

Overview

This activity is a hands-on demonstration about the environment, nature and what we can do to support nature and its cycles. The ecosystem concept is introduced.

Overall Expectations

- Demonstrate an understanding of what a cycle is.
- Describe how we are all part of nature's cycles.
- Demonstrate an understanding of the four essential requirements for life: Food, Water, Air and Shelter.

Specific Expectations

Understanding Basic Concepts

- Every living thing relies on others in their circle (cycle) to prosper and grow.
- Four essential elements for life in any circle (cycle) are food, water, air and shelter.
- When we alter and change our environment, it impacts all living beings.

Relating Science to the World outside the School

- Students will be able to describe the four essential requirements for life.
- Students will be to identify what things can affect a circle (cycle).
- Students will be able to describe how ecosystems are interrelated.

Curriculum Links

- Grade 4 – Life Systems
Habitats and Communities
- Grade 5 – Life Systems
Human Organ Systems



Glossary of Terms

Conservation

The act of using the resources only when needed for the purpose of protecting from waste or loss of resources.

Cycle

A cycle is a circle— something with no beginning or end.

Ecosystem

An ecological community together with its physical environment, considered as a unit.

Habitat

The arrangement of food, water, shelter and space suitable to an animal's needs.

Natural Resources

Something that is found in nature and is valuable to humans.

Organism

Any living being; plants and animals.

Pollution

Contaminants in the air, water, or soil that can cause harm to human health or the environment.

Overview

This activity will demonstrate the effects household chemicals can have on our fish & wildlife as well as how it reduces the quality of our drinking water.



Overall Expectations

- Demonstrate an understanding that storm drains are a direct link to our rivers and lakes.
- Describe how pollutants made and used by humans can enter the water system and persist for years without dissolving.
- Demonstrate an understanding that the water in our watershed continues on to the next community's watershed.

Specific Expectations

Understanding Basic Concepts

- Anything that goes into the storm sewer system goes directly into a local water body.
- Hazardous wastes must be disposed of properly.
- It is important to keep our water resources clean in order to protect the health of humans, fish and wildlife.

Relating Science to the World outside the School

- Students will be able to identify what household products are hazardous.
- Students will be able to describe how they can reduce human impact on our waterways.
- Students will be able to describe how water is filtered in urban and rural communities.

Curriculum Links

- Grade 4 – Canada and World Connections
Provinces and Territories of Canada
- Grade 4 – Life Systems
Habitats and Communities

Glossary of Terms

Aquatic

Aquatic means in or on the water.

Bioaccumulation

The process in which toxins build up in the fatty tissues of living things. As we progress to the top of the food chain, these toxins increase more and more inside the organisms.

Food Chain

A food chain is animals, plants and humans who are all dependant on one and other to survive.

Pollution

Contaminates in the air, water, or soil that cause harm to human health or the environment.

Storm Drains

A storm drain is a drain located in urban areas and leads rain water directly into a river or lake.

Watershed

A watershed is the land area from which water drains to a particular water body.

Overview

At this activity, students learn about water pollution by pretending to be water drops moving through various stages of a watershed.

Overall Expectations

- Demonstrate an understanding that when water travels through a watershed, it picks up many pollutants from the air, roads, lawns, farms etc.
- Describe what types of contaminants are picked up as water moves through a watershed.
- Demonstrate an understanding of how important it is to protect our water supply by reducing all pollution.



Specific Expectations

Understanding Basic Concepts

- A watershed is an area of land where all water drains to a certain spot.
- Common contaminants in a watershed include: chemical discharges, solvents, paints, tin cans, and motor oil.
- Ways to prevent pollution include the following: Don't use pesticides on lawns; use cars less to reduce emissions; never pour solvents, paints, motor oils or other chemicals down the drain.

Relating Science to the World outside the School

- Students will be able to describe what a watershed is.
- Students will be able to identify different types of contaminants that affect our water supply.
- Students will be able to describe ways to prevent pollution.

Curriculum Links

- Grade 4 – Canada and World Connections
Provinces and Territories of Canada
- Grade 4 – Life Systems
Habitats and Communities

Glossary of Terms

Contaminant

An impurity that causes air, soil, or water to be harmful to human health or the environment.

Emission

Dirty air that comes from car exhaust systems.

Pollutants

Contaminants in the air, water, or soil that cause harm to human health or the environment.

Precipitation

Water droplets or ice particles condensed from atmospheric water vapor and sufficiently massive to fall to the earth's surface as rain or snow.

Solvent

A liquid capable of dissolving another substance (example: paint thinner, mineral spirits).

Watershed

An area of land where all water drains to a certain point.

Overview

This activity illustrates the composition of a bog and the importance it has on the existence of plants, animals and the environment. Students will observe the common plants and animals that are found in a bog.

Overall Expectations

- Demonstrate an understanding of what a bog is.
- Describe how a bog is an important part of our watershed.
- Demonstrate an understanding of the dependency of plants and animals on their habitat and the interrelationships of plants and animals living in a specific habitat.



Specific Expectations

Understanding Basic Concepts

- A Bog Wetland is an important water source.
- Bogs need to be protected.
- The importance of what would happen if bogs were not here to act as a water filter.
- A bog is an important habitat for unique plants and animals.

Relating Science to the World outside the School

- Students will be able to describe the importance of bogs.
- Students will be to identify how a bog is formed.
- Students will be able to describe how ecosystems are interrelated.

