



LESSON PLAN

Level:	Grades 4 to 6
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Duration:	45 to 90 minutes

Earth Day: Maps as media

Overview

In this lesson, students are introduced to Earth Day and the theme of “Green Cities”. After listening to a short presentation on the concept of a “green city” and elements that constitute a green city (e.g. renewable energy sources such as solar panels, more energy-efficient buildings, recycling programs, cleaner air and water) students participate in an activity where they count the number of parks on a map of their city or neighbourhood. Maps are then analyzed as a medium as students discuss how they are created, things they can and can’t show, and their effectiveness at communicating environmental information.

Learning Outcomes

Students will:

- understand the constructed and aesthetic elements of maps
- understand that a “free” product may have strings attached
- understand how the aesthetic qualities of a medium influence the information that is transmitted
- understand that media products may serve multiple purposes
- understand how to critically evaluate a map as a source of information
- apply their understanding of media as constructions with a specific aesthetic form through the creation of a map containing green city indicators (optional task)

Preparation and Materials

Bookmark a webpage in Google Maps (or a similar online service) of a satellite view (aerial photo) of your city. Also bookmark the map version of the same view of your city (in Google Maps for example, click on “map” in the top right corner of the page).

- Arrange for access to a digital projector or digital whiteboard and:
 - open the Earth Day website at <http://www.earthday.org/greencities/learn/> (Alternate link: <https://web.archive.org/web/20140210215230/http://www.earthday.org/greencities/>)
 - cue up the video “Media are constructions ” <https://www.youtube.com/watch?v=baftkjc5gKs>



- Arrange access to computers and Google Maps (or a similar online service) for several groups of students OR print out paper versions of a city map that you found online or another paper-based map of your city.
- On the map, calculate the total number of municipal parks (if you live in a large city, you could focus on a particular neighbourhood).

(For background information on Earth Day 2014, see <http://www.earthday.org/greencities/about/>)

Procedure

Begin by showing students an aerial photo of your city taken from Google Maps or a similar online service and ask them where they think this is. After a few answers, ask “what information would this photo need to show for you to know which city it is?” Finally, show the map version of this photo, revealing that both the photo and the map show their city. (Alternatively, you could use a photo and map of Ottawa in this lesson as an example). Ask students to identify the different types of information that can be found in each one (mainly that the map gives names to streets, places, landmarks such as rivers, while the photo shows individual buildings and trees).

Show students the Earth Day 2014 website and review with them the history of Earth Day (from the “History of Earth Day” link on the website) and the 2014 theme “Green Cities.” At the end of the presentation, ask them to think about what makes a city “green”. For example:

- What are the signs that a city is “green”? (*the air and water are clean, there’s little or no pollution, there are lots of green things and places like trees and parks*)
- How can we measure how “green” a city is? (*measure pollution like smog or chemicals in the water, count trees and parks*)
- Ask students where we can find information about the data in the previous question (*books, reports, the Internet, television shows, films, experts*)

Now show the map of your city on the screen. Ask students what elements on the map help them determine how “green” their city is: students might suggest things such as parks, undeveloped land, factories or recycling plants.

Review with students the definition of a green city at <http://www.earthday.org/greencities/learn/>. Make sure to highlight and explain (where necessary) the vocabulary and ideas of clean and renewable energy, clean and efficient buildings and public transportation.

Finally, bring up the map of the city on the screen again and ask students what “green” indicators are not shown (in light of the information from Earth Day’s website). Depending on your city, this could include things such as “bike paths” or “buildings with solar panels.”

Activity

Explain that the number of green spaces in a city, such as parks, also indicate how green a city is¹ and that it is possible to count how many there are in a particular neighbourhood/city/province using maps.

1 Organisation for Economic Co-operation and Development (OECD), *Green Cities: New Approaches to Confronting Climate Change*, OECD Workshop Proceedings, Las Palmas De Gran Canaria, Spain, June 11, 2009. <http://www.oecd.org/regional/regional-policy/45377963.pdf>



Demonstrate how to bring up a map of your city in your online mapping platform and how to zoom in and out. In groups of two (with one navigating and counting and the other writing down and keeping track of the count), ask students to bring up the map of their city (or neighbourhood) and count the number of parks they can see (the green spaces that have the word “park” in their names).

After 15 minutes, have each group report their count and then share with students the actual number of parks in the city.

