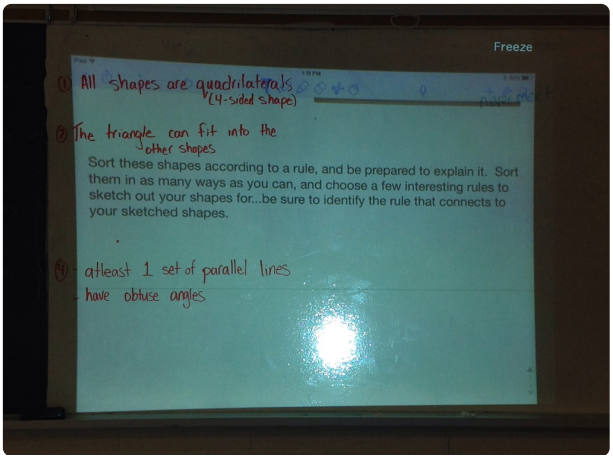
Learning Goal

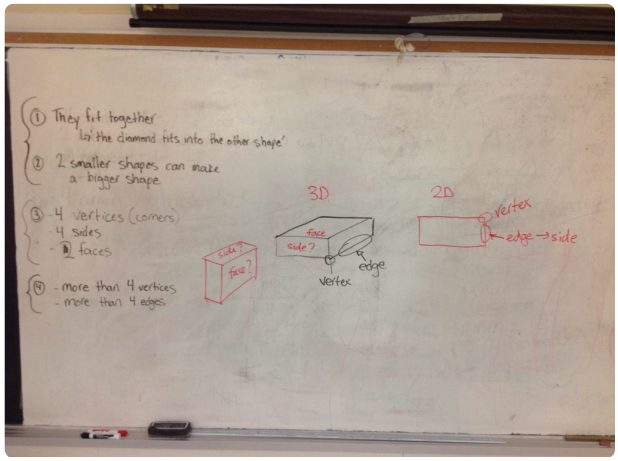
We are learning there are many representations of a geometric shape, and we can classify them by their properties.

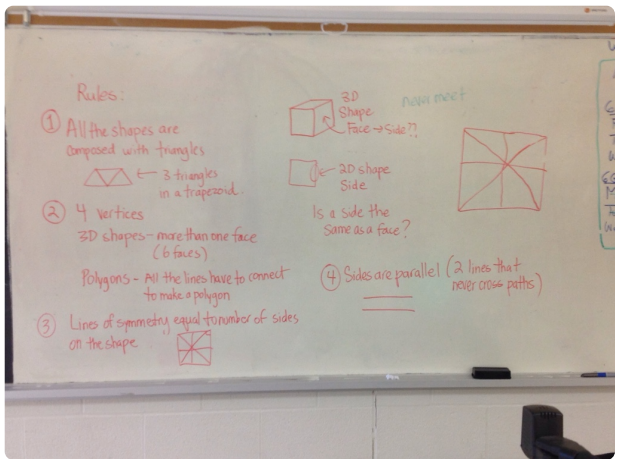
Minds on
Each student is given a pattern block (power polygons work better, since 2D), and sort themselves into groups

They all have pointy edges

- much debate around how to name the parts of a 2d shape vs a 3d shape (side, edge, face, vertex...)



