Triangle Congruency Project

OVERVIEW: Students in geometry are expected to understand the rules of triangle congruence – whether using Side-Side-Side, Side-Angle-Side, or other ways to identify triangles that are identical. For this project, students will construct a popsicle-stick truss bridge made up of *mostly* congruent triangles (see attached examples). Triangles may be overlapping to provide the structural support necessary to make a solid bridge. After constructing a truss bridge out of popsicle-sticks, students will then need to identify the various types of triangles used by color-coding them with paint, markers, etc. Obviously the deck of the bridge will be a flat and solid surface, so it is mainly the sides of the bridge that will showcase use of congruent triangles. Completing this project will also require students to make a "key" that easily identify types of triangles used.

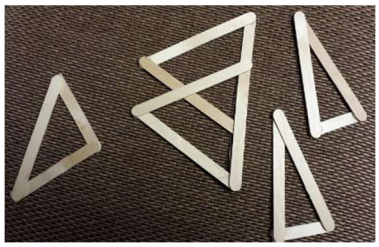
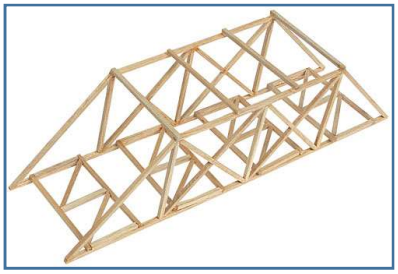
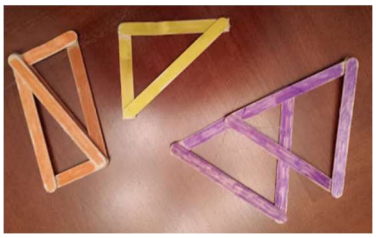
SUPPLIES:

*Students will be given about 100 popsicle-sticks in class the week before winter vacation. Additional popsicle-sticks may be used and can be purchased from Michael's Craft Store, JoAnne's Craft Store, The Dollar Store, Meijer, etc.

*Glue (hot glue works best, but Elmer's or craft glue works too (just dries slower!!)

*Markers, paint, or other ways to color-code congruent triangles

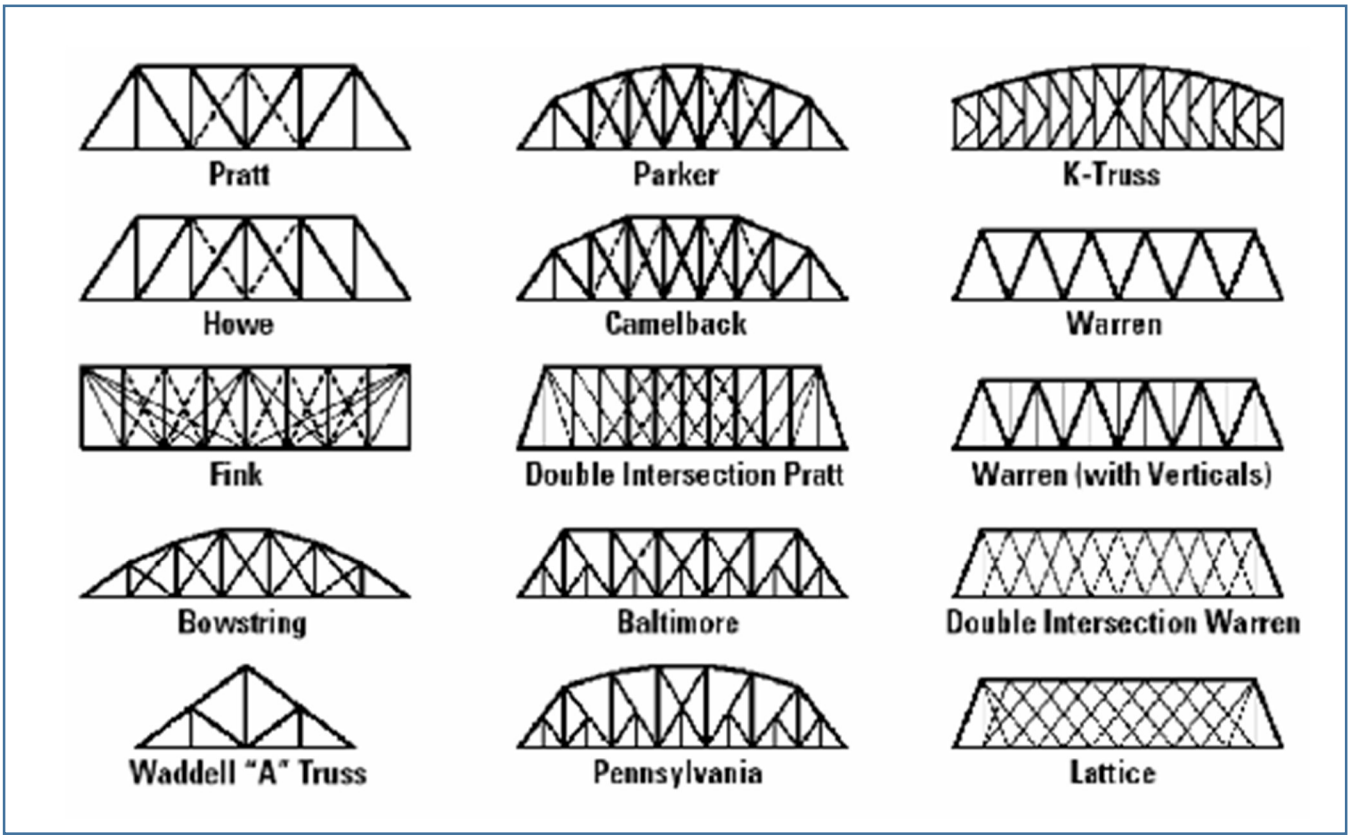
DIRECTIONS:

Step 1: Make a plan for the type of truss bridge you would like to create. Use the attached bridge designs or research your own. Other structures like gazebos, Eifel Tower, etc. may also be replicated **ONLY** after teacher approval.	**Step 2:** Begin creating congruent triangles with your popsicle-sticks. Popsicle-sticks can easily be cut with scissors to make different lengths. 	**Step 3:** Assemble triangles into your structure using your plan as your guide. 
Step 4: Color-code your triangles by coloring with markers or paint. 	**Step 5:** Make the deck of your truss bridge solid by creating a flat surface of popsicle-sticks glued tightly together.	**Step 6:** Create a "key" to submit with your finished structure identifying types of congruent triangles with lengths and angle measurements. For example: ALL PURPLE TRIANGLES ARE EQUALATERAL EQUIANGULAR WITH 60° ANGLES AND 4.5 INCH SIDE LENGTHS. ETC.

Triangle Congruency Project

GRADING: Grading will be based on the following criteria - neatness, creativity, structural stability, having a key that correctly identifies congruent triangles within your structure, and having multiple types of congruent triangles within your structure. An A+ project will be solid, colorful, have various sizes and shapes of congruent triangles and have a key that identifies those various congruent triangles within the structure.

Various examples of truss bridge designs below:



Additional ideas and examples can easily be found by Googling "Popsicle Sticks Bridge Project Designs" and looking at images!!