**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: WHOLE NUMBERS: Solving problems (Lesson 4)** | | |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **Learners should know and be able to:-**  Solve problems in contexts involving   * Ratio and rate * Direct and indirect proportion | | |
| 1. **RESOURCES:** | | Textbooks, DBE Workbook and Sasol-Inzalo Books, calculators. | | |
| 1. **PRIOR KNOWLEDGE:** | | * The concept of ratio and rate done in grade 8 * Skill of addition, multiplication and division of whole numbers * Conversion between units | | |
| 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.  **6. INTRODUCTION** (Suggested time: 10 Minutes  **Baseline assessment**: Revise the concept of ratio and rate by checking whether learners are able  to differentiate between ratio and rate. Workout questions on ratio and rate.    Ratio: A comparison of two or more quantities of the same type.  Rate: A comparison of two different types of measurement. | | | | |
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| **7. LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | | | |
| **Teaching activities** | | | **Learning activities**  (Learners are expected to :) | |
| The following examples would be discussed with learners:   1. **RATIO**   **Example 1**:    There are 4 green, 10 blue and 8 red balloons in a packet. Express  this as a ratio in its simplest form.    **Solution:**  The ratio of green balloons to blue balloons to red balloons is 4:10:8. To find the simplest form**, divide all the three quantities by their HCF** which is 2. In its simplest form, the ratio of green balloons to blue balloons to red balloons is 2:5:4.  **Example 2**: Divide 240g in the ratio 5:3:4  **Example 3**: The ratio of Boys to Girls at a certain school is 4:5.  Calculate the number of boys if there are 1080 learners in the school.  **Example 4**: Increase 50 in the ratio of 3:5  **Example 5:** Decrease 28g in the ratio of 4:3 | | | Participate by responding to the diagnostic questions that are asked during the lesson presentation. | |
| 1. **RATE**   **Example 1. Water drips from a tap at a rate of** 15 of water per minute.  How many litres of water drips from the tap in a day?  **Solution**: 60 minutes in 1 hour 24 hours in a day= 1 440  minutes in a day.  Water wasted in a day = 50 1 440 minutes  = 72 000  Converted to = = 72   1. **SPEED, TIME AND DISTANCE**      |  |  |  | | --- | --- | --- | | **Formulae that we use to calculate distance, speed and time** | | | | **Speed =** | **Distance = speed time** | **Time =** |   **Example 1**. A motorist covers a distance of 360 km in exactly 4  hours. Calculate the average speed of the car.  **Example 2**. A car travelling at a constant speed travels 60 *km* in 18 minutes. How far, travelling at the same speed, will the car travel in1 hour 12 minutes.  **Example 3**. A motorist covers a distance of 360 km in exactly 4  hours. Calculate the average speed of the car. | | | Convert the units.  Convert between units of time, distance and speed. | |
| 1. **DIRECT AND INDIRECT PROPORTION**      * Two quantities (say x and y), are directly proportional if , as the value of x increases the value of y increases in the same proportion, and as the value of x decreases the value of y decreases in the same proportion i.e. x is directly proportional to y if = c   Example :  A 3,5 *m* long stick casts a shadow that measures 5,2 *m*  on the ground. What is the height of the flagpole that casts a  shadow of 29, 2 *m* long?  The direct proportional relationship is represented by a straight line. | | |  | |
| * Two quantities (say x and y), are indirectly proportional if , as the value of x increases the value of y decreases in the same proportion, and as the value of x decreases the value of y increases in the same proportion i.e. x is indirectly or inversely proportional to y if = y * An indirect proportional relationship is represented by a non-linear curve.   **Example:1**  A farmer hires 12 men to construct a building. The job is  completed in 18 days. If he had hired 24 men the job would have  been completed in half of the time. If he had hired 6 men the job  would have taken twice as long to complete.   1. Match each table with the correct graphs and state whether   it is direct or inverse proportion.   * 1. Table 1  |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | 0 | 1 | 2 | 3 | |  | 0 | 50 | 100 | 150 |      * 1. Table 2  |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | 12 | 6 | 4 | 3 | |  | 1 | 2 | 3 | 4 |   Graph A Graph B      **Solution:**  Table 1 match with graph B …direct proportion  Table 2 match with graph A … indirect proportion | | | Complete the activity. | |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| **ANA 2014 EXEMPLAR: QUESTION 2.3, 2.7, 2.8 and 2.12**  You may also carefully choose the exercises which show different cognitive levels from any textbook used in your school. |
| 1. **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 workbooks, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels. * Make sure learners recognize and are able to convert correctly between units for time and distance. * Speed is usually given as constant speed or average speed.   **Recommended Homework**  **SASOL INZALO BOOK 1 page 18 and 19 number 3 and 7** |