**MATHEMATICS LESSON PLAN**

**GRADE 8**

**TERM 1: January – March**

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

|  |
| --- |
| 1. **TOPIC: EXPONENTS:** Calculations using numbers in exponential form **(Lesson 9)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** solve problems in context involving numbers in exponential form |

|  |  |
| --- | --- |
| 1. **RESOURCES:** | Textbooks |
| 1. **PRIOR KNOWLEDGE** | * scientific notation * exponential laws |
| 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:   * expressing big and small numbers in scientific notation * application of exponential laws   **Activity 1**   * 1. Express the numbers below in scientific notation  1. 15 000 000 000 km 2. 0,000 000 048 micron    1. Express numbers in exponential form, simplify and leave your answers in exponential form | |

|  |  |
| --- | --- |
| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaqching Activities** | **Learning Activities**  **Learners are expected to:** |
| * Present the problems to learners one at a time. * Allow them time to read and discuss each problem * Facilitate solving the problem through asking questions. Some suggested questions are given in the textbox with probable responses given in parenthesis.   **Problem 1**  Find the perimeter of a square if the area of a square is  **Suggested questions:**   * What is perimeter?   [Total distance along edges of a 2D shape]   * What is a square?   [a 4-sided shape with equal sides and angles]   * How do we calculate perimeter of a square?   [Perimeter ]   * What information in the formula is given?   [Area of the square]   * How is area of a square calculated?   [By squaring the length of a side. That is area ]  **Probable solution:**  Area  Thus,  So,  (Use any method you find appropriate to calculate the square root)  But perimeter  Perimeter  **Problem 2**  The weight of a newborn baby chicken weighs  kilograms. If an adult chicken can weigh up to 34 times more than a newborn chicken, how much does an adult chicken weigh?  **NB:** The solution is the application of the product- lead the discusiion with learners on what x times more means.  **Solution:** Adult chicken weighs: | * read and analyse problems * respond to questions posed by the teacher * suggest appropriate processes for solving the problem * solve problems individually and as a group |

|  |
| --- |
| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| Solve the problems that follow. You may leave your answer in the exponential form   1. Calculate the side length of a cube with a volume of 0,064   (**Hint for the teacher:** Calculate the cube root of the given volume to get the side length)   1. A student spends R10-1 every day. How much will he spend in https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105553/21.png days?   (**Hint for the teacher:** Multiplication of powers)   1. There are https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/13.png blades of grass in each acre of land, and a section of land has https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/14.png acres of land. How many blades of grass does the land have?   (**Hint for the teacher:** Multiplication of powers)   1. The population of the Vatican is https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105553/15.png million, and the population of India is https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105553/16.png million. How many times more is the population of India than the Vatican?   (**Hint for the teacher:** Division of powers)   1. In a storage warehouse, each container weights https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/16.png pounds. If there are https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/17.png containers, how much do the crates weigh in total?   (**Hint for the teacher:** multiplication of powers)  **NB:** Let learners work out solutions first before converting powers to numbers. |

|  |
| --- |
| 1. **CONSOLIDATION/CONCLUSION &HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise:**   The significance of analysing the problem. That is, identifying what information is given. What is it that one should calculate? How could the given information be used to arrive at a solution?   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 workbooks, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Homework**  Solve the problems that follow. You may leave your answer in the exponential form   1. Mavis wants to tile her kitchen. The length of each side is 4m. 2. Calculate the area of the floor of the kitchen 3. If each tile is R90 per square meter, calculate the total cost of the tiles 4. Jim writes https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/19.png words every day, how many words does he write in https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/20.png days? 5. There are https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/7.png pieces of  leaves on a tree, and there are https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/8.png trees in a forest. How many pieces of leaves are there in the forest? 6. A car travels at a speed https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/22.png miles per hour, how long will the car travel in https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/23.png days? 7. There are https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/4.pnggrains of salt in a container of salt. If a large store has https://s3.amazonaws.com/ck12bg.ck12.org/curriculum/105544/5.png containers of salt, how many grains of salt do they have? |