



Leaf Pack Network

Delaware State Standards, Grades 6-8

Leaf Pack Network[®] curriculum meets the following Delaware State Standards for grades 6-8.

Standard 1: Nature and Application of Science and Technology

The practice of science and the development of technology are critical pursuits of our society. These pursuits have involved diverse people throughout history and have led to continuous improvement in the quality of life and in our understanding of nature. Students will study the processes of scientific inquiry and technology development and the history and context within which these have been carried out.

Science as Inquiry

1. The design of an investigation, in many cases, is determined by the type of questions asked. Therefore, the thoughtful and informed structuring of such questions is an important part of scientific inquiry.
2. The ultimate goal of any scientific investigation is to obtain evidence precise and thorough enough to answer a question. Various experimental designs and strategies can be developed to answer the same question. The comprehensiveness and sophistication of the investigation depend on the tools and technologies used.
3. Explanations in science result from careful and logical analysis of evidence gained from an investigation. Explanations relate causes to effects and develop relationships based on the evidence. Critical analysis of data is necessary to judge the quality and validity of the proposed explanation. Critical analysis skills learned in the classroom can be applied to judge the validity of claims made in everyday life.

Standard 5: Earth's Dynamic Systems

Earth's features provide a record of how Earth has changed over time. This dynamic history can be documented and explained by a variety of physical, chemical, biological and geological processes. Students will study and learn to identify components of the various Earth systems and understand the changes and patterns that result from interactions within and between these systems.

Components of Earth

4. Water falling to Earth flows over the surface as run-off and collects in ocean basins, rivers, lakes, ice caps, and underground. Water stored underground (sub-surface) and water stored above ground (surface) form a continuum, each supplying water to the other. Human activity and natural events can introduce chemicals affecting the quality of the water supply.

Standard 7: Diversity and Continuity of Living Things

The natural world consists of a diversity of organisms that transmit their characteristics to future generations. Students will study how living things reproduce, develop and transmit traits, and how these theories of evolution explain the unity and diversity of species found on Earth. Students will also study how knowledge of genetics, reproduction and development is being applied to improve agriculture and human health.

Diversity

1. Organisms have many distinct and unique features which they use for survival. Specialized features include those for finding food, building shelters, evading predators, and reproducing. Scientists use similarities and differences in these features to classify and group organisms.

Evolution

1. Organisms are currently classified into five kingdoms (monera, protista, fungi, plantal, animalia) based on similarities in structure and behavior.
2. A species is an important biological grouping of organisms whose members have similar structures, normally interbreed, and produce fertile offspring.
3. Each structure in an organism is uniquely adapted to perform a particular function for enhancing the ability of the organism to survive. The great variety of body forms found in different species enable organisms to survive in diverse environments.

Standard 8: Ecology

Organisms are linked to one another in an ecosystem by the flow of energy and the cycling of materials. Humans are an integral part of the natural system and human activities can alter the stability of ecosystems. Students will acquire a basic understanding of the structure of ecosystems and how they function and change. They will also study how humans can apply scientific and technological knowledge about ecosystems in making informed decisions about the use of natural resources.

Technology and Its Influence on the Environment

1. An ecosystem consists of all the organisms that live together and interact with each other and their physical environment.

2. Interactions in an ecosystem result from the transfer of matter and energy from producers to consumers and eventually to decomposers. The total amount of matter and energy in the system remains the same even though its form and location changes.

3. Matter is recycled in an ecosystem, and energy which enters the system as sunlight is either stored in the bodies of organisms, used by consumers to support their activities, or dissipated to the environment as heat energy. Loss of heat from an ecosystem is compensated for by continuous input of solar energy.

Change in Ecosystems

1. Changes in the physical or biological conditions of an ecosystem can alter the diversity of species in the system. As the ecosystem changes, populations of organisms must adapt to these changes, move to another ecosystem, or become extinct.

2. The size of populations in an ecosystem may increase or decrease as a result of the interrelationships among organisms, availability of resources, natural disasters, habitat changes, and pollution.

Technology and Its Influence on the Environment

1. Agriculture relies heavily on technology to increase productivity. Advances in irrigation allow crops to grow in areas where there is not enough precipitation. Chemicals are used to fertilize crops and to control damage done by rodents, fungi, insects, and weeds. The need to increase agricultural production results in environmental trade-offs (e.g., saltwater intrusion, water table lowering, agricultural runoff into rivers/streams, elimination of beneficial insects, desertification).

Interaction of Humans Within Ecosystems

1. The extinction or introduction of species can affect the stability of ecosystems. With careful planning, humans may be able to sustain ecosystems for their use as well as preserve their biodiversity and natural beauty.

2. Decisions about the use of natural resources are often determined by a society's short-term needs for the resources with little regard for long-term consequences. The supply of natural resources such as water and petroleum is finite. Non-material resources (e.g., tranquility, beautiful scenery) cannot be easily quantified but must be preserved.



The Leaf Pack Network is an initiative of Stroud™ Water Research Center. The Stroud Center seeks to advance knowledge and stewardship of freshwater systems through global research, education, and watershed restoration. Learn more at www.stroudcenter.org