Weaselhead Education Program:

Wetlands: Important to a Healthy Environment

Grade 5 Curriculum Connections

Science

Topic C: Classroom Chemistry

Overview

Students learn about the properties and interactions of some safe to handle household liquids and solids. They test a variety of materials to see what happens when things are mixed together: what dissolves, what reacts and what remains unaffected. They discover that when a solid material dissolves, it can be recovered as a crystal by evaporating the liquid. They also learn that when two materials react to form a new material, the original materials cannot be recovered. As an example of a chemical reaction, students learn to produce carbon dioxide gas and show that this gas differs from ordinary air.

Topic C: Weaselhead Curriculum Connections

Specific Learner Expectations	Weaselhead Wetlands Connection
3. Distinguish substances that will dissolve in a liquid from those that will not, and demonstrate a way of recovering a material from solution.	Students discuss sediments in the water versus pollutants such as phosphates. Sediment will settle as seen with the formation of the Delta Mud Flats.
5. Recognize that the surface of water has distinctive properties, and describe the interaction of water with other liquids and solids.	Surface water is compared to ground water, atmospheric water and water locked in icecaps as the world's available fresh water sources. Water quality is explored as interactions with different pollutants and sediments is discussed.
6. Produce carbon dioxide gas through the interaction of solids and liquids, and demonstrate that it is different from air.	Carbon dioxide is addressed when discussing photosynthesis and carbon sinks further solidifying students understanding of this gas.
7. Distinguish reversible from irreversible changes of materials, and give examples of each.	Examples in the Weaselhead include pollutants such as heavy metals that can be taken from the water via the plant life existing in a wetland. Some pollutants are can not be removed from the water through natural wetland measures and are thus removed at the City's water treatment plant.
9. Use an indicator to identify a solution as being acidic or basic.	Students use pH strips to identify if the wetland studied is basic or acidic

Topic D: Weather Watch

Overview

Students learn about weather phenomena methods used for weather study. They measure temperatures, wind speed and the amounts of rain and snow, and the cloud cover. In studying causes and movements, students learn about the uneven heating and cooling and discover patterns

of air movement in indoor environments as are found outdoors. They also learn human actions that can affect weather and study the design and testing of clothing as protection against the weather.

Topic D: Weaselhead Curriculum Connections

Specific Learner Expectations	Weaselhead Wetlands Connection
1. Predict where, within a given indoor or outdoor environment, one is likely to find the warmest and coolest temperatures.	Students will predict that the temperature will be warmer as we move down the hill from the parking lot as we move to an area protected by trees.
4. Describe evidence that air contains moisture and that dew and other forms of precipitation come from moisture in the air.	Students will learn that 0.7% of the world's fresh water is found in the air. They learn about the water cycle where trees and plants transpire adding water to the air which form into clouds and thus rain.
5. Describe and measure different forms of precipitation, in particular, rain, hail, sleet, snow.	Students learn about runoff water contributing to the stream flow in the elbow river from the watershed. They discover that runoff is caused by different forms of precipitation.
8. Identify some common types of clouds, and relate them to weather patterns.	When learning about the water cycle as detailed in SLE # 4 connection.
9. Describe the effects of the Sun's energy on daily and seasonal changes in temperature—24-hour and yearly cycles of change.	The seasonal changes are explained from the perspective of the plants and animals in the Weaselhead relating to the changes in sunlight and energy. Photosynthesis is thus also touched on.
12. Recognize that human actions can affect climate, and identify human actions that have been linked to the greenhouse effect.	The Weaselhead has over 3 million trees and contains many wetlands all acting as carbon sinks. It is important to protect the area and other natural environments.
13. Appreciate how important it is to be able to forecast weather and to have suitable clothing or shelter to endure various types of weather.	Students are encouraged to check the weather forecast prior to coming to the Weaselhead so that they can dress appropriately for the weather.
14. Test fabrics and clothing designs to choose those with characteristics that most effectively meet the challenges of particular weather conditions; e.g., water resistance, wind resistance, protection from cold.	Students are expected to layer their clothing and bring a rain jacket or any other appropriate clothing to assist in maintaining their comfort level.

Topic E: Wetland Ecosystems

Overview

Students learn about wetland ecosystems by studying life in a local pond, slough, marsh, fen or bog. Through classroom studies, and studies in the field, students learn about organisms that live in, on and around wetlands and about adaptations that suit pond organisms to their environment.

Through observation and research, students learn about the interactions among wetland organisms and about the role of each organism as part of a food web. The role of human action in affecting wetland habitats and populations is also studied.

General Learner Expectations
Students will:
5–10 Describe the living and nonliving components of a wetland ecosystem and the interactions within and among them.

