**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 6)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** establish the general laws of exponents, limited to natural number exponents: and |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1, Calculator, Internet |
| 1. **PRIOR KNOWLEDGE** | * expanding numbers in exponential form |
| 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. | |
| **INTRODUCTION** (Suggested time: 10 Minutes)  **Activity**   * 1. Expand the following:   2. Simplify and express the answer in exponential form | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| * Divide learners into small groups * Present the following activities to leaners. * Instruct learners to work as individuals within each group to answer the questions and later compare their answers within the group.     **HINT:** Introduce laws of exponents through a range of numeric examples first, and then variables can be used.  **Activity 1**   * 1. Use any two different methods to calculate the value of   9  **Method 2:**  **[Hint:** Choose/use one of the methods to develop the concept of dividing powers of the same base and let learners answer the following questions. In the illustration below, method 1 has been used**]**   * 1. Look at how the following number was simplified and answer the questions that follow:        * + 1. What is the relationship between the exponents in and the exponent in     2. What conclusion can you make from the answer you got in 1.2.1 above?     3. Check if your conclusion works for     4. Express you findings using variables   **Note the following:**   * give learners enough time to explain their findings. * discourage learners to use calculators because the aim is to discover the rules , not to verify solutions * ensure that learners can recognise and use appropriate laws of exponents | * investigate the law by answering the questions and express the law in general terms * verify their findings using three or more examples * use different variables for different questions, not to use and always |
| **Activity 2**  Use the investigative approach as in Activity 1 to guide learners to establish that =1   |  | | --- | | **Proposed technique to answer the question** | | But  Therefore  **Algebraically this could be presented as follows:**    and 1  Thus (both ) but a 0  Note : 00 1 | | * investigate the law * express the law in general terms | |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| * Sasol-Inzalo Book 1: page 69, No. 4 & 5 * DBE Workbook: page 44, No. 1(a-f) |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that**:  * where *m* and *n* are natural numbers and *a* is not zero * any number * misconceptions such as  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**  **Activity 1**  Which of the statements below is true? Justify your answer**.**            **Activity 2**    Simplify and leave your answer in exponential form:      **Activity 3**    **Calculate** |