**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:** Calculations using numbers in exponential form **(Lesson 4)** |
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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should know and be able to** perform calculations involving all four operations using numbers in exponential form |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1 | |
| 1. **PRIOR KNOWLEDGE:** | * general laws of exponents * basic operations on integers | |
| 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) | | |
| Check whether the learners understand the meaning of the general laws of exponents**:**    * 1 | | |
| **7. LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | |
| **Teaching activities** | | **Learning activities**  **(Learners are expected to:)** |
| * Divide learners into small groups * Ask them to do the following examples to demonstrate how exponential laws should be applied when simplifying problems involving all four operations: | | * respond to questions asked during lesson presentation. |
| **Example 1**  Simplify the following:   |  |  | | --- | --- | | (a) | [Add exponents, apply | | (b) | [Apply and  [Add exponents, apply | | (c) | [Multiply exponents, apply and then remove brackets]  [Add like terms] | | (d) | [Apply ]  [Use equivalent fractions]  [Add numerators] | | (e) ( | [Apply backwards]  [Multiply the exponents, apply | | (f)    1 | (Rewrite 9 as and then apply  (Multiply the exponents, apply [  [Subtract the exponents, apply]  [Write as a whole number] | | | * indicate with reasons, the exponential law to be applied in order to solve the given problems. * do example 1 (b) and 1(f) in groups and discuss the solutions with the whole class. * indicate with reasons, the exponential law to be applied in order to solve the given problems. * do example 1 (b) and 1(f) in groups and discuss the solutions with the whole class. |
| |  |  | | --- | --- | | **Example 2**  **Simplify the following:** | | | or | [Subtract exponents, apply  [apply ] | | (b)  or | [Apply  [Subtract exponents, apply | | (c) | [Write 25 in exponential form]  [Multiply exponents, apply  [add exponents, apply | | (d) | [Write 8 and 4 in exponential form]  [Multiply exponents, apply  [add exponents, apply on the numerator]  [subtract exponents, apply | | | * do example 2 (b) and (c) in groups * discuss their solutions with the whole class. |

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| **8. CLASSWORK** (Suggested time: 15 minutes) |
| Sasol-Inzalo Book 1 page 79 no. 6 (d) & (e)  DBE Workbook 1page 66 - 67 |
| **9. CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that:**  * Learners should master the general laws of exponents in order to use them appropriately when solving problems involving numbers in exponential form.  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 Book 1, DBE workbook 1 and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.     **Homework**  Sasol-Inzalo Book 1 page 163 No 6 (c) (e) (f) (g) |