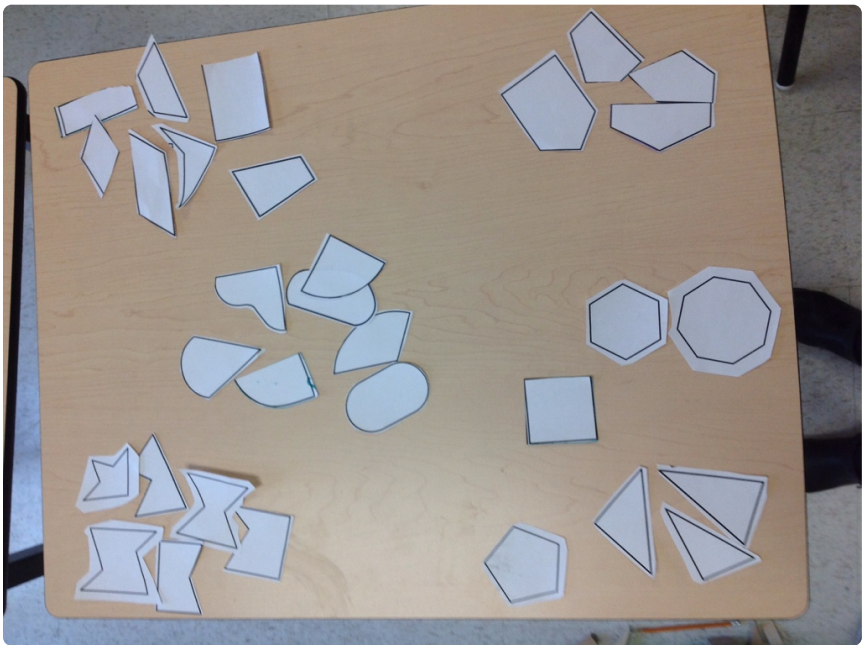


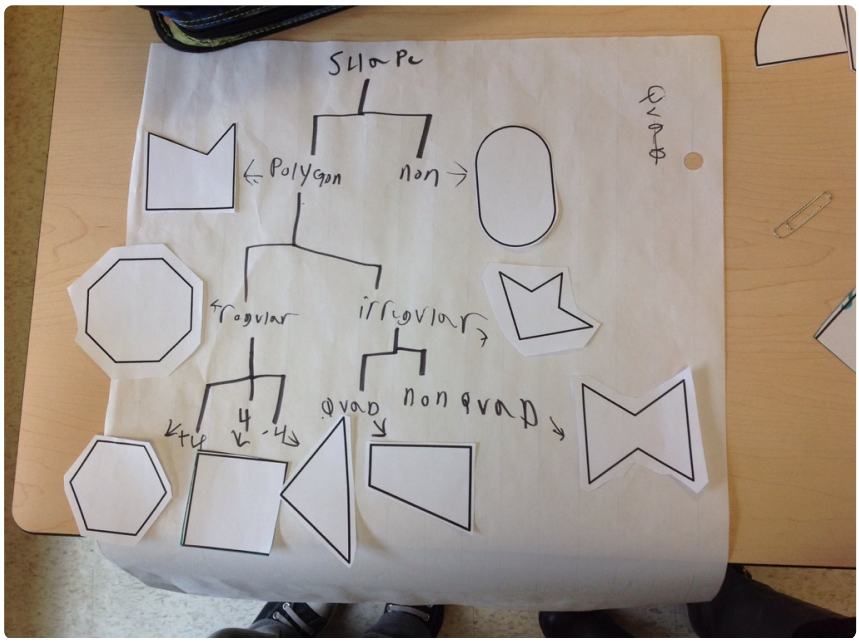


Some of the ways the students sorted their shapes

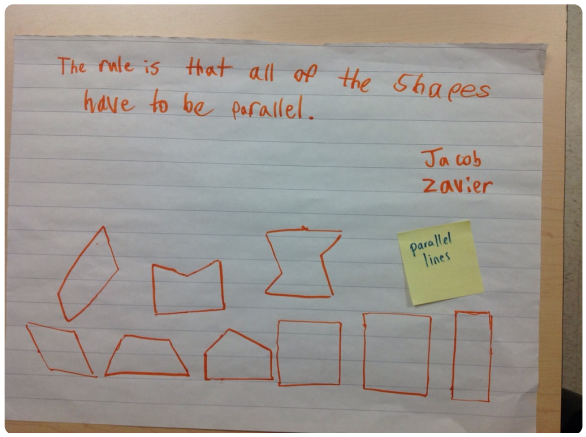
Sort these shapes according to a rule, and be prepared to explain it. Sort them in as many ways as you can, and choose a few interesting rules to sketch out your shapes for...be sure to identify the rule that connects to your sketched shapes.

