

Curriculum Connections

Introduction

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.

Wetland Ecosystems

GENERAL OUTCOME

Students will describe the living and nonliving components of a wetland ecosystem and the interactions within and among them.

KNOWLEDGE AND UNDERSTANDING

Students will:

- Recognize and describe one or more examples of wetland ecosystems found in the local area; e.g., pond, slough, marsh, bog, fen.
- Understand that a wetland ecosystem involves interactions between living and nonliving things, both in and around the water.
- 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.
- Identify and describe adaptations that make certain plants and animals suited for life in a wetland.
- Understand and appreciate that all animals and plants, not just the large ones, have an important role in a wetland community.
- 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 moulds, fungi, insects and worms, that reuse and recycle materials that were formerly living.
- Draw diagrams of food chains and food webs, and interpret such diagrams.
- Recognize that some aquatic animals use oxygen from air and others from water, and identify examples and adaptations of each.
- 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.
- Identify individual and group actions that can be taken to preserve and enhance wetland habitats.
- Recognize that changes in part of an environment have effects on the whole environment.

Alberta Education. (1996). Science: elementary. [Webpage]. Retrieved from <https://education.alberta.ca/media/654825/elemsci.pdf>

Physical Geography of Canada

GENERAL OUTCOME

Students will demonstrate an understanding and appreciation of how the physical geography and natural resources of Canada affect the quality of life of all Canadians.

VALUES AND ATTITUDES

Students will:

Value Canada's physical geography and natural environment:

- Appreciate the variety and abundance of natural resources in Canada.
- Appreciate the diversity of geographic phenomena in Canada.
- Appreciate the environmental significance of national parks and protected areas in Canada.
- Appreciate how the land sustains communities and the diverse ways that people have of living with the land.

- Appreciate the influence of the natural environment on the growth and development of
- Canada.
- Demonstrate care and concern for the environment through their choices and actions.
- Appreciate the geographic vastness of Canada.

KNOWLEDGE AND UNDERSTANDING

Students will:

Examine, critically, the physical geography of Canada by exploring and reflecting upon the following questions and issues:

- What are the major geographical regions, landforms and bodies of water in Canada?
- How do landforms, bodies of water and natural resources affect the quality of life in Canada?
- What are the differences and similarities among the geographical regions of Canada?
- How is the geographical region they live in different from other regions of Canada?
- What are the factors that determine climate in the diverse geographical regions of Canada (e.g., latitude, water, mountains)?
- How are Canada's national parks and protected areas important to the sustainability of Canada's natural environment?

Analyze how people in Canada interact with the environment by exploring and reflecting upon the following questions and issues:

- In what ways do natural resources and the physical geography of a region determine the establishment of communities?
- How are natural resources used, exchanged and conserved in Canada?
- Whose responsibility should it be to ensure the preservation of Canada's national parks and protected areas?

Alberta Education. (2006). Social studies kindergarten to grade 12. [Webpage]. Retrieved from <https://education.alberta.ca/media/773693/ss5.pdf>

Lessons and Activities

Class Discussion: Dams

As students have learned, dams today can be harmful to the environment, whereas the older forms of irrigation where not. In grade 5 students learn about the Alberta wetlands and the preservation of those lands. How can the development of a dam be harmful to Alberta wetlands?

Activity: Compare and Contrast

Curricular Connections: Grade Five Science

Compare and contrast the irrigation systems of early Islamic communities - example the Moors in Spain and the Mezquita in Cordoba - to the construction of a dam in Alberta - example the Glenmore Reservoir in Calgary.

PART ONE: Photo Essay

Create a photo essay using Blogger, Exposure or another Web 2.0 platform where you can showcase your work.

- <https://www.blogger.com>
- <https://exposure.co>

Using photos you have taken and those from your research, you will tell a story with images that will evoke a response from your audience.

PART TWO: Vidcast

Using Seesaw, Shadow Puppet Edu, or any other Web 2.0 tool, you will create a vidcast. This means you will add audio to your selection of powerful images. For examples of other student work go to <http://get-puppet.co/#classroomStoriesShort>. For this activity you will need an iPad.

- <http://get-puppet.co>
- <http://web.seesaw.me>

Videos:

National Geographic. (2013). Petra: water in the desert. [Webpage]. Retrieved from <http://natgeotv.com/ca/ancient-megastructures/videos/petra-water-in-the-desert>

Resources: Engineering

Hagia Sofia: Dome Secrets

National Geographic. (2013). Hagia Sofia: dome secrets. [Webpage]. Retrieved from <http://natgeotv.com/ca/ancient-megastructures/videos/hagia-sofia-dome-secrets>

The Alhambra: The Watchtower

National Geographic. (2013). The Alhambra: The Watchtower. [Webpage]. Retrieved from <http://natgeotv.com/ca/ancient-megastructures/videos/the-alhambra-the-watchtower>

- This is only part of the whole video. You may be able to find the full video on Youtube, which will develop the topic of the use of arches and structural stability. This will then connect to the dome of Hagia Sofia and help your students plan for their project.

National Geographic Ancient Megastructures The Alhambra.

Petra: Master Engineering

National Geographic. (2013). Petra: master engineering. [Webpage]. Retrieved from <http://natgeotv.com/ca/ancient-megastructures/videos/petra-master-engineering>

More videos

National Geographic. (2013). Ancient megastructures. [Webpage]. Retrieved from <http://natgeotv.com/ca/ancient-megastructures/videos>

Class Discussion: Guest Speaker

The teacher could ask the student's parents if any of them are engineers, historians, natives to the area being studied, or have visited the area and sites. The guest could come in and speak to the children about their knowledge and understanding of the mathematics behind the construction of such buildings, or they could show pictures and talk about their experiences bring life to the topic.

Activity: Build a Palace

Curricular Connections: Grade Five Math and Science

As you have learned, the Muslims were at the forefront of the development of mathematical concepts such as geometry, algebra and numeracy. All of these things are necessary for an engineer. Imagine you have been hired to build a palace for a Sultan. You will need to think about:

- The number of rooms
- Walls
- Doors and entry ways
- Windows
- Pathways
- Patios
- Gardens
- Water - fountains, pools, irrigation system
- Throne room
- Religious rooms
- Entertainment and dining rooms
- Baths
- Research what other components made up a palace.

Create a birds-eye view of the palace and then chose 3 rooms to draw in detail. Then scan your drawings, or take a steady photo, and upload them to your blog. Finish your project by writing about your ideas, reasoning, and inspirations. Connect your showcase of learning to specific information you learned in class by referring to them in your writing.

Activity: Geo – Pattern

Curricular Connections: Grade Five Mathematics and Art

Create Your Own Geo-pattern or tessellation following the steps in the video provided below.

TED-Ed. (2014, May 14). The complex geometry of Islamic design - Eric Broug. [Video file]. Retrieved from <https://www.youtube.com/watch?v=pg1NpMmPv48>