**MATHEMATICS LESSON PLAN**

**GRADE 7**

**TERM 3: July – September**

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

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| 1. **TOPIC: GEOMETRY OF 3D OBJECTS**: Classifying 3D Objects **(Lesson 3)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson, learners should be able to :**   * Describe, sort, and compare polyhedra in terms of   + shape and number of faces   + number of vertices   + number of edges |

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| 1. **RESOURCES:** | DBE workbook 2, Sasol-Inzalo book 2, Textbooks |
| 1. **PRIOR KNOWLEDGE:** | * Face * Vertex * Edge |
| 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)   Learners will work in groups and complete the activity below.   1. Study the two geometric solids below. Identify the faces; vertices; edges and apex.  |  |  | | --- | --- | |  | Image result for octagonal pyramid |  1. Define each of the following terms.   Face: ……………………………………………………………………………………………….  Vertex: ……………………………………………………………………………………………...  Edge: ……………………………………………………………………………………………….  Apex: ………………………………………………………………………………………………. | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| Do the activity below with learners.  **Activity 1**  Complete the table below by comparing the sum of the number of faces with the number of vertices and the number of edges. Do you notice any rule? Write it down.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Solid | Name | No sides  (base) | No of Vertices | No of Edges | No of Faces | | Image result for triangular prism | Triangular prism | 3 | 6 | 9 | 5 | | Image result for cube |  | 4 | 8 | 12 | 6 | | Image result for pentagonal prism |  |  |  |  |  | | Image result for hexagonal prism |  |  |  |  |  | | Image result for triangular pyramid |  | 3 | 4 | 6 | 4 | | Image result for square based pyramid |  | 4 | 5 | 8 | 5 | | Image result for pentagonal pyramid |  |  |  |  |  | | Image result for octagonal pyramid |  |  |  |  |  | | Image result for octagonal pyramid |  |  |  |  | 11 | | Do the activity in pairs |
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| The teacher must explain the observed relationship.  In **any prism**, one can use the number of sides of the base of a prism to calculate the number of faces, vertices and edges.  The number of **vertices** = no of sides of the base 2  The number of **edges** = no of sides of the base 3  The number of **faces** = no of sides of the base 1  In **any pyramid**, one can use the number of sides of the base of a prism to calculate the number of faces, vertices and edges.  The number of **vertices** = no of sides of the base 1  The number of **edges** = no of sides of the base 2  The number of **faces** = no of sides of the base 1 |  |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| **Activity 2**   1. Does the same rule apply for vertices of prisms and pyramids? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. Can a prism have an odd number of vertices? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Give an example. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. Can a pyramid have an odd number of vertices? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Give an example.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. How many more faces does an octagonal pyramid have than a heptagonal pyramid? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK (Suggested time: 5 minutes)** |
| 1. Emphasis that:   The relationship between faces, vertices and edges can be represented by the Euler’s Formula as   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**:  Write down whether the following statements are true or false.   1. A cube has 6 faces. Every face has four edges. The cube therefore has 24 edges. 2. A cube has 6 faces. Every face has four angles. The cube therefore has 24 vertices. 3. A pyramid with 6 vertices has 10 edges. 4. A pyramid with 18 edges has 8 faces. |