(Shapes are from Van de Walle's black line masters)

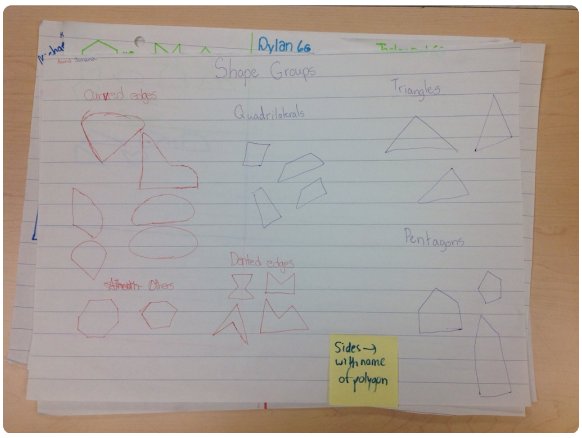




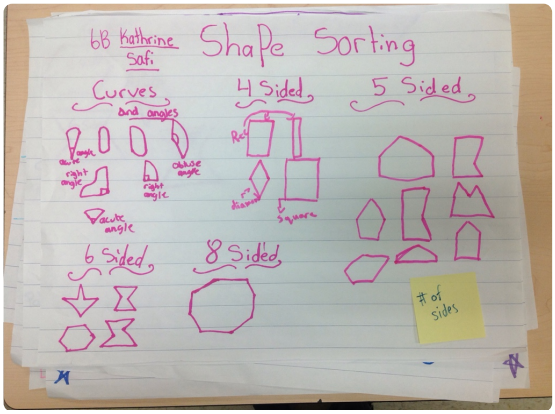
-sorting polygon, vs. non-polygon, then regular vs. irregular, and then by number of sides

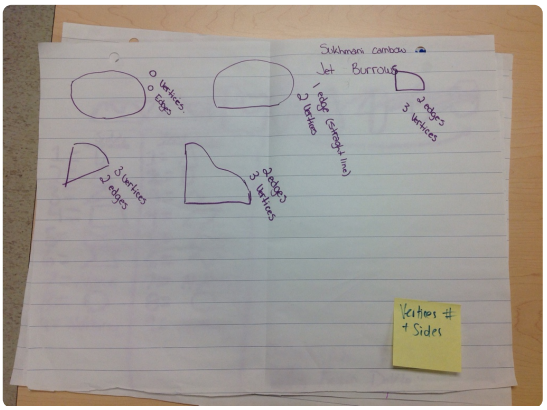


Parallel lines



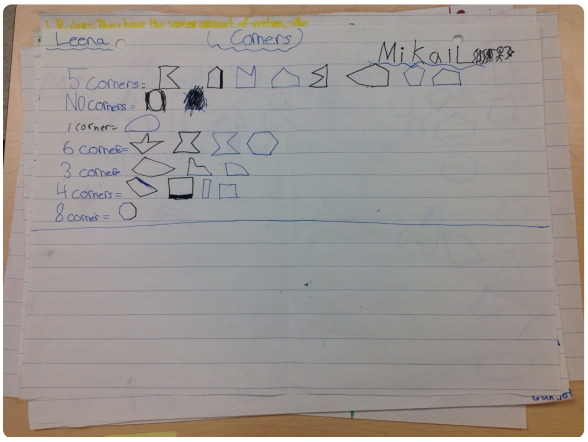
Naming shapes based on number of sides

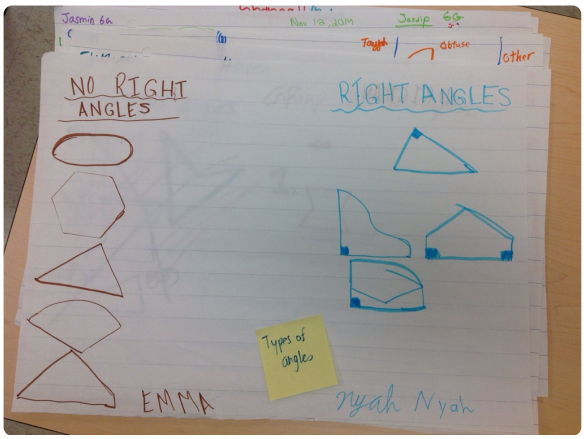




Number of sides

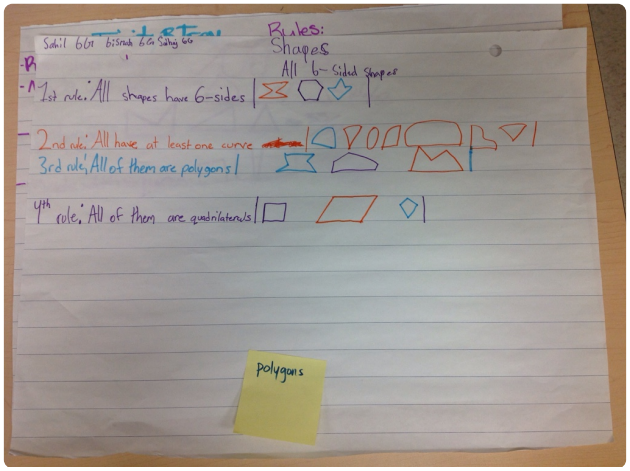
Number of vertices connected to number of sides





