

Science SCI.V.1.6

Grade: 3rd (from 4th)

Strand: Using Scientific Knowledge in Earth Science
- Geosphere

Standard: All students will analyze effects of technology on the earth's surface and resources.

Benchmark: Demonstrate ways to conserve natural resources and reduce pollution, through reduction, reuse, recycling of manufactured materials.

Constructing and Reflecting:

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

SCI.I.1.5 - Develop strategies and skills for information gathering and problem solving.

SCI.II.1.3 - Describe ways in which technology is used in everyday life.

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

SCI.II.1.5 - Develop an awareness of contributions made to science by people of diverse backgrounds and cultures.

Vocabulary / Key Concept

Materials that can be recycled:

- paper
- metal
- glass
- plastic

Conservation and anti-pollution activities:

- reduce
- reuse
- recycle

Context

Collections of recyclable materials, plans for recycling at home and school, composting, ways of reusing or reducing the use of paper.

Knowledge and Skills

Manufactured materials can be reduced, reused and recycled to conserve natural resources.

Students will investigate and participate in ways to conserve natural resources and reduce pollution through reduction, reuse, and recycling of manufactured materials

Resources

Coloma Resources:

Discover the Wonder – Grade 3

Module C – pages 36-37

Module D – Chapter 3, pages 50-53

Module F – pages 20-57

“Trash Class” – Jill Cooley – Berrien County Geological Society (will do free class)

Can Kids Save the Earth? (Tradebook)

Other Resources:

Warren Washington

Women in Science

<http://crux.astr.ua.edu/4000ws/4000ws.html>

Recycle City <http://epa.gov/recyclecity>

Instruction

Benchmark Question: What effects have technology had on the earth's surface and resources?

Focus Question: What can be done with cafeteria waste to conserve natural resources?

Teacher poses the focus question to facilitate discussion.

Review how natural resources are used to produce the products we use in our lives on a daily basis.

Take students to the cafeteria after lunch. Pour out the trash from the can onto a mat. Students should wear rubber gloves and sort the trash into piles of recyclable materials and non recyclable materials.

Students will discuss questions such as:

- What can we do to recycle these objects more effectively at school?
- What happens to these items when they reach the dump (or landfill)?
- How does this waste effect the environment?
- What natural resources are conserved by reducing, reusing, and/or recycling these materials?
- What technology is used to recycle these materials?
- Who was instrumental in studying the relationship between deterioration of the planet and industrial growth and waste? Warren Washington

Additional web based resources: Women in Science
Recycle City

Assessment

Students will research a culturally diverse scientist who has made a contribution to conservation of natural resources.

Students will design a plan to reduce, reuse, or recycle waste produced at lunchtime in the cafeteria.

Students will list the natural resources which are conserved by this plan.

Criteria	Beginning	Basic	Achieving	Exceeding
Completeness of plan	Incomplete plan.	Complete plan, but missing details.	Complete plan with details.	Complete plan with details and a budget.
Completeness of estimates	No estimates of natural resources conserved by the plan.	Estimates some of the natural resources conserved by the plan.	Estimates most of the natural resources conserved by the plan.	Estimates all of the natural resources conserved by the plan.

Teacher Notes:**Analyze the effects of technology on the Earth's surface and resources.**

Entwined with this natural change is the effect of humans on the geosphere. Human activities have caused overuse and pollution of the features of the earth's surface. Earth's resources are either renewable or nonrenewable. People get their transportation, building materials, energy, and water directly from the geosphere. The geosphere provides all life with their habitats. People must continually seek to reduce the adverse effects of our activities on the geosphere. This may be done through the practice of reduction of material use, the reuse of materials, the recycling of manufactured materials and the further development of new technologies.