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|  | **DAILY LESSON LOG**  **GRADES 7 TO 12** | **School** | Tuao High School | **Grade Level** | 8 |
| **Teacher** | Carl Hendrick O. Rabut | **Learning Area** | Mathematics- Statistics and Probability |
| **Time** |  | **Quarter** | III |

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| 1. **OBJECTIVES** |  |
| A. Content Standards | The learner demonstrates understanding of key concepts of axiomatic structure of geometry and triangle congruence. |
| B. Performance Standards | The learner is able to communicate mathematical thinking with coherence and clarity in formulating, investigating, analyzing, and solving real-life problems involving congruent triangles using appropriate and accurate representations. |
| 1. Learning Competencies / Objective | The learner proves statements on triangle congruence. **M8GE-IIIh-1**  **At the end of the session 1, the students should have**  -identified statements on triangle congruence;  -applied the postulates and theorems on triangle congruence to prove statements involving (a) multiple angles, (b) isosceles triangle, (c) overlapping triangles; and  -related the importance of proving statements on triangle congruence in real life situations  **At the end of the session 2, the students should have**  -proved congruence properties in isosceles triangles  -use conditions of triangle congruence to prove congruent segments and angles  -proves theorems on isosceles triangle  **At the end of the session 3, the students should have**  -recalled previous concepts on triangle congruence including the congruence postulates and theorems and CPCTC  -completed a two-column proof with 4 steps to show that two triangles are congruent using the SAS, ASA and SSS congruence postulates  The learner applies triangle congruence to construct perpendicular lines and angle bisectors.**M8GE-IIIi-j-1**  **At the end of the session, the students should have**  -used triangle congruence to construct perpendicular lines and angle  bisector; and  -related perpendicular lines and angle bisectors in real life setting. |
| **II. CONTENT** | **Proving Statements on Triangle Congruence and Applying Triangle Congruence to Construct Perpendicular Lines and Angle Bisectors.** |
| **III. LEARNING RESOURCES** |  |
| A. References |  |
| 1. Teacher’s Guide Pages |  |
| 2. Learner’s Materials Pages |  |
| 3. Textbook Pages |  |
| 1. Additional Materials from   Learning Resources (LR) Portal | *K to 12 Curriculum Guide MATHEMATICS (Grade 1 to Grade 10)*. Department of Education, 2016.  *“Curriculum Implementation and Learning Management Matrix.”* Department of Education, 2020. |
| B. Learning Resources |  |

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| **IV. PROCEDURES** | **Session 1** | **Session 2** | **Session 3** | **Session 4** |
| A. Reviewing previous lesson or presenting the new lesson | Recall the previous lessons on triangle congruence including the congruence postulates and the concept of CPCTC the concept of CPCTC | Preface the lesson by asking the students regarding the previous lessons.   * “What were our lessons about these past two weeks?” * “What was our lesson yesterday?” * “What congruence theorems were we able to prove yesterday?”   “What additional concepts were discussed that helped us prove the statements?” | Greet students and briefly review the previous lesson on proving triangle congruence using various methods  Ask students to bring out their homework and come to the front of the class to present their proof of the statement that an isosceles triangle has congruent parts without using the SSS theorem. Encourage students to explain their thought process and reasoning behind their proof  Emphasize the importance of using multiple methods to prove a statement, and introduce the new lesson on proving statements on triangle congruence using different methods. | Start by reviewing what the students learned in the previous lesson about triangle congruence.  Introduce the new lesson topic: Applying Triangle Congruence to Construct Perpendicular Lines and Angle Bisectors. |
| B. Establishing a purpose for the lesson | Start with a warm-up activity where you show the students some pictures of different structures and ask them to identify which ones show congruent triangles and which ones do not. Ask the students to explain why the triangles are congruent using words or symbols.   * “Why do you think the structure shown presents congruent triangles?”   “What theorem or postulate can you use to support your claim?” | Explain to the students that today's lesson will focus on proving isosceles triangle theorems using the properties of congruent triangles.  “Why is it important to understand the properties and theorems related to isosceles triangles?” | Set goals for the lesson, such as understanding the concept of triangle congruence, being able to use various methods to prove triangle congruence, and applying these concepts to real-world situations  Provide a brief overview of the topics that will be covered in the lesson, such as angle bisectors, midpoints, vertical angles, and reflexivity. | Explain that the purpose of the lesson is to help students understand how to use triangle congruence to construct perpendicular lines and angle bisectors.  Use the example of constructing a kite as a real-life application of these concepts. |
| C. Presenting examples/instances of the new lesson | Show a pair of congruent triangles on the screen. Ask the students if the two triangles look like they are congruent.   * “Why do you think these triangles are congruent?” * “What indicators tell us that these are congruent?”   “Are there enough proofs to tell that these two triangles are congruent?” | Show several examples of isosceles triangles and their properties, such as the base angles of an isosceles triangle are congruent, and the median of an isosceles triangle is also an altitude.  “Can you identify the parts of the shown isosceles triangle?”  “What is the most defining part of an isosceles triangles?” | Review and discuss the concepts of angle bisectors, midpoints, vertical angles, and reflexivity  Show images for each of the concepts in the board for the students to refer to during proving. | Define key terms and concepts related to the lesson, such as perpendicular lines, angle bisectors, and congruent triangles.  Provide examples and non-examples of these terms to help students understand their meaning and significance.  Use diagrams to illustrate the relationships between these concepts and how they are applied in constructing perpendicular lines and angle bisectors. |
