

Patterns Here, There, and Everywhere

This lesson was created as a supplement to the *Patterns Here, There, and Everywhere* program at the National Building Museum. It is designed to be used in your classroom independently, or as an activity before or after a school program at the Museum. For more information about and to register for the National Building Museum's school programs, visit <http://www.nbm.org/schools-educators/school-visit/>.

The *Patterns Here, There, and Everywhere* program introduces pre-kindergarten through second grade students to patterns and helps students understand their presence in architecture, in other media, and in their everyday lives. Patterns are found everywhere and can help students make connections and predict what will come next. They help young people make sense of the world by organizing it into groupings that can be easily understood. Recognizing patterns will create a foundation for analyzing problems and designing solutions.

National Building Museum

Created by an act of Congress in 1980, the National Building Museum explores, celebrates, and illuminates achievements in architecture, design, engineering, construction, and planning. Since opening its doors in 1985, the Museum has become a vital forum for exchanging ideas and information about such topical issues as managing suburban growth, designing and building sustainable communities, and revitalizing urban centers. A private, nonprofit institution, the Museum creates and presents engaging exhibitions and education programs, including innovative curricula for school children.

Over the past two decades, the Museum has created and refined an extensive array of youth programming. Each year, approximately 50,000 young people and their families participate in hands-on learning experiences at the Museum: 2-hour-long school programs for grades K–9; major daylong festivals; drop-in family workshops; programs helping Cub and Girl Scouts earn activity badges; and three innovative outreach programs, lasting between 30 and 60 hours, for secondary school students. The Museum's youth programming has won the Washington, D.C., Mayor's Arts Award for Outstanding Contributions to Arts Education and garnered recognition from the National Endowment for the Arts.



NATIONAL BUILDING MUSEUM
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202.272.2448/www.NBM.org
Red Line Metro, Judiciary Square

Shhhh Shapes, Psssst Patterns

Learning to recognize how color, pattern, texture, and size create the overall appearance of buildings is important to understanding why places look the way they do. By locating visual clues and making sense of them, students will begin to appreciate architecture and decisions made by architects, urban planners, and engineers. This lesson, which introduces students to basic shapes in architecture, will prepare them for subsequent, deeper exploration of buildings and patterns.

OBJECTIVES

Students will:

- identify shapes;
- recognize and describe patterns created by shapes, numbers, and objects; and
- describe patterns found in buildings and how they contribute to the building's appearance.

NATIONAL STANDARDS OF LEARNING

Mathematics Algebra

Social Studies 3, 4

Visual Arts 1, 3

DURATION

2 class periods,
45–60 minutes each

MATERIALS

- Copies of 2 worksheets for each student, pp. 21–24
- Crayons or markers
- Optional: photographs of the White House and Fredrick Douglass house

LESSON PROCEDURE

1. Discuss shapes and patterns.
2. Introduce shapes and patterns found in buildings.
3. Find and record patterns in the school building.
4. Discuss the influence of patterns on the “feel” of a building.

TEACHER PREP

- Photocopy worksheets, pp. 21–24
- Optional: research pictures of the White House and Fredrick Douglass house

PATTERN VOCABULARY

Alternating Pattern, Arch, Architecture, Ascending Pattern, Built Environment, Column, Descending Pattern, Pattern, Progressive Pattern, Repeating Pattern, Shape

LESSON PLAN

1. Discuss Shapes and Patterns. (15 minutes)

- Introduce a variety of shapes to students.
- Explain that one circle is a shape, but two circles together form a pattern.
- Define a pattern as something that repeats.
- Give examples of alternating, ascending, descending, progressive, and repeating patterns using shapes, colors, numbers, letters, nature, and buildings.

