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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| 1. **TOPIC: GEOMETRY OF STRAIGHT LINES:** Angle relationships **(Lesson 1)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** recognise and describe pairs of angles formed by perpendicular lines and intersecting lines. |

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| 1. **RESOURCES:** | Textbooks |
| 1. **PRIOR KNOWLEDGE:** | * Angles (Acute, right and obtuse angles) |
| 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) | |
| * Allow learners to do the following activities in small groups. * Facilitate discussion of answers.   **Activity 1**  Classify the following angles  1.1   |  |  |  |  | | --- | --- | --- | --- | | 1. 115o | 1. 220o | 1. 180o | 1. 83o |   1.2   |  |  | | --- | --- | | A  D  T | K  F  C | | O  L  C | A  T  T | | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| **Activity**   * Show learners flashcards with the following figures. They must copy the figures into their exercise books.   K    N  V  M  L  P  Q  S  R    A  O  B  D  C  P    L  H  G  F  Let learners   1. Describe: 2. perpendicular lines 3. adjacent angles 4. supplementary angles 5. complementary angles 6. vertically opposite angles 7. write down which    * 1. angles are adjacent?      2. line segments are perpendicular?      3. angles that are complementary?      4. angles are supplementary?      5. angles are vertically opposite? | * copy the diagrams * identify pairs of angles * identify perpendicular lines |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| In each of the diagrams below, identify with reasons:   1. perpendicular lines 2. adjacent angles 3. complementary angles 4. supplementary angles 5. vertically opposite angles |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that**:  * **Adjacent angles** are angles that share a vertex and a common side. * **Complementary angles** are two angles whose sizes add up to 90°. * **Supplementary** angles are two angles whose sizes add up to 180°. * **Perpendicular** **lines** are lines that intersect at right angle * **Vertically opposite angles** are non-adjacent angles formed if two lines intersect  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.  **Homework:**  Carefully study the figure below.  H  M  L  N  K  R  Q   1. Write down at least 3 sets of adjacent angles 2. State which line segments are perpendicular 3. Identify at least 3 sets of supplementary angles 4. Which angles are complementary? 5. Identify at least 3 sets of vertically opposite angles 6. Name all right angles. |

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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| **1. TOPIC: GEOMETRY OF STRAIGHT LINES:** Solving problems **(Lesson 2)** |
| * 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** solve geometric problems using the relationships between pairs of angles formed by perpendicular lines and intersecting lines. |

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| **3.RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1 |
| 1. **PRIOR KNOWLEDGE:** | * Angle * equations |
| 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) | |
| * Recap on the work done in the previous lesson.   **Activity 1**  Use the diagram to answer the questions below  H  M  L  N  K  R  Q   1. Which pairs of angles are complementary? Justify your response. 2. Which pairs are vertically opposite? 3. What is true about vertically opposite angles? 4. Which angles are adjacent angles on a straight line? 5. What is true about adjacent angles on a straight line? | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to☺** |
| **This is an opportunity for learners to practice finding unknown angles on straight lines and also practising solving algebraic equations.**   * Give learners the following problems. Let them work in pairs so that they may discuss and assist each other. Each one should work out the solutions in her/his own exercise book:   1. In the diagram below line segment AB intersects line segment DC and  EC at C. Calculate the size of:        **Solutions**:   1. The sum of adjacent angles on a straight line is     Add like terms  Divide by 6 both sides | * work in pairs to calculate the unknown angles. |
| 1. Given   Substitute       * Give them an opportunity to report back to the whole class. Let them talk about how they calculated the sizes of angles. Emphasize that they should always provide reasons for the statements they make. * Address any misconceptions on the spot. | * report to the whole class how they did their calculations. |
| 2. Calculate the size of:       Solutions:   1. Angles on a straight line are   Supplementary.  Add like terms           1. Given   Substitute       * Let learners present and discuss about how they calculated the sizes of the angles. * Address any misconceptions on the spot. | * work in pairs to calculate the unknown angles. * report to the whole class how they did their calculations. |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) | | |
| Carefully choose the exercises which show different cognitive levels from Sasol-Inzalo workbooks, DBE workbooks, ANA question papers and any textbook used in your school. The following are some of the questions that can enhance the understanding of angle relationships in Geometry of straight lines. | | |
| 1. Calculate the values of and in the following diagrams, drawn not to scale. Give reasons for all your answers    1.2    2. Calculate the sizes of and . State reasons in each case. | | |
| Sasol-Inzalo Workbook 1 | DBE Workbook | Textbook |
| Page 215 to 216. No. 3 - 5 |  |  |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that**:  * Learners must always give reasons for the statements they make.  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 workbooks, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Homework:** Select from the textbook |

