



# ARCHI TREKS

ArchiTreks gets kids excited about architecture, science, engineering, and more through fun and educational adventures as they explore and discover their surroundings.

Age Range: Kindergarten - 5th Grade

Subject: Architecture



# Lesson 1: Shapes

[Lesson based on "Architecture: It's Elementary" Kindergarten Lesson 1 pg. 21](#)

Lesson Intro:

What are some shapes that you can find right outside your door? Once you see the shapes hidden in any building's design, you can start to see how the architect who designed it manipulated these shapes, along with other things like size, texture, proportion, scale, mass and color to not only make a building do what it needs to do but also be really fun to look at.

Lesson Duration: 60 minutes

Video Link: <https://www.pbs.org/video/dptv-education-architreks-shapes/>

Objectives:

- Introduce shapes as the most basic element of form
- Visualize shapes as simple forms of objects in the environment
- Verbalize an understanding of shapes, their similarities and differences

Materials:

- Lesson 1 Student Handouts for each student (pages 6-8)
- Pencils
- Scissors
- Glue
- Coloring Materials

Vocabulary:

- Circle
- Semicircle (half circle)
- Rectangle
- Shape
- Square
- Triangle

# Lesson 1: Shapes (continued)

[Lesson based on "Architecture: It's Elementary" Kindergarten Lesson 1 pg. 21](#)

## Activity:

1. Read and discuss intro with students "What are some shapes that you can find right outside your door? Once you see the shapes hidden in any building's design, you can start to see how the architect who designed it manipulated these shapes, along with other things like size, texture, proportion, scale, mass and color to not only make a building do what it needs to do but also be really fun to look at."
2. Show video (see link above)
3. Review the basic shapes introduced in the video: circle, semi-circle, rectangle, square, and triangle:
  - a. Using scissors, have students cut out each shape from their student handouts for Lesson 1
  - b. Discuss the characteristics of each shape.
4. Take the students on a shape search in your neighborhood:
  - a. Using the shapes they cut out and their student handout pages, look for examples of shapes. It may be helpful for students to hold the shapes up when they recognize it on a building . This will help them compare.
  - b. When students see any shape, have them point it out and add a tally to their handout. Share and discuss as a group.
5. Have students glue their shapes down onto their handout in the appropriate column on the tally table.
6. Finally, have students draw their own building. Encourage them to use multiple different shapes in their drawing.

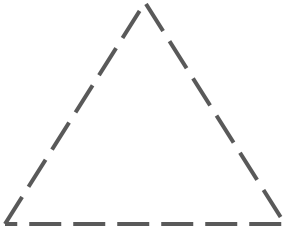

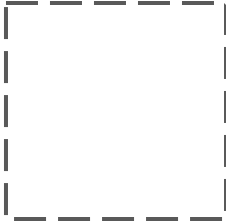

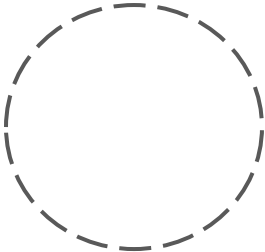
## Assessment Opportunity:

- A. Observe the students and their ability to find shapes within their neighborhood.
- B. Review student's building drawings. Look for students ability to incorporate multiple different shapes into their building design.

# Lesson 1: Shapes

Find it!

Go on a shape search in your own neighborhood. Cut out the shapes on the next page and carry them with you on your walk. When you see a shape on your walk, record a tally mark in the table below. After your walk, glue the correct shape onto the correct box.

Shape	Tally
	
	
	
	
	

# Lesson 1: Shapes

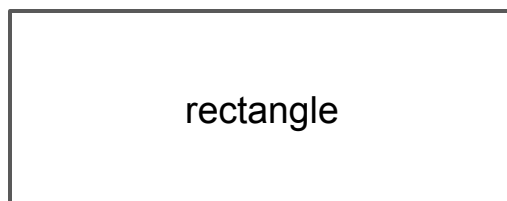
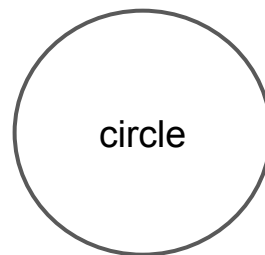
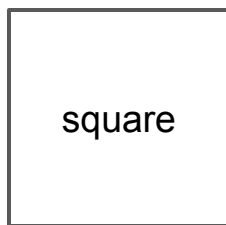
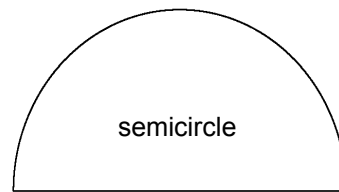
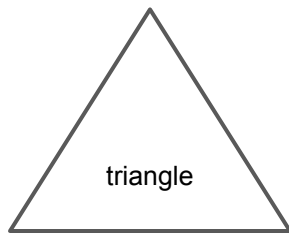
Draw it!

