

Strand: Using Scientific Knowledge in Life Science
- Ecosystems

Standard: All students will analyze how humans and the environment interact

Benchmark: Describe positive and negative effects of humans on the environment.

Constructing and Reflecting

SCI.I.1.1 - Generate reasonable questions about the world based on observation.

SCI.I.1.2 - Develop solutions to problems through reasoning, observation, and investigation.

SCI.II.1.1 - Develop an awareness of the need for evidence in making decisions scientifically.

SCI.II.1.2 - Show how science concepts can be illustrated through creative expression such as language arts and fine arts.

SCI.II.1.4 - Develop an awareness of and sensitivity to the natural world.

Vocabulary / Key Concepts

Human effects on the environment:

- garbage
- habitat destruction
- waste water treatment
- land management
- renewable and non-renewable resources

Context

- household wastes
- school wastes
- waste water treatment
- habitat destruction due to community growth
- reforestation projects
- establishing parks or other green spaces
- recycling

Knowledge and Skills

Benchmark Clarification:

Humans have the ability to change the environment. Human actions such as development, construction, pollution, maintenance, and preservation affect the environment.

Students will:

- Discuss the effects of pollution (garbage, waste water treatment) on the environment

Resources (Continued from column at right.)

Animals in Danger Series. Heineman Library.
Community Resources: DNR personnel and other individuals, books, internet, local maps.
Harlow, Rosie. *Nature in Danger*. Kingfisher, 1995.

“Waste Not.” *Sing the Science Standards* (Songbook/CD).
<http://scienceexplosion.indiegroupp.com/>

Resources

Coloma Resources:

Newbridge Early Science Program Teacher manual and Big Book.
-Kids for the Earth

Other Resources:

Michigan Teacher Network Resources
<http://mtn.merit.edu/mcf/SCI.III.5.E.4.html>

Sustainability Education Handbook – web resources for environmental topics – extensive!
<http://www.urbanoptions.org/SustainEdHandbook/ScienceHeredityHumanImpact.htm>

Berrien County Resource Recovery Education Specialist – Jill Cooley – EXCELLENT classroom resource person – 983-7111 ex 8234

Species Charades – lesson plan to introduce endangered species and the idea of “endangered”. Education World.
http://www.education-world.com/a_lesson/03/lp310-01.shtml

Five Lessons Teach Students to Reduce, Reuse, Recycle – Education World -
http://www.education-world.com/a_lesson/lesson308.shtml

EPA – Recycle City - A game, an interactive book, and other puzzles will teach you hundreds of ways a whole town can reduce, reuse, and recycle. – Very Cool!
<http://www.epa.gov/recyclecity/first.htm>

EEK – Environmental Education for Kids – Univ. of Wisconsin – online mag – Excellent! Lots of Resources on one site.
<http://www.dnr.state.wi.us/org/caer/ce/eeek/earth/recycle/index.htm>

Instruction

Read and discuss Kids for the Earth

Complete “That’s Mixed Up!” activity/experiment from page 9 in teaching guide for big book.

Alternately,

Teacher can schedule a visit from the county Resource Recovery person (Jill Cooley) and show the students alternate disposal methods such as vermicomposting and recycling.

Assessment

Informal Assessment

Students identify and describe two interactions between humans and the environment.

Or

Student complete “Which is Best?’ learning sheet, page 11, from Kids for the Earth teaching guide.

Teacher Notes:

<http://www.misd.net/mibig/>

Analyze how humans and the environment interact.

Students need to learn the role that animals play in design of systems managed by humans. Students should describe the positive and negative effects that humans have on the environment. They should understand the systems that best encourage the growth of plants and animals and then can be managed by humans. Finally, they should describe more positive and negative effects that humans have on the environment. Students in middle school should be able to explain how humans benefit from the use of plant and animal materials. In middle school, students should be able to describe ways in which humans change the environment. In high school, they should be able to explain the effects that agriculture and urban development have on ecosystems.