

Cable Sculpture (Art+ Math, Art+ Science)

Using the example of suspension bridges, students will create a freestanding sculpture from foamboard and wire using suspension techniques for balance, stability and strength. As an additional challenge, suggest that the finished sculpture has the ability to support another object as a bridge would support vehicles or pedestrians.

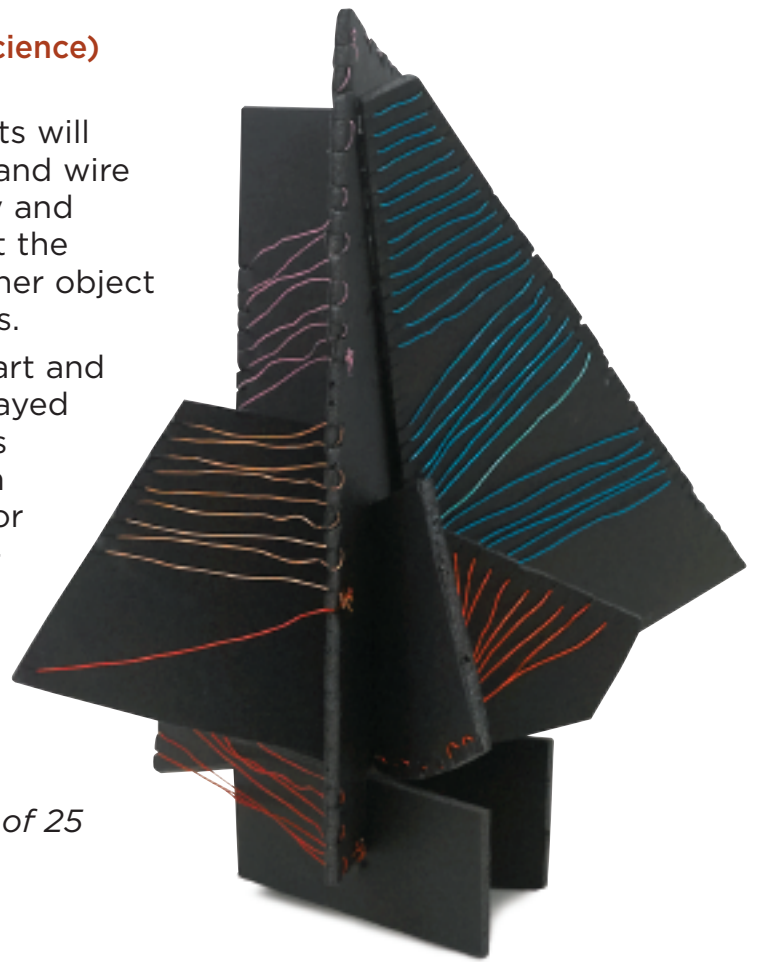
Architects must meet the challenge of marrying art and aesthetics with function. The building of cable-stayed bridges is a stunning and massive example of this objective. Discuss and view images of suspension bridges and concepts of balance and strength. For example, the Millou Viaduct in France is the highest and longest cable-stayed bridge in the world. It stands taller than the Eiffel Tower and extends from Paris to Barcelona, Spain. For statistics and images, visit www.abelard.org/France/Viaduct-de-Millau.asp.

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

Grade Levels 9-12

Process

1. Students experiment with size and balance, starting with two 5" x 20" strips of foamboard. Cut each strip into two pieces (for example: 5" x 6" and 5" x 14"). These will establish a base and perhaps another angle.
2. Keep all stringing cuts and joints to 1/4" measurements. For a base, choose two lengths and connect by cutting a 1/4" notch out of one piece and slipping the other into it. These notches can be cut to slip the board into the notch 2–3". Add more pieces but keep the total shape simple. Do not use glue until after Step 3.
3. After the large pieces are selected, remove one top piece of foamboard at a time. Decide where the wire will go. Mark 1/4" points along the edge with a pencil. Remove the receiving piece and mark it with the same number of points. See (A).
4. Cut 1/4" slit at each point on the edges of the foamboard. Continue to mark and slit all the edges planned for the wire.



Materials

Elmer's/Bienfang® Black Foamboard, (13202-2003) OR Elmer's/Bienfang® White Foamboard, (13202-1023), 20" x 30", 10-sheet package, cut boards into 5" x 20" pieces, need two pieces per student

Excel® Plastic Handle Utility Knife (57463-1000) Share eight knives across the classroom

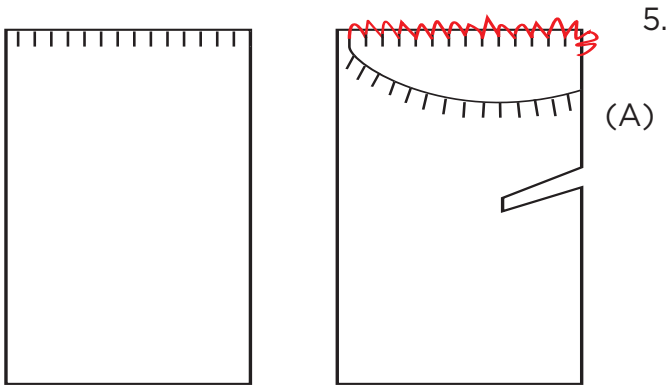
Extra Blades for Utility Knife, package of five (57462-1005) need one per class

Blick Multi-Purpose Glue, 8-oz (23872-1065), share three bottles across the classroom

Blick Plastic Ruler, 12-inch (55403-1012), need one per student

Copper Colored Wire, 24 Gauge (60689-1249) package of six colors, share two packages across the classroom

Silver Plated Copper Wire, 24 Gauge (60687-1249) package of six colors, share two



Options:

- Use one color wire per sculpture
- Select several colors of board
- Paint designs on the foam board.
Make sure the wire will show up

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Process, continued

Return the foamboard to its original place. Place a dot of glue where needed to hold together.

6. To string the wire, plan to cut a length of wire slightly longer than needed. Measure from starting side to opposite side and multiply that number by the times the wire will travel back and forth. Example, 8" between sides and 8 times across = 64" of wire plus perhaps 4" extra. If the wire is short, simply fill in with another piece or color. Crimp the wire on one side; go across to the other side and around the slit back and forth.

National Standards

Content Standard #2 — Using knowledge of structures and functions

9-12

Students create multiple solutions to specific visual arts problems that demonstrate competence in producing effective relationships between structural choices and artistic functions

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

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