



## Y-CITYSCI: A Youth-Led Citizen Science Network for Community Environmental Assessment

Environmental Assessment: Lesson 7

Grade Level: Middle school

Duration: 1 hour

### Natural and Built Environments Introduction

#### Next Generation Science Standards

Disciplinary Core Ideas:

ESS3.C: Human impacts on Earth systems

ESS3. A: Natural Resources

Crosscutting Concepts:

Cause and Effect

Stability and Change

Science and Engineering Practices:

3: Planning and Carrying Out Investigations

#### Objectives

1. Students will understand how natural and built environments affect their communities and health.
2. Students will know how to use Google Maps to collect and analyze landscape information.

#### Materials

- Smartboard/projector
- Natural and Built Environments [video](#)
- Laptops/tablets (1 per pair of students)
- Google Maps [website](#)
- “Comparing Communities” sheet (1 per student)

#### Activities

**Bellringer:** Watch the “Natural and Built Environments” video and discuss the final question, “What kinds of environments are there in your community?”. (5 minutes)





**Lecture:** Discuss how natural and built environments impact a community. Does it impact activities, homes, space, access to food, health, etc.? If so, how are these impacted by how the community is set up? Discuss examples from the students' community.

What are ways scientists can gather information about landscapes? Discuss drones, physical and virtual maps, and observations that students can make when they are outdoors. (10 minutes)

**Activity:** Put students in pairs and give each pair a laptop or tablet. Have students go to [Google Maps](#) and search the school's address (provide this on the board). Ask if anyone is familiar with Google Maps and if they would like to help give a quick tutorial to the class. Go over how to zoom in and out, and change the view from map to satellite. Explain that you measure distance by right clicking on a starting point and choosing "Measure Distance", then click a distance away from the starting point to view the distance. Also, discuss what the pictures on the pins mean and other map features such as highways and bodies of water.

Give each pair of students a "Comparing Communities" worksheet and have them use these to identify the natural and built environments around their school and to these different environmental types to another community of their choice. (30 minutes)

**Discussion:** Discuss what information the students found. What are similarities and differences between the two communities? What could possibly contribute to these differences? How does access to outdoor space, food options, etc., potentially affect the community. (15 minutes)

## Resources

A tutorial on the basic functions of Google Maps can be found in this [video](#).



Name(s): \_\_\_\_\_

### Comparing Communities with Google Maps

Choose two different communities, and measure out a 2.0 mile diameter to focus on while filling out the table below. One community should be close to your school or home and the other can be anywhere in the United States.

Characteristics	Community 1	Community 2
Location (City, State, etc.)		
Is it mostly covered by natural, or built environments?		
What percentage of the area is residential?		
How many restaurants and/or grocery stores are present?		
Which community supports outdoor activity more? (trails, parks, etc.)		
Do you see any built environments that could potentially cause a hazard to human health?		
Other comparisons:		