

Greener Gadgets

A Science Program for Grades 4-6

Activity 1: Completing the Circle

National Science Education Standards

Grades K-4

Earth and Space Science

Properties of earth materials

- Earth materials are solid rocks and soils, water, and the gases of the atmosphere. The varied materials have different physical and chemical properties, which make them useful in different ways, for example, as building materials, as sources of fuel, or for growing the plants we use as food. Earth materials provide many of the resources that humans use.

Science and Technology

Abilities to distinguish between natural objects and objects made by humans

- Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.

Science in Personal and Social Perspectives

Types of resources

- Resources are things that we get from the living and nonliving environment to meet the needs and wants of a population.
- Some resources are basic materials, such as air, water and soil; some are produced from basic resources, such as food, fuel and building materials; and some resources are nonmaterial, such as quiet places, beauty, security and safety.
- The supply of many resources is limited. If used, resources can be extended through recycling and decreased in use.

Grades 5-8

Science and Technology

Understanding about science and technology

- Technological solutions have intended benefits and unintended consequences. Some consequences can be predicted, others cannot.

Science in Personal and Social Perspectives

Natural hazards

- Human activities can induce hazards through resource acquisition, urban growth, land-use decisions and waste disposal. Such activities can accelerate many natural changes.

Science and technology in society

- Science influences society through its knowledge and world view. Scientific knowledge and the procedures

used by scientists influence the way many individuals in society think about themselves, others and the environment. The effect of science on society is neither entirely beneficial nor entirely detrimental.

- Technology influences society through its products and processes. Technology influences the quality of life and the ways people act and interact. Technological changes are often accompanied by social, political and economic changes that can be beneficial or detrimental to individuals and to society. Social needs, attitudes and values influence the direction of technological development.

Next Generation Science Standards

Earth and Human Activity

4-ESS3-1 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy and groundwater resources are the result of past and current geo-science processes.

MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's system.

Activity 2: Recycling By the Numbers

Activity 3: Be a Good eNeighbor

Poster: Live Green – Buy Green – Recycle Responsibly

National Science Education Standards

Grades K-4

Science in Personal and Social Perspectives

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Changes in environments

- Environments are the space, conditions and factors that affect an individual's and a population's ability to survive and enjoy their quality of life.
- Changes in environments can be natural or influenced by humans. Some changes are good, some are bad, and some are neither good nor bad. Pollution is a change in the environment that can influence the health, survival, or activities of organisms, including humans.
- Some environmental changes occur slowly, and others occur rapidly. Students should understand the different consequences of changing environments in small increments over long periods as compared with changing environments in large increments over short periods.

Science and technology in local challenges

- People continue inventing new ways of doing things, solving problems, and getting work done. New ideas and inventions often affect other people; sometimes the effects are good and sometimes they are bad. It is helpful to try to determine in advance how ideas and inventions will affect other people.

Science and Technology

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Grades 5-8

Science and Technology

Understanding about science and technology

- Technological solutions have intended benefits and unintended consequences. Some consequences can be predicted, others cannot.

Science in Personal and Social Perspectives

Populations, resources and environments

- When an area becomes overpopulated, the environment will become degraded due to the increased use of resources.

Natural hazards

- Human activities can induce hazards through resource acquisition, urban growth, land-use decisions and waste disposal. Such activities can accelerate many natural changes.

Science and technology in society

- Science influences society through its knowledge and world view. Scientific knowledge and the procedures used by scientists influence the way many individuals in society think about themselves, others and the environment. The effect of science on society is neither entirely beneficial nor entirely detrimental.
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