In the box below, sketch a building from your own imagination! Try to use 3 different shapes in your drawing.

A large, empty rectangular box with a thin black border, intended for a student to draw a building. The box occupies most of the lower half of the page.

# Lesson 1: Shapes

## Shape Cutouts



# Lesson 2: Structure

[Lesson based on "Architecture: It's Elementary" Kindergarten Lesson 5 pg. 61](#)

Lesson Intro:

How come a bench is able to support your weight and resist the gravity pulling it towards the earth? How do buildings manage to stay upright? And how do all of those shapes stick together? When you can find the smaller structures hidden inside a building's design, you can also see how the architect used them in the best way possible to make that building strong.

Lesson Duration: 60 minutes

Video Link:

<https://www.pbs.org/video/dptv-education-architreks-structures/>

Objectives:

- Introduce the structural principles of opposing forces tension and compression
- Develop knowledge of three-dimensional forms
- Develop a basic vocabulary of structural principles and components

Materials:

- Student Handout pages for each student
- Pencil
- Coloring materials

Vocabulary:

- Arch
- Beam
- Column
- Compression
- Dome
- Flying Buttress
- Forces
- Gravity
- Tension
- Vault

# Lesson 2: Structure (continued)

[Lesson based on "Architecture: It's Elementary" Kindergarten Lesson 5 pg. 61](#)

Activity:

1. Read and discuss intro with students "How come a bench is able to support your weight and resist the gravity pulling it towards the earth? How do buildings manage to stay upright? And how do all of those shapes stick together? When you can find the smaller structures hidden inside a building's design, you can also see how the architect used them in the best way possible to make that building strong."
2. Show video (see link above)
3. Display and discuss pictures of buildings with different types of structural systems (next page). Ask the class to think of more familiar structures that demonstrate the same principles; for example, the column and beam structure of playground equipment or the vault shape of a tunnel.
4. Take the students on a structure search in your neighborhood. Look for examples of these structures. Ask the students to discuss the function of each structure.
5. Give students a copy of the "Acting Out Structures" handout. Have the class "act out" different structural systems, calling attention to concepts such as the following:
  - a. Some structures, such as a column, can function independently.
  - b. Other structures, such as an arch, require cooperative effort or "opposing forces."
  - c. Notice how tension and compression forces can be used to oppose the force of gravity. Demonstrate tension using string or rubber band, and compression by pushing hands together.
6. Have students complete the "Explain It" section on their student handout.

Assessment Opportunity:

- A. Observe the students and their ability to act out and describe the function of different building structures.
- B. Review student's writing/drawing. Look for their understanding of the function of different building structures.



# Lesson 2: Structure

[Lesson based on "Architecture: It's Elementary" Kindergarten Lesson 5 pg. 61](#)



Arch



Column & Beam



Flying Buttress



Vault / Tunnel



Column



Dome



# Lesson 2: Structure

## Act It Out!

Act out each of the different building structure on the back of this sheet. Choose one and write or draw an explanation of how the design helps support the building.

## Explain It!!

Choose one structure and write or draw an explanation of how you think the design helps support the building.

A large, empty rectangular box with a thin black border, occupying the lower half of the page. It is intended for students to write or draw their explanations of how building structures support themselves.

# Acting Out Structures



Arch



Column & Beam



Flying Buttress



Vault / Tunnel



Column



Dome





# Lesson 3: Landmarks

[Lesson based on "Architecture: It's Elementary" Fourth Grade Lesson 5 \(pg. 309\)](#)

Lesson Intro:

How many different kinds of landmarks can you find in one neighborhood? Landmarks in a neighborhood act as an "anchor". Just like how an anchor on a ship holds that ship in place and keeps it from drifting away, neighborhood landmarks are designed to serve a purpose, whether it's a school, a hospital, a library, a police station or even just a sculpture or statue.

Lesson Duration: 60 minutes

Video Link:

<https://www.pbs.org/video/dptv-education-architreks-structures/>

Objectives:

- Develop an awareness and understanding of the function of neighborhood landmarks
- Learn that landmarks can be planned or accidental, and what the consequences are of each type
- Develop the ability to produce a drawing expressing student understanding of landmarks.