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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| 1. **TOPIC: GEOMETRY OF STRAIGHT LINES:**  * Angle relationships * Solving problems **(Lesson 3)** |
| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to:**   * recognise and describe pairs of angles formed by parallel lines cut by intersecting lines * solve geometric problems using the relationships between pairs of angles described above |

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| 1. **RESOURCES:** | Textbooks, DBE Workbook 1, Sasol-Inzalo Book 1, protractors. |
| 1. **PRIOR KNOWLEDGE:** | * Angles * algebraic equations. |
| 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) | |
| * Ask learners the questions that follow:  1. Which pair of lines segments drawn below are intersecting lines  |  |  | | --- | --- | | Pair 1 | Pair 3 | | Pair 2 | Pair 4 |  1. What are intersecting lines?   **NB:** Ensure that learners understand that intersection is not restricted to crossing of lines. As long as lines share a common point (generally called a vertex), they are intersecting lines. | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to:)** |
| Allowlearners to do the following activities as individuals, one activity at a time.Once an activity is finished, facilitate its discussion  **Activity 1**   1. Draw two intersecting lines 2. Count and write down the number of angles formed 3. Measure and record the sizes of each of the angles formed 4. How many angles are equal? 5. Which angles are equal?   **NB:** Explain that the pairs of angles formed on opposite sides of a common vertex, when two lines intersect, are called **vertically opposite angles.** These are the angles that are not adjacent to each other.  If two lines intersect, the vertically opposite angles are equal in size.  Let learners do the next activity in pairs so that they may discuss and assist each other. Each one should work out the solutions in her/his own exercise book:  **Activity 2**   1. The diagram below shows two intersecting lines. Calculate the sizes of angles and . Give reasons in each case.      1. Calculate the value of *m*.      1. Calculate the sizes of and : | * work in pairs, to count the angles formed when two lines intersect. * individually measure the sizes of the angles using protractors. * compare their results and discover that in each case they will get two pairs of angles of the same size unless they have right angles which are all the same size. * calculate the sizes of angles and support their statements with reasons. * share with each other how they did their calculations. |
| **Solutions**:   1. If two lines intersect thenvertically opposite angles   are equal  Adjacent *a*ngles on a straight line are  supplementary     1. If two lines intersect thenvertically opposite   Angles are equal     1. If two lines intersect thenvertically opposite angles   are equal  If two lines intersect thenvertically opposite angles  are equal  The sum of angles in a straight line is    **Note:**   * Encourage learners to use both vertically opposite angles and angles on a straight line. * Learners should be given the opportunity to express what they are doing verbally. This will enable the teacher to understand their thinking and be able to assist them * Encourage learners to find more than one way of approaching the questions. |  |
| 1. **CLASSWORK** (Suggested time: 15 minutes) | |
| In all the diagrams assume that the lines are straight lines.   1. Calculate the values of *p*, *q* and *r* in the following diagrams. Give reasons for all your answers      1. Calculate the value of . | |
| 3. Calculate the value of | |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) | |
| 1. **Emphasise that**:  * Vertically opposite angles (vert. opp. ∠s) are the angles opposite each other when two lines intersect. They are the non-adjacent angles formed when two lines intersect such that they cross each other. * Vertically opposite angles are always equal.  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.  **Homework:**  Sasol-Inzalo book 1: Page 217 to 219. | |

