

Lesson Title: Geoboard Polygon Sort

Grade: 5<sup>th</sup>

Content Standard: 5.G.4 (revised) Use graphic organizers to compare and contrast rhombuses, squares, triangles, trapezoids, and parallelograms based on properties. Either of the following definitions for a trapezoid is acceptable: a trapezoid is a quadrilateral with at least one pair of parallel sides, or a trapezoid is a quadrilateral with exactly one pair of parallel sides.

Materials: geoboard and rubber band for each student. Copies of 1" dot square geoboard recording papers (attached). Chart paper. Set of premade tagboard quadrilaterals (types are listed in 2<sup>nd</sup> part of procedure details below).

Shared experience and procedure details: Discuss characteristics of a convex, simple quadrilateral. Show examples on a projected geoboard and demonstrate how to transfer quadrilaterals that are created on a geoboard to the paper recording sheets and cut them out. Have each student create and cut out several quadrilaterals. Number and display the quadrilaterals on the board and ask them to think of a yes/no question that will separate the quadrilaterals into two groups. Split the quads down yes/no pathways and record the question. Continue the process with the smaller groups, continuing to ask yes/no questions that will split remaining groups until specific types of quadrilaterals are isolated.

Pair students and give them a piece of chart paper and a set of the following polygons: Nonspecific quadrilateral, trapezoid, right trapezoid, nonspecific parallelogram, square, rhombus, rectangle, kite, isosceles trapezoid. Ask students to create a key that sorts all the quads into unique positions using yes/no characteristics questions.

Picture: Each group will have created a quadrilateral key that they can then display and demonstrate to the class.

People Talk: As students demonstrate using their keys the other students should be questioning them on the clarity, accuracy, and efficiency of the keys. Discuss critical questions that must be asked to separate all the quadrilaterals.

Feature Talk: quadrilaterals, geoboard, sort, characteristics, attributes, sides, angles, acute angles, obtuse angles, right angles, parallel sides, length, side length, congruent sides, same side length, questions

Symbolic representation: Have the students write in words a definition of a square. Ask them to change to symbols each part of that definition.

Guild, Reinthal 3/2/17