Materials:

- Student Handouts for each student
- Printout of prominent city landmarks (if possible)
- Access to Google Maps (or other similar resource)
- Pencil
- Coloring Materials

Vocabulary:

- Landmark
- Neighborhood

# Lesson 3: Landmarks (continued)

[Lesson based on "Architecture: It's Elementary" Fourth Grade Lesson 5 pg. 309](#)

## Activity:

1. Begin with the question, "What is a neighborhood landmark?" Explain that in architectural language, a landmark is a building or prominent object that a community relates to in a given area. For example, when children relate to the location of their home relative to the location of their school, the school is a landmark.
2. Show video (see link above)
3. Take students on a landmark search in your community. This can be done physically, or virtually (by using a digital resource such as Google Maps Street View). Make a list of prominent city landmarks, such as the school, a statue, the water tower, the police station, etc. The teacher can use photos, drawings or a list on the blackboard for examples of landmarks.
4. Discuss with the students the importance of landmarks. Landmarks in a neighborhood act as an "anchor". Just like how an anchor on a ship holds that ship in place and keeps it from drifting away, neighborhood landmarks are designed to serve a purpose, whether it's a school, a hospital, a library, a police station or even just a sculpture or statue.
5. Discuss other landmarks the students are aware of beyond their neighborhoods. Through travel experiences, reading, television or movies, students may be aware of famous landmarks, such as the Eiffel Tower in Paris. Prepare a list of famous landmarks for comparison.
6. Discuss the following questions: How do landmarks make us feel? Safe and secure? Proud? Why?
  - a. Safe and secure (e.g., neighborhood park, shelter)
  - b. Proud (e.g., Statue of Liberty)
7. Discuss landmarks that may be "negative," such as burned-out or abandoned buildings. How do they make us feel about our neighborhood when we see them?
8. Have students choose one of the local landmarks in their community from the list created in Step 3. Have the students will draw a picture of it, including surrounding features such as trees, etc., and describe its importance to the community and how it makes them feel.

# Lesson 3: Landmarks (continued)

[Lesson based on "Architecture: It's Elementary" Fourth Grade Lesson 5 pg. 309](#)

Assessment Opportunity:

- A. Analyze the students' artwork for:
  - a. Drawing skills;
  - b. Ability to recognize geometric shapes and elements;
  - c. Use of artistic skills, including aesthetic use of color and drawing from observational techniques;
  - d. Identification and understanding of how neighborhood landmarks affect the immediate environment.

Optional Activity: Have the class assemble a "landmark" photographic montage superimposed on a community street map. This may aid in the understanding of how landmarks impact design, planning, social and cultural activities. The drawings the students create will need to have an appropriate scale. Each drawing can then be added to an available map and assembled into the montage.

# Lesson 3: Landmarks

## Draw It!

Choose one of the prominent landmarks in our community and draw a picture of it. Include surrounding features such as trees, buildings, parks, etc.



## Explain It!

How does this landmark make you feel?

Why is this landmark important to your community?

# Lesson 4: Preservation (continued)

[Lesson based on "Architecture: It's Elementary" Fifth Grade Lesson 5 pg. 397\)](#)

Lesson Intro:

Have you ever heard of time capsules? Because of how architects have designed the world we live in, any building or structure we come across can be a time capsule too. Each and every building or structure we find on our ArchiTrek adventures tells a story. In fact, a building can be a window into another time or era.

Lesson Duration: 60 minutes

Video Link:

<https://www.pbs.org/video/dptv-education-architreks-preservation/>

Objectives:

- Become aware of the role of historical preservation in the community
- Understand what a "historical" building is
- Be able to identify historical buildings in the community
- Be able to determine historic/preservation value of an existing building

Materials:

- Sketch of "Old Town Streetscape" for each student
- Copy of "Background Information" for each student
- Student Handouts for each student
- Pencils

Vocabulary:

- Adaptive Re-Use
- Demolish
- Dilapidation
- Historic
- Preservation
- Restoration



# Lesson 4: Preservation (continued)

[Lesson based on “Architecture: It’s Elementary” Fifth Grade Lesson 5 pg. 397](#)

Activity:

