

# EISENHOWER PROFESSIONAL DEVELOPMENT PROGRAM

## Mathematics Within: Shape, Space & Measurement

### Lesson Plan: Part 3 and 4 of a 5-part lesson

Part 1, 2, 5 Laurel Kohner Berker, Judy Klatt, and Lynn Bartol

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**School District:** St. Paul

**Broad Topic:** Geometry

**Specific Topic:** 2-D Polygons

#### Objectives:

- o Identify and describe regular and not regular 2D polygons.
- o Identify, describe and compare 2D polygons.

#### Materials & Supplies:

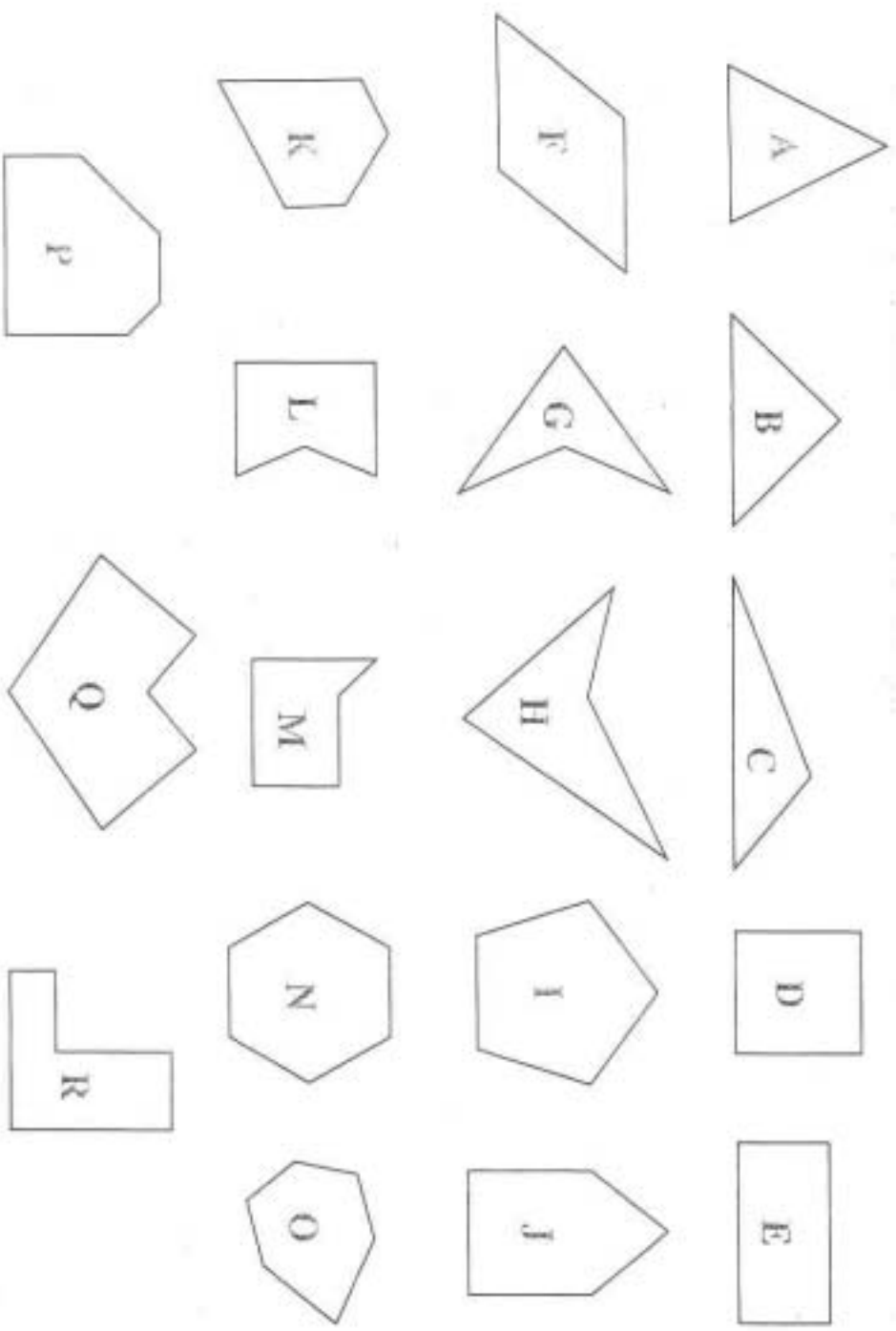
- o Post-It notes
- o Markers or crayons
- o Overhead map of Quad cities
- o Polygon Vocabulary chart: (lessons 1 and 2 should at least contain these words.)
  - Triangle
  - Quadrilateral
  - Pentagon
  - Hexagon
  - Regular
  - Not regular
  - Convex
  - Concave
  - Closed figure
  - Straight lines

#### Lesson:

- o *Lesson 1:*
- o Read: The Greedy Triangle by Marilyn Burns
- o Before:
  - a) Build a vocabulary – shape shifter, dissatisfied, quadrilateral (map of quad cities on overhead), hexagon (hex wrench)
  - b) Tell students they are to look for shapes and read and that they will draw them when I finish reading.
- o During: Read The Greedy Triangle.
- o After:
  - a) Each draws the shapes they remember
  - b) Then direct students to choose a pattern.
  - c) Each pair of students is to choose one of the shapes from the story and draw as many different ways as possible for that shape, each one they draw is on a separate post-it. (Have them use crayons or markers.)
  - d) Share shapes drawn. Have one pair of students bring their shapes to put on the correct chart. (Charts are labeled: 3 sides 3 angles, 4 sides 4 angles, etc.) After they have placed them have the student identify the polygon name. Then lead a discussion including questions to get the students to identify the regular and not regular polygons. Continue with other pairs of students with shapes for a different chart. Identify convex and concave if it comes up.
- o Assessment: Have each pair choose a polygon and complete a T- chart they create including this information of labels and drawn shapes: Polygon name, # sides, # angles, regular, and not regular.

## **Lesson 2:**

- o Polygon categories using a Venn diagram.
  - a) Show students a chart of categories (see page 3) including:
    - Triangle, not a triangle
    - Quadrilateral, not a quadrilateral
    - Pentagon, not a pentagon
    - Hexagon, not a hexagon
    - Regular, not regular
    - Convex, concave
  - b) Make sure students understand how to identify each category (this should be a review of the exploration, whole group teaching, and teacher conferencing during these two lessons.)
- o Intro a Venn diagram on the overhead. (See page 4) Give students a copy of shapes A-R and the list of categories. Teacher has overhead of the Venn and the shapes to model the activity. Ask students to choose two categories to label the two circles and together as whole class put the shapes in the correct category or outside the circle if they don't fit either.
  - a) Student work in pairs or groups of 4. They choose the category and place the shapes.
- o Assessment:
  - a) Teacher walks around to gather and record the student's level of proficiency to compare 2D polygons.
  - b) Give students a 3 circle Venn diagram if ready for more challenge (See page 5).
  - c) Separate the Venn diagram into 2 circles for students struggling with the context. Then facilitate the overlap, working with them to guide their understanding
- o Closing: Prepare a large Venn diagram. Place several rolled tape pieces outside and in each section. Paper clip two categories to the chart and have students come to place one of shapes A-R in the correct place. Students should be able to identify and label the shapes they are comparing.



Triangle

Not a triangle

Quadrilatero!

Not a quadrilatero!

Pentagon

Not a pentagon

Hexagon

Not a hexagon

Regular

Not regular

Convex

Concave