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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| * 1. **TOPIC: GEOMETRY OF 2D SHAPES:** Classifying 2d shapes **(Lesson 1)** |
| * 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**     **By the end of the lesson learners should know and be able to** identify and write clear  definitions of triangles in terms of their sides and angles, distinguishing between:   * equilateral triangles * isosceles triangles * right-angled triangles |

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| * 1. **RESOURCES:** | DBE workbook, Sasol-Inzalo Book 1, textbook, ruler, protractor |
| 1. **PRIOR KNOWLEDGE:** | * types of angles * properties of the following triangles: |
| 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) | |
| **Activity 1**  Ask learners to:   * identify different triangular objects in class. * list types of angles and triangles done in Grade 7 * list properties of triangles * study the figures and name the types of angles      1. ………………………….. (b) ………………………….. (c) ……………………………….. | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to:)** |
| **Activity 1**  Ask learners to:  .   1. label the triangles 2. measure the sides and angles of triangles in the table. 3. record their findings.      |  |  |  | | --- | --- | --- | | T**riangles** | **Sides** | **Angles** | | Equilateral |  |  | | Isosceles |  |  | | Right angled triangle |  |  |   **NB**: Facilitate the discussion on the findings with the whole class.  **Activity 2**  Use your findings in Activity 1 to answer the following questions:   1. Which triangle has only two sides that are equal? 2. What is this type of a triangle called? 3. Which triangle has all three sides that are equal? 4. What is this type of a triangle called? 5. Which triangle has an angle equal to ? 6. What is this type of a triangle called? | * use a ruler and protractor to * measure the sides and   angles of the given  triangles     * record the findings * discuss their findings * answer the questions |
| **Activity 3**  Name the following triangle according to their angles  P  N  O  M  F  E  B  A  C         1. ∆ABC is ………………… triangle, because …………………….. 2. ∆FEM is ………………… triangle, because……………………... 3. ∆PNO is ………………… triangle, because………………………   **NB.** Explain to learners that the arcs show which angles are equal | * name the triangles * answer the questions. |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| Sasol- Inzalo Book1, page 193 number 1 and 2 |
| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise the importance of:**  * naming triangles * the use of proper signs or notations to indicate equal angles and equal sides * the properties of sides and angles of each of the three types of triangles  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, DBE workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.  **Homework**  Sasol- Inzalo Book1, page 194-195 No. 1 and 2 |

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**MATHAMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| * 1. **TOPIC: GEOMETRY OF 2D SHAPES:** Classifying 2d shapes solving problems **(Lesson 2)** |
| * 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** solve geometric problems involving unknown sides and angles in triangles, using known properties and definitions |

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| * 1. **RESOURCES:** | DBE workbook, Sasol Inzalo workbook, textbook |
| * 1. **PRIOR KNOWLEDGE:** | * properties of triangles: |
| * 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) | |
| **Activity**  Ask learners to name the following triangles:     1. ……………………………. (b) ………………………............     **2.** Which angles are equal, give reasons:  **Solution**   |  |  |  | | --- | --- | --- | | Triangle | Angles | Reason | | ∆ABC | = = | Equilateral triangle | | ∆EFM | = | Isosceles triangle |   **NB:** The lesson focuses only on the following triangles: equilateral, isosceles and right-angled | |

