Activity 1**   1. Six equations are listed below the table. Use the table to find out for which of the given values of it will be true that the left-hand side of the equation is equal to the right-hand side.               * Explain that two equations can have the same solution. For example, and have the same solution; is the solution for both equations. | * use the table to find the value(s) of that make the LHS = RHS for the given equations * work in pairs |
| 1. Which of the equations in question 1 have the same solutions? Explain.  * Explain that two equations are called equivalent if they have the same solution.   **Activity 2**  Consider this situation:  To rent a room in a certain building, you have to pay a deposit of R400 and then R80 per day.   1. Which of the following best describes the equation that you can use to answer question 1(b) and (c)? 2. Total cost = R400 + R80 3. Total cost = 400(number of days + 80) 4. Total cost = 80 × number of days + 400 5. Total cost = (80 + 400) × number of days 6. How much money do you need to rent the room for 10 days? 7. How much money do you need to rent the room for 15 days? 8. For how many days can you rent the room described in question 1, if you have R2 800 to pay?   **Note:** If you want to know for how many days you can rent the room if you have R720, you can set up an equation and solve it: You know the total cost is R720 and you know that you can work out the total cost like this:  Total cost , where *x* is the number of days. So, and days.  In each of the following cases, find the unknown number by setting up an equation and solving it. | * use the table to find equations that have the same solutions * work in pairs      * analyse the given situations and come up with the equations * solve the equations |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) 2. Complete the table below and answer the questions that follow.  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  1. Can you find a solution for in the table? 2. What happens to the values of and as increases? Do they become bigger or smaller? 3. Is there a point where the value of becomes bigger or smaller than the value of as the value of increases? 4. For which value(s) of isthe statement true? 5. Ben and Thabo decide to do some calculations with a certain number. Ben multiplies the number by 5 and adds 12. Thabo gets the same answer as Ben when he multiplies the number by 9 and subtracts 16. What is the number they worked with? |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK (Suggested time: 5 minutes)** |
| 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, DBE workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Homework:** Sasol-Inzalo book 1, Page 151-152 No. 4 (a) – (d) DBE workbook 1 page 86 No. 2 (a) and (f) No. 3 (a) and (e). |