**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: EXPONENTS:** Solving problems **(Lesson 5)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should know and be able to** solve problems in contexts involving numbers in exponential form, including scientific notation |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1 and Calculator | |
| 1. **PRIOR KNOWLEDGE:** | * general laws of exponents * basic operations on integers * division by powers of 10 * solving linear 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) | | |
| Revise the following general laws of exponents, emphasise their meaning and their application:    * 1 | | |
| **7. LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | |
| **Teaching activities** | | **Learning activities** |
| **EXPONENTIAL EQUATIONS**:  **Definition**: An exponential equation is an equation in which the variable is in the exponent. The equations are of the form, to solve this kind of equation one has to equate exponents i.e. if , then.  This solution demonstrates how the entire class of equation is solved. If the bases are the same, then the powers must also be the same, in order for the two sides of the equation to be equal to each other. | |  |
| Demonstrate how to solve exponential equations using the following examples:  **Example 1** : Solve for x:   |  |  | | --- | --- | | (a) | [Rewrite 32 in exponential so that the bases are the same]  [Equate exponents] | | (b) | [Rewrite 243 in exponential so that the bases are the same]  [Equate the exponents)  [add -3 on both sides] | | (c) | [Rewrite 1 296 in exponential so that the bases are the same]  [Equate exponents]  [Divide both sides by 2 or multiply both sides by | | (d) | [Rewrite in exponential form so that the bases are the same]  [Equate exponents]  [Multiply both sides by the multiplicative inverse of 3] | | | * participate by responding to questions asked during lesson presentation. * do example 1 (c) and share their solution with the whole class. |
| |  |  | | --- | --- | | **SCIENTIFIC NOTATION**  **Example 2:**  Calculate the following and leave the answers in scientific notation: | | |  | [Write in scientific notation]  [Multiplication is commutative]  [Use the calculator to multiply decimals and then apply the law: ] | |  | [Make powers of 10 be the same]  [Add decimals] | |  | [Make same powers of 10]  [Add decimals and then multiply by | | | * do example 2 (c) and share their solution with the whole class |
| **8. CLASSWORK** (Suggested time: 15 minutes) | | |
| Sasol-Inzalo Book 1 page 84 No. 1 (a) (c) and 2 (a) (b) | | |
| **9. 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 Book 1, DBE workbook 1 and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  Sasol-Inzalo Book 1 page 84 No. 1 (d) and 2 (d) | | |