Triangle/Quadrilateral Identification Activity

Course: Geometry

Goals: To enable students to:
- Solidify their understanding of properties of specific triangles and quadrilaterals
- Practice using reasoning skills to identify specific shapes and support their conclusions
- Effectively communicate information in writing and verbally about shapes

Prerequisite Skills:
- Knowledge of the properties of specific triangles and quadrilaterals,
- Knowledge of the relationship between slopes and parallel/perpendicular lines

Materials Required:
For each pair/small group of students, you will need:
- One card identifying a specific shape
- One large sheet of paper (large enough for class presentation if possible)
- Ruler and markers

An Approach:
- Split the students into pairs or small groups,
- Assign each group one shape (using a shape card),
- Each group must determine side lengths and slopes that their shape *could* have and record this information in a table on their large paper,
- Groups then exchange papers and identify and record all the properties that their new shape has based on the side length and slope information,
- Groups exchange papers *again*, and identify the shape using only the properties listed by the previous group.
- Once the shapes have been identified, groups present their findings to the class. If conclusions are incorrect, class should troubleshoot – determine if the error was due to incorrect/incomplete *listing* of properties and/or incorrect *interpretation* of the properties.

Alternate/Further Ideas:
- This can be done as a "telephone activity" using the template below to pass information from group to group.
- Instructor could give groups the coordinates of each vertex point and have them *calculate* the length and slope of each side to reinforce distance and slope calculations

Triangle/Quadrilateral Identification Activity Template

Directions:
1. Write the identification code of your shape;
2. List possible side lengths and slopes of your shape in a table (make sure that these lengths and slopes are possible by sketching your shape on graph paper);
3. Exchange your paper with another group;
4. On the back side of the paper, list the properties of the shape based on data listed in the table (you must state how you know the shape has each property);
5. Exchange your paper with a *third* group;
6. **Without looking at the original table**, use the identified properties of the shape to identify the shape – be as specific as possible. State how you know what the shape is.

Shape # _____

(First group fills in this table)

Side	Length	Slope

Properties:

Shape has…..	Because….

Conclusion (use only the properties listed above):

This shape is a _____ because:

Isosceles Triangle **(S1)**	**Square** **(S2)**	**Rhombus** **(S3)**
Kite **(S4)**	**Right Scalene Triangle** **(S5)**	**Trapezoid** **(S6)**
Quadrilateral (not "special") **(S7)**	**Right Isosceles Triangle** **(S8)**	**Parallelogram** **(S9)**
Isosceles Trapezoid **(S10)**	**Rectangle** **(S11)**	**Equilateral Triangle** **(S12)**
Right Kite **(S13)**	**Right Trapezoid** **(S14)**	**Isosceles Triangle** **(S15)**
(S16)	**(S17)**	**(S18)**