

Shape Up

Parent Guide

SUMMARY

In this simple activity children and adults will create or copy a photograph of a building, and then identify the geometric shapes that make up that building.

WHY

This activity will give children real-world examples of geometric shapes. Real-world examples often provide motivation for learning. The technology tool will also help children identify ways that computers can help them to be creative.

TIME

- 10–20 minutes

RECOMMENDED AGE GROUP

This activity will work best with children in kindergarten through 2nd grade.

GET READY

- Read *Julia Morgan Built a Castle* together. The book tells the story of Julia Morgan, one of America's earliest women architects. Morgan designed almost 800 buildings during her career, including William Randolph Hearst's castle in California. For tips on reading this book together, check out the [Guided Reading Activity](http://americanhistory.si.edu/ourstory/pdf/architect/architect_reading.pdf) (http://americanhistory.si.edu/ourstory/pdf/architect/architect_reading.pdf).
- Decide which drawing tool you will use for this activity. If you have not used this tool before, take a moment to draw several shapes. Depending on the tool, you might start drawing a shape from its center or from its top corner.
- Read the *Step Back in Time* sheets.

YOU NEED

- *Directions* sheets (*attached*)
- *Step Back in Time* sheets (*attached*)
- Camera (*optional*)
- Computer with simple graphics tool and/or Internet connection

More information at <http://americanhistory.si.edu/ourstory/activities/architect/>.



Shape Up

Directions, Page 1 of 2

For adults and kids to follow together.

1. Decide on a building you want to study.
 - You can use your home, your school, or another building you go to frequently.
 - You can use a famous building, such as the White House, the Capitol Building, or the Empire State Building. Or you can use one of Julia Morgan's buildings, such as Hearst Castle.
2. Get a digital photograph of the building.
 - If you are studying a nearby building, visit the building and bring your digital camera. The activity will work best if you center the building in your photograph and make the building fill up most of the photograph. Once you are back at your computer, copy or save the image.
 - If you are studying a famous building, search the Internet for an image of the building. For example, you can use Bing.com or Google.com to search for "Julia Morgan Building." Copy or save the image.
3. Open a drawing tool, such as Microsoft Paint or [Google Drawing \(drive.google.com\)](http://Google.com), then create a new document and choose Drawing).
4. Paste your photograph into the drawing tool.
5. Choose the shape tool, and select for the new shape to have no fill color and for it to have a bright line color.

Shape Up

Directions, Page 2 of 2

6. Look closely at your image. What shapes do you see? As you identify each shape, draw it using the shape tool.

7. When you have identified all of the shapes you see, talk about your drawing together.
 - What is the largest shape you see?
 - Do any of the shapes repeat?
 - Are any of the shapes nested inside each other? For example, most of the building is a rectangle, but the windows inside the rectangle are shaped like squares.
 - Describe any shapes you notice that aren't normal geometric shapes. Can you describe it as a slightly changed version of a normal shape or in the shape of a letter in the alphabet? For example, you might see a circle with a flat side or a window shaped like the letter B.
 - What shapes didn't you use? What might be hard about creating that shape in the building? What could you make out of that shape that would be useful (a circle-shaped window, a triangle-shaped roof) or not at all useful (a triangle-shaped door)?

8. For extra challenge, use your digital image as the starting point for a hand-drawn artwork. Start by drawing the shapes as the outline of the building's main parts. Then look closely inside each shape to add the detail back into your artwork.

More information at <http://americanhistory.si.edu/ourstory/activities/architect/>.



Shape Up

Step Back in Time, Page 1 of 2

For more information, visit the National Museum of American History website <http://americanhistory.si.edu/ourstory/activities/architect>.

Architects are people who design buildings. They study math, science, and art to help them design buildings that are strong, useful, and beautiful.

An architect thinks about the place where the building will stand to make sure it will survive the weather and will be sturdy in the ground. The architect also decides the exact measurements for each part of the building to make sure everything will fit together correctly and to decide how much of each building material to buy.



A sketch of the Supreme Court of the United States, by its architect Cass Gilbert [Archives Center, National Museum of American History]

A strong building is only part of the challenge for an architect. He or she will also make sure that the building will be conveniently arranged for the people who will live or work there. To make the building beautiful, the architect will also think about decorations, patterns, and materials that will look beautiful to the people who use the building and see it from outside.

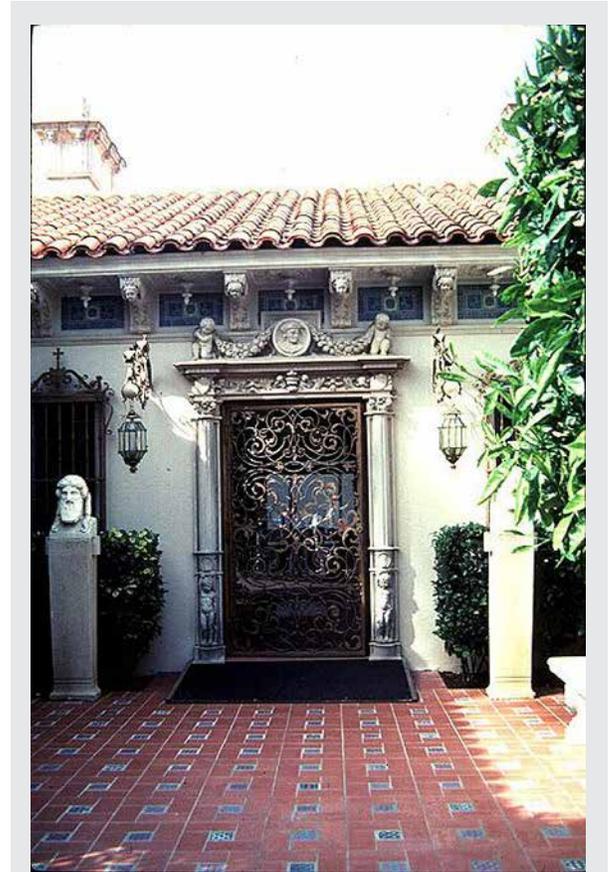
To share their plan for the building, architects make many drawings on paper and sometimes make small models out of cardboard. The architects will then show the papers and models to the people who will use the building. Sometimes architects redo their plans over and over again to make sure they are perfect, because construction workers use those paper plans to make the real building out of materials like stone, metal, wood, plaster, and glass.

Shape Up

Step Back in Time, Page 2 of 2

About Julia Morgan:

Until around 1900, almost all architects were men. Women were not admitted to architectural school. However, Julia Morgan and other great women architects have helped change this tradition and now both women and men can become architects.



Photograph of one of the entrances to Hearst Castle, by Eleanor C. Weller [Archives of American Gardens, Smithsonian Institution]

More information at <http://americanhistory.si.edu/ourstory/activities/architect/>.

Shape Up

Teacher Guide

OBJECTIVES

The students will be better able to:

- Identify and create abstract shapes.
- Use a simple computer drawing tool.

STUDENT PERFORMANCE CRITERIA

- Accurately identifies, counts, and reproduces shapes in the image.

STANDARDS

NCHS History Standards

K-4 Historical Thinking Standards

- 2H: Draw upon the visual data presented in photographs, paintings, cartoons, and architectural drawings.

Common Core Math Standards

CCSS.Math.Content.K.CC.B.5 Count to answer “how many?” questions

CCSS.Math.Content.K.G.A.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects

CCSS.Math.Content.K.G.A.2 Correctly name shapes regardless of their orientations or overall size

CCSS.Math.Content.K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes

More information at <http://americanhistory.si.edu/ourstory/activities/architect/>.