1. Read and discuss the lesson intro with students: “Have you ever heard of time capsules? Because of how architects have designed the world we live in, any building or structure we come across can be a time capsule too. Each and every building or structure we find on our ArchiTrek adventures tells a story. In fact, a building can be a window into another time or era.”
2. Show video (see link above)
3. Read the Background Information page as a class. Discuss the different options for preservation in a community. Look at images of each type as you discuss.
4. Take students on a preservation search in your community. This can be done physically, or virtually (by using a digital resource such as Google Maps Street View). Discuss buildings or areas in the community that have been preserved in some way.
5. Divide the class into groups of 4–6 students each to represent the members of several city-planning boards. Present them with the “Old Town Streetscape” drawing, which shows a series of different buildings in elevation. Below each building is a brief description of some of its characteristics, relating to all or some of the following:
  - a. Age/date of construction
  - b. Association with historic events
  - c. Condition
  - d. Internal planning configuration and use
  - e. Property size and site characteristics

Also give students a copy of the “Background Information” for this lesson plan to use as a reference.

# Lesson 4: Preservation (continued)

[Lesson based on “Architecture: It’s Elementary” Fifth Grade Lesson 5 pg. 397](#)

6. Explain to student that the “Old Town Streetscape” is in the process of being redeveloped, and the planning board has to make a decision for each building about whether it should be demolished for new development, preserved and restored as a museum, preserved for “adaptive re-use,” or preserved for its architectural or historical significance. Have the students on each planning board come to a consensus about each building’s fate, and giving their reason(s), have a member from each group present their group’s decision to the class.

Assessment Opportunity:

- Compare and contrast the planning boards’ decisions, noting any differences, and discuss the validity of the decisions to gain an understanding of the students’ grasp of the material.

Optional activity: Most communities have a local preservation group. Contact a speaker from the local historical society or a preservation architect. If your community has an area with historic buildings, a field trip with a speaker could help the students develop an awareness of the history of their community and its buildings. Discuss specific old buildings that the students saw on the field trip, or find photographs of old buildings in your community that still exist today and show them to the class.

# Lesson 4: Preservation

## Decide It!

The "Old Town Streetscape" is in the process of being redeveloped, and the planning board has to make a decision about whether it should be demolished for new development, preserved and restored as a museum, preserved for "adaptive re-use," or preserved for its architectural or historical significance. Each group needs to come to a consensus about each building's fate, and giving their reason(s), have a member from each group present their group's decision to the class. Record your thinking below.

