ARCHITREKS

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

Michigan LEARNING CHANNEL
A PUBLIC MEDIA PARTNERSHIP

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:

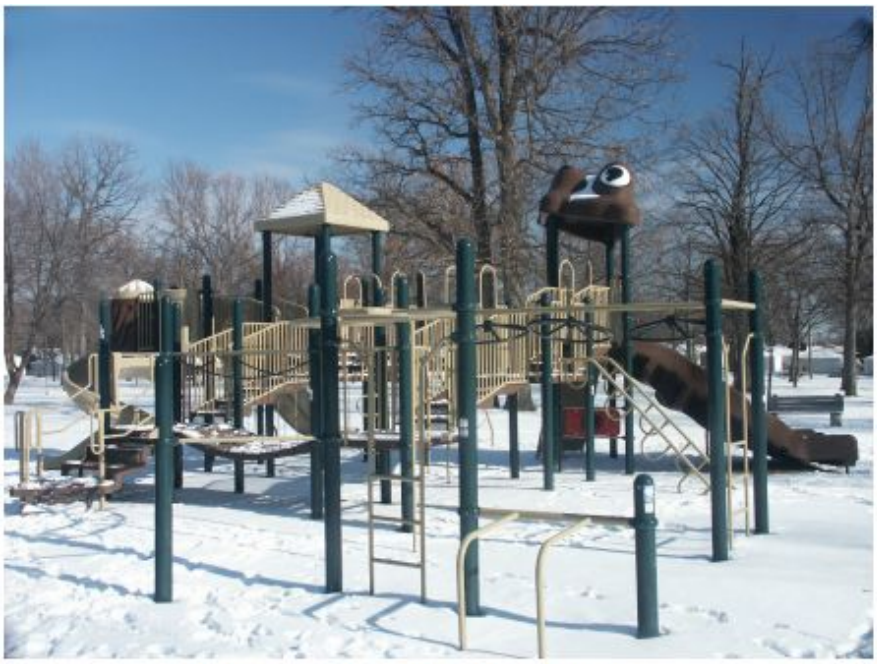
- Analyze student drawings for a basic understanding of the parts of a city and how one area might relate to another area.
- Analyze student art work for:
    - Drawing skills;
    - Ability to express geometric shapes and elements;
    - Use of artistic skills, including aesthetic use of color and drawing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

