Environmental House

(art + math; art + science; art + social studies)

***"Urban House"**, made with wood strips, construction card, craft sticks, acrylic paint, mosaic tiles, wood blocks and painted beads*

***"Lake House"**, made with wood strips, black matboard, black foamboard, craft sticks, acrylic paint, acetate and wood blocks*

One of the principles of the Modern style of architecture is that the materials and functional requirements determine the design of the structure. Keeping that in mind, students will build a model of a home to function within a chosen environment. Each construction project will begin with a simple frame of consistent size and material. From that starting point, each "architect" will create their own design, exploring a variety of materials and making decisions based on the intended function of the dwelling.

Students will need to research their chosen location for climate, terrain and readily available supplies. Math skills will be used to measure and divide materials. The social function of the home will be considered to adapt it to recreational activities and it's position within a community.

Grade Levels 7-12

Materials

Basic Structure:

Economy Wood Project Bag, small strips (60416-8380), one bag per 4 students

3M Scotch® #232 Masking Tape, 1/2" (23009-0050), share 1 roll between 4 students

Fiskars® Bent Scissors (57012-1008), 1 per students

Aleene's Tacky Glue® (23826-1005), share 1 bottle between 4 students

Blick All-Purpose Newsprint (10204-1003), 9" x 12" sheets, 1 per student

Blick Aluminum Ruler 12" (55430-1012), 1 per student

Construction Material Options:

Jumbo Craft Sticks (60406-0500), 1 box per class

Stone by Stone™ Mosaics (61117-1119), 1 cannister per class

Wood Blocks, package of 48 assorted sizes (60452-1048), 2 packs per class

Blick Artist's Acrylic Colors (00624-), assorted colors, distribute throughout class

Blick Scholastic Golden Taklon Flat 1/4" (05859-4014), 1 per student

Crescent Matboard (13007-), approx. 9" x 12" piece, 1 per student

Elmer's/Bienfang Foamboard (13202-) black or white, approximately 8" x 10" piece, 1 per student

Blick 140-lb Premium Cardstock (11408-), 18" x 24" sheet, cut to 2 9" x 12" pieces, 1 per student

Clear Acetate, 005" weight, (55501-1001), 20" x 25" sheet, cut to 4" x 6" pieces for 20 per sheet, 1 piece per student

Preparation

1. View images of houses built in the modern style of architecture since 1920. Focus on homes that were built to function within a certain environment. Recommend:

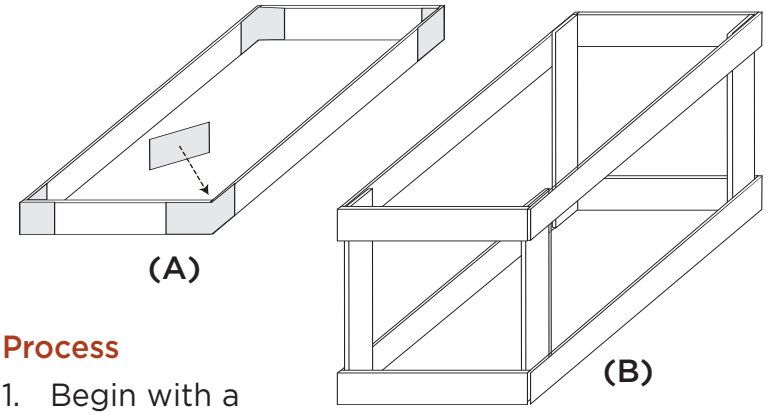
   Farnsworth House, Mies van der Rohe (suburban riverside)

   House at Weissenhof, Le Corbusier (urban)

   Taliesin West, Frank Lloyd Wright (desert)

   Walker Guest House, Paul Rudolph (beach)

   An excellent resource for photos, 3-D models, and information online is **greatbuildings.com**



Process

1. Begin with a simple frame. Each student needs eight of the 1/32" x 3/4" x 9" strips included in the Balsa project assortment. Measure and cut four of those strips in half (4-1/2" lengths) with scissors. Form a rectangle with two full-length and two half-length strips, using masking tape to secure corner on the inside and outside (A). Glue half-length strips in the corners as vertical support, joining the rectangles into a box frame (B). Paper clips or clothes pins are helpful in holding the strips in place as the glue dries.
2. Each student will need to select an environment for their house: desert, rainforest, mountain, prairie, waterfront, etc. and create preliminary sketches on newsprint. Encourage students to think "outside the box", adding on rooms, decks, etc. Looking at magazines or photos may be helpful. On their sketch, have students write brief sentences describing how their house addresses the following:

   Climate: the design should protect against heat, cold, rain or wind.

   View: the design should place windows and open areas facing scenic views and place walls to protect and offer privacy

   Terrain: the design should address slopes, wet areas, buildings and trees and other imagined surroundings.

   Materials: the design should use materials that are readily available for construction in that location: wood, stone, brick, sand, etc.
3. Begin construction. Build the house with a variety of materials and be creative with selection. Here are some ideas and suggestions for construction:

   — Papers and boards in a variety of weights, colors and textures can be glued together to cover the frame, create walls and add-on structure. Heavier boards may require a tabletop paper trimmer or knife - you may wish to pre-cut these.

   — The Wood Project Bag contains smaller balsa wood strips that may be cut with heavy scissors to create pillars, beams, window frames, etc.

   — Glue acetate to the reverse side of the wall to mimic window glass.

   — Craft sticks make great "lumber." Use heavy scissors to cut the round ends off jumbo size sticks to make wood planks. Use to make floors, walls, decks, etc.

   — Use acrylic paint to cover masking tape, and on balsa strips and craft sticks.

   — Architectural details can be made from a wide variety of materials. Mosaic pieces can be glued on to make bricks or tile patios. Pebbles create stone walls, sand can be drizzled into glue for stucco. More ideas: beads, blocks, wood scraps, dowels, metal foil, twigs.

   — As with any home construction, the structure needs to be completed before interior details are considered. Students should furnish only as time allows and only after the building is done.

Ideas for Finished Houses

— Have students write up a realtor's description of the house, as if they were selling the property.

— Organize a real estate auction. Proceeds could be used as a fundraiser or donated to a charity to help the homeless.

National Standards

Content Standard #2 — Using knowledge of structures and functions

5-8

Students select and use the qualities of structures and functions of art to improve communication of their ideas.

9-12

Students create artworks that use organizational principles and functions to solve specific visual arts problems

Content Standard #4 — Understanding the visual arts in relation to history and cultures

5-8

Students analyze, describe and demonstrate how factors of time and place (such as climate, resources, ideas and technology) influence visual characteristics that give meaning and value to a work of art.

9-12

Students differentiate among a variety of historical and cultural contexts in terms of characteristics and purposes of works of art.

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 compare the materials, technologies, media, and processes of the visual arts with those of other arts disciplines as they are used in creation and types of analysis