**MATHEMATICS LESSON PLAN**

**GRADE 7**

**TERM 4: October – December**

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

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| 1. **TOPIC: NUMERIC AND GEOMETRIC PATTERNS**: Numeric patterns**(Lesson 3)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should know and be able to :**   * Investigate and extend numeric patterns looking for relationships between numbers, including patterns: * Not limited to sequences involving a **constant difference** with integers. * of learners’ own creation * represented in tables |

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| 1. **RESOURCES:** | DBE workbook 2, Sasol-Inzalo book 2, Textbooks |
| 1. **PRIOR KNOWLEDGE:** | * Functions and relationships * Numeric patterns with whole numbers * Algebraic language * Integers * Finding the value of an expression by substitution |
| 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. | |

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| **INTRODUCTION**(Suggested time: 15 Minutes)  Ask learners to complete the activity below:  **Revision activity**   1. Extend the patterns below by writing down the next three terms. 2. 1; 4; 9;16; \_\_\_; \_\_\_\_; \_\_\_\_ 3. 2; 8; 18; 32; \_\_\_; \_\_\_\_; \_\_\_\_ 4. 3; 12; 27;48; \_\_\_; \_\_\_\_; \_\_\_\_ 5. Write the general rule for the pattern and calculate the10th term in each   **Note:** When learners can describe the general rule for the patterns and to predict any term in the pattern, they are ready to move on to patterns of the same kind with negative integers.  Encourage the learners to use their own words to explain how they got the next term |

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| 1. **LESSON PRESENTATION/DEVELOPMENT**(Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| **Activity**  Divide the learners in groups of 2 to 3.   1. Ask learners to extend the patterns below by writing the next 3 terms   A :3; 5; 9 15; \_\_\_; \_\_\_\_; \_\_\_\_  B:2 ; 5; 10; 17; \_\_\_; \_\_\_\_; \_\_\_\_  C: ; ; ; ; \_\_\_\_; \_\_\_\_; \_\_\_  D:; ; ; ; \_\_\_\_;\_\_\_\_;\_\_\_   1. Write down how you got the next term for each pattern in own words 2. Write down the letters of increasing and decreasing patterns 3. Compare the constant differences of increasing patterns to those of decreasing patterns   NB: Encourage learners to discuss the pattern and to explain in own words what they observe.  NB : Below is an illustration of what will come from the responses  **Pattern A ( decreasing pattern)** | * Complete the work as groups and share ideas and present their findings to the whole class. |
| **Pattern C ( increasing pattern)**  Encourage learners to explain their observations in own words  Learners will discover that   * the first level difference is a pattern of consecutive negative/ positive integers and the second level difference is constant. * a pattern is said to be   **- increasing ,** if the **constant difference** is **positive**  **- decreasing,** if the **constant difference** is **negative**  **Activity 2**  Make patterns up to the 6th term from the rules below and indicate whether they are increasing or decreasing   1. Add 3 and thereafter consecutive negative odd integers , starting at 3 2. Add 3 and thereafter consecutive positive odd integers , starting at 4 3. The first term of a sequence is 14, the first term of the first level difference is 5 and the constant difference is 5, write down the next 6 terms. 4. Choose any negative integer to be your first term and thereafter create your own increasing and decreasing patterns where the constant difference will be found at level 2   **Activity 3**  In this activity, learners will learn how to make a pattern or sequence when the expression is given  **Complete each of the table below using the given expressions and answer questions that follow**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  |   NB: Learners should understand that adding a negative integer is the same as subtracting its additive inverse. |  |
| 1. **CLASSWORK**(Suggested time: 10 minutes) | |
| **Note:** Give the learners different number patterns to extend.  Activity   1. Extend the pattern below by writing down the next three terms.   0 ; 3; 8; 15;\_\_\_; \_\_\_\_; \_\_\_\_   1. Write down how you got the next terms in the above pattern, in own words 2. The first term of a sequence is 12, the first term of the first level difference is 5 and the constant difference is 6, write down the next 6 terms. | |
| 1. **ONSOLIDATION/CONCLUSION& HOMEWORK (Suggested time: 5 minutes)** | |
| Emphasise that   * a pattern is said to be * **increasing ,** if the **constant difference** is **positive** * **decreasing,** if the **constant difference** is **negative**   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.  **Recommended Homework**:  Activity   1. Extend the pattern below by writing down the next three terms.   19 ; ; ; 5; \_\_\_; \_\_\_\_; \_\_\_\_   1. Write down how you got the next terms in the above pattern, in own words 2. What is the constant difference of the above pattern? 3. Is the pattern above increasing or decreasing? 4. The first term of a sequence is, the first level difference form a pattern of multiples of 5, starting at 5.Write down the next 6 terms of the pattern and its constant difference. | |
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