

Unit 5: Conservation and Global Climate Change



In this introductory study of ecology, students will learn about the ecology and climate of Barro Colorado Island (BCI), Panama and the ecology and climate of Milwaukee, Wisconsin. Within this context students will review how ecosystem and climate are determined, examine the importance of healthy ecosystems, study how organisms meet their basic survival needs, consider how organisms have evolved, demonstrate ecosystem interactions, analyze the relationship between omnivores and herbivores and justify the importance of forest conservation.

Students will also engage in learning about how humans understand and explain the natural world through an interactive web-based resource that was built with interviews of scientists and students working on BCI during the summer of 2010. They will realize their ability to pose questions and conduct research, in the same way scientists do on BCI, by participating in a performance task that assesses student understanding of climate and species diversity in partnership with the Urban Ecology Center (UEC) in Milwaukee, WI.

Students will develop and apply inquiry-based research to make comparisons between Milwaukee and BCI. In a culminating performance task, students will present their understanding of the similarities and differences of the climate and biodiversity of BCI and Milwaukee. Students and teachers will work with Urban Ecology Center staff to census the flora and fauna of Riverside Park and compare that data to what they have learned and what is published about BCI. The product will clearly display similarities and differences between a temperate climate, flora and fauna, and a tropical climate, flora and fauna. Each student will also have the opportunity to conduct a student driven inquiry project that may be inspired by the work they have done in the unit or scientists they have learned about from BCI. The unit concludes with students persuading their peers of the importance of habitat conservation.

Curricular Goals

National Science Content Standard:
G. History and Nature of Science (Science as a Human Endeavor)

WI State Standard:

Essential Question:

Why is forest conservation important?

Why are healthy ecosystems important to people?

Students will understand that . . .

- tropical forest conservation and the potential impacts of global change on tropical forests are current issues that affect them and their world.
- maintenance of species diversity is important to healthy ecosystems and the human endeavor.
- we make a difference.
- that scientists make a difference.

Students will know. . .

- reasons for destroying a natural ecosystem.
- how changes in the environment and global climate change affect habitats and living things.

Students will be able to. . . (skills)

- explain the importance of forest conservation and impacts of global change on forests.
- discuss pros and cons of conservation.

performance
task

- Reflect on your learning and the work we have done throughout the unit/year to create a public service announcement to promote conservation of an area. Your announcement should explain why forest conservation is important and why healthy ecosystems are important to people.

other
evidence

- attitude, focus, and engagement during work on the unit as assessed using self assessment rubric (seperate attachment)

Assessment Task Blueprint (for teacher use only)

Understandings or goals will be assessed through this task:

Students will be able to explain why the maintenance of species diversity is important to healthy ecosystems and the human experience.

Students will be able to articulate ways in which humans can make a difference and how the work scientists do makes a difference.

Criteria are implied in the standards and understandings, regardless of the task specifics. Qualities student work must demonstrate to signify that standards were met.

Authentic performance task for students to demonstrate understanding: (task overview)

Reflect on your learning and the work we have done throughout the unit/year to create a public service announcement to promote conservation of an area. Your announcement should explain why forest conservation is important and why healthy ecosystems are important to people.

Student products and performances to provide evidence of desired understandings:

Students create a public service announcement to promote environmental conservation of a particular area. Their public service announcement can be in the form of a video, brochure, flier or other format.

Criteria by which student products and performances be evaluated:

Students message will be clear and persuasive. This can be determined using an appropriate rubric for student's format.

Oral presentation rubric (ELA)

Please find 3-5th grade version of this assessment as separate document.

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Learning Activities

Lesson number	WHERE TO	activity, learning objective
5.1	Hook and Hold	Watch videos of ecosystems in peril, explore places like Culebra and/or Galeta. Students can read blog posts and view photographs on TREEES website. You may want to direct students to the Children's Eternal Rainforest in Costa Rica. http://mclus.org/
5.2	Engage	Select literature that explores habitat destruction, climate change, etc. and read in literature circles. Suggested titles include: When the Monkeys came Back, Turtle Watchers, Save the Everglades, The Great Kapok Tree, (lower grades)
5.3	Engage	Students in upper grades can explore nutrient cycling as it relates to global climate change. See separate set of lesson plans (Wroblewski).
5.4	Engage	The Remarkable Rainforest P 33 Destroyers of the Rainforest P 42 Why can't it grow back? P 47 what happens when you cut them down? P 53 the most important reason
5.5	Reflect and Rethink	Students work individually, in pairs or group of three to develop persuasive public service announcement video, brochure, or poster that educates their peers about current research, global climate change or some specific impact of science in our lives.
5.6	Evaluate	Share student final products at school-wide assembly, in hallways, during family event, or via the online Student Learning Community for your school or district.

key vocabulary		conservation, persuade, nutrient cycles, endangered, habitat destruction
print resources		The Remarkable Rainforest
online resources		Sarah and Dana blogs from 2010 and 2011: STRI marine laboratory sites Galeta and Punta Culebra http://mclus.org/