

Three Prisms (art + math; art + science)

Math and science create visual forms and establish structure. They force rules to become an important ingredient in constructing a piece of art. The art work can be two dimensional or three dimensional.

“Three Prisms” uses equilateral triangles and parallelograms. The shapes are combined and repeated for a sculpture that makes additional equilateral triangles. These prisms are solid shapes with three sides made of parallelograms. The prism shape in this lesson plan is opaque but uses colors borrowed from a light prism. The ends of the prisms form equilateral triangles. Three prism shapes connected make a sculpture that in turn creates a bigger equilateral triangle.

Grade Levels K-8

Note: instructions and materials based on a class of 25 students. Adjust as needed.

Process

1. Decide on three prisms of different heights. This plan is based on one sculpture, one each 8", 10" and 12". Cut three pieces of balsa strips for each size. Lay on covered table top one set at a time.
2. Paint each set of three on one side. Use colors from a true prism. Red top, follow with orange, yellow, green, blue and purple on the bottom. Place the three balsa wood pieces next to each other and paint all three at the same time. Change colors and blend top to bottom. Check carefully to cover edges also. Do not paint the other side of the balsa wood. The Blick Matte Acrylic dries quickly, use second coat if necessary. If the wood grain shows through the paint, it can add a nice texture. Repeat on all sets of parallelograms.
3. When paint is dry, turn the three pieces unpainted side up – face down. Make sure the red tops are together. Paint red about two inches down from the top. Tops of prisms are eventually open on the sculpture and the paint will look finished inside. Repeat for other prisms.
4. Move the three together and tape the two places where they meet. Press firmly. Repeat for other prisms.



Materials:

Blick Matte Acrylic Paint 2-oz bottles, 3 each color per class:

Deep Red (00727-3723)

Orange Medium (00727-4523)

Yellow Medium (00727-4023)

Green Deep (00727-7043)

Dark Blue Medium (00727-5053)

Violet Deep (00727-3573)

Alvin Utility Knife (57459-0000) 3 per class

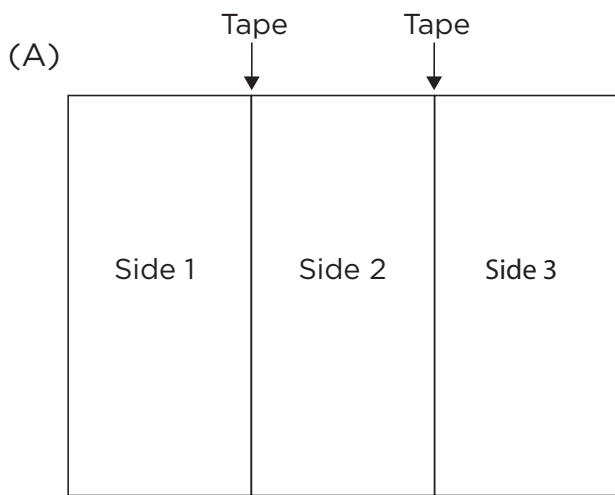
Balsa Wood (33301-8203) 20 sheet package, 3/32" x 3" x 36" sheets, need 3 per student

Blick Economy White Bristle Bright (05170-1010), size 10, 1 per student

Weldbond® Adhesive (23819-1105) 8-oz bottles, need 3 per class

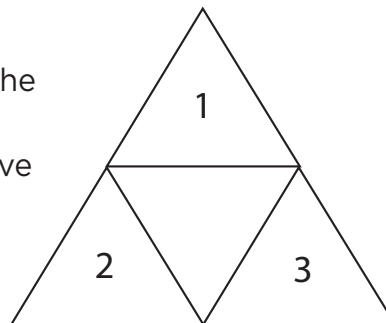
3M Scotch™ #810 Magic Transparent Tape (23012-1000) 3/4" wide, 36-yd rolls, need 1 roll per 10 students

Rubber bands – to stretch about 6 inches, 9 per student



Process, continued

- Lift side one and side three and put them together (see illustration A). Place a rubber band on each end to hold them in that position. Make sure they form an equilateral triangle. Place a small line of glue on the two side edges that are not taped together. Place the glue at the corner on the outside. Use a toothpick or a piece of cardboard to apply the glue. Make sure the sides are barely touching - just enough to glue. Adjust the shape if needed - the rubber bands will shift a little. Repeat for other prism shapes.
- When the glue dries, remove the rubber bands. Stand the three prisms red ends up. Move them together until the middle hole forms another equilateral triangle. Move one prism out slightly, add glue on the edge where they meet and put back in place. Repeat on other connecting edges. Get a helper to hold them together and add a rubber band at bottom and at top where the three meet. They will glue and hold firmly.
- Remove the rubber bands. They should have created a bigger equilateral triangle together (see illustration B).
- Students may add painted designs of their choices.



(B)

National Standards

Content Standard #6 – Making connections between visual arts and other disciplines

5-8

Students describe ways in which the principles and subject matter of other disciplines taught in the school are interrelated with the visual arts

9-12

Students synthesize the creative and analytical principles and techniques of the visual arts and selected other arts disciplines, the humanities, or the sciences