Teacher Instructions for: Straw Triangles

Cut a set of straws for each pair/group of students, using the following criteria:
Set One: 3", 4" & 6"

Instructions: *Each group should use their 3 straws and some tape to make a triangle. Any triangle is fine. When they are finished, have 1 group display their triangle. Ask another group to compare their triangle to the first group's. Continue until each group has compared their triangle to the others.*

Say: *"How many unique triangles did we make? Remember that they are not unique if they can be rotated or reflected and form the same triangle as the first one!"*

Conclusion: *All triangles will be the same. Thus: Given that the measure of the 3 sides of one triangle are identical to the measures of a 2nd triangle, the triangles will be congruent.* **Giving all 3 angle measures of a triangle, will produce a unique triangle.**

Cut a set of straws for each pair/group of students, using the following criteria:
Set Two: 7", 4" & 2"

Instructions: *Each group should use their 3 straws and some tape to make a triangle. Any triangle is fine.*

After all groups have attempted (and failed) to make a triangle, ease their frustration by **Saying:** *Why did this not work? What did you notice?*

Conclusion: *Two of the straws were too short and it made it impossible to form a triangle. Hopefully some will notice & mention that:* **One side of a triangle cannot be longer than the sum of the remaining two sides. (7 > 4 + 2, so it cannot be a triangle.)**

Give each group a set of angles, by printing page 2 of this document.

Instructions: *Each group should use their 3 angles to form a triangle. Any triangle is fine.*
- *Cut out 1 angle and tape it on a fresh sheet of paper.*
- *Extend the lines as far as you want.*
- *Tape a 2nd angle to continue forming the triangle. Be sure to line up the lines.*
- *Extend the line as wanted.*
- *Tape the remaining angle to complete the triangle. This one is tricky because you have to line up the lines on both sides!*

After all groups have attempted to make a triangle, check that their lines are straight & allow them to begin comparing triangles. There should be many different triangles.

Conclusion: *Many different sized triangles can be made from the same angles. These triangles are all congruent. Thus: If two triangles have 3 congruent angles, that does not necessarily mean they are congruent, because* **There are an infinite number of triangles that can be formed with the same 3 angles.**