2. Introduce Shapes and Patterns Found in Buildings. (25 minutes)

- Explain that all buildings contain shapes.
- Many building shapes take architectural form as windows (squares), columns (lines), doors (rectangles), and towers (triangles) and often create patterns.
- The students’ school, town, and Washington, D.C., where the National Building Museum is located, have endless examples of architectural shapes and patterns. Ask for examples.
- Give students the Patterns in Buildings Student Worksheet, pp. 21–22. They will find patterns in two Washington, D.C. buildings.
- Optional: show pictures of the White House and Fredrick Douglass house as other visual aids.

3. Find and Record Patterns in the School Building. (30 minutes)

- Explain to students that they will now explore their school to find patterns. As a class, spend 10-15 minutes examining the outside of the school. The Patterns at School Student Worksheet, pp. 23–24, is designed to help students identify shapes and patterns in buildings by examining their overall form and the sum of their parts.
- This will prepare them for their field trip where they will explore the Museum’s architectural patterns firsthand.

4. Discuss the Influence of Patterns on the “Feel” of a Building. (15 minutes)

- After students have completed their worksheets, review their patterns.
- Ask them if they think the shapes and patterns of each building make it appear quiet or loud, bright or dull, simple or complex.
- Explain to them that the sequence or rhythm of certain shapes and patterns often contributes to the overall “feel” of a place.

Taking it Further

- Have each student create a sketch of the building in which he/she lives (house, apartment, etc.). Note shapes and patterns.
- Have the class or individual students use magazines, catalogs, and newspapers to create a collage of houses using patterns as the guiding element.

NOTES:

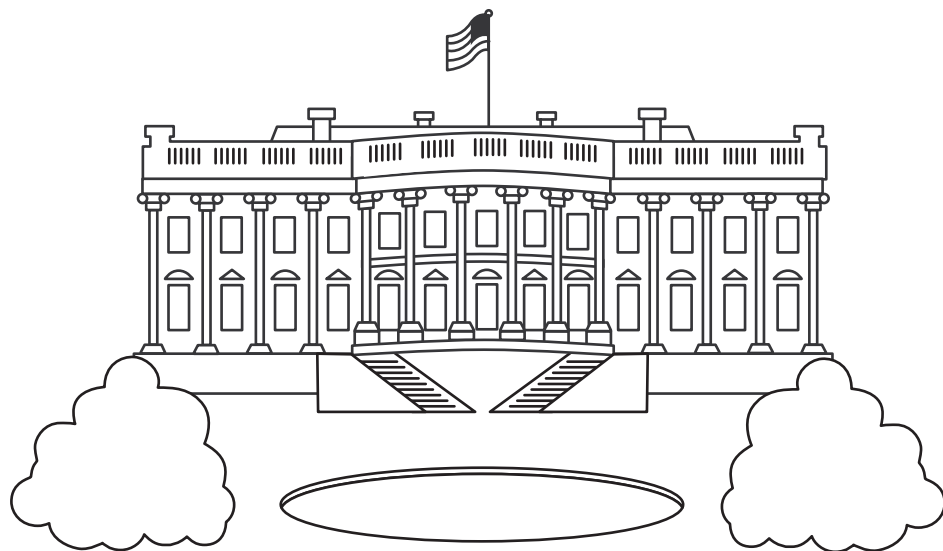
Patterns in Buildings Student Worksheet

NAME:

Each building on this worksheet is made up of shapes and patterns.

1. Find patterns in the building and draw them on the lines below.
2. Look for circles, half circles, squares, triangles, and lines.

The White House
Washington, D.C.



Pattern Example



Can you find two more?

Pattern #1

Pattern #2

The Fredrick Douglass House
Washington, D.C.



Pattern Example



Can you find two more?

Pattern #1

Pattern #2

Patterns at School Student Worksheet

NAME:

Your school is an important building that contains shapes and patterns.

1. Examine the outside of your school and draw a picture of it including patterns. Color your school and the patterns.
2. Draw two patterns found on the outside of your school on the next page.
3. Write one thing about the way it looks.

1. Your School

2. Pattern #1

Pattern #2

3. My school looks _____

because _____