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|  | TEACHER’S ACTIVITY | STUDENT’S ACTIVITY |
| THEME | Geometry |  |
| CLASS | SS1 |  |
| DATE | Monday 29th April, 2024 |  |
| SUBJECT | Mathematics |  |
| MODE | Entire Class |  |
| TIME | 8.40am – 9.20am |  |
| PERIOD | 1st |  |
| DURATION | 40 Minutes |  |
| UNIT LESSON | Similar triangles |  |
| LESSON TOPIC | Deductive proofs II |  |
| SPECIFIC OBJECTIVES | At the end of this lesson, students should be able to:   1. Define similar triangles; 2. Identify corresponding sides of similar triangles; 3. State the conditions for two triangles to be similar; 4. Solve problems involving similar triangles. |  |
| INSTRUCTIONAL RESOURCES | Cardboard paper, cut-out of triangles, protractor. |  |
| PRESENTATION | The teacher presents the topic with the aid of these steps. |  |
| STEP 1 | **IDENTIFICATION OF PRIOR IDEA** |  |
|  | The teacher asks the students to explain "similar" as it applies to triangles. | The students answer the question. |
| STEP 2 | **EXPLORATION** |  |
|  | The teacher explores by sketching a triangle and tasking the students to name its parts. | The students answer the question. |
| STEP 3 | **DISCUSSION** |  |
| HOD COMMENT  Label your diagrams | **Similar triangles**  Similar triangles have the same shape but not necessarily the same size.    *Fig.*1.0  They are represented by the symbol ''.  Two triangles are said to be similar if their corresponding sides are in proportion. In other words, the ratios of corresponding sides are equal.  **Conditions for similarity**   1. Two angles in ABC are equal to two angles in PQR. For instance, the triangles are similar if and , since it follows that . 2. The three sides of ABC are proportional to the corresponding sides of PQR. Thus, ABC is similar to PQR if, 3. Two sides in ABC are proportional to two sides in PQR and the angle included between these sides in each triangle are equal. Thus, ABC is similar to PQR if, and .   Also, the ratio of the areas of similar triangles is equal to the ratio of the squares of the corresponding sides of s ABC and PQR. | The students listen to the teacher and copy the note. |
| STEP 4 | **APPLICATION** |  |
|  | Example 1  Given the figure below, calculate and .  *cm*  *cm*  *cm*  *cm*  Solution  OB OH (*given*)  AB HK (*common*)  OA OK (3rd. of )  Hence, s AOB and KOH are equiangular and similar.      25 *cm*  Also,    11.4 *cm* | The students listen to the teacher and ask questions. |
| STEP 5 | **EVALUATION** |  |
|  | The teacher evaluates the lesson with the following questions from the diagram:  *cm*  *cm*  *cm*  *z*   1. Identify the similar triangles and their corresponding sides. 2. Find the value of z. | The students answer the question. |
| CONCLUSION | The teacher concludes the lesson by giving corrections to the evaluation questions. |  |
| ASSIGNMENT | Exercise 13.3, pg. 163, question 9 |  |
| REFERENCE | New Concept Mathematics for senior secondary school book 1 by H N Odogwu, et al.  Further Mathematics by Egbe, E., Odili, G.A., Ugbebor, O.O. |  |

**HOD’S COMMENT: Label your diagrams. Lesson note approved**

**HOD’S NAME: A. N Chibuogwu**

**DATE: 28/04/2024**

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|  | TEACHER’S ACTIVITY | STUDENT’S ACTIVITY |
| THEME | Geometry |  |
| CLASS | SS1 |  |
| DATE | Tuesday 30th April, 2024 |  |
| SUBJECT | Mathematics |  |
| MODE | Entire Class |  |
| TIME | 8.00am – 8.40am |  |
| PERIOD | 1st |  |
| DURATION | 40 Minutes |  |
| UNIT LESSON | Congruent triangles |  |
| LESSON TOPIC | Deductive Proofs II |  |
| SPECIFIC OBJECTIVES | At the end of this lesson, students should be able to:   1. Define congruent triangles; 2. State the conditions for two triangles to be congruent; 3. Solve problems involving congruent triangles. |  |
| INSTRUCTIONAL RESOURCES | Cardboard paper, cut-out of triangles, and protractor. |  |
| PRESENTATION | The teacher presents the topic through the following steps. |  |
| STEP 1 | **IDENTIFICATION OF PRIOR IDEA** |  |
|  | The teacher asks the students to explain "congruent" as it applies to triangles. | The students briefly explain. |
| STEP 2 | **EXPLORATION** |  |
|  | The teacher explores by sketching a triangle and tasks the students to state if the given triangles are congruent and why. | The students answer the questions. |
| STEP 3 | **DISCUSSION** |  |
|  | **Congruent triangles**  Two triangles are congruent if they are similar and their corresponding sides are of equal length. Simply put, congruent triangles have the same shape and size, i.e., they are equal in all respect.  P  Q  R  *Fig.*1.1  In the fig. 1.1, the triangles ABC and PQR are congruent because:   1. and    The notation used to express the fact that ABC is congruent to PQR is ''. Thus ABC PQR.  **Conditions for congruency**   1. The three sides of one triangle are equal to the three sides of the other (SSS). E.g., *fig*. 1.1 above. 2. Two sides and the included angle of one is equal to two sides and the included angle of the other (SAS).   0  0   1. Two angles and a side of one is equal to two angles and the corresponding side of the other (ASA or AAS).   0  0  0  0   1. They are right-angled and the hypotenuse and another side of one is equal to the hypotenuse and another side of the other (RHS). | The students listen to the teacher and copy the note. |
| STEP 4 | **APPLICATION** |  |
|  | Example 1  In the given figures, prove that the two triangles are congruent.  Y  0  0  0  0  *cm*  *cm*  *cm*  *cm*  Solution  In ABC, BAC ABC ABC 1800 (*Sum of angles in a triangle*)  ABC 550 1800  ABC 1800 ( 550)  1800 1200  ABC 600  Similarly, XYZ 550  In ABC and XYZ, AB XZ 4 *cm*, BC YZ 5 *cm*, and ABC XZY 600. Therefore, ABC XZY (SAS). *Proved*.  Example 2  0  0  Name the triangle that are congruent, giving reasons.  Solution  (*given*)  (*common side*)  MNL OLN (*given*)  MNL OLN (SAS) | The students listen to the teacher and ask questions. |
| STEP 5 | **EVALUATION** |  |
|  | The teacher evaluates the lesson with the questions below:   1. Define a congruent triangle and state the conditions for two triangles to be congruent. 2. PQR and XYZ are two triangles in which PQ XY and PRQ 700, PQR 500, XYZ 700, and YXZ 600. Prove that the two triangles are congruent. | The students solve the problem. |
| CONCLUSION | The teacher concludes the lesson by giving corrections to the evaluation questions. |  |
| ASSIGNMENT | Exercise 13.2, pg. 161, questions 3*(b)* and 3*(c)* |  |
| REFERENCE | New Concept Mathematics for senior secondary school book 1 by H N Odogwu, et al.  Further Mathematics by Egbe, E., Odili, G.A., Ugbebor, O.O. |  |

