1. **GRADE LEVEL: Grade 7**

Subject Area: Mathematics

Quarter 1 – Week   
Duration: 45 minutes

1. **LEARNING OBJECTIVES**

Learners are expected to:

1. Students will be able to accurately draw regular and irregular polygons (pentagons, hexagons, octagons, decagons) using a ruler and protractor
2. Students will be able to describe the properties of regular and irregular polygons, including the number of sides and the equality of side lengths and angles
3. Students will be able to differentiate between regular and irregular polygons based on their visual characteristics and measurements.
4. **CONTENT**

* Title: Polygon Detectives: Drawing and Describing Shapes
* Learning Competency: draw and describe regular and irregular polygons with 5, 6, 8, or 10 sides, based on measurements of sides and angles, using a ruler and protractor.
* Particular Focus: This lesson focuses on the practical skills of using a ruler and protractor to construct polygons and the conceptual understanding of what makes a polygon regular or irregular.

1. **LEARNING RESOURCES**

1. Teacher's Guide
2. Geometry Textbook (Chapter 3, pages 45-52)
3. Interactive Polygon Tool (geogebra.org/geometry)
4. PPT Presentation: 'Introduction to Polygons'
5. Rulers
6. Protractors
7. Pencils
8. Worksheets
9. **PROCEDURE**

**Introduction:**

Begin with a 'Shape Hunt' warm-up: show images of real-world objects (stop sign, honeycomb, a tilted box) and have students identify the shapes. Review the definition of a polygon and its basic parts (sides, vertices, angles). Introduce key vocabulary: regular polygon, irregular polygon, pentagon, hexagon, octagon, decagon.

**Presentation:**  
Teacher will model drawing a regular hexagon on the board, thinking aloud through each step: calculating the interior angle, using the protractor to measure the angle, and using the ruler to draw equal sides. Then, the teacher will model drawing an irregular pentagon, highlighting the differences in side length and angle measurement. The PPT presentation will be used to show clear examples of each polygon type.

**Practice:**  
Students will work in pairs to complete a worksheet. Task 1: Draw a regular octagon with 5 cm sides. Task 2: Draw an irregular decagon and label its side lengths and angle measures. Task 3: A 'gallery walk' where pairs display their drawings, and other students provide feedback on stick-it notes, checking for accuracy.

**Integration:**  
Connect the lesson to architecture (building designs), art (M.C. Escher's tessellations), and nature (beehives, crystals). Discuss the importance of precise measurements in construction and design. Values integration: Emphasize patience and precision when using measurement tools.

**Assessment:**  
['1. What is the key difference between a regular and an irregular polygon? (A regular polygon has all equal sides and all equal angles)', ' 2. True or False: A shape with 6 sides of equal length but different angle measures is a regular hexagon. (False)', ' 3. To draw a regular pentagon, what is the measure of each interior angle? (108 degrees)', ' 4. Describe a real-world object that is an octagon. (A stop sign)']

**Enrichment:**  
['Remediation: Provide students with templates of the polygons to trace before they attempt to draw them freehand. Work in a small group with the teacher for more guided instruction.', ' Enhancement: Challenge students to create a piece of artwork using only regular and irregular polygons, or have them research and present on the use of polygons in a field of their choice.']  
**Asignment:**  
Find and photograph 3 different polygons in your home or neighborhood. For each, identify the type of polygon and state whether it appears to be regular or irregular, and why. Be prepared to share one example with the class.

1. **EVALUATION TOOLS**

Quiz results will be analyzed for common misconceptions (e.g., confusing regular/irregular). A simple feedback form will be used: 'Rate your confidence in using a protractor (1-5)' and 'What part of the lesson was most helpful?'. Journal entries will be checked for completion and thoughtful reflection on the assignment.

1. **REMARKS**

Ensure all students have a functional ruler and protractor before the lesson begins. For students with fine motor skill difficulties, provide larger paper and consider using digital drawing tools as an alternative. The 'gallery walk' can be modified for a quieter classroom by having students rotate worksheets instead of walking around.

1. **REFLECTION**

['The hands-on drawing activity was highly engaging', " students were motivated to create accurate shapes. A key challenge was that many students struggled with using the protractor correctly, often reading the wrong scale. Next time, I will start with a 10-minute 'Protractor Boot Camp' to review the basics of measuring and drawing angles before moving on to the main polygon activity."]