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| * 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to:)** |
| Present the following activities to learners:  **Activity 1**  Given ∆KLM below with KL = 50 *mm* = 38º. Use the triangle to answer the questions that follow and justify your statements       1. What type of triangle is ∆KLM? (e.g. equilateral triangle) 2. What is the length of KM? Use the table below to answer the question.      |  |  | | --- | --- | | Statement | Reason | |  |  |  1. What is the value of ?   **Solutions**   |  |  | | --- | --- | | Statement | Reason | | = = 38º | [Isosceles ∆] | | + + = 180º | [sum of interior angles of a ∆] | | + 38º + 38º = 180º |  | | = 180º - 38º + 38º |  | | = 104º |  | | * solve the problems * interpret the instruction * identify the triangle * answer questions * use properties of triangles to justify their statements * solve the problem * answer questions * justify their statements |
| **Activity 2**  In ∆DEF, EF = 8 *cm* and = 60º. Use the triangle to answer the questions that follow:    E  D  F  60  8 *cm*     1. What is the length of DE? Justify  |  |  | | --- | --- | | Statement | Reason | | DE = EF = 8 *cm* | [sides of an equilateral ∆] |  1. What is the size of ? Provide a reason  |  |  | | --- | --- | | Statement | Reason | | = = 60º | [angles of an equilateral ∆] | |
| **Activity 3**  In ∆RST, = 32º. Use the figure and calculate the size of     |  |  | | --- | --- | | Statement | Reason | | + + = 180º | [Sum of interior angles of a ∆] | |  |  | |  |  | |  |  | |

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| * 1. **CLASSWORK** (Suggested time: 15 minutes) |
| Sasol-Inzalo workbook pages 198 No. 2 - 5 |
| * 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise:**  * the importance of understanding properties of triangles * that a right angled- triangle can be an isosceles triangle * the importance of justifying statements when solving geometry problems      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, DBE workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.   **Homework:**  Sasol-Inzalo workbook pages 199 N0. 7-9 |

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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| **1.TOPIC: GEOMETRY OF 2D SHAPES:** Classifying 2D shapes **(Lesson 3)**   1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** identify and describe  the properties of congruent shape. |

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| 1. **RESOURCES:** | DBE Workbook, Sasol-Inzalo Book, Textbook, protractor, ruler and a pencil |
| 1. **PRIOR KNOWLEDGE:** | * congruent figures. * properties of 2Dshapes done in Grade 7. |
| 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 be asked to:   * list properties of a square and a rectangle respectively. * explain what are congruent shapes   Note: Shapes that are equal in all respect (corresponding sides and angles are equal) are said to be **congruent** to each other. | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to:** |
| Divide learners into small groups and provide them with the activities below  .  **ÁCTIVITY 1**   1. Use a pencil, ruler and a protractor to draw a square with each side equal to 5 cm 2. Draw a diagonal. 3. Cut the square through the diagonal into two triangles. 4. Put one triangle on top of the other in such a way that it fits exactly on the other one. 5. What kind of a relationship exists between the two triangles? 6. Which symbol is used to represent the relationship? | Learners work on the activities and share their findings |
| **ACTIVITY:2**  Use the information given on these diagrams to answer the questions that follows.  Q  R  S         1. Identify triangles that are congruent and not. 2. Study SQR and KLM: Name and write all the equal angles and sides. Calculate the third angle in each figure with reasons.       **NB:** Conditions are not yet introduced at this level. | Learners study the given information and write the answer.  Learners work in pairs complete the activity and give their finding |

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| **8.CLASSWORK** (Suggested time: 15 minutes) |
| **Classwork:**  DBE workbook page 127 no. 2 (a)-(d) |
| **9.CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| Emphasise   * two or more shapes are congruent to each other if they are exactly the same size and shape. * congruent figures have equal corresponding sides and equal corresponding angles. * notation of congruent figures   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.  Homework   |  |  |  | | --- | --- | --- | | **SASOL INZALO BOOK** | **DBE WORKBOOK** | **TEXTBOOK** | | Page 205 No. 1 – 3 |  |  |   . |

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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| * 1. **TOPIC: GEOMETRY OF 2D SHAPES:** Classifying 2d shapes **(Lesson 4)** |
| * 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to** identify and describe the properties of similar shapes. |

