LESSON 6: SEVEN GENERATIONS

OVERVIEW:

In this lesson, students will consider the benefits and trade-offs of their action plans over an extended period of time. Students will consider and discuss a quote attributed to the Great Law of the Iroquois and predict and complete a timeline of the benefits and tradeoffs of their action plan for ecological communities (human and non-human) seven "generations" into the future. This lesson allows you and your students to consider the future impact of their action plans, and allows your students to consider making any modifications to their action plans.

SUB-QUESTION:

How do the outcomes of our actions unfold as time passes?

Ways of Knowing Urban Ecology:

	Students will…
Understand	• Understand that the final "product" of an action plan will change and have consequences over time. *(ecosystem change)*
Talk	• Discuss the nature of benefits and trade-offs for choices and actions as time progresses.
Do	• Predict the benefits and trade-offs of their actions – as embodied in their action plans – for future generations of members of the ecological community, human and non-human. • Complete a timeline to chart the benefits and trade-offs of their action plans over seven generations.
Act	• Consider the consequences of an action plan over time.

SAFETY GUIDELINES:

No safety precautions are needed.

PREPARATION:

Gather materials

Reserve computer lab, if necessary

Time:

1 - 45 minute period

Materials:

Activity 6.1

- "Seven Generations" quote, written on the board or projected

Activity 6.2

- Student Timeline Sheets

INSTRUCTIONAL SEQUENCE

Activity 6.1: Introducing The Seven Generations Idea

1. Direct students to the quote attributed to the Great Law of the Iroquois:

   In every deliberation we must consider the impact on the seventh generation… even if it requires having skin as thick as the bark of a pine

   (http://en.wikipedia.org/wiki/Seven_generation_sustainability)

TEACHER BACKGROUND KNOWLEDGE
The Iroquois were a confederacy of Native American Nations in New York State, Wisconsin, Ontario and Quebec. The Iroquois Constitution, or Great Binding Law (*Gayanashagowa*; http://www.indigenouspeople.net/iroqcon.htm), to which this quote is attributed, is one of the documents which strongly influenced the US Constitution. While this quote is often attributed to this document, it may not be taken directly from it (translators may have taken license). For more information on the *Gayanashagowa* and an interview with Dr. Donald Grinde, Jr., a history professor at the University of Vermont, visit http://www.spiritofmaat.com/archive/may2/iroquois.htm. He discusses an Iroquois sense of "ecocentrism" and how the Great Binding Law influenced the authors of the US Constitution.

2. Ask your students to consider what this quote may be referring to. You may want to discuss this quote in two parts, on either side of the ellipsis (…). You can write students' ideas on the board as the discussion continues.
   - *The first part of the quote, for the purposes of the action plan, refers to the idea that we should consider the benefits and trade-offs of our decisions and actions over an extended period of time into the future.*
   - *The second part refers to the idea that we really need to be honest about the trade-offs and how there may be negative consequences to our well-intentioned plans and actions.*
3. Ask your students to think about how their action plans may have benefits and trade-offs for future generations of the ecological community, both human (socially, economically, etc.) and non-human (plants, animals, etc.).

Activity 6.2: Constructing the Timeline to the Seventh Generation

1. Distribute the Seven Generations timeline sheet to your students. You may ask students to work individually, in small groups, or as a class, although each student should have their own timeline sheet.
2. Note that there are no absolute time designations on the timeline sheet. You may want to decide ahead of time how long each generation is, or discuss with your class what an appropriate length of time would be. A generation is technically defined as, "…the average interval of time between the birth of parents and the birth of their offspring," or for humans, 30 years (http://dictionary.reference.com/browse/generation). Seven generations, therefore, would be approximately 210 years. Each segment of the timeline would be 30 years. This length of time may be difficult for high school students to visualize and predict, but may also be rewarding in the end.
3. Ask your students to complete their timelines, considering both benefits and trade-offs of their action plans for both human and non-human members of the ecological community. Remind them to be truthful and honest, especially when considering trade-offs, and to "have skin as thick as pine bark."
4. Remind your students of the biophysical and social drivers from the Land Use Module, and to consider the benefits and trade-offs along these drivers.

Teacher Background Knowledge

These are the biophysical and social drivers from Module 2, Land Use.

Biophysical Drivers:

1. *Climate:* factors such as precipitation patterns and temperature can influence the way that land is used by ensuring that buffer flood zones are maintained around rivers.
2. *Nutrient cycling:* Critical nutrients in an ecosystem such as nitrogen (found in proteins) and phosphorus (found in DNA) can severely limit the growth of populations. The rates at which nutrients move through an ecosystem can alter the distribution and density of organisms
3. *Geologic features and topography:* being surrounded by water or mountains/hills on more than one side can constrain urban growth and promote denser growth patterns, while a flatter topography can potentially result in easier access to developable land and lower development costs
4. *Natural history:* The historical composition of plant and animal populations can influence land use patterns. Fore instance, fire dominated ecosystems have a very different pattern of forest growth than do moist woodlands.
5. *Community composition (ecological):* Referring to the distribution and abundance of species, the healthiest ecosystems have a complex community structure that is resilient to disturbance.

Social Drivers:

1. *Governance:* the type of leadership in a city, state, and/or country can influence the way that land is used and what the priorities are in land use planning. This is especially true with respect to the degree to which neighborhoods can chart their own futures.
2. *Land use policies:* The policies, rules, and restrictions in place inform the way that land is used and where a (human) community's priorities are placed. This is typically where we consider zoning regulations as having their greatest impacts.

3. *Human demography:* a growing human population requires a greater amount of land or a denser urbanization pattern. The age distribution of the population has a huge influence as well. School system budgets are very different in retirement communities versus neighborhoods of starter homes and apartments.
4. *Economics:* higher income areas are usually provided with land use patterns aligned with the desires of the local human population (e.g., more parks, bigger yards, shops, etc.), while lower income areas are usually provided with less desirable land use patterns (industry, fewer parks, higher population densities, etc.)
5. *Cultural practices and beliefs:* the larger cultural ideas around land use greatly informs the way that land is used and what the priorities are in land use patterns. If a culture favors public interaction, then common green space is more likely to be built in that neighborhood.
6. *Social history:* The historical record legacy of a community influences land use patterns. The mill towns of Massachusetts have factories along the waterfront that remain to modern times, even though the rivers are no longer used for hydropower or transportation.

5. If students are completing individually or in small groups, reconvene and ask individuals or small groups to discuss their timelines with the class.

Concluding the Lesson

1. Ask your students what they think about considering the benefits and trade-offs of environmental action not just in the present, but for the future. Has their ideas around their action plan changed or shifted? If so, allow your students to update their action plan(s). If the discussion becomes negative (i.e. their action will not have a positive impact), remind them that imperfect environmental action toward a just and good future is better than no action at all. Inaction effectively allows others to take advantage and potentially cause more environmental and social degradation and harm. Even small actions have a positive impact, especially if many people complete small positive actions. Together those small impacts will have a large one.