Discuss the following:

- Vancouver is considered the “greenest” city² in Canada and has close to 300 parks³
- Does this mean Vancouver is a greener city than yours? (If you are in Vancouver, compare the number of parks in your neighbourhood with total number of parks in the city).
- Which do you think is a better tool for finding out how green your city is: maps or satellite images? Why?
- Ask students: “how do maps affect our decisions about living and getting around? For example, how might you change your behaviour if maps showed you where foot paths and bike lanes are? What if the map indicated where in the city the air is cleanest and where it is the most polluted? Maps don’t tell you if streets have sidewalks; would this affect whether you thought a street or neighbourhood was a good place to live?”
- Finally, ask students why they think that this kind of information was not included on the map they have been using. (Part of the answer is that too much information on a map would make it very confusing. Make sure to mention, if it does not come up, that someone had to decide what was important to put on the map and what wasn’t).

Show students the video “Media are constructions” <https://www.youtube.com/watch?v=baftkjc5gKs>

Discuss the following questions:

- Who created the map we have been using? What is its purpose?
- The one thing all maps have in common is that they are used to **organize information in a visual way**. Explain that while we primarily think of maps being used for travel, they may have many different purposes:
 - to provide an overview of the features of an area (the number of people living in a city, the number of fish in different parts of a body of water, etc.),
 - to gather what’s known about something in a single place (like a globe or an atlas),
 - to attach information to geographic features (the names of mountains and rivers, for instance, or the location of borders between countries.)
- Maps may also have different *uses* as well as different purposes: a fisherman, for instance, would use a map showing the number and location of fish to decide where to fish, while someone working for the government might use it to track how fish stocks change over time (by creating a new map each year and comparing it to past ones.)

2 Siemens, *Green City Index*. Accessed on: April 17, 2014. <https://www.siemens.com/entry/cc/en/greencityindex.htm>

3 City of Vancouver, *Parks, Recreation, and Culture*. Accessed on: April 17, 2014. <http://vancouver.ca/parks-recreation-culture.aspx>



- **How does knowing the corporation or organization which created these maps help us understand them better?** (This helps us understand why some kinds of information and not others are shown, and why it is presented in a particular way. For example, when a world map is made in Canada, the North American continent is placed in the center; but when a world map is made in Japan, the Japanese islands are in the center).
- **How do you think the corporation or organization that creates the maps decides which information the map will show?** (Generally, information that gets the desired audience to buy or use the map would be given preference.)
- Is there likely to be a difference between paper maps, which are sold, and online maps, which are typically free to use?
- How might maps be different if they are aimed at drivers, long-distance truckers, cyclists, or pedestrians?

Assessment/evaluation task: What's on *your* Green City map?

Distribute printouts of the map of the city/neighbourhood and tracing paper. As homework, or as a class assignment, ask students to trace the outline of the city/neighbourhood, the parks and any river, shore or lake. Working only with the traced map (which is meant to represent the current natural capital of the city), ask students to choose five places or buildings that they consider indicators of green cities, and place and identify them on their map. Tell students that the purpose of the map is to help people make decisions about their everyday life while keeping the environment in mind.

The five places or buildings that are chosen can be selected from the indicators already discussed in class or be of students' own choosing. For example a local power station, recycling plant, landfill, a house they know that has solar panels, bike paths, bus stops, or even public garbage cans. (You can remind students of their contributions to the discussion at the beginning of the lesson regarding what makes a city green.)

If you wish, you can have students share their maps with partners, a small group or the whole class, and explain the features they chose and why.



What's on *your* green city map?

1. Trace the outline of your city or neighbourhood, its parks and any rivers, shores or lakes.
2. Working only with the traced map, choose five places or buildings that *you* consider indicators (signs) of a green city.
3. Place and identify these features on your map (the purpose of your map should be to help people make decisions about their everyday life while keeping the environment in mind).

Here is a list of indicators of a green city to inspire you. Some were discussed in class and some come from environmental associations. Try to choose your own indicators to make the map personally meaningful to you.

Example indicators of a green city:

- bike paths
- bus stops
- recycling plants
- power stations
- houses you have seen that have solar panels
- public garbage cans or recycling cans
- energy-efficient buildings
- water treatment centers
- community gardens



Optional materials: Aerial photo and map of the City of Ottawa