Number of corners (vertices)

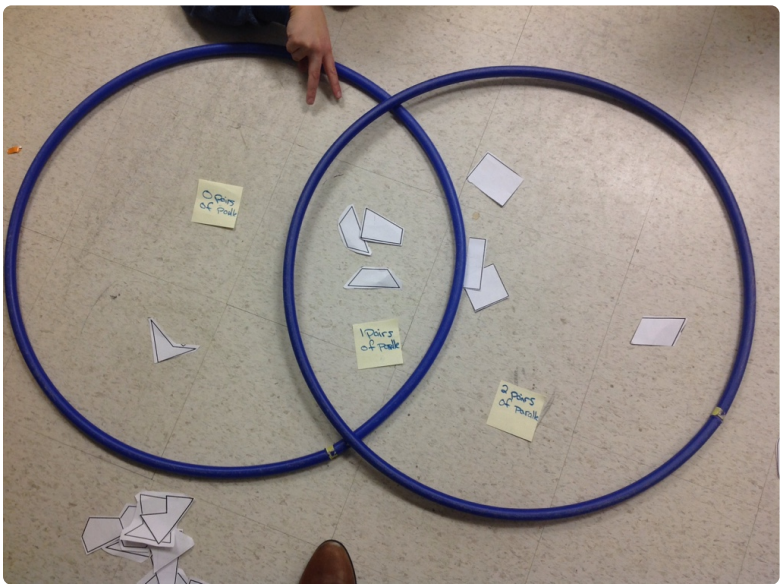
Types of angles, right angles



Polygons-do students have an understanding of this?

Do students see the connection between number of sides and number of vertices?
Those who have sorted by number of sides, do they know the know the name of the polygon that corresponds to that?

The Debrief



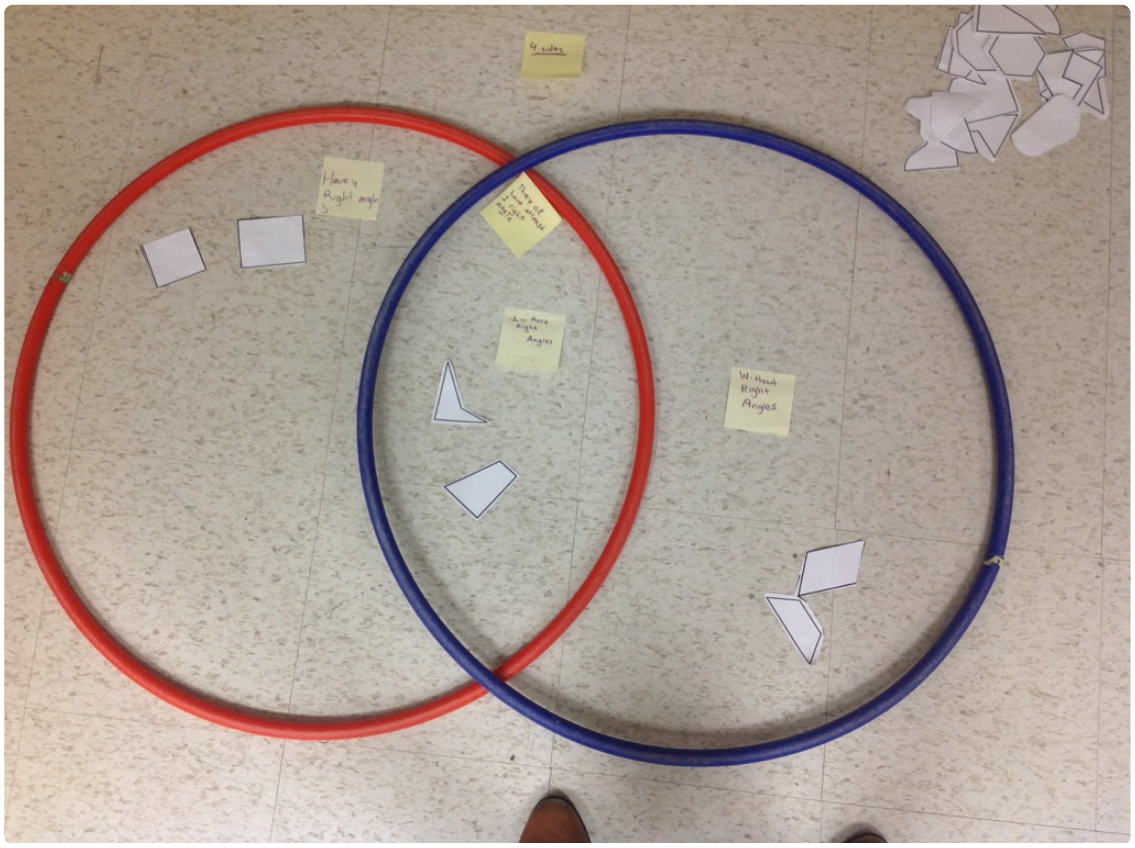
We selected one group's work that had sorted the shapes by number of sides, whether they could correctly name them or not.
They explained their sorting rules, and then we sent students to sort just the four sided shapes, the quadrilaterals.