Topic E: Weaselhead Curriculum Connections

Specific Learner Expectations	**Weaselhead Wetlands Connection**
1. Recognize and describe one or more examples of wetland ecosystems found in the local area; e.g., pond, slough, marsh, bog, fen.	Students will see four different wetlands and study three up close. The Delta Mud Flats from afar, the Beaver Lagoon, Oxbow and Beaver Pond up close and personal.
2. Understand that a wetland ecosystem involves interactions between living and nonliving things, both in and around the water.	Students study the aquatic animals and plants found in the wetlands.
3. Identify some plants and animals found at a wetland site, both in and around the water; and describe the life cycles of these plants and animals.	Plants and animals are investigated as students explore the Weaselhead's wetlands identifying the species and the specific life cycles of the aquatic invertebrates found in the wetlands.
4. Identify and describe adaptations that make certain plants and animals suited for life in a wetland.	The adaptations of aquatic invertebrates are discovered upon investigation. Students learn about specific adaptations of plants and animals in relation to wetlands as they are encountered on the field trip.
5. Understand and appreciate that all animals and plants, not just the large ones, have an important role in a wetland community.	A Wetlands Web of Life game is played to display to students the important role that all wetland organisms play in maintaining a healthy wetland environment. Roles are further identified in the pond study activity.
6. Identify the roles of different organisms in the food web of a pond: • producers—green plants that make their own food, using sunlight • consumers—animals that eat living plants and/or animals • decomposers—organisms, such as molds, fungi, insects and worms, that reuse and recycle materials that were formerly living.	Many interpretive opportunities are presented in the Weaselhead Natural Area to present the different roles of organisms in the food web. Producers are explained when students explore photosynthesis as the method that plants use to produce sugars as their own food. Consumers are observed during the pond study. The Wetlands Web of Life game further solidifies the interactions of producers and consumers.
7. Draw diagrams of food chains and food webs, and interpret such diagrams.	Students are encouraged to draw diagrams relating to the interactions observed and learned about in the wetland ecosystems.
8. Recognize that some aquatic animals use oxygen from air and others from water, and identify examples and adaptations of each.	Insects such as the waterboatman, backswimmer and mosquito larvae are observed in the pond study to be breathing air. Insects with gills such as the damselfly and mayfly nymphs. Adaptations of these insects

	are identified such as the sideways flattened body structure of the scud in order to obtain higher levels of dissolved oxygen.
9. Identify human actions that can threaten the abundance or survival of living things in wetland ecosystems; e.g., adding pollutants, changing the flow of water, trapping or hunting pond wildlife.	The Obstacles that the Elbow river faces upstream are identified and discussed. Industries, agriculture and development that threaten wetlands are acknowledged as it is discussed how Canada has already lost over 70% of its wetlands.
10. Identify individual and group actions that can be taken to preserve and enhance wetland habitats.	Students identify ways that they can protect wetlands in their current activities and in their future decision making. Water conservation is also discussed.
11. Recognize that changes in part of an environment have effects on the whole environment.	The Wetlands Web of Life game illustrates how the loss of a species has a tremendous effect on the entire wetland ecosystem. In identifying that the Elbow river is of the Hudson Bay drainage basin, students recognize the importance of activities taking place in the area.

Social Studies

GRADE 5: Canada: The Land, Histories and Stories

OVERVIEW

Grade 5 students will examine how the ways of life of peoples in Canada are integral to Canadian culture and identity. They will explore the geographic vastness of Canada and the relationships between the land, places and people. As they reflect upon the stories of diverse Aboriginal, French, British and immigrant experiences in Canada over time, students will develop a sense of place and an awareness of how these multiple stories contribute to students' sense of citizenship and identity.

TERMS AND CONCEPTS

That may be touched on in Weaselhead Programs

Aboriginal, cultural heritage, demographics, Elder, First Nations, fur trade, habitants, immigration, industrialization, Inuit, Métis, reserve, treaties,

Specific Outcomes	Weaselhead Curriculum Connections
Local and Current Affairs In order to allow opportunities for students to engage in current affairs, issues and concerns of a local nature, the program of studies provides the flexibility to include these topics within the time allotted for social studies.	As current affairs affect the Weaselhead Natural Area as related to wetlands and the surrounding ecosystems, they are discussed in field trips.
5.2 Histories and Stories of Ways of Life in Canada **General Outcome**	Stories of the Tsuu T'ina First Nations people are shared with students regarding their arrival to the area and the history of

Students will demonstrate an understanding of the people and the stories of Canada and their ways of life over time, and appreciate the diversity of Canada's heritage. **Stories**: Stories provide a vital opportunity to bring history to life. Through stories, people share information, values and attitudes about history, culture and heritage. Stories are communicated through legends, myths, creation stories, narratives, oral traditions, songs, music, dance, literature, visual and dramatic arts, traditions and celebrations. They can include or be supported by biographies, autobiographies, archives, news items, novels or short stories. In social studies, stories provide students with opportunities to understand the dynamics of peoples, cultures, places, issues and events that are integral to Canada's history and contemporary society.	the Weaselhead.
5.2.2 examine, critically, the ways of life of Aboriginal peoples in Canada by exploring and reflecting upon the following questions and issues: □ What do the stories of First Nations, Métis and Inuit peoples tell us about their beliefs regarding the relationship between people and the land? (I, CC, TCC, LPP)	Weaselhead Education Programs teach the native and medicinal uses of the plants found in the area.
5.2.9 examine, critically, how European immigrants shaped ways of life in western Canada	Students learn about plant species introduced to North America by European immigrants and how these plants have transformed the landscape.
COMMUNICATION **5.S.8 demonstrate skills of oral, written and visual literacy.**	Students build on their communication skills through discussion, writing, sketching and sharing. They participate in Weaselhead Theater (a great evaluation tool for teachers and Naturalists) as groups present to the class something that they learned about wetlands. They can present using a variety of creative tools such as a skit, poetry, song, rap, dance or tableau.