

Green Architecture

Grade 6

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

- 6.1.3 Recognize the origins and meanings of frequently used foreign words in English and use these words accurately in speaking and writing.
- 6.1.4 Understand unknown words in informational texts by using word, sentence and paragraph clues to determine the meaning.

Standard 2: Reading: Comprehension – Structural Features of Informational and Technical Materials

- 6.2.1 Identify the structural features of popular media (newspapers, magazines, online information) and use the features to obtain information
Example: Do a keyword search on the Internet to find information for a research report. Use the section headers for a newspaper to locate information for a report on current world events.
- 6.2.3 Connect and clarify main ideas by identifying their relationships to multiple sources and related topics.

Standard 5: Writing: Applications – Different Types of Writing and Their Characteristics

- 6.5.3 Write research reports that:
- pose relevant questions that can be answered in the report
 - support the main idea or ideas with facts, details, examples and explanations from multiple authoritative sources, such as speakers, newspapers and magazines, reference books and online information searches.
 - Include a bibliography.
- 6.5.4 Write persuasive compositions that:
- state a clear position on a proposition or proposal
 - supports the position with organized and relevant evidence and effective emotional appeals
 - anticipate and address reader concerns and counterarguments
- Example: Write a persuasive essay about how we should use the concept of Green Architecture is a way to create new ideas of how to use natural resources such as sun, wind and water to help us create a cleaner environment while designing and constructing buildings and houses.

Social Studies:

Standard 2: Civics and Government

6.2.7 International Relations. Identify the functions of governmental international organizations in the world today.

Research how various the governments and citizens of various countries are creating alternative energy sources and Green Architecture in their environment.

Standard 3: Geography

Places and Regions

6.3.3 Identify the names and locations of countries and major cities in Europe and the Western Hemisphere. Identify the state of Mexico and the provinces of Canada.

6.3.4 Describe major physical characteristics (natural features, such as land and water forms, climate, natural vegetation and native wildlife) of regions in Europe and the Americas.

6.3.5 Describe the major cultural characteristics (human features, population characteristics, communication and transportation networks, religion and customs and how people make a living or build homes and other structures).

Physical Systems

6.3.6 Explain how Earth/sun relationships (the rotation and tilt of Earth on 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)

6.3.8 Identify major biomes (ecological communities such as rainforests, deserts, grasslands) and explain ways in which the natural environments of places relate to their climate, which is influenced by Earth/sun relationships. Emphasize the biomes of northwest Indiana.

Human Systems

6.3.9 Identify patterns of population distribution and growth in Europe and the Americas and explain changes in these patterns, which have occurred over time.

6.3.11 Research the reasons for the locations of the major manufacturing and agricultural regions of Europe, the Americas and northwest Indiana, using a variety of information resources.

Environment and Society

6.3.12 Analyze and give examples of the consequences of human impact on the physical environment and evaluate ways in which technology influences human capacity to modify the physical environment.

6.3.13 Give examples of how both natural and technological hazards have impacted the physical environment and human populations in specific areas particularly in Northwest Indiana.

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Standard 5: Individuals, Society, and Culture

6.5.5 Identify examples of inventions and technological innovations that have brought about cultural change in Europe, the Americas and Northwest Indiana and examine their impact.

Example: The invention and re-invention of the windmill. The invention and use of solar power and how it would impact the way people would live.

6.5.7 Examine art, music, literature and architecture in Europe and the Americas: explain their relationship to the societies that created them; and give examples of how artistic ideas have spread from one culture to another.

Science

Standard 3: Physical Setting

6.3.12 Describe the ways human beings protect themselves from adverse weather conditions.

6.3.13 Identify, explain, and discuss some effects human activities, such as creation of pollution, have on weather and the atmosphere.

6.3.16 Explain that human activities, such as reducing the amount of forest cover, increasing the amount and variety of chemicals released into the atmosphere and farming intensively, have changed the capacity of the environment to support some life forms

Matter and Energy

6.3.17 Recognize and describe that energy is a property of many objects and is associated with heat, light, electricity, mechanical motion and sound.

Forces of Nature

6.3.23 Explain that electrical circuits provide a means of transferring electrical energy from sources such as generators to devices in which heat, light, sound and chemical changes are produced.

Standard 4: Living Environment

6.4.10 Describe how life on Earth depends on energy from the sun.

Environmental Science

Standard 1: Principles of Environmental Science

Env.1.17 Describe how decisions to slow the depletion of energy sources through efficient technology can be made at many levels from personal to national and they always involve trade-offs of economic costs and social values.

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Natural Resources

- Env.1.21 Differentiate between renewable and nonrenewable resources and compare and contrast the pros and cons of using nonrenewable resources.
- Env.1.22 demonstrates knowledge of the distribution of natural resources in the US and the world and explains how natural resources influence relationships among nations.
- Env.1.25 Recognize and describe alternative sources of energy provided by water, the atmosphere and the sun.
- Env.1.26 Identify specific tools and technologies used to adapt and alter environments and natural resources in order to meet human physical and cultural needs.
- Env.1.27 Understand and describe the concept of integrated natural resource management and the values of managing natural resources as an ecological unit.

Visual Arts

Standard 1: Responding to Art – History

- 6.1.2 Identify how the roles and relationships of artists (architects) and patrons (clients) have affected the creation of works of art

Standard 7: Creating Art – Production

- 6.7.2 Demonstrate the ability to utilize personal interests, current events (Green Architecture), media or techniques as sources for expanding their artwork.

Standard 8: Creating Art – Students understand and apply the elements and principles of design effectively in their work.

- 6.8.1 Apply elements (line, shape, form, texture, color, value and space) and principles (repetition, variety, rhythm, proportion, movement, balance, emphasis and unity) in work that effectively communicates their ideas.
- 6.8.2 Identify and discriminate between types of shape (geometric and organic) colors (primary, secondary, complementary, intermediates, neutrals, tints, tones, shades and values), lines (characteristics, quality) textures (tactile and visual) and space (background, middle ground and foreground, placement, perspective, overlap, negative, converging lines, positive, size and color) balance (symmetrical, asymmetrical, radial) and the use of proportion, rhythm, variety, repetition and movement in their work and the works of others.

Standard 9: Creating Art – Students develop and apply skills.

- 9.9.2 Drawing: Media – pencils, colored pencils, markers, chinks, crayons, oil pastels, charcoals, pastels, conte crayon
Processes – contour line, rendering, sketching, value, shading, crosshatching, stippling, one-point perspective.

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Standard 11: Careers and Community

6.11.1 Identify a wide variety of professions related to art such as: artists and exhibitions, graphic artists and advertisements, architects and buildings.

6.11.2 Identify skills required for various types of art.

Standard 13: Integrated Studies

Students identify and make connection between knowledge and skill in art and all other subject areas such as humanities, sciences, and technology.

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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 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