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| * 1. **RESOURCES:** | DBE workbook, Sasol-Inzalo Book, textbook |
| 1. **PRIOR KNOWLEDGE:** | * ratio * similar 2D shapes done in Grade 7 |
| 1. **REVIEW AND CORRECTION OF HOMEWORK** (suggested time: 10 minutes) | |
| 1. **INTRODUCTION** (Suggested time: 10 Minutes) | |
| **Activity**  Ask the Learners to:   * define the term ratio. * list properties of polygons. * describe similar shapes | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  **(Learners are expected to : )** |
| **Activity 1**  Look at the following figures and answer the question below:   |  |  |  | | --- | --- | --- | | **GROUP A** | **GROUP B** | **GROUP C** | |  |  |  |  1. Which group has a pair of similar 2D shapes? Provide a reason for your answer. | study the figures and  answer the questions |
| **Activity 2**  **NB** Learners will require grid sheets to do this activity   1. Draw ∆DEF with the following measurements: DE = 8 *mm*, EF = 4 *mm* and DF = 10 *mm*  * Multiply each side by 2 and write down the dimensions. * Draw the triangle with the new dimensions and name it WXY.  1. Compare the two triangles. 2. What is your observations?   **NB**: Shapes that have the same form, are said to be similar to each  other. Similar shapes may be different in size, but will always have  the same shape. | Learners draw, enlarge and compare the two triangles. |
| **Activity 3**  **NB:** If two angles of one triangle are equal to the two angles of another  triangle, then the triangles are similar  Find the length of a.  P  Q  R  6  9  U  S  T  2 | compare triangles and answer questions |

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| 1. **CLASSWORK** (Suggested time: 15 minutes) |
| DBE workbook page. 122 - 123 |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that**:   Shapes that have the same form, are said to be similar to each other. Similar shapes may be different in size, but will always have the same shape  If two angles of one ∆ are equal to the two angles of another triangle, then the triangles are  similar   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 workbooks, workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels. |

**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| * 1. **TOPIC: GEOMETRY OF 2D SHAPES:** * Classifying 2D shapes * Solving problems **(Lesson 5)** |
| * 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to**   * identify and write clear definitions of quadrilaterals in terms of their sides and angles distinguishing between: parallelogram, rectangle, rhombus, square, kite and trapezium. * solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions. |

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| * 1. **RESOURCES:** | DBE Workbook 1, Sasol-Inzalo Book 1, textbook, ruler, protractor. |
| * 1. **PRIOR KNOWLEDGE:** | * square * rhombus. * parallelogram. * rectangle * kite |
| * 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) | |
| **ACTIVITY 1**  Ask learners to define the following quadrilaterals:   * square * rhombus. * parallelogram. * rectangle * kite   Refer to Sasol-Inzalo Book 1, page 203 for definitions. | |
| * 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |

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| **Teaching activities** | **Learning activities**  **(Learners are expected to:)** |
| Let the leaners do the activity below as individuals  **ACTIVITY 1**   * Using a ruler, draw AB parallel to DC. AB should not be equal to DC. **Hint:** lines in your exercise book are parallel. * Join A to D and B to C so we have a quadrilateral ABCD * Measure and compare sides and angles   **NB**: Consolidate by comparing this quadrilateral to other quadrilaterals done thus far – parallelogram, rectangle, rhombus, square, and kite.  Conclude by naming the quadrilateral and writing down its properties. | * do the construction following the teacher instructions * explore the properties of the shape that they have constructed * compare the trap to other quads * write down the summary of the properties |
| For the next activity:   * Divide learners into small groups. * Allow learners to attempt one problem * Let one group lead the discussion of the finished problem   **ACTIVITY 2**   1. Calculate the length of AD on the given parallelogram below.      1. PQRS is a kite with and . What is the   length of SR if it is adjacent to QR?   1. Determine the size ofon the parallelogram below.     **Answers:**   1. , hence AD = 15 units [opposite sides of a parm are equal] 2. [equal adjacent sides of a kite] 3. [opposite angles of a parm equal]   **Note:** Learners should justify statements that they provide. | * solve problems in groups * lead discussion of solutions |

