

# Green Architecture

## Grade 4

Lubeznik Center for the Arts  
**February 23 – April 20**

The **Green Architecture** exhibit at the Lubeznik Center for the Arts is an eclectic array of concepts which cross the curriculum to combine all aspects of grade level curriculum. In this experience, architecture becomes a creative integration of art, science, math, social studies and language arts that produce and develop the spaces and places that function to serve our needs. We need special places to live, work, learn, shop and be entertained; places that are not only practical and functional, but also inspirational.

With environmental issues are concerning our planet, many of us are becoming acutely aware of the necessity to be sensitive to our resources around us. Some of us are realizing that our resources are not unlimited and therefore need to be used more wisely. Many of us are becoming ‘**green**’. Recycling when we can, turning off lights when we leave a room, lowering thermostats in the winter are just a few of the ways that all of us make a difference.

**Green Architecture** shows extraordinary designs and construction of “**green**” projects that are within a 200 mile radius of the exhibit. The work in the show demonstrates ways that architects and designers have used alternative energy sources and the natural environment to create functional space and places without sacrificing interesting design. The exhibit is intended to inform and inspire visitors by offering an opportunity to view ‘green’ projects that are being built locally.

The exhibit is important for students, because it demonstrates how the sciences, the math, the social studies, the language arts and the visual arts that they study in school relate to and depend on one another to create the buildings that we use. They will experience how an architect uses their curriculum to create a useable building.

The Green Architecture programs are structured for each group and their specific requirements. Programs include a tour of the exhibit by knowledgeable staff and hands on experience of what it means to live green.

For more information and to schedule a class program, contact:

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Vocabulary:

**Architecture** (n) The art, science and practice of designing and building structures that serve our needs, such as houses, schools, office buildings, theatres etc.

The word “*architecture*” comes from the Latin word “*architectura*” and from the Greek “*arkitekton*” which means a master builder, chief builder or carpenter.

**Architect** (n) A person who designs buildings and advises in their construction. An architect uses mathematics, science, art, technology social sciences, politics and history to design structures for our use.

**Green Architecture.** (n) The design of spaces and places that respects the natural environment resources in our environment. The word “green” is used to describe something that is ecologically or environmentally friendly.

**Natural resource.** (n) Industrial materials and capacities such as mineral deposits, water power, and solar power supplied by nature that we use.

**Conserve.** (v) To keep in a safe or sound state. To avoid wasteful or destructive use of natural resources.

**Recycle.** (v) To pass through a series of changes or treatments. To process things such as glass, plastics and metals in order to make new things that we use.

**Renewable Materials.** (n) Natural materials that can be rapidly replaced in the environment such as fast growing trees, bamboo and agricultural products.

**Renewable Energy.** (n) Energy derived from sources that do not deplete natural resources such as solar power, wind power and geothermal energy.

**Solar Energy.** (n) Energy derived from the sun that we can use for our energy needs.

**Geothermal Energy.** (n) Energy derived from sources in the earth like steam or water power that we can use for energy.

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Web sites.

The following web sites are designed to show students how to become environmentally aware of global warming and how to “act green” in their daily lives.

Global Warming for Kids features “energy action” games, photos and downloads in four languages.

<http://globalwarmingkids.net>

Scholastic for Kids is a new offering from Scholastic. This site offers 100 days to act green and has printable (free) reminders for students to paste on faucets, bicycles and their parents’ bathroom mirrors.

<http://www.scholastic.com/actgreen/>

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### **Behavioral Objective:**

Students attending the Green Architecture exhibit at the Lubeznik Center for the Arts will have the opportunity of seeing and understanding the thought process of how architects and designers create buildings and spaces for us to use that are functional and ecologically and environmentally responsible.

### **Learning Objectives:**

Students will:

- 1) Learn what “green” means.
- 2) Learn the vocabulary of green architecture
- 3) Identify man-made and natural products used in green architecture
- 4) Create a list of things that they can do at home and at school to create a more “green” environment.
- 5) Design a house that is “green”

### **Measurable assessment:**

(Pre-visit) Teachers will administer a pre test to ascertain the knowledge of students.

(Post –visit) Students will retake test. Using gained knowledge, students will be given guidelines for designing a “green” house. Students will draw their house for a class presentation. Students will write a story, using appropriate “green’ vocabulary and display it in the classroom.

### **Additional activities:**

Using other curriculum based standards, students will gain knowledge how science, math, language arts, social studies and the visual arts relate to each other to produce the ideas behind “green architecture”.

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### **Indiana Academic Standards**

#### **Language Arts:**

Standard 1: Reading: Word recognition, fluency, and vocabulary development

4.1.4 Use common roots (meter=measure) and word parts (therm=heat) derived from Greek and Latin to analyze the meaning of complex words (thermometer)

Standard 4: Writing: Process. Students write clear sentences and paragraphs that develop a central idea. Students progress through the stages of the writing process, including pre-writing, drafting, revising and editing multiple drafts.