Curriculum Links

- Grade 2 – Earth and Space Systems
Air and Water in the Environment
- Grade 3 – Life Systems
Growth and Changes in Plants
- Grade 3 – Earth and Space Systems
Soils in the Environment
- Grade 4 – Life Systems
Habitats and Communities

Glossary of Terms

Aquatic Life

Aquatic life is plants, animals and microorganisms that spend all or part of their lives in water.

Bog

A bog is a poorly drained freshwater wetland that is characterized by a build-up of peat.

Conservation

The act of using the resources only when needed for the purpose of protecting from waste or loss of resources.

Depression Storage

Is the storage of water in low areas such as puddles, bogs, ponds and wetlands.

Ecology

A branch of science concerned with the interrelationship of organisms and their environments; the pattern of relations between organisms and their environment.

Ecosystem

An ecological community together with its physical environment considered as a unit.

Glossary of Terms

Environment

Environment is the sum of all external conditions and influences affecting the development and life of organisms.

Erosion

Erosion is the wearing away of the earth's surface by running water, wind, and ice; processes, including weathering, abrasion, corrosion and transportation, by which material is removed from the earth's surface.

Fill

Material added to a wetland area to make it suitable for building.

Filtration

Filtration is the process of passing a liquid or gas through a porous article of mass to separate out matter in suspension.

Flooding

An overflowing of water, especially over land not usually submerged.

Marsh

A marsh is an area of low-lying wetland.

Microorganism

Microorganisms are organisms too small to be seen with the unaided eye, including bacteria, yeasts, viruses, and algae.

Organism

An organism is any living being; plants and animals.

Pollution

Contaminants in the air, water, or soil that cause harm to human health or the environment.

Restoration

Restoration reestablishes the character of an area such as a wetland or forest.

Overview

This activity will illustrate where minerals come from. Students will learn what role minerals play in our water resources.

Overall Expectations

- Demonstrate an understanding of what a mineral is.
- Describe how erosion can cause significant changes in the landscape.
- Identify the many uses of minerals in manufacturing and everyday use.

Specific Expectations

Understanding Basic Concepts

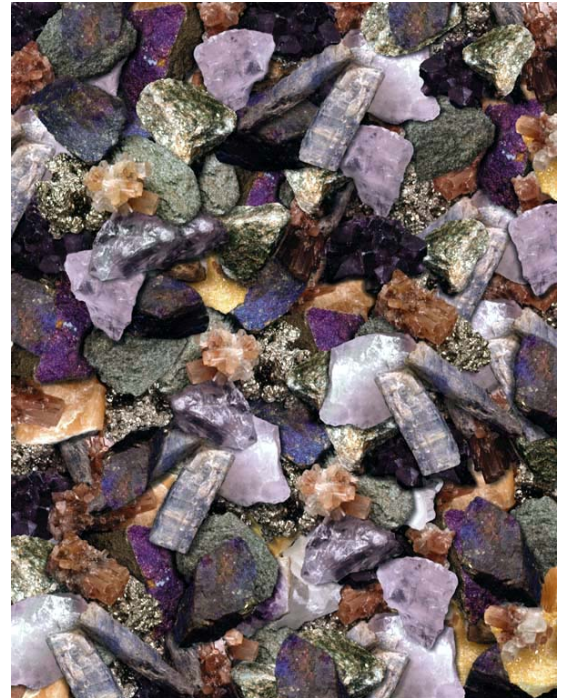
- Minerals play an important part in our water sources.
- Minerals are natural (not human made) solid substances.
- Minerals are identified by color, shape, hardness and crystal creation.
- When water flows over rocks, the water picks up different minerals and carries them away where they end up in our lakes, rivers, streams, and oceans.

Relating Science to the World outside the School

- Students will be able to describe how to identify minerals.
- Students will be to identify where minerals come from.
- Students will be able to describe how we use minerals everyday.

Curriculum Links

- Grade 3 – Earth and Space Systems
Soils in the Environment
- Grade 4 – Earth and Space Systems
Rocks, Minerals, and Erosion



Glossary of Terms

Core

The center of the Earth, made of heavy metals.

Crust

The outer, rocky layer of the Earth.

Crystal

The special shape in which many minerals form. A crystal has fixed properties and the sides are usually flat and regular.

Conservation

The act of using the resources only when needed for the purpose of protecting from waste or loss of resources.

Dinosaurs

The group of now extinct reptiles that lived between 230 and 65 million years ago.

Erosion

The wearing away of the earth's surface by running water, wind, and ice; processes, including weathering, abrasion, corrosion and transportation, by which material is removed from the earth's surface.

Fossil

The remains, or traces, of animals and plants usually preserved in rocks.

Gemstone

A mineral that is valuable because of its beauty, often worn in a piece of jewelry.

Geologist

Someone who studies rocks and fossils to learn more about the Earth's history.

Glossary of Terms

Igneous Rocks

Rocks that are formed from cooling magma.

Lava

The hot, melted rock that pours out of an erupting volcano.

Magma

The hot, liquid rock deep in the Earth's crust, that becomes lava on the surface.

Metamorphic Rocks

Metamorphic rocks are igneous or sedimentary rocks that have been transformed by great heat or pressure.

Mineral

A compound or an element that forms crystals. All rocks are made from minerals.

Rock

A mass of mineral material, that may or may not be solid.

Rock Cycle

Rocks are constantly being formed, worn down and then formed again.

Sedimentary Rocks

Rocks that are formed from bits and pieces of rock and sand (sediments) that settle on the bottom of the lake or ocean and after many years form layers which, turns into rock.