**HOD’S COMMENT: Label your diagrams. Lesson note approved**

**HOD’S NAME: A. N Chibuogwu**

**DATE: 28/04/2024**

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|  | TEACHER’S ACTIVITY | STUDENT’S ACTIVITY |
| THEME | Geometry |  |
| CLASS | SS1 |  |
| DATE | Thursday 2nd May, 2024 |  |
| SUBJECT | Mathematics |  |
| MODE | Entire Class |  |
| TIME | 8.00am – 8.40am |  |
| PERIOD | 1st |  |
| DURATION | 40 Minutes |  |
| UNIT LESSON | Isosceles triangle |  |
| LESSON TOPIC | Deductive proofs II |  |
| SPECIFIC OBJECTIVES | At the end of this lesson, students should be able to:   1. Define an isosceles triangle and name its parts; 2. Prove that the base angles of isosceles triangle are equal; 3. Solve problems involving isosceles triangle. |  |
| INSTRUCTIONAL RESOURCES | Cardboard paper, cut-out of triangles, and protractor. |  |
| PRESENTATION | The teacher presents the topic with the aid of these steps. |  |
| STEP 1 | **IDENTIFICATION OF PRIOR IDEA** |  |
|  | The teacher asks the students to define an isosceles triangle. | The students answer the question. |
| STEP 2 | **EXPLORATION** |  |
|  | The teacher explores by sketching an isosceles triangle and asks the students to name its parts. | The students name the parts of the given isosceles triangle. |
| STEP 3 | **DISCUSSION** |  |
|  | **Isosceles triangle**  An isosceles triangle has two equal sides. The point of intersection of the equal sides is called the *vertex*, and the angle included by the equal sides is called the vertical angle, and the third side is called the base.  **The angles at the base of an isosceles triangle are equal**      *Given*: ABC in which  *Required to prove*:  *Construction:* draw the bisector of to meet at D.  *Proof:* In s ABD and ACD  (*given*)  (*common*)  (*by construction*)  ABD ACD (*SAS*)    Other properties of isosceles triangle which follow from the above are:   1. The bisector of the vertical angle bisects the base. 2. The bisector of the vertical angle meets the base at right angles. | The students listen to the teacher and copy the note. |
| STEP 4 | **APPLICATION** |  |
|  | Example 1  In the figure below, , and RPQ 400. Calculate PQS. (W.A.S.C)  0  Solution  In PQR,  RPQ 400 (*given*)  PQ PR 1800 400 (*sum of angles in a triangle*)  PQ PR 1400  But PQ PR (*base angles of isos.*)  2 PQ 1400  PQ 1400 2  PQ PR 700  RQ PQ 700 (*base angles of isos.*)  PQ 1800 700 (*angles on a straight line*)  PQ 1100  In PQS  RQ PQ PS 1800 (*sum of angles in a triangle*)  400 1100 PS 1800  PS 1800 (400 1100)  PS 300 (Ans) | The students listen to the teacher and ask questions. |
| STEP 5 | **EVALUATION** |  |
|  | The teacher evaluates the lesson with the questions below:   1. Define an isosceles triangle and name its parts. 2. In *XYZ*,the bisector of cuts *YZ* at *W*. If and 660, find . | The students solve the problem. |
| CONCLUSION | The teacher concludes the lesson by giving corrections to the evaluation questions. |  |
| ASSIGNMENT | Exercise 4.3, pg. 40, question 12. |  |
| REFERENCE | Further Mathematics by Egbe, E., Odili, G.A., Ugbebor, O.O.  New Concept Mathematics for senior secondary school book 1 by Odogwu, H.N., et al. |  |

**HOD’S COMMENT: Label your diagrams. Lesson note approved**

**HOD’S NAME: A. N Chibuogwu**

**DATE: 28/04/2024**