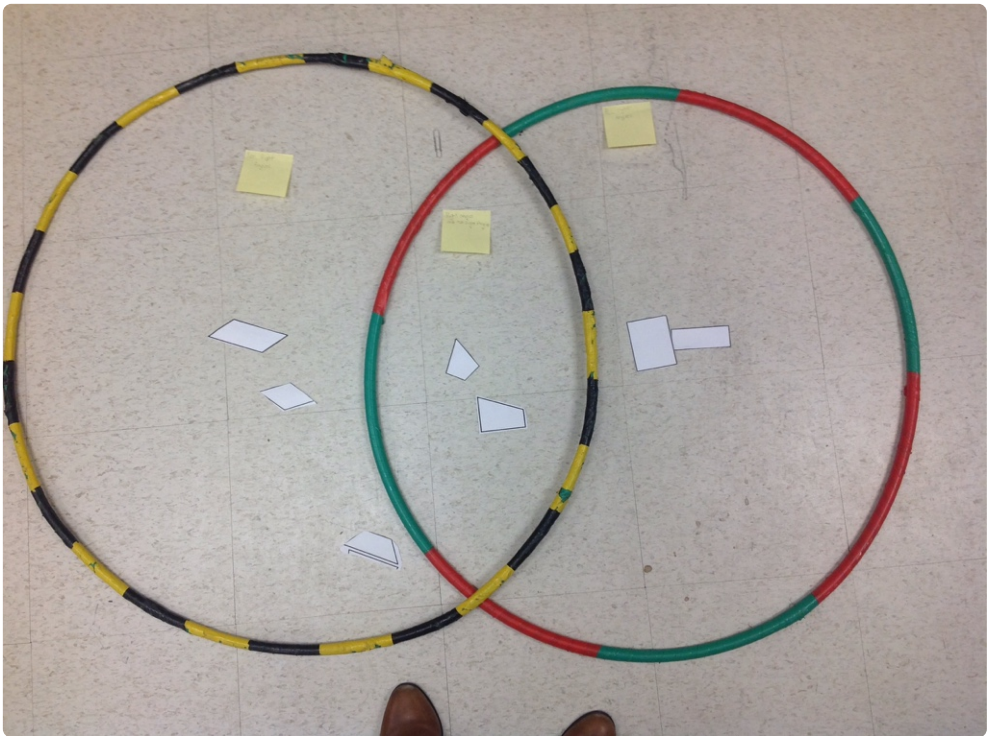
We put pairs of hula hoops on the floor for the sorting--and students immediately overlapped them to make Venn diagrams