Traditional Old Mill

Traditional Style Community

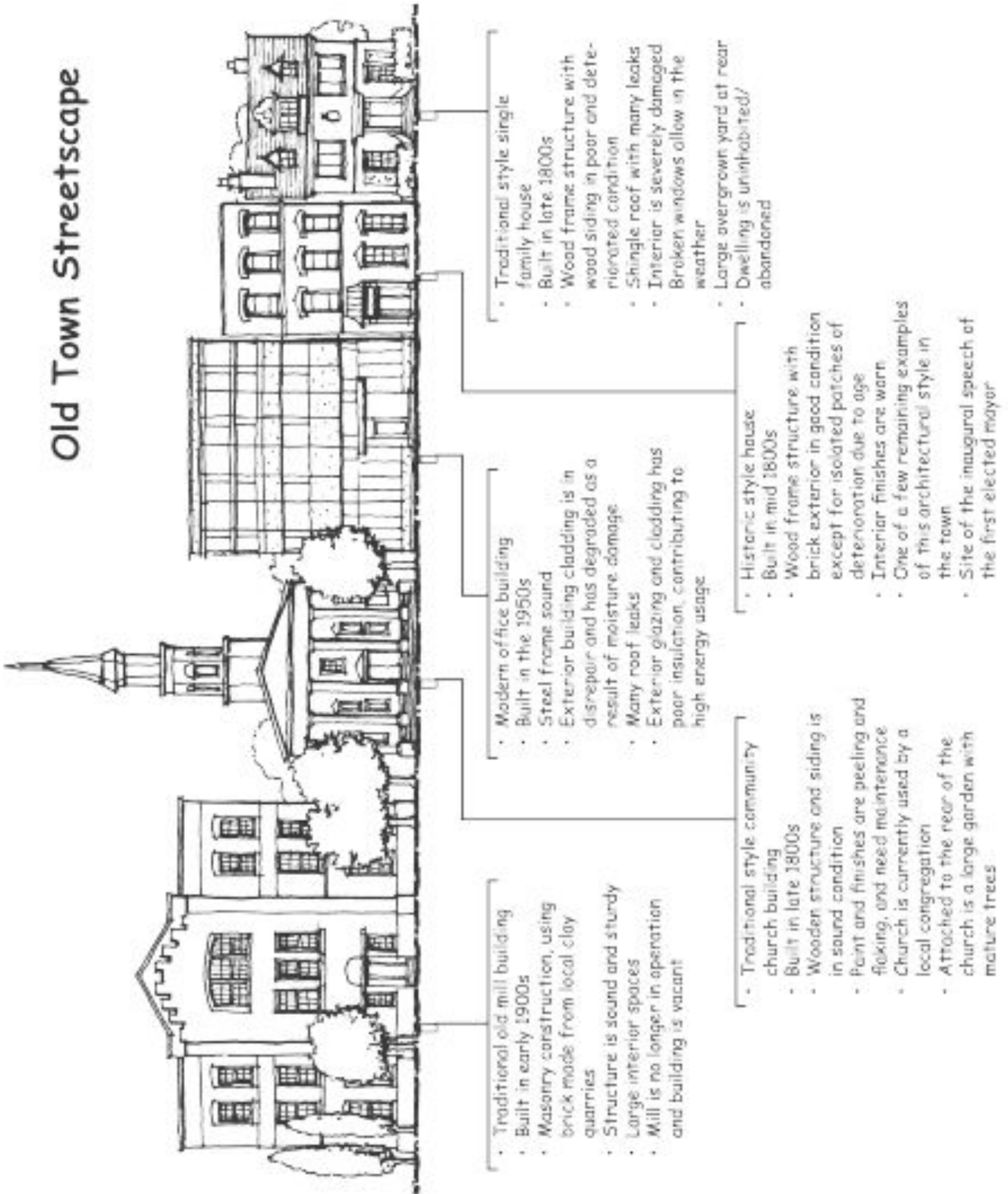
Modern Office Building

Historic Style House

Traditional Style Single

# Lesson 4: Preservation

## Old Town Streetscape



# Lesson 4: Preservation

## BACKGROUND INFORMATION

1. What makes buildings or neighborhoods “historic” and therefore worth preserving? This can be a complicated question, but in simple terms, historic preservation is essentially about saving and maintaining old buildings and places because they have value to us today, in one way or another.
  - a. In some cases, old buildings may be aesthetically pleasing to look at and therefore provide visual enhancement to an area.
  - b. Old buildings are worth preserving if they have sound structure and can be adapted to a new use. This is known as “adaptive re-use” and is a form of recycling, avoiding unnecessary demolition and new construction. This contributes to a reduction in landfill use and therefore aids in preserving the environment.
  - c. In other cases, old buildings have played an important role in history and are worth preserving because they provide a link to the past or to some historical event. They provide a place for people to visit, remember and learn about their history. In some instances, it may be appropriate to restore these buildings to their original condition, perhaps to serve as a museum. Their value may be as a record of a historic architectural style, of which there are few remaining examples.
2. What should we preserve? Any kind of building, from factories to mansions, can be considered worth preserving, as can any size or scale of building, structure or neighborhood.
3. What are the advantages of historic preservation?
  - a. Old buildings enhance the appearance of the streetscape by introducing character through their variety of styles and texture of materials.
  - b. “Adaptive re-use” of suitable old buildings into new functions is usually more economical than demolishing them and constructing new buildings.
  - c. Successful historic preservations can often draw visitors to an area, enhancing tourism and contributing to the local economy.
  - d. Historic places inform communities about their roots and their past. They also can be a means of passing memories from one generation to the next.





**Dilapidation**



**Preservation of a House -  
Clawson Historical Society  
(Museum That Needs Restoration)**



**Historic - Victorian Hackley House**



**Preservation - Victorian House  
Restored into Apartments**



**Adaptive Re-Use - Schoolhouse  
Converted into a Home (Restored)**

# Lesson 5: Sustainability

[Lesson based on "Architecture: It's Elementary" Fourth Grade Lesson 7 pg. 321\)](#)

Lesson Intro:

What is the oldest home in your community? What if I told you, it wasn't even a house. Trees and other natural environmental features are home to many different species of animals. When architects are designing new buildings, they must consider how their construction will modify the natural world around them.

