**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: FUNCTIONS & RELATIONSHIPS:** Input and output values (Lesson 1) |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson ,learners should know and be able to** determine input values, output values or rules for patterns and relationships using:   * flow diagrams * tables |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook, Sasol-Inzalo book, | |
| 1. **PRIOR KNOWLEDGE:** | * number patterns * operations with:   -integers  -natural numbers  -rational numbers   * substitution | |
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| 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) 2. Complete the flow diagram below.     \_\_\_\_\_\_  \_\_\_\_\_\_ 5  \_\_\_\_\_\_   1. Complete the table for the function described by and show only two calculations.  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | | |
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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | | |
| **Teaching activities** | | **Learning activities ( Learners are expected to:)** |
| Group learners into small groups.  **Activity 1**  Use and to determine the corresponding output values (y-values). Represent the input and output values in:  (a) a flow diagram  (b) a table. | | * engage in group discussions to determine the output values represented in a flow diagram and table. |
| **Activity 2**  In a flow diagram below, the rule describes the relationship between the input and output values. Complete the flow diagram by calculating the y- values.    \_\_\_\_  \_\_\_\_    \_\_\_\_\_  1 \_\_\_\_\_    2 \_\_\_\_    **Activity 3**  In each of these cases calculate the missing output values.  a)     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | 0 | 1 | 2 | 3 | 4 | |  |  |  |  |  |  |   b)   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  |   **Activity 4**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  | 0 | 1 | 2 | |  |  |  | 1 | 3 | 5 |   Determine the rule to describe the relationship between the input ( and output ( values of the table above. | | * complete the flow diagram * calculate the output values * determine the rule |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| **Activity 1**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Input | 1 | 2 | 3 | 4 | 5 | 6 | | Output ( | 4 | 7 | 10 |  |  |  |      * 1. Copy and complete the table above.   2. Determine the rule for the relationship between the inputs and output values of the table.   3. Draw the flow diagram. |
| **Activity 2**  Study the table below and answer the questions that follow:   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Input | 1 | 2 | 3 | 4 | 5 | 6 | | Output ( | 5 | 2 |  | **p** | **q** | **r** |   2.1. Write down the values of p, q and r.  2.2. Write down the rule to describe the relationship between the input and output values.  2.3. Draw an input-output flow diagram to illustrate the rule. |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that:**  * input values , output values or rules can be determine using flow diagrams and tables.  1. **Homework**   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, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels. |