

Classroom Activity

Paper Architecture

Enduring Understanding	Flat and rigid materials, when manipulated, can become organic and dynamic architectural forms.
Grades	7–12
Time	Two to three class periods
Visual Art Concepts	Function, building materials, aesthetic effect, design, organic form, architectural model, tessellation, origami, blueprint
Materials	Pencil, sketching paper, Bristol paper, rulers, X-Acto® knives, scissors, hot glue gun or tape, balsa wood, wood blocks, and/or popsicle sticks
Talking about Art	View and discuss the printed image of Frank Gehry's <i>Walt Disney Concert Hall</i> (2003) included in the curriculum folder.

What do you notice about this building? Can you identify functional elements (i.e., windows, doors, walls)? What building materials do you see? How would you describe the texture of the materials? Turn to a partner and describe the optical effect that they create. If you and your partner were standing next to the building, what might you see, hear, and feel?

This building was designed by Frank Gehry, a world-renowned architect who lives and works in Los Angeles. What steps do you think he took to design this building? How do you think construction workers executed the design? What might this building be used for? Hypothesize the building's function or purpose, share your ideas with your partner, then take a look at the title located in the tombstone information underneath the image. It is L.A.'s *Walt Disney Concert Hall*, home of the L.A. Philharmonic, and is used as a performance space for some of the city's best musicians.

Have you seen this building in downtown L.A.? With your partner, compare and contrast this building with the buildings in your own neighborhood. What makes this building so unique? Gehry's architectural process is unique in that he often manipulates resilient and rigid materials such as metal. Refusing to conform to architectural tradition, he defies the nature and physics of metal to create new organic and curvaceous forms. In fact, he designs buildings in the same way that an artist creates sculptures.

First, he experiments with form by assembling and reassembling small building blocks. This becomes the model's foundation, akin to the skeleton of the human body. Then, he sculpts flexible materials such as aluminum foil and red velvet around the foundation to create a skin of fluid and organic forms. Once the model is complete, he scans it into an aeronautical-engineering program. The software creates a digital blueprint for the project and even provides instructions that help construction workers measure and cut the metal. Thanks to this new technology, Gehry is able to realize his innovative visions.

Making Art

Visit www.laphil.com/philpedia/about-walt-disney-concert-hall to see an original sketch of *Walt Disney Concert Hall*. Imagine that you, too, are designing a building out of a rigid material. Choose a building material like metal or wood, then create a sketch of the structure's form. The form should contradict the natural properties of the material so be sure to include organic lines and shapes.

Next, execute your design in paper as an architectural model. First, create an open frame for your model to serve as the foundation. Use modeling materials such as popsicle sticks, wood blocks, or balsa wood to build a sturdy geometric shape, such as a rectangle, square, or triangle. Use hot glue or tape to adhere the sticks together. Then, create a tessellation out of paper using an origami folding technique (for step-by-step instructions, see the document of lesson plans included on the curriculum CD). When finished, play with the feel of the paper tessellation and shape the sheet into the original form that you sketched. Lastly, use hot glue or tape to adhere the final form to the frame's exterior. Combine multiple tessellations to create a more complex model by cutting into one of the tessellations with an Xacto® knife, then fitting a second tessellation sheet into the first.

Reflection

Clear an area of the classroom floor and use colored masking tape to lay a grid of streets and intersections. Gather all models and insert them into the grid to create a miniature city. Take a look at the city's architecture and the types of buildings that students created. Who might live in a city like this? When, where, and why? Write a short story that describes a resident who lives and works in this city. Include key details about what life is like and how people interact with the architecture.

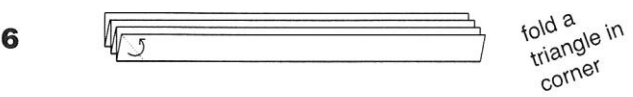
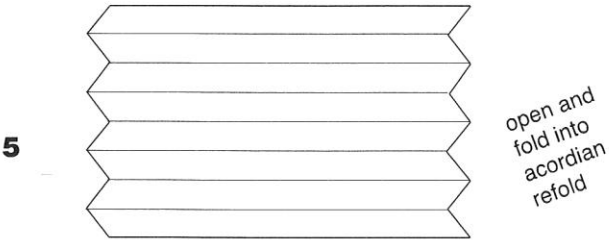
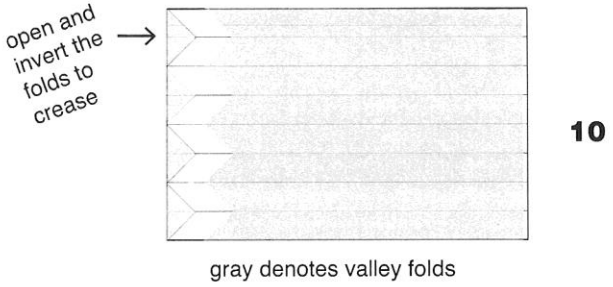
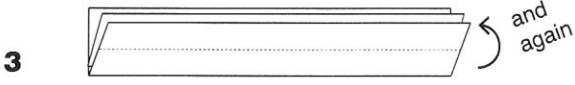
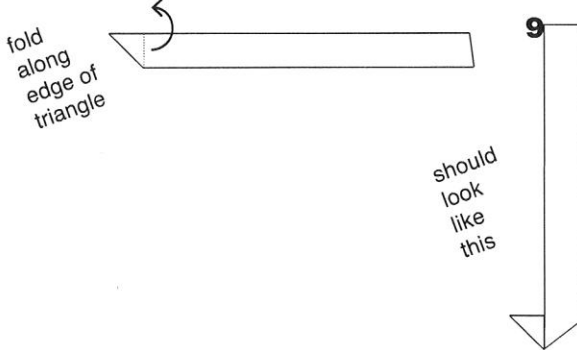
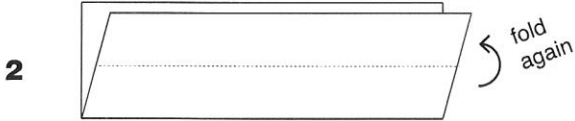
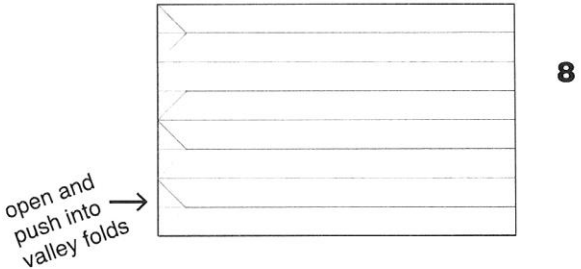
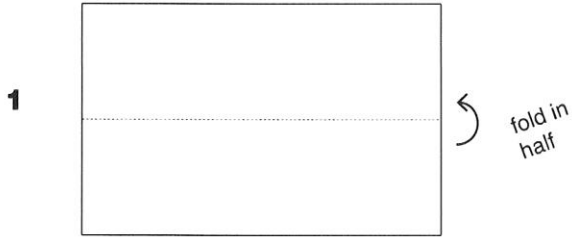
Curriculum Connection

Architects are not only artists, but mathematicians, too. Architects must translate three-dimensional models into two-dimensional blueprints before construction begins. Create a blueprint of interior rooms and functional elements to serve as a floor plan for your model. Use pencils, rulers, and compasses to capture precise measurements on graph paper. Be sure to include a legend to help construction workers execute the scale of your vision.

Evenings for Educators, *Art and Architecture*. October 2012.

Prepared by Jia Gu with the Los Angeles County Museum of Art Education Department.

**Step By Step
Guide to
Origami
Tessellation**



repeat until...