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| * 1. **CLASSWORK** (Suggested time: 15 minutes) |
| * Activities done during presentation * Learners should complete the table given in the appendix |
| * 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes)  1. **Emphasise**   The similarities and the differences between the quadrilaterals done thus far.   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.  **Homework**   * Sasol-Inzalo Book 1: Page 188, No. 2; Page 190, No. 3 * Sasol-Inzalo Book 1: Page 204, No. 1 - 3 |

Appendix

In each case identify which kind of quadrilateral it is. Describe the properties of each type by making statements about the opposite sides and the sizes of the angles of each type.

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| **Quadrilateral** | **Name** | **Properties** |
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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| **1.TOPIC: GEOMETRY OF 2D SHAPES:** Solving problems **(Lesson 6)** |
| **2.CONCEPTS & SKILLS TO BE ACHIEVED:** |
| By the end of the lesson learners should know and be able to solve problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions. |

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| 1. **RESOURCES:** | DBE Workbook 1, Sasol-Inzalo Book 1, textbook – LESSON 6 2-Ds |
| 1. **PRIOR KNOWLEDGE:** | * properties of quadrilaterals. * perimeter * algebraic equations |
| 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) | |
| * Revisit properties of quadrilaterals done thus far   **Activity 1**  Determine if the following statements are true (T) or false (F).   |  |  | | --- | --- | | * 1. A rectangle is a parallelogram.   2. A square is a parallelogram.   3. A rhombus is a parallelogram.   4. A kite is a parallelogram.   5. A trapezium is a parallelogram.   6. A square is a rhombus. | * 1. A square is a rectangle.   2. A square is a kite.   3. A rhombus is a kite.   4. A rectangle is a rhombus.   5. A rectangle is a square. |  * Review calculation of the perimeter of quadrilaterals.   **Activity 2**   * 1. What is perimeter of a 2D shape?   2. Complete the table below for quadrilaterals described  |  |  |  | | --- | --- | --- | | **Property of quadrilateral** | **Perimeter** | | | **Words** | **Symbols** | | 1. No sides equal | Sum of the sides |  | | 1. All sides equal |  |  | | 1. Opposite sides equal |  |  | | 1. 2 pairs of adjacent sides equal |  |  |  * 1. Give example of quadrilaterals that belong to each category in the table above. For example: Catergory a) - no sides equal, example – trapezium.   **NB:** Make sure learners know the correct formula for calculating the perimeter of each type of quadrilateral | |

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| **7. LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities**  (Learners are expected to:) |
| **NOTE:** Solving geometric problems is an opportunity to practice solving equations. Show learners how to calculate the unknown sides and / or angles  **Activity**   1. If the perimeter of the square below is 48.What is the length of each side?        1. JKLM is a trapezium. Determine     L  J  M  K  660  890  760       1. Calculate the size of unknown side and angles. | * solve each problem * engage in discussions of the solutions |
| 1. **CLASSWORK** (Suggested time: 15 minutes) | |
| * Sasol-Inzalo book 1: Page 204, No. 4 & 5 | |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK** (Suggested time: 5 minutes) |
| 1. **Emphasise that** reasons should be given to justify solutions for every written statement. 2. 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.  **Homework:**   * + DBE workbook 1: Page 139, No. 3(c). |

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**MATHEMATICS LESSON PLAN GRADE 8**

**TERM 2: April - June**

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| DURATION: | 1 Hour |

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| 1. **TOPIC: GEOMETRY OF 2D SHAPES:** Classifying 2D shapes **(Lesson 7)** |

