**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: INTEGERS: Calculation with integers(lesson 2)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   By the end of the lesson learners should be able to Perform calculations involving all four operations with numbers that involve the squares, cubes, square roots and cube roots of integers |

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| 1. **RESOURCES:** | Textbooks, DBE workbook 1, Sasol-Inzalo Book 1 |
| 1. **PRIOR KNOWLEDGE:** | * Perform calculations involving all four operations with integers * square, cubes, square roots and cube roots of integers done in Grade 8 |
| 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 the work done in Grade 8 by asking learners to define and give an example of each of the  following:   * Squares * Square root * Cubes * Cube root | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 25 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to:)** |
| Explain the following with examples:  **Square of a number**:  The square of a number is a product of the  number and itself.  Example: The square of 5 is 25,  since = 5  5 = 25. The square of  is also 25, since =  Note: =  not    **Square root of a number**:  The square root of a number (m) is a number (n) by which, when multiplied by itself gives a square number (m): .  The square root of any number () is is represented this way  Therefore  Example:  **Cube of a number**:  A cube root of a number is a number that can be multiplied by itself three times.  The symbol for a cube root of any number () is  Example:    Group learners in pairs and write the following  Open for class discussion  Example 1:  The square of 5 is 25, since = 5  5 = 25          Example 2:        Example 3:  4 cubed is = 64 which is  + (  Note:  Example 4:          Example 5:          Example 6  The overnight temperature in Polokwane drops from 11 °C to −2 °C. By how **many degrees** has the temperature dropped?  Write the following question on the board. | listen and answer question and complete the activity below   1. Locate the following numbers on the number line.        |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |     2. Use integers to approximate each square root.   |  |  |  |  | | --- | --- | --- | --- | |  | A  Number | B  Between square root of perfect squares | C  Between two (2) consecutive integers | | 1 |  | and | 2 and 3 | | 2 |  |  |  | | 3 |  |  |  | | 4 |  |  |  | | 5 |  |  |  |  * do the sum and give feedback * calculate the following:   work out and discuss the response with the whole class  Calculate      differentiate the following questions in the discussion   1. What is the temperature after the drop at Polokwane? By how many degrees has the temperature drop? |

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| 1. **CLASSWORK** (Suggested time: 10 minutes) |
| Calculate the following.   1. A submarine is 37 m below the surface of the sea. It then sinks a further 15 m. How far below the surface is it now? |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasize that**:  * The symbol means you must take a positive square root. * If , then * If , then * and , therefore  1. Homework:   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.  **Sasol-Inzalo Book 1 p 37 no. 2 and 3 (b) to (d)** |