Lesson Duration: 60 minutes

Video Link: [https://youtu.be/iAwYHWKK\\_gU](https://youtu.be/iAwYHWKK_gU)

Objectives:

- Understand and be able to discuss their relationships between the man-made built environment and the natural environment
- Understand and be able to discuss how good design of the build environment can preserve the natural environment

Materials:

- Student Handout for each student
- Pencils
- Coloring Materials

Vocabulary:

- Ecology Environment
- Interrelate
- Sustainable
- Green Roofs



# Lesson 5: Sustainability (continued)

[Lesson based on "Architecture: It's Elementary" Fourth Grade Lesson 7 pg. 321](#)

Activity:

1. Read and discuss the lesson intro with students: "What is the oldest home in your community? What if I told you, it wasn't even a house. Trees and other natural environmental features are home to many different species of animals. When architects are designing new buildings, they must consider how their construction will modify the natural world around them"
2. Show video (see link above)
3. Develop a list of environmental programs that have an impact on the community and the environment. Discuss how these programs benefit the community and/or the environment.
  - a. Recycling
  - b. Refuse collection
  - c. Tree planting programs
  - d. Adopt-a-roadway programs
  - e. Public Transit
4. Develop a list of good ecological man-made designs that have a positive impact on the natural environment. Examples of good ecological designs:
  - a. Housing layout that is harmonious with the landscape: Roads are curved or winding, following natural contours; houses are sited to take advantage of the views and/or topography of the site; wetlands have been respected and preserved to be enjoyed by the residents; development is sensitive to retaining as many of the existing trees and rock outcroppings as possible.
  - b. Roofs (including Green roofs) with overhangs that extend out far enough to shade the windows and keep sunlight out in the summer when the sun is high in the sky, yet still allow sunlight into the windows during the cold winter months when the sun is low in the sky. This design reduces the amount of heating required in winter and cooling required in summer and therefore reduces energy waste.



# Lesson 5: Sustainability (continued)

[Lesson based on “Architecture: It’s Elementary” Fourth Grade Lesson 7 pg. 321](#)

- c. Buildings that collect energy from the sun for heating (e.g., solar panels).
  - d. Buildings that generate electricity by using windmills or water wheels.
  - e. Houses and stores placed close enough together so people can walk there.
5. Continue with a list of designs that have a negative impact on the environment. Examples of designs with negative impact:
  - a. Factories (or homes) that use fossil fuels as their main source of power for manufacturing or heating. These designs pollute the air and use up precious natural resources.
  - b. Homes that use extra electricity because the design has too few windows for day lighting.
  - c. Homes that use extra fuel for heating because the windows, walls and roof are not adequately insulated.
6. Review how the built and natural environments interrelate. In particular, discuss how natural resources are used to build the built environment. For example, we might cut down trees to provide building materials but through good forest management, the forest is replenished. We might remove a stand of trees to build a subdivision but use those trees to produce building materials. We might build a dam across a river so the water flows at a greater rate (pressure); in turn, the flow drives a turbine engine that produces electricity (similar to the flowing river turning an old-fashioned waterwheel).
7. Take students on a sustainability search in your community. This can be done physically, or virtually (by using a digital resource such as Google Maps Street View). Discuss buildings or areas in the community that have been preserved in some way.

# Lesson 5: Sustainability (continued)

[Lesson based on “Architecture: It’s Elementary” Fourth Grade Lesson 7 pg. 321](#)

8. Have each student select a man-made item that impacts or interrelates with the environment. It can be either a negative or a positive impact item. Some examples are:
- Buildings with chimneys for burning fossil fuel
  - Dam
  - House with solar panels
  - Refuse or recycle truck
  - Sailboat
  - Waterwheel
  - Windmill

Have students draw their selected item and explain how the item interacts with the environment.

## Assessment Opportunity:

- Analyze the students’ understanding of the importance of the built environment’s role within the natural environment, with feedback-type questions pertaining to building designs, site designs and the surrounding natural environment.

# Lesson 5: Sustainability

## Explain It!!

Select a man-made item that impacts or interrelates with the environment. It can be either a negative or a positive impact item. Draw your selected item and explain how it interacts with the environment.



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# Lesson 6: Cities

[Lesson based on “Architecture: It’s Elementary” Fifth Grade Lesson 3 pg. 385](#)

Lesson Intro: Do you know how to find the heart of your city? Just like any building or house, cities are planned and designed. Cities evolve over time, but when they are first built, it always starts around a central location.