| D. Discussing new concepts and practicing new skills in #1 | Introduce the concept of two column proofs and explain that they are a way of writing logical arguments using statements and reasons.  Explain that there are four basic steps to write a two-column proof:   1. Identify the given information and mark it on the diagram. 2. Identify what you need to prove and write it as a conclusion. 3. Find a way to connect the given information to the conclusion using triangle congruence criteria and other geometric properties or definitions.   Write each statement and reason in a two-column format, starting from the given information and ending with the conclusion. | Introduce the first theorem, "If two sides of a triangle are congruent, then the angles opposite those sides are congruent." Explain the proof using the properties of congruent triangles and guide students in practicing similar proofs.   * “How can we use the properties of congruent triangles to prove the theorem "If two sides of a triangle are congruent, then the angles opposite those sides are congruent"?”   “What steps can we take to create a proof for this theorem?” | Use an example in front of the class to demonstrate how to prove triangle congruence using one of the methods, such as angle bisectors or midpoints.  Explain how to use another method to prove triangle congruence, such as vertical angles or reflexivity.  Show an example in front of the class and guide students through the steps. | Have students work in pairs or small groups to construct an angle bisector using two congruent triangles.  Have students share their results with the class and explain how they constructed the angle bisector. |
| E. Discussing new concepts and practicing new skills in #2 | Bring out a large sheet of paper with two columns and go back to the previous slide showing the pair of triangles.  Go over the steps in proving triangle congruence with the students.  Also introduce relevant concepts like vertical angles, midpoints, and bisectors. | Introduce the second theorem, "If two angles of a triangle are congruent, then the sides opposite those angles are congruent." Explain the proof using the properties of congruent triangles and guide students in practicing similar proofs.   * “How can we use the properties of congruent triangles to prove the theorem "If two sides of a triangle are congruent, then the angles opposite those sides are congruent"?”   What steps can we take to create a proof for this theorem? | Provide another example on the screen. This time, have the students find out what needs to be done next to prove that the given triangles are congruent. | Have students work in pairs or small groups to construct perpendicular lines using two congruent triangles.  Provide students with specific instructions on how to rotate and fit the congruent triangles together to form perpendicular lines.  Monitor their work and provide guidance as needed.  Have students share their results with the class and explain how they constructed the perpendicular lines.  Emphasize the importance of ensuring that the triangles form perpendicular lines, and have students measure the angles to confirm that they are 90 degrees. |
| Developing mastery | Divide the students into four groups and assign each group one of the four criteria. Ask each group to create a two-column proof that shows that two triangles are congruent using their assigned criterion. Give them some time to work on their proofs and then have them present their proofs to the class.  After each presentation, ask the other groups to give feedback and ask questions about the proof. Ask some questions to check for understanding, such as:   * *How did you write your conclusion using congruence notation?* * *What other geometric properties or definitions did you use in your proof?*   *How did you justify each statement with a reason?* |  | Provide another incomplete set of statements and proofs on the screen. Have students work in pairs to try and prove triangle congruence using the methods covered in the lesson  Circulate around the classroom to provide assistance and answer questions as needed |  |
| G. Finding practical application of concepts and skills in daily living | Ask the students questions on how they can relate/use the lesson in real life. Questions that may be used include:   * *How can you use two column proofs to solve a problem or answer a question that you encounter in your life?* * *How can you use two column proofs to improve or enhance something that you do or make in your life?* * *How can you use two column proofs to express or communicate something that you feel or think in your life?*   Supplement the students’ responses by also citing situations   * *Two column proofs can help you develop logical thinking and problem-solving skills, which are useful for many situations and tasks. For example, you can use two column proofs to plan a project, explain a decision, or justify an argument.* * *Two column proofs can help you understand the properties and relationships of geometric shapes, which are useful for many activities and professions. For example, you can use two column proofs to design a house, measure a field, or build a bridge.* * *Two column proofs can help you appreciate the beauty and elegance of mathematics, which can inspire you to learn more and explore new ideas. For example, you can use two column proofs to discover patterns, create art, or invent games.* | Lead a class discussion on the practical applications of isosceles triangle theorems, such as in construction, architecture, and engineering.  “In what real-life situations might you need to use the properties and theorems related to isosceles triangles?” | Ask the students if they have ever tried making a kite.  “What is the usual shape of a kite?”  “What is the process of making it?”  “How do you think can you apply triangle congruence theorems in making a kite?”  “What do you think happens to kites with parts that were not measured properly to be congruent?” | Use the example of constructing a kite to demonstrate how these concepts can be applied in real-life situations. |
