



PRE-TASK A

(Build 3 frames using popsicle sticks... see online photos for popsicle frames and **#10** of this pre-task). Individual task. Time to complete is approximately 30 minutes.

Materials needed:

- cardstock
- 12 popsicle sticks per student
- a cutting device (i.e. a pair of cutting shears, trimmers, or strong scissors).

- I. Trim the curved edge of each popsicle stick to create a straight edge (trim as little off the curved edge as possible).
- II. Choose 4 trimmed popsicle sticks of even length and lay those popsicle to create a square. (These are called butt joints because they are flat end to flat side.)
- III. Once the square is determined cut 8 small cardboard isosceles triangles. (**See number 10**).
- IV. Glue a triangle to each of the 4 corners. (The triangle gussets reinforce the structure).

- v. Flip the square over and glue the gussets to that side. (Hint: Let one side dry and continue with number 7 before flipping square to add other gussets.)
- VI. Choose another 4 popsicle sticks and repeat numbers 3 to 6 but this time create a rectangle (i.e. 2 popsicle sticks on the inside, 2 on the outside of the joint). Add gussets.
- VII. Cut the last 4 popsicle sticks into trapezoids. Trim their edges to flat edges. Measure the width of a popsicle stick (usually 1 cm) and mark that distance in from the trimmed straight edge. Connect the mark with its immediate corner. Cut along this line, creating a diagonal line which is at a 45 degree angle. Repeat on the opposite edge of the popsicle stick being sure that the result is a trapezoid. Repeat with the remaining 3 popsicle sticks.
- VIII. Repeat steps numbers 3 to 6 but this time creating mitre joints. Use carpenter's glue or white glue. Although hot glue is quicker its density distorts the measurements, wood glue and white school glue take approximately 20 minutes to dry.
- IX. This pre-task is now complete or the created frames can be decorated artistically and become hanging mobiles in order to illustrate the strength of the corner gussets. Gussets can be multilayered with triangles cut with decorator scissors and/or fancy paper. Hand in the frames in a Ziploc bag. Remember to put your name on both the frames and the Ziploc bag.