**MATHEMATICS LESSON PLAN**

**GRADE 8**

**TERM 1: January – March**

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

1. **TOPIC: INTEGERS: Calculations with integers (Lesson 6)**
2. **CONCEPTS & SKILLS TO BE ACHIEVED:**

**By the end of the lesson learners should know and 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 with integers involving all four operations * order of operations |
| 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)   Teacher revises the definitions of squares, square roots, cubes and cube roots.  A square is a number we get after multiplying an integer by it self-e.g. 4 X 4 = 16.  Let learners name the first few square numbers  0 = 0 x 0  1 = 1 x 1  4 = 2 X 2  9 = 3 X 3  16 = 4 X 4  25 = 5 X 5  A square root of a number is the number which, when multiplied by itself, gives a square number e.g. the square root of 16 is 4 because 4 X 4 =16  A cube is the number you get when an integer is multiplied three times with itself e.g. 3 X 3 X 3 = 27  Let learners name the first few cube numbers  0 = 0 X 0 X 0  1 = 1 X 1 x 1  8 = 2 X 2 X 2  27 = 3 X 3 X 3  64 = 4 X 4 X 4  A cube root of a number is the number which, when multiplied by itself thrice to gives a cube number e.g. the cube root of 8 is 2 because 2 x 2 x 2 = 8 | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to:)** |
| ACTIVITY 1  Revise the rules on the application of integers by asking learners to complete the following:  ACTIVITY 2  The Teacher with the assistance of the learners completes the following table with their knowledge on multiplication of integers.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Number | 1 | -1 | 2 |  | 4 |  | |  | 1 1 |  |  |  |  |  | | Square | 1 | 1 | 4 | 4 | 16 | 16 |   The teacher point the following out to the learners. but  is also = 16 therefore 16 has two square roots which is 4 and -4. We refer to 4 as the positive square root of 16 and to as the negative square root of 16.  ACTIVITY 3  Asks the learners to complete the following table using their knowledge on the definition of a cube number.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Number | 1 | 2 | 3 | 4 | 5 | | Cube Number |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Number | -1 | -2 | -3 | -4 | -5 | | Cube Number |  |  |  |  |  |   Use the completed table to answer the following:   1. The cube number of a positive integer is always \_\_\_\_\_\_\_\_\_\_\_ 2. The cube number of a negative cube number is always \_\_\_\_\_ | discuss the solutions to the problems and provide answers.  use their knowledge on multiplication of integer to complete the table.  complete the table |
| ACTIVITY 4  Ask the learners to complete the table using their knowledge on the definition of a cube root.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Number | 1 | -1 | 8 | -8 | 27 | -27 | | Cube root |  |  |  |  |  |  |  1. The cube root of a negative number is always \_\_\_\_\_\_\_\_\_\_\_\_ 2. The cube root of a positive number is always \_\_\_\_\_\_\_\_\_\_\_\_\_ | Learners complete the table. |

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| 1. **CLASSWORK** (Suggested time: 15 minutes)   Simplify the following: |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) 2. **Emphasise that:**  * is undefined  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 48 no. 12 and 13** |