

Green Architecture

Grade 5

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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Grade 5 Integrated Visit – Lubeznik Center for the Arts

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

5.1.4 Know less common roots and word parts from Greek and Latin and use this knowledge to analyze the meaning of complex words.

Standard 4: Writing: Application (Different Types of Writing and Their Characteristics)

5.5.1 Write narratives (stories) that

- establish a plot, point of view, setting and conflict
- show, rather than tell, the events of a story

5.5.3 Write research reports about important ideas, issues or events by using the following guidelines

- frame questions that direct the investigation
- establish a main idea or topic
- develop the topic with simple facts, details, examples and explanations.
- Use a variety of information sources, including firsthand interviews, reference materials and electronic resources, to locate information for the report.

5.5.4 Write persuasive letters or compositions that:

- state a clear position in support of a proposal
- support a position with relevant evidence and effective emotional appeals
- follow a simple organizational pattern with the most appealing statements first and the least powerful one last
- address reader concerns

Math

Standard 4: Geometry

5.4.1 Measure, identify and draw angles, perpendicular and parallel lines, rectangles, triangles and circles by using appropriate tools

5.4.2 Identify, describe, draw and classify triangles as equilateral, isosceles, scalene, right, acute, obtuse and equiangular.

5.4.9 Given a picture of a three-dimensional object, build the object with blocks.

Example: given a picture of a house made of cubes and rectangular prisms, build the house.

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Science

Standard 1: Nature of Science and Technology

- 5.1.5 Explain that technology extends the ability of people to make positive and/or negative changes in the world.
- 5.1.7 Give examples of materials not present in nature, such as cloth, plastic, and concrete that have become available because of science and technology.

Standard 3: The Physical Setting

- 5.3.10 Investigate that some materials conduct heat (movement of heat through matter) much better than others, and poor conductors can reduce heat loss.

Standard 6: Common Themes

- 5.6.1 Recognize and describe that systems contain objects as well as processes that interact with each other.

Social Studies

Standard 3: Geography

- 5.3.5 Map and describe the characteristics of climate regions of the United States.
Example – Distinguish between the moist eastern part of the United States and the drier western part.

Standard 5: Individuals, Society and Culture

- 5.5.1 Describe basic needs that individuals have in order to survive – such as the need for food, water, shelter and safety.
Example – American Indian groups and early European settlers developed housing, clothing style, and materials depending upon what were available in the local environment.
- 5.5.5 Read accounts of how scientific and technological innovation have affected the way people lived in the early United States and make predictions about how future scientific and technological developments may change cultural life.

Visual Arts

Standard 1: Responding to Art: History

- 5.1.1 Identify the relationship between a work of art and the geography and characteristics of the culture, and identify where, when, why and by whom the work was made.

Standard 8: Creating Art

- 5.8.1 Apply elements (line, shape, form, texture, color, value and space) and the principles (repetition, variety, rhythm, proportion, movement, balance, emphasis and unity) in work that effectively communicates their ideas.
- 5.8.2 Identify and discriminate between types of shape, colors, lines, textures, and space, balance and the use of proportion, rhythm, variety, repetition and movement in their work and works of others.

Standard 9:

- 5.9.1 Discriminate between visual characteristics of a variety of media and selectively use these in their work.
- 5.9.2 Identify and control different media, techniques, and processes to effectively communicate ideas, experiences and stories including:
 - Drawing: Media – pencils, colored pencils, markers, chalks, crayons, oil pastels, charcoals.
 - Drawing; Processes – contour line, rendering, sketching, value, shading, crosshatching, stippling.
 - Sculpture/Architecture/Jewelry: Media – paper, papier-mache, clay, plaster, fiber cardboard, wood paper, foil, found objects, sand, balsa, wire, foam.
 - Processes: carving, additive, subtractive, modeling, constructing, casting

Standard 11: Careers and Community

- 5.11.1 Identify the roles of artists, architects and critics in the community.

Standard 12:

- 5.12.2 Visit, analyze and respond to art at local museums and exhibitions.

Standard 13: Integrated Studies

- 5.13.2 Create products or performances that communicate in-depth knowledge gained through integrated study of a theme.

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Pre Test

Circle the answer that describes the word.

- 1) Architecture
 - a. a video game
 - b. a set of blocks
 - c. buildings

- 2) Green
 - a. color
 - b. doing something 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