**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 2)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should 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 * describe and justify the general rules for observed relationships between numbers in own words |

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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 |
| 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: 15 Minutes)   Ask learners to complete the activity below:  **Revision activity**   1. Extend the patterns below by writing down the next three terms. 2. 5; 3; 1;\_\_\_; \_\_\_\_; \_\_\_\_ 3. 5; 7;9; \_\_\_; \_\_\_\_; \_\_\_\_ 4. 5; 3; 1; \_\_\_; \_\_\_\_; \_\_\_\_ 5. Write down how you got the next term in own words   **Note:** When learners can extend patterns with integers, they are ready to move on to describing the general rule for the patterns with integers and to predict any term in the pattern**.**  **Note:** 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 1   1. Extend the patterns below by writing down the next three terms. 2. 5; 3; 1; \_\_\_; \_\_\_\_; \_\_\_\_ 3. 5; 7; 9;\_\_\_; \_\_\_\_; \_\_\_\_ 4. 5; 3; 3;\_\_\_; \_\_\_\_; \_\_\_\_ 5. Write down how you got the next term in own words 6. Illustrate the patterns above using a table   **Note:** After learners have completed the activity above, they will be able to   * decide on the exponent of the variable * Write down the coefficient of the variable * write the number sentence and thereafter algebraic representation * describe the general rule in own words   **Note:**Explain to the learners that if patterns are not represented in tables, the term which appears **first** in the pattern is the **first term,** unless stated otherwise.   1. Write the rule that describes each pattern above in a form of a number sentence and thereafter using algebraic language.   Note: After learners have completed the activity (d) above,   * remind them that adding a negative integer is the same as subtracting its additive inverse and vice versa * when two negative integers are added their sum is a negative integer * when a negative and positive integers are added the sum is either a positive or a negative integer * encourage them to use repeated addition to multiply the negative and positive integers as multiplication of integers is done from grade 8 in order to understand that adding an integer an number of times will always give a sum which is a negative integer.   **Example**  5; 7; 9; \_\_\_\_; \_\_\_\_; \_\_\_\_   |  |  |  | | --- | --- | --- | |  | is the same as |  | |  | is the same as |  | |  | is the same as |  | | , is or added to nothing which is  , is , or added twice which is  , is , or added thrice which is | | |   **or ,** where is a natural number indicating the position of the term   1. Describe the rule for each pattern in own words 2. What is the 50th term in each pattern? 3. What is the position of the term whose value is 203 in B?   Note that finding the position of the term in a pattern whose constant difference is an integer is the same as solving linear equations by inspection as they cannot use additive and multiplicative inverse when solving problems.  Example : B  where and  **Note:** This can be solved by inspection since division of integers is only introduced in Grade 8   1. The first term of a sequence is 17 and the constant difference is 5. Write down the next 6 terms, hence the general rule   .   1. Choose any number to be your first term and another one to be your constant difference, and thereafter create your decreasing pattern and thereafter describe its general rule | * Complete the work, as individuals |

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| 1. **CLASSWORK**(Suggested time: 10 minutes) |
| **Note:** Give the learners different numberpatterns to extend.  **Activity**   1. Extend the pattern below by writing down the next three terms.   ;; 3; \_\_\_; \_\_\_\_; \_\_\_\_   1. Describe the general rule for the pattern in own words 2. What is the 50th term of the pattern? 3. What is the position of the term whose value is? |

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| 1. **CONSOLIDATION/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** * repeated addition is used to multiply the negative and positive integers * when two negative integers are added their sum is a negative integer * when a negative and positive integers are added the sum is either a positive or a negative integer   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.   15;9;3; \_\_\_; \_\_\_\_; \_\_\_\_   1. Describe the general rule for the pattern in own words 2. What is the 15th term of the pattern? 3. What is the position of the term whose value is? |