# Sustainability Unit Example: 4th Grade Interdisciplinary

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How do curriculum and instruction change when sustainability becomes the guiding approach? How does the content become richer? How does the level of inquiry deepen? This document provides an example of a teacher-created unit that is grounded in the content and pedagogy of sustainability education.

### *Background*

The unit described was an outcome of the 2007 Summer Sustainability Institute sponsored by the Children's Environmental Literacy Foundation (CELF: http://www.celfoundation.org), with facilitation provided by Creative Change Educational Solutions(http://www.creativechange.net), and Scott Beall consulting. During the intensive week-long institute, teachers gained content knowledge, resources and strategies to redesign their curriculum using the lens of sustainability. Guided planning time and one-on-one mentoring at the institute enabled teachers to walk away with a draft unit plan to implement during the school year.

After the week-long institute, the teachers were provided on-going support and communication. Teachers sent their in-progress lesson plans to Creative Change and CELF, and received feedback and mentoring via phone and e-mail. This document is an outcome of this process.

**Endangered Us**
**A Fourth Grade Interdisciplinary Unit on Sustainability**
**Scarsdale Public Schools**

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## Big Ideas

1. We are part of a community that includes human and nonhuman aspects.
2. Our environment has an impact on us and we have an impact on our environment.
3. The earth's resources are finite.
4. Sustainable use means using resources within regeneration rates.
5. All biomes are interconnected within the earth system.
6. Global Climate change will impact the system as a whole.
7. Action must have a direct relationship to the problem

## Essential Questions

1. What are diverse kinds of biomes on the planet?
2. How can we make a positive impact on our environment?
    a. Action must have a direct relationship to the problem

## Lesson 1: Where do you live?

Have the children count down ten lines in their notebook and make a mark. On the tenth line, ask them to write a word or sentence to answer the question:

- Where do you live? Ask children to do this five times, each time being more specific. (Zoom in)
- Ask the children to begin with their answer on line ten and zoom out by getting broader.

Reflection: Did you describe a natural or manmade environment?

- Color Code natural or manmade.
- Explain why you think of that as your home.

We are part of a human community and a natural environment

Journal Entry HW: We are part of a natural environment.

- What is nature?

**Lesson 2: Connections between and among terms**

Ask the children to define a term or make a connection between two or more terms on the word splash to activate prior knowledge. Some terms will be familiar from previous fourth grade units and others will be introduced through this unit.

Ecosystem

Interdependence

Biodiversity

Food Webs and Chains

Systems

Human impact

Waste

Sustainability

Source

Sink

Invasive Species

Native species

Biotic factors

Abiotic factors

**Lesson 3: You live in the Temperate Deciduous Forest (4-5 days)**

Day 1:

Single concept Field Trip: What do you notice about your natural environment?

Write: Record the date time and location as well as your observations in your notebook.

Class discussion: What did you notice?

Chart Biotic and Abiotic factors.

How would you describe your natural habitat?

HW- Single Concept Field Trip:

Walking around outside, what man made features do you notice?

Day2:

Discuss man made features.

Single Concept Field Trip:

Walking around outside, what plants do you notice?

Write: Record the date time and location as well as your observations in your notebook?

Teach: What are the plants of the Temperate Deciduous forest? www.mbgnet.net

Day 3:

Single Concept Field Trip: Walking around outside, what evidence do you notice that animals live here?

Write: Record the date time and location as well as your observations in your notebook?

Teach: What are the animals of the Temperate Deciduous forest? How do they depend on the environment?

Day 4:

Divide your Journal page into 4 boxes and label each with a season.

What is the weather, sky and landscape like in this season?

What do you know about plants in this each season?

What do you know about animal life in each season?

**Lesson 4: Is human activity disrupting the ecological balance?**

Day 1: Wants and needs

Teaching Green the Middle Years (http://www.greenteacher.com/)

Living Within Earth's Means- p. 140-144

Day 2: Strongest Tree

Where is the waste in this system?

Does the system as a whole have waste?

Day 3: Biography of a tomato

Journal: Where does your food come from?

What resources are needed for you to have food in your home?

Read and diagram the Biography of a Tomato

Day 5: Pollution

Water, Air, Land

*Find an activity!

Day 4: Teaching Green the Middle Years:

Ecological Footprint Calculator- p. 84-88

**Lesson 5: What is a biome?**

Zoo boxes: Forest, Aquatic, Desert, Grassland, and Tundra

Directions to be taped under lid:

1. Choose one person to hand out each item in the box.
2. Take turns holding each item up and describe:
    a. What do you see? (Just the facts)

b. What can you infer?
    i. Where do you think it came from?
    ii. What could it be used for?
    iii. Do you think it is biotic or abiotic?
    iv. Do you think it is man made or something found in the natural environment?

3. When everyone has taken a turn discuss how you think your objects are related. What is the theme of your box?
4. Choose three objects that you think best represent the theme of your box to present to the class.

| | Biotic | Abiotic | Source Function | Sink Fuction (Aborsbs Waste) |
|---|---|---|---|---|
| Aquatic | Fish, shell | Rock | Net, Menu, | Toilet paper, soap/ detergent |
| Desert | Cactus, snake, armadillo | Rainfall scale, sand | Oil | |
| Forest | Leaves, pine cones, Needles, Orchids, black bear, | | | |
| Grassland | Giraffe, lion, grasses, | | | |
| Tundra | Little flowers, wolves, bunnies, polar bears | Ice, permafrost | | |

Create an attribute list for each biome.

**Lesson 6: Move Over Rover (Project Wild)**

**Lesson 7: Research**

1. What types of plants live in the biome you chose?
2. What types of animals live in the biome you chose?
3. What is the Climate like in the biome you chose?
    i. Seasons
    ii. Temperature
    iii. Precipitation
4. Where in the world is your biome located?
5. What makes this biome unique?
6. How does this biome play a part in the earth as a system?

**Lesson 8: Global warming**

**Lesson 9: Jigsaw**

Jigsaw to present biome research.

**Lesson 10: Shared Writing**

Together the class will write an essay to highlight the unique qualities of each biome, problems facing them and the interconnection of all biomes to the earth as a system,

**Lesson 11: Action Plan**

Use the Action Plan Lesson to plan a final project.

Final project must include:

1. Direct connection between the action and its impact.
2. Self assessment- How effective was my action in making an impact? How will I measure my success?
3. Reflection- How has my learning affected by behavior and understanding?