Lesson 6: Cities

Aerial Photograph from the Sears Tower – Chicago

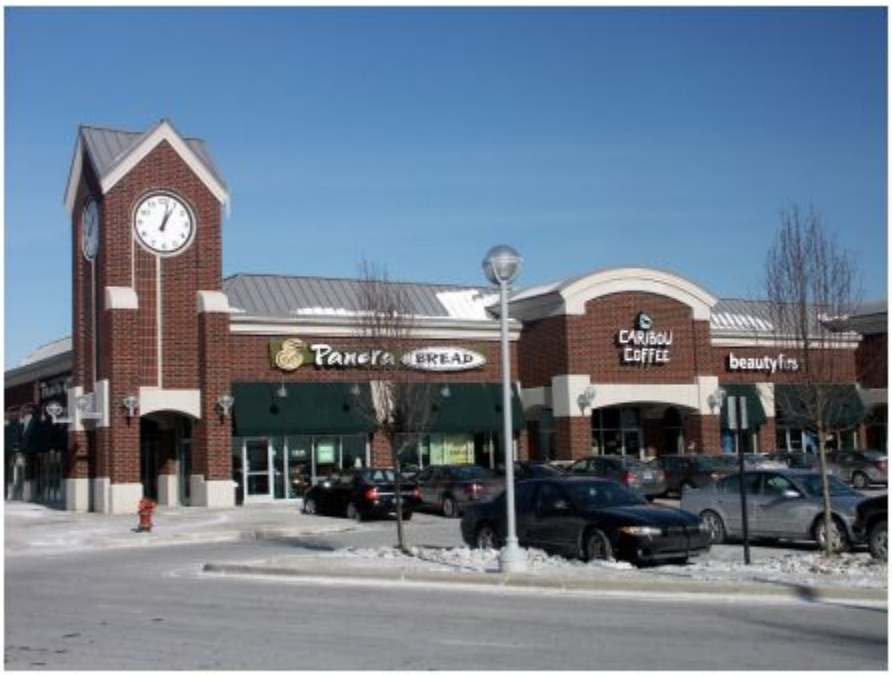
Lesson 6: Cities

Roads - Washington Blvd. in Detroit

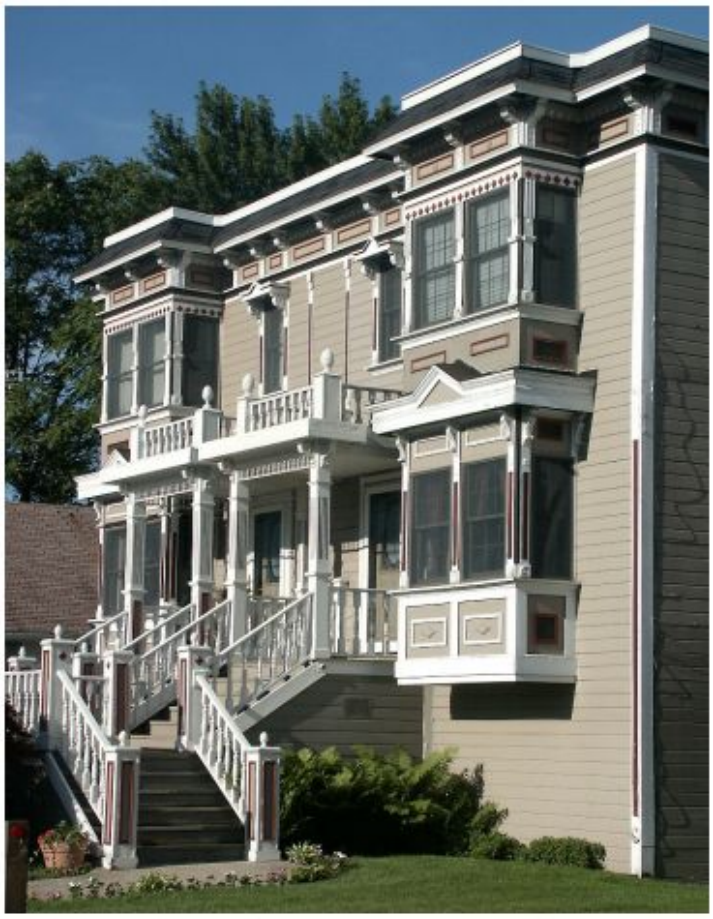


Playground - Clawson, Michigan

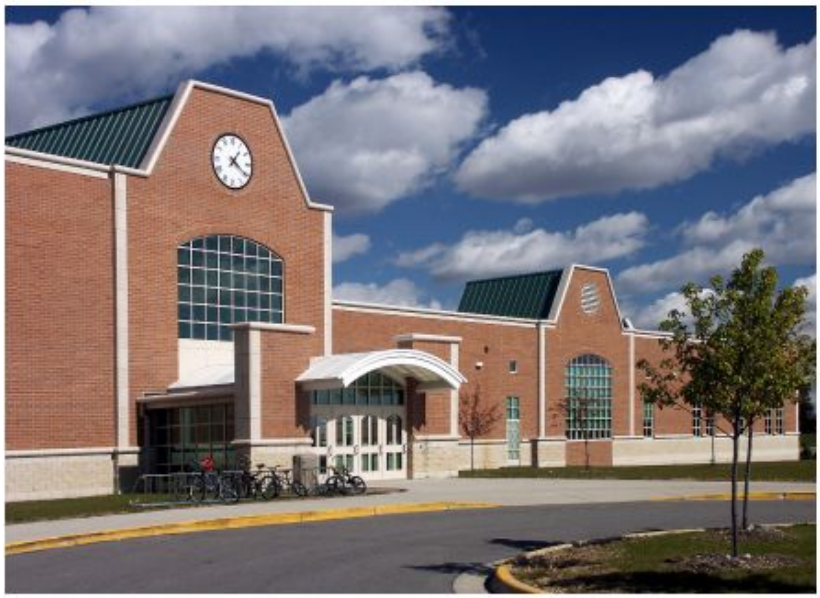
Lesson 6: Cities



Shopping Center – Troy, Michigan



Residential – Apartment Building in Royal Oak, Michigan

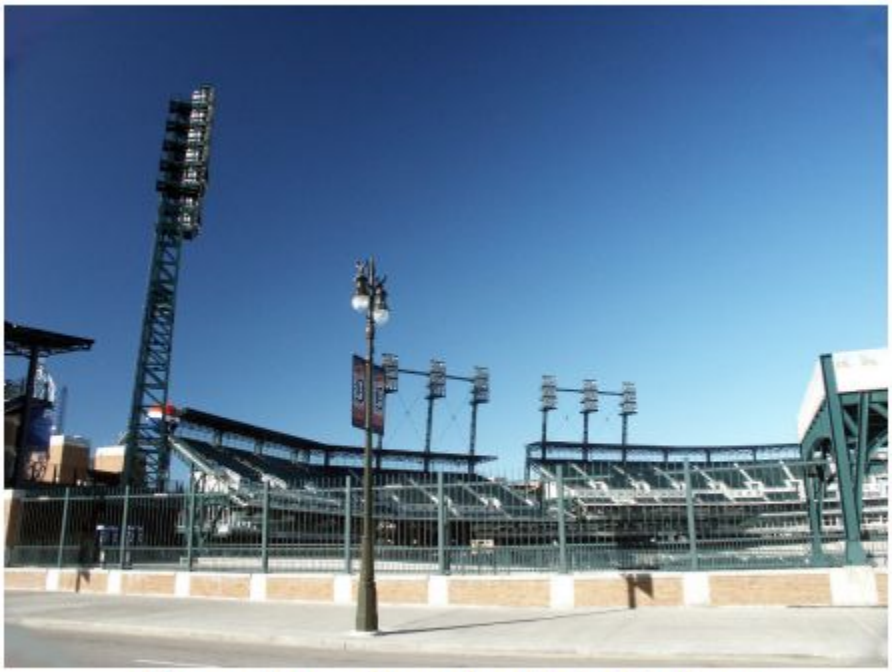


Schools - Tecumseh High School in Tecumseh, Michigan

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

Lesson 6: Cities

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