Lesson Duration: 60 min

Video Link: <https://youtu.be/KSghdQFqCqs>

Objectives:

- Develop an awareness of how and why cities began and what characteristics differentiate them
- Understand the components of a city
- Understand the importance of location, climate and geography in a city

Materials:

- Student Handouts for each student
- Copy of “Background Information” for each student
- Coloring Materials
- Pencils
- Aerial photograph of a city (included)
- Photographs of cities – “Types of Land Uses” (included)

Vocabulary:

- City
- Civilization
- Domesticated
- Land Use
- Nomad

# Lesson 6: Cities (continued)

[Lesson based on "Architecture: It's Elementary" Fifth Grade Lesson 3 pg. 385\)](#)

Activity:

1. Read and discuss the lesson intro with students: "Do you know how to find the heart of your city? Just like any building or house, cities are planned and designed. Cities evolve over time, but when they are first built, it always starts around a central location."
2. Show video (see link above)
3. Take students on city planning search in your community. This can be done physically, or virtually (by using a digital resource such as Google Maps Street View). Look for evidence of how the city was designed. Try to find the heart of the city.
4. Read the Background Information page as a class. Discuss the different aspects of city planning.
5. A city can be better understood by looking at its parts. Using examples from your own city, describe to the students the components of a city. These components are described as "land uses."
  - a. Road system - main roads, smaller secondary roads
  - b. Open public areas - parks, plazas, playgrounds
  - c. Shopping areas - malls, strip centers, downtown business district
  - d. Residential areas - apartments, houses
  - e. Schools
  - f. Factories
  - g. Recreation centers - stadiums and arenas
  - h. Municipal buildings - city halls, libraries, police and fire stations
6. Show an aerial photograph (included) of a city to indicate the different components in that city plan. Next, show photographs (included) of examples of land uses in a city as listed in step 5 above.
7. Have students draw their own small plan of a city, showing all of the components listed in "A" above. These will be discussed in more detail in future lessons; a general understanding of the parts of a city is the goal of this exercise.

# Lesson 6: Cities (continued)

[Lesson based on “Architecture: It’s Elementary” Fifth Grade Lesson 3 pg. 385\)](#)

Assessment Opportunity:

- Analyze student drawings for a basic understanding of the parts of a city and how one area might relate to another area.
- Analyze student art work for:
  - Drawing skills;
  - Ability to express geometric shapes and elements;
  - Use of artistic skills, including aesthetic use of color and drawing from the visualization of an idea.

# Lesson 6: Cities



**Aerial Photograph from the Sears Tower - Chicago**



# Lesson 6: Cities



Roads - Washington Blvd. in Detroit



Playground - Clawson, Michigan



# Lesson 6: Cities



**Shopping Center - Troy, Michigan**



**Residential - Apartment Building in  
Royal Oak, Michigan**



**Schools - Tecumseh High School in  
Tecumseh, Michigan**

# Lesson 6: Cities



**Industrial - Small Factory in Troy, Michigan**



**Municipal Building - Waterford Public Works Department in Waterford, Michigan**



**Recreation - Comerica Park Stadium in Detroit, Michigan**

# Lesson 6: Cities

## BACKGROUND INFORMATION

1. Human beings have lived on earth for about 2 million years but developed permanent settlements only 10,000 years ago. In the beginning, people were nomads wandering in search of food, living off the land in tents or in caves. They were able to eat by hunting for meat, fishing and gathering fruits and edible plants. When farming of the land began, wandering to look for food became unnecessary, and villages began to develop.
2. The four main characteristics required for the development of a city:
  - a. Population Growth: Increases in population and exposure to other people of different tribes, cultural groups and nationalities helped the city grow in size and complexity.
  - b. Social Organization: Early villages assigned people to be responsible for surplus food, city defense planning and other functions needed by the city as a whole. Initially, small tribes or groups organized these city functions, which later developed into a more formalized governmental system.
  - c. Physical Environment: Cities needed a location that offered availability of food and water, good surrounding soils for crops, access to materials to provide for shelter, waterways for transportation, raw materials for industry and, in later years, a good climate for recreation. All of these characteristics are not necessary, but all cities require some combinations of these to develop.
  - d. Advances in Technology: Improved farming skills and the domestication of animals led to a surplus in food produced on family farms, beyond the amount needed to feed the farmer's family. This led to some people taking on other jobs, producing products they could barter — including crafts, clothing, baskets and tools — in exchange for food. The subsequent development of power sources, such as steam and electricity, led to manufacturing. Transportation systems, such as railroads and then the automobile, also developed. The use of iron and then steel for construction allowed tall buildings to be constructed. With the invention of the elevator, buildings in cities grew even taller.