4.4.4 Use common organizational structures for providing information in writing, such as chronological order, cause and effect, or similarity and difference and posing and answering a question.

Standard 5: Writing: Applications (Different types of Writing and Their Characteristics)

4.5.3 Write informational reports that:

- ask a central question
- include facts and details for focus
- use more than one source of information, including speakers, books, newspapers, media sources and online information.

#### **Math:**

Standard 4: Geometry: Students show an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems.

4.4.1 Identify, describe and draw rays, right angles, acute angles, obtuse angles and straight angles using appropriate mathematical tools and technology.

4.4.2 Identify, describe and draw parallel, perpendicular, and oblique lines using appropriate mathematical tools and technology.

4.4.3 Identify, describe and draw parallelograms, rhombuses, and trapezoids, using appropriate mathematical tools and technology.

#### **Science:**

Standard 1: The Nature of Science and Technology

4.1.8 Recognize and explain that any invention may lead to other inventions.  
(Windmills)

4.1.9 Explain how some products and materials are easier to recycle than others.

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Standard 3: The Physical Setting. Students continue to investigate changes of Earth and the sky and begin to understand the composition and size of the universe. They explore, describe and classify materials, motion and energy.

- 4.3.2 Begin to investigate and explain that air is a substance that surrounds us and takes up space and whose movements we feel as wind.
- 4.3.9 Draw or correctly select drawings of shadows and their directions and length at different times of the day.
- 4.3.11 Investigate, observe, and explain that things that give off light often also give off heat.
- 4.3.12 Observe and describe the things that give off heat, such as people, animals and the sun.

## **Social Studies:**

Standard 3: Geography

- 4.3.3 Explain the essential facts of Earth/sun relationships (*the rotation and tilt of Earth in its axis and the revolution of Earth around the sun influence climate variation on Earth; Indiana has major seasonal differences in climate relating to changes in the position of the sun and the amount of sunlight received*) and be able to relate these to the climate of Indiana.
- 4.3.5 Map the physical regions of Indiana and identify major natural resources and crop regions.
- 4.3.6 Explain how glacial periods shaped Indiana's landscape and environment.
- 4.3.7 Describe the Earth's atmosphere (*the gasses that surround Earth, including the air we breathe*), lithosphere (*soil and rock that form the Earth's surface*), hydrosphere (*all the water on the Earth's surface*) and the biosphere (*all plants and animals*) and explain how these systems affect life in Indiana.

## **Visual Arts:**

Standard 1: Responding to Art: History

- 4.1.1 Identify the relationship between a work of art and the geography and characteristics of the culture; and identify when and by whom the work was made (focus: Indiana history).

Standard 3: Responding to Art: Criticism

- 4.3.2 Construct meaning based on properties found in the work, personal response and research on the work and its context.
- 4.3.3 Use appropriate art vocabulary.

Standard 6: Responding to Art: Aesthetics

- 4.6.1 Understand that artists have different philosophies or theories when creating art and discriminate between works created from different theories

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### **Standard 8: Creating Art**

- 4.8.1 Apply elements (line, shape, form, texture, color and space) and principles (repetition, variety, rhythm, proportion, movement, balance and emphasis) in work that effectively communicate their ideas.
- 4.8.2 Identify and discriminate between types of shape (geometric and organic) colors, (primary, secondary, complementary, tints and shades), lines (characteristics, quality), textures (tactile and visual), and space (placement, perspective, overlap, negative, positive, size) balance (symmetrical, asymmetrical, radial) and the use of proportion, rhythm, variety, repetition and movement in their work and the works of others.

### **Standard 9:**

- 4.9.2 Drawing – Media: pencils, colored pencils, markers, chalks, crayons, oil pastels, charcoals.  
Processes: contour line, rendering, sketching, value, shading, crosshatching

### **Standard 11: Careers and Community**

- 4.11.2 Identify various opportunities in art related careers

### **Standard 13: Integrated Studies**

- 4.13.1 Begin to distinguish between products and processes of visual art and other disciplines
- 4.13.2 Create a work of art using subject matter, concepts, or signs systems of another discipline.

# Green Architecture

## Pre Test

Circle the answer that describes the word.

- 1) Architecture
  - a. a new video game
  - b. a set of blocks
  - c. buildings
  
- 2) Green
  - a. color
  - b. doing something new for the first time
  - c. being friendly to the environment
  
- 3) recycle
  - a. to throw things away
  - b. to ride a bicycle
  - c. to use things again
  
- 4) Architect
  - a. an assistant to the principal
  - b. a person who designs buildings
  - c. a teacher
  
- 5) Natural Resource
  - a. water
  - b. plastic cup
  - c. cell phone