**MATHEMATICS LESSON PLAN**

**GRADE 7**

**TERM 3: July – September**

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

1. **TOPIC: NUMERIC AND GEOMETRIC PATTERNS**: Geometric patterns**(Lesson 4)**

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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 geometric patterns looking for relationships between numbers, including patterns: * limited to sequences involving a constant ratio. * of learners’ own creation * represented in tables * describe and justify the general rules for observed relationships in own words |

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| 1. **RESOURCES:** | Matchsticks, DBE workbook 2, Sasol-Inzalo book 2, Textbooks |
| 1. **PRIOR KNOWLEDGE:** | * Number sentence * Algebraic language |
| 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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| 1. **INTRODUCTION** (Suggested time: 10 Minutes)   Introduce the lesson by asking learners in their pairs to respond to the following questions  Stage 1  Stage 2  Stage 3   1. Extend the pattern above by drawing the fourth stage 2. Describe the pattern inown words   **Note:**Learners should be able to recognise that 2 matchsticks are added each time in order for the pattern to grow. Their verbal descriptions may include “adding 2 matchsticks to get the number of match sticks for the next stage”.  Explain to learners that what they have just seen is known as a **geometric pattern**.  Geometric patterns are patterns represented in diagram form. |

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| 1. **LESSON PRESENTATION/ DEVELOPMENT**(Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| NB : Provide each pair of learners with the actual box of matchsticks so that they can physically manipulate the situation.  Stage 1  Stage 2  Stage 3  NB: The rule for the geometric patterns such as the one above is contained in the structure.  The “structure in this case refers to the physical arrangement of geometric shapes at every stage of the pattern.  Moving from learners verbal descriptions :  Verbal description : multiply the stage number by 2 and add 1  In flow diagram :  As an algebraic rule :  For instance learners modelling with the actual matchsticks should reveal the following picture in a physical situation  **Stage 1**  **Stage 2**  **Stage 3** | Work in small groups of 2 to 3 members to investigate the geometric pattern.  Model the physical situations |
| NB: Investigating the physical structure as demonstrated by learners become very useful in this regard to help them “see” the general rule for the pattern of matchsticks even before they draw the table  Stage 10 will therefore be **,** this is what the functional relationship implies,where is a natural number  Representation in tables  **A completed table may look like this**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Pattern number |  |  |  |  |  |  | | Number of matchsticks |  |  |  |  |  |  | | Repeated addition |  |  |  |  |  |  | | The rule |  |  |  |  |  |  |   NB: The last row on the table shows the equivalent representation of the relationship between the stage number and the number of match sticks.  Equivalent descriptions are useful in illustrating different representations of a pattern.  **Activity 2**  Create your own geometric pattern. You may use matchsticks or toothpicks to physically manipulate the situations. Draw your pattern in the book and use it to answer the following questions.   1. Describe the pattern in words 2. Use a table to represent the pattern 3. Write down a number sentence to describe the rule 4. Write the general rule in algebraic language | Use a table to record the number of matches used to increase triangles and write down the general rule. |

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| 1. C**LASSWORK**(Suggested time: 15 minutes)   Study the pattern below and answer questions that follow    Stage 1  Stage 2  Stage 3  Stage 4   1. Explain the pattern in your own words 2. Draw the fifth stage 3. Write down a number sentence to describe the rule 4. Write down the general rule in algebraic form 5. Use the general rule to find the number of matchstick you will use to build a pattern with 50 squares? |

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| 1. **CONSOLIDATION / CONCLUSION& HOMEWORK (Suggested time: 5 minutes)** |
| 1. Emphasise that:  * it is useful to observe the structure (construction) of the successive geometric shapes * the rule for the pattern is contained in the structure i.e. the physical arrangement of the pattern.  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 books, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Recommended Homework**:  Thabelo is building a house from match sticks. If he uses 400 matches in the first section, 550 in the second and 700 in the third section, how many matches will he need to complete the fourth section, if the pattern continues? |