**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:** Comparing and reprenting numbers in exponential form **(lesson 2)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to c**ompare and represent numbers in scientific notation, limited to positive exponents |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1 |
| 1. **PRIOR KNOWLEDGE** | * comparing and representing whole number in exponential form * multiplication of decimal fractions by powers of 10 |
| 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)   **Activity 1**  1.1 Write in exponential form  a)  b)  1.2 Write in expanded notation  a) 105  b) 1012  **Activity 2**  One million can be expressed as 1 000 000 as a number and in exponential form as 1x106  Express the following numbers in both number form and exponential - (Use South African context)   1. nine million 2. one billion 3. one trillion   **Activity 3**  Simplify: | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities**  In introducing the concept**,** mention that Scientific notation is used in the context of very big numbers e.g speed of light is 300 000 000 metres per second. This number is too big hence there is a need to have a simplified version of representing such numbers.  **Example**  In Scientific notation 300 000 000 = 3x108  **NB:**   * Unpack the example for learners as follows:   300 000 000      108   * Also show that 456 000 000 000 can be written as 109 as illustrated below.     also    Thus,  in the scientific notation   * Explain why the number 24 × 103 is not in scientific notation   [**Hint:** A number in the scientific notation is a product of a power of 10 and a decimal number greater than or equal to 1,but less than 10.]   * Lead learners to compute without use of calculators             **Note**: is not scientific notation since 30 is greater than 10. | **Learning activities**  **Activity 1**   * 1. Simplify the following without using a   calculator   * 1. Replace \* by a number to make each statement true  1. 700 000 000 2. 59 000 000   **Activity 2**  Complete the table below without use of a calculator   |  |  |  | | --- | --- | --- | | Item | Number value | Scientific Notation | | Number of seconds in 2 years | 64 000 000 |  | | World population (2015) | 7 300 000 000 |  | | Approximate distance between earth and the sun | 150 000 000km |  |   **Activity 3**  Use >, < or = to compare the numbers below  **Activity 4**  Multiply and give answer in scientific notation   1. 120 000 × 120 000 000 2. 2,5 × 40 000 000 |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| 1. Simplify 2. 8, 3. 5,8384567 × 4. Write in scientific notation 5. 9207,45 6. 5670432,845 7. Simplify and represent in scientific notation without using a calculator 8. Replace the asterisk by using > or < to compare the following numbers |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that:**  * Scientific notation is used for big numbers * In scientific notation, a number is expressed in two parts: a number between 1 and 10 multiplied by a power of 10. The exponent must always be an integer. * Because it is easier to multiply powers of ten without a calculator, scientific notation makes it possible to do calculations mentally.  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:**   * Sasol-Inzalo Book 1: Pages 74 – 75, No 1- 8 * DBE Workbook 1: Pages 40 – 41, No. 1 - 4 |