MATH FUN

Week 4 – Geometry Challenges – Students explore the attributes of shapes!

You will need:

- Glowsticks: 20-25 per person, or more if you have them!
- If you don't have glowsticks on hand, try whole crayons, markers, pencils, straws, chopsticks, toothpicks or any other set of objects that are roughly the same length.

Geometry Challenges

1. Using the sticks as line segments, try making
   a. Different sized triangles.
   b. How many different 4-sided shapes can you make and name?
   c. How about shapes with 5 or 6 sides?

2. Closed, flat shapes with straight sides are called polygons. And if all sides and angles are equal, they're regular polygons. Try to create repeating polygons. See if they can figure out which shapes fit together with no gaps or overlaps.

3. Start with Triangles. A triangle with equal sides and angles is a equilateral triangle. Each angle must be 60 degrees, so 6 triangles neatly come together to fill 360 degrees.

4. Try 4-sided shapes or quadrilaterals. Make a rhombus (or diamond shape). Is this rhombus a regular polygon?...No! It has equal sides, but does not have equal angles. ★ What do you call a rhombus where the angles are all equal? It's a square. Why do squares fit together so well? Each angle is now 90 degrees, and 4 x 90 is 360!
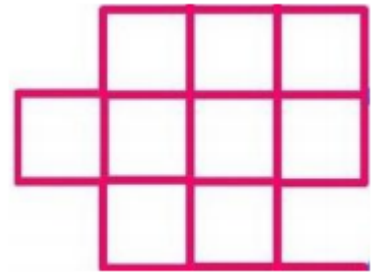
5. Try and make a 6-sided shape - you make a hexagon. Can hexagons fit together to make a lattice? See if regular pentagons, octagons, etc. can fit together.
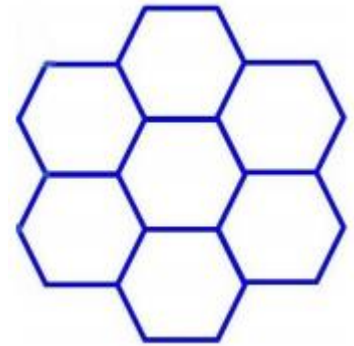
Students can then practice and review on Khan Academy!

3rd Grade - Quadrilaterals (video and practice problems):
https://www.khanacademy.org/math/cc-third-grade-math/quadrilaterals-3rd

4th Grade - Measuring angles (video and practice problems):
https://www.khanacademy.org/math/cc-fourth-grade-math/imp-geometry-2

5th Grade - Properties of shapes (video and practice problems):
https://www.khanacademy.org/math/cc-fifth-grade-math/properties-ofshapes#properties-shapes