# Lesson 6: Cities

## BACKGROUND INFORMATION

3. Ancient cities set aside areas for markets, worship, public buildings, etc. Athens and Rome became famous for their public buildings. During the Middle Ages (from about 500 to 1400), protective walls became a common way to protect cities from invaders. Religion also was important; large churches became the center of many cities. During the Renaissance in Europe (1400s, 1500s and 1600s), plazas were created, incorporating artistic treatment in many buildings as well as public sculptures. In the 1700s, the Industrial Revolution began, with a factory system in and around cities that drew more people to them. Eventually, cities spawned suburbs; these “satellites” surrounding the cities grew as people yearned to escape crowded city life.
4. Over time, the physical environments of our cities needed to be maintained, restored, rebuilt, and cleaned up after years of use. In addition to taking care of buildings, this often involves cleaning lakes and rivers, removing pollution from the air, rebuilding roads and bridges, and restoring parks and other areas for recreation. Cities are always changing due to shifts in population, economic factors, and many other influences. We need to monitor the impact of those changes and make improvements, as necessary, to keep our cities healthy and beautiful for everyone

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## Design It!!

On the back of this sheet, draw your own small plan of a city, showing all of the components listed below:

- a. Road system - main roads, smaller secondary roads
- b. Open public areas - parks, plazas, playgrounds
- c. Shopping areas - malls, strip centers, downtown business district
- d. Residential areas - apartments, houses
- e. Schools
- f. Factories
- g. Recreation centers - stadiums and arenas
- h. Municipal buildings - city halls, libraries, police and fire stations

**City Name:** \_\_\_\_\_

# Glossary

**Adaptive Re-Use** (noun) - To take an existing building that had one purpose and renovate it to be used for a different purpose

**Arch** (noun) - A curved structure, as of masonry, that supports the weight of material over an open space as in a bridge, doorway or gateway

**Beam** (noun) - A piece of wood, metal or stone that spans from support to support and holds the weight of the floor, roof or material above it

**Circle** (noun) - A plane figure bounded by a simple curved line; every point is equally distant from the point at the center of the figure

**City** (noun) - In the United States, an incorporated municipality whose boundaries and powers of self-government are defined by a charter from the state in which it is located

**Civilization** (noun) - Advancement in social culture characterized by relative progress in the arts, sciences and statecraft

**Column** (noun) - A vertical support for supporting horizontal structural members

**Compression** (noun) - The state of being pushed together or squeezed together, which results in a decrease in volume

**Dilapidation** (noun) - The natural deterioration of a building due to neglect

**Dome** (noun) - A hemispherical roof or one formed by a series of rounded arches or vaults on a round or many-sided base

**Domesticate** (verb) - To tame, as to tame a wild animal; To accustom to home life

**Ecology** (noun) - The branch of biology that deals with the relationship between living organisms and their environment

**Environment** (noun) - All the conditions, circumstances and influences surrounding and affecting the development of human habitat for both shelter and community

**Flying Buttress** (noun) - An inclined masonry structure outside of the wall of a building; connected to the building by an arch designed to resist the outward pressure imposed by a vault or the building's roof; usually found in Gothic churches

**Forces** (noun) - Strength, energy, vigor and power

# Glossary

**Gravity (noun)** - The force that tends to draw all bodies in the Earth's sphere toward the center of the Earth

**Green Roofs (noun)** - A living roof that is partially or completely covered with vegetation, and which provides extra insulation and provides a habitat for wildlife.

**Historic (adjective)** - Referring to an example from the past

**Interrelate (adjective)** - To be interconnected

**Landmark (noun)** - Any prominent object marking a locality, often one of historical interest; Any object on land that serves as a reference point or a destination point

**Neighborhood (noun)** - A community or district composed of people living near one another

**Nomad (noun)** - People who travel from place, never permanently settling in one area

**Preservation (noun)** - Protection from harm and/or damage

**Rectangle (noun)** - A four-sided plane figure with four right (90-degree) angles; the opposite sides are parallel and equal

**Restoration (noun)** - The act of returning a building to its original condition

**Semicircle (noun)** - A circle cut in half

**Shape (noun)** - That quality of an object which depends on the relative position of all points composing its outline or external surface; physical or spatial form

**Square (noun)** - A two-dimensional figure having four equal sides and four right angles

**Sustainable (noun)** - Meeting present needs without preventing future generations from being able to meet theirs; includes respect for the environment and for people

**Tension (noun)** - The state or condition of being pulled or stretched

**Triangle (noun)** - A geometric figure having three angles and three sides

**Vault (noun)** - A masonry covering over an area which uses the principle of the arch