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| 1. **CONCEPTS & SKILLS TO BE ACHIEVED:**   **By the end of the lesson learners should know and be able to:**   * write clear definitions of quadrilaterals in terms of their sides, angles and diagonals distinguishing between: * parallelogram. * rectangle. * square * rhombus * trapezium * kite |

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| 1. **RESOURCES:** | DBE workbook 1, Sasol-Inzalo Book 1, textbooks, protractor,  ruler, pencil. |
| 1. **PRIOR KNOWLEDGE:** | * + types of quadrilaterals   + constructions |
| 1. **REVIEW AND CORRECTION OF HOMEWORK** (suggested time: 10 minutes)   Homework provides an opportunity for teachers to track learner’s 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) |
| **Activity:**    Give learners the worksheet to define the given quadrilaterals in terms of sides, angles and diagonals:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Type of quadrilateral | Sides | Angles | Diagonals equal in length  (yes/no) | Diagonals bisect each other  (yes/no) | Diagonals are perpendicular to each other (90o)  (yes/no) | |  |  |  |  |  |  | | Parallelogram |  |  |  |  |  | | Rectangle |  |  |  |  |  | | Square |  |  |  |  |  | | Rhombus |  |  |  |  |  | | Trapezium |  |  |  |  |  | | Kite |  |  |  |  |  | |

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| 1. **LESSON PRESENTATION/DEVELOPMENT** (Suggested time: 20 minutes) | |
| **Teaching activities** | **Learning activities (Learners are expected to: )** |
| Learners are expected to complete the table: | * complete activities |

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| 1. **CLASSWORK ACTIVITIES (Suggested time: 15 minutes)** |
| Learners are expected to:  **Activity**   1. Look at the properties of a square and a rhombus:   (a) Are all the properties of a square also the properties of a rhombus? Explain.  (b) Are all the properties of a rhombus also the properties of a square? Explain.  (c) Which statement is true?   1. A square is a special kind of rhombus. 2. A rhombus is a special kind of square. 3. Look at the properties of rectangles and squares.   (a) Are all the properties of a square also the properties of a rectangle? Explain.  (b) Are all the properties of a rectangle also the properties of a square? Explain.  (c) Which statement is true?   1. A square is a special kind of rectangle. 2. A rectangle is a special kind of square. 3. Look at the properties of parallelograms and rectangles.   (a) Are all the properties of a parallelogram also the properties of a rectangle? Explain.  (b) Are all the properties of a rectangle also the properties of a parallelogram? Explain.  (c) Which statement is true?   1. A rectangle is a special parallelogram. 2. A parallelogram is a special rectangle. 3. Look at the properties of a rhombus and a parallelogram. Is a rhombus a special kind of parallelogram? Explain. 4. Compare the properties of a kite and a parallelogram. Why is a kite not a special kind of parallelogram? 5. Compare the properties of a trapezium and a parallelogram. Why is a trapezium not a special kind of parallelogram? |

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| 1. **CONSOLIDATION/CONCLUSION & HOMEWORK / WORKSHEET (Suggested time: 5 minutes)** |
| **Summary:**   |  |  |  | | --- | --- | --- | | Type of quadrilateral | Definition | Example of quadrilateral | |  |  |  | | 1. A parallelogram | Has both pairs of opposite sides parallel and equal |  | | 1. A rectangle | Has all four angles equal to 90o  Has opposite sides equal  Diagonal bisect each other |  | | 1. A square | Has all four sides equal in length and angles equal to 90o |  | | 1. A rhombus | Has all four sides equal in length  Opposite sides are parallel  Diagonals bisect each other at 90o |  | | 1. A trapezium | Has at least one pair of opposite sides parallel |  | | 1. A kite | Has two pairs of adjacent sides of equal length |  |  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 Book 1, DBE workbooks and/or textbooks for learners’ homework. The selected activities should address different cognitive levels.   **Homework**  DBE Workbook 1, page 128 No. 1 |