| H. Making generalizations and abstractions about the lesson | Ask the students questions that help them reflect on the main ideas and skills of the lesson and how they can apply them to other situations or contexts. Questions that may be used include:   * What are the benefits of writing two column proofs for proving triangle congruence? * What are the similarities and differences between the four criteria for proving triangle congruence? * How can you check if your two-column proof is valid and complete? * How can you use two column proofs to prove other geometric statements or properties?   How can you use two column proofs to communicate or justify your reasoning in other subjects or fields? | Have students summarize the isosceles triangle theorems and their proofs in their own words and reflect on how the properties of congruent triangles can be applied to other geometric figures.   * “What are some key takeaways from our lesson on isosceles triangle theorems?” * “What did you learn about isosceles triangle theorems from today's lesson?” * “What questions or confusions do you still have?” | Recap the concepts and methods covered in the lesson  Encourage students to share their experiences and observations from the developing mastery activity  Ask questions to test their understanding and facilitate a discussion about generalizations and abstractions that can be drawn from the lesson | Ask students to make generalizations about the relationships between congruent triangles and perpendicular lines/angle bisectors.  Encourage students to think about how these concepts can be applied in other areas of math or science. |
| I. Evaluating learning | Give the students a sheet of paper with a pair of triangles. Below the triangles is a 4-step two-column proof with some statements and reasons unknown. Have them complete the table by selecting answers from a word bank. | Distribute the printed worksheet. Instruct the students to fill in the blanks from the word bank to complete both proofs.   * What strategies did you use to complete the proof table?   How confident do you feel about your ability to create a proof table for an isosceles triangle theorem? | Provide an individual activity called "Fill Me Up" where students will be given a worksheet to complete, demonstrating their understanding of the concepts and methods learned in the lesson | For the evaluating learning part, the students will be asked to apply their knowledge on constructing perpendicular lines and angle bisectors by creating a drawing of a kite. The drawing must have at least two perpendicular angles and two angle bisectors. They should only use the letters ABCDEF in making their kite drawing. |
| J. Additional activities for application or remediation | Additional examples will be given during remediation. After the supplementary lesson, another set of assessment activity will be done to check the student’s progress. |  | Provide additional activities to help students apply and reinforce the concepts learned in the lesson. | Provide additional practice problems or challenges for students who need more support or for students who want to further extend their learning. |
| Closing | Remind the class to review the lesson as it is needed for the following lessons.  Check the cleanliness and orderliness of the classroom before saying goodbye. |  | “”Now that we've covered the important concepts and methods for proving triangle congruence, it's important to continue practicing and applying what we've learned.  Remember that there will be an exam on the subject topics for the academic quarter, so it's important to continue studying and reviewing the concepts and methods we've covered in class.  Before we wrap up for today, please make sure to be on time for the next session after lunch.  Also, let's remember to keep our classroom clean before we leave. We want to leave our learning environment in a neat and orderly manner.  Thank you for your attention and participation in the lesson today. I look forward to our next class together!”” | Remind students that this is the last session before the exam and encourage them to review the lessons on triangle congruence as it is an important part of the examination.  Additionally, remind students to check the cleanliness of the classroom before they leave as a sign of respect for their classmates and the school community. |

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| **V. REMARKS** |  |  |  |  |
| INTEGRATION  (Values, Thrusts, Program Activities & Projects) |  |  |  |  |
| **VI. REFLECTION** |  |  |  |  |
| A. No. of learners who earned 80% in the evaluation |  |  |  |  |
| B. No. of learners who require additional activities for remediation whose scored below 80% |  |  |  |  |
| C. Did the remedial lessons work? No. of learners who have caught up with the lesson |  |  |  |  |
| D. No. of learners who continue to require remediation |  |  |  |  |
| E. Which of my teaching strategies worked well? Why did these work? |  |  |  |  |
| F. What difficulties did I encounter which my principal or supervisor can help me solve? |  |  |  |  |
| G. What innovation or localization materials did I used/discover which I wish to share with other teachers? |  |  |  |  |

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