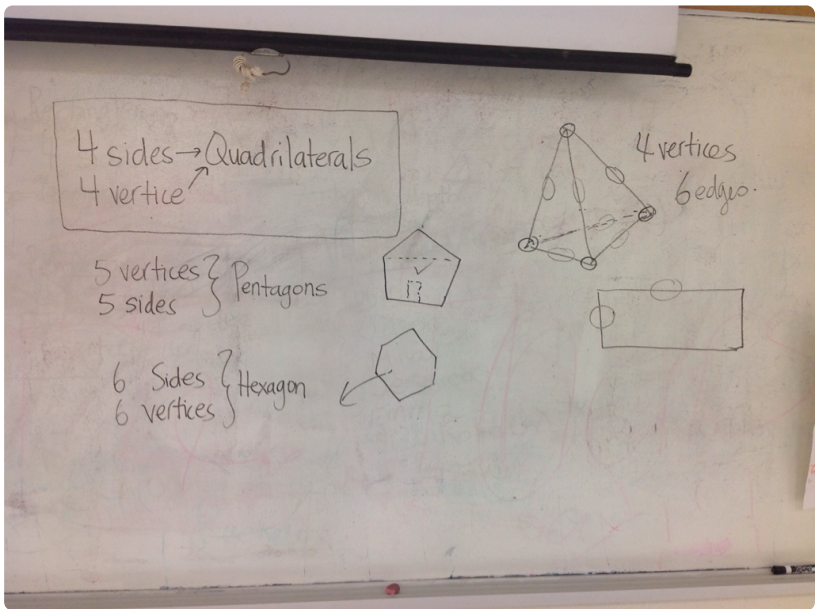
-what is a Venn diagram?
-how does it work?
-what goes in the middle?

-students had a good understanding of how to use a Venn

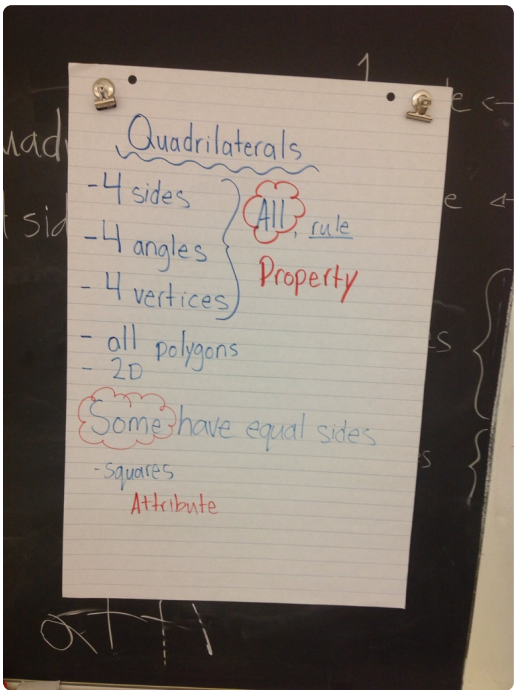
Students sorted by:
-angles
-parallel lines

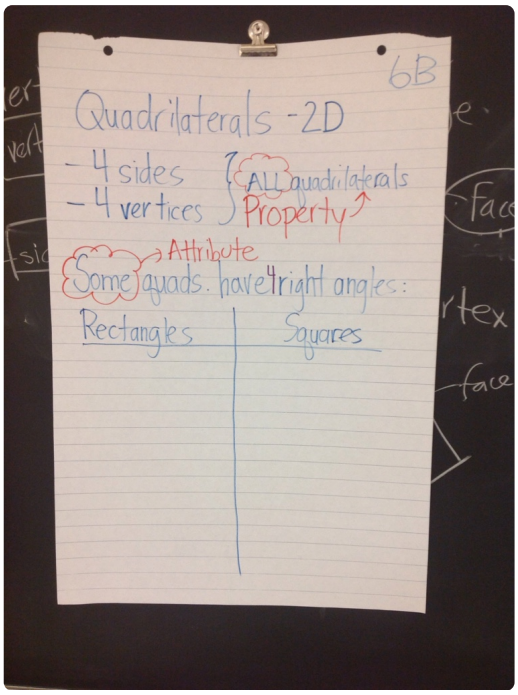

4 sides
Have 4 Right angle
W. Have Right Angles





Let's define a quadrilateral...what do they all have?
-can it be a 3D shape?





What do all quadrilaterals have? That's a PROPERTY
What do some quadrilaterals have? That's an ATTRIBUTE

Next steps
-explore specific quadrilaterals, like rectangles, squares...and investigate what their properties are, vs. their attributes