Classifying Triangles

Materials:

A variety of triangle models (6-8) labeled with letters
Enlarged charts of triangle classification matrix:

- One with columns labeled "scalene", "isosceles", "equilateral"
- One copy of the original grid

Triangular Tables with blank table and blank grid
33 copies of Triangular Tiles task
Painter's tape

4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **CA= (Two-dimensional shapes should include special triangles, e.g., equilateral, isosceles, scalene, and special quadrilaterals, e.g., rhombus, square, rectangle, parallelogram, trapezoid.)**

Day 1

Lesson:

- Handout student worksheets.
- Display table with side length categories (scalene, isosceles, equilateral).
- Tell students that I will be placing triangles on the chart. They are to predict where the triangle will be placed and mark the letter on their handout.
    - Hold up first triangle
    - Think/Pair → write the on their paper
    - I place triangle in correct position
    - "Why does this triangle belong here?"
    - Pair discuss placement
- Repeat for several triangles until class murmurings sound correct.
    - Ask whole group to explain the categories
- Turn to full grid.
    - Have students predict where each triangle will go on the new grid, making markings on their worksheet. T/P
    - Share: Volunteers defend the placement of one triangle at a time.
- Collect worksheet.
- If time, complete Triangular Tiles task.

Materials:
Enlarged charts of triangle classification matrix

- One with A-H triangles already in place
- One blank grid

Enlarged copies of triangles 1 & 2 (from task)
Dividing Shapes into Triangles worksheet
Rulers (or other straight edges)
Document Camera
Projector & Screen

Day 2

Activate prior learning:

- Display grid from previous lesson, with all 8 triangles correctly placed.
- Say: We defined triangle attributes last week, but I neglected to keep that poster. What were the definitions again?
    - Think/Pair/Share
- Write brief definitions on poster.
    - Acute: less than 90*
    - Right: 90*
    - Obtuse: greater than 90*
    - Scalene: 0 sides congruent
    - Isosceles: 2 sides congruent
    - Equilateral: all sides congruent
- Also add labels: “sides” and “angles” to the grid.\

Re-Engage:

A	B	C
D	E	F
G	H	I

- Display new blank grid with all 9 squares
- Place triangle #1 in each D - E - F. Say:

    - Many students placed triangle #1 in each of these boxes. For each placement, what did the student understand? What didn't they understand?
        - Think-Pair-Share
            - What is obtuse? Why not acute?
    - Where is the correct placement? How do you know?
- Place triangle #2 in each B - E - G (one at at time)
    - Many students placed triangle #2 in this box. What did the students understand? What didn't they understand?
        - Think-Pair-Share
    - Where is the correct placement? How do you know?

Extension:

- Hand out Dividing Shapes into Triangles worksheet and rulers.
- Give Directions
    - "The figures at the top of the paper are a square and a rectangle."
    - Work with your partner.
    - Use the straight edge to see what types of triangles you can create by dividing the shapes on the sheet. Label the triangles you create.
- Allow time to explore. After several minutes ask:
    - Do your lines need to be from vertex to vertex, or can you start a line somewhere else in the figure?
- After further exploration…
    - From what shapes can you make a:
        - Right isosceles?
        - Acute isosceles?
        - Right scalene?
        - Obtuse scalene?
        - Triangle with 3 obtuse angles?