**MATHEMATICS LESSON PLAN**

**GRADE 8**

**TERM 1: January – March**

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

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| 1. **TOPIC: EXPONENTS:** Calculations using numbers in exponential form**(lesson 3**) |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** establish general law of exponents limited to natural number exponent: |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1, Calculator, Internet |
| 1. **PRIOR KNOWLEDGE** | * represent numbers in exponential form |
| **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 following with learners:**  **Activity**   * 1. Write 5 as a power of 5   2. Express (2 in exponential form      * 1. Say whether the following statements are true or false and justify your answer  1. = 3. = | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | |
| **Teaching activities** | **Learning activities**  **Learners are expected to:** | |
| * Divide learners into small groups * Introduce laws of exponents through a range of numeric examples first, and then variables can be used. * Presents activities 1- 3 to learners to unpack laws of exponents   **Activity 1:**  Say whether the following statements are true or false. Justify your answer     1. ( 2. = ( 3. = | * work in small groups and discuss |
| **Activity 2**:   * 1. Complete the table below as illustrated in the first row:  |  |  |  |  | | --- | --- | --- | --- | | Product of powers | Expanded form | Total number of equal factors in the product | Simplified product expressed as a power | |  |  | 5 |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |      * 1. Answer the following questions based on the completed table:  1. What is the same in each pair of powers multiplied in the first column? 2. In each row, explain how do the bases in the first column compare to the base in the last column? 3. In each row, explain how do exponents in the first column compare to the exponent in the last column? 4. State in your words, what happens when you multiply powers of the same base. 5. Write the description using variables | * complete the table * discuss completed table by answering questions 2.2 * use the law of exponents to simplify the given numbers, expressions or terms |
| **Activity 3**  Briefly explain what is wrong with the following statements   1. = 2. = 3. = |  |
| 1. **CLASSWORK** (Suggested time: 15 minutes) | | |
| 1. Simplify the following and leave your answer in exponential form: 2. Sasol-Inzalo Book 1: page 62, No. 6 & 8 | | |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that:**  * When you multiply two or more powers that have the same base, the answer has the same base, but its exponent is equal to the sum of the exponents of the numbers you are multiplying. The law can be expressed symbolically as where *m* and *n* are natural numbers and is not zero. * Multiplying bases and adding the exponents is incorrect. For example, ≠ * Multiplying bases and multiplying exponents is also incorrect. For example,: ≠  1. 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:**   * DBE Workbook 1: pages 42- 43, activities 1(b - e), 2(b - e) |