

# Know Your Zones!



## Specific Learning Outcomes

- 7-1-01:** Use appropriate vocabulary related to their investigations of interactions within ecosystems.
- 7-1-02:** Define ecosystem, and describe various examples that range from the microscopic to the entire biosphere.
- 7-1-03:** Identify abiotic and biotic components of ecosystems that allow particular organisms to survive.

## General Learning Outcomes

- 7-0-1a:** Formulate specific questions that lead to investigations.
- 7-0-2a:** Access information using a variety of sources.
- 7-0-2b:** Evaluate the usefulness, currency, and reliability of information, using predetermined criteria.
- 7-0-2c:** Make notes using headings and subheadings or graphic organizers appropriate to a topic and reference sources.
- 7-0-4c:** Work cooperatively with team members to carry out a plan, and troubleshoot problems as they arise.
- 7-0-4d:** Assume various roles to achieve group goals.
- 7-0-7g:** Communicate methods, results, conclusions, and new knowledge in a variety of ways.

## Vocabulary

ecosystem, biosphere, organism, abiotic, biotic, ecozone, wetland

## Summary

Students are introduced to wetlands by exploring the concept of an ecosystem and learning about the various types of ecozones we have in Manitoba, including those housing wetlands. Students will choose an ecozone to research and create a display discussing their chosen zone. The class will then host an Ecozones Fair where students move across the class to explore Manitoba's many diverse ecosystems.

## Materials

- *Projector and computer to present slideshow*
- *Student access to a library and the internet*
- *Access to various display mediums, such as poster board*
- *Writing and drawing utensils*

## Procedure

### *Warm Up*

Begin with the provided slideshow presentation, which discusses the concepts of an ecosystem, an organism, abiotic and biotic components of an ecosystem, and an ecozone. There will be an opportunity for students to identify abiotic and biotic features of a marsh ecosystem in order to become familiar with the concepts.

**A wetland is** an area of land that holds shallow water, with a maximum depth of two metres. The water makes the soil very moist, so water-loving plants will grow in and around the wetland; this is why a wetland can not be deeper than two metres, because otherwise these kinds of plants drown and do not receive enough sunlight. The water moves slowly because there are so many plants that slow the flow, absorbing some of the water like a sponge and filtering it as it moves through.

**An ecosystem is** a place on Earth where living things interact with other living things as well as non-living things. In other words, a community of interacting organisms and their physical environment. An ecosystem can be very small or large, ranging from the microscopic to the entire biosphere.

**Ecozones** are areas of land on the Earth's surface with general ecological features that include certain abiotic and biotic characteristics that are distinct from other environments. An ecozone is the most generalized category in Environment Canada's land classification system. Here in Manitoba we have six ecozones that make up the province: 1) *Prairie*, 2) *Boreal Plain*, 3) *Boreal Shield*, 4) *Hudson Plain*, 5) *Taiga Shield*, and 6) *Southern Arctic*.

## Activity

The slideshow will introduce students to the activity where they will be researching and analysing one of Manitoba's ecozones, investigating the ecological relationships within that zone, then presenting their findings in an engaging display. This activity will likely take several classes to complete or can be a homework assignment. It can either be done as an individual assignment or in groups. Either assign or have students choose an ecozone to research, making sure each ecozone is represented.

Once students have chosen their ecozones, they will research through various means to answer the following questions:

1. **What kinds of abiotic characteristics make this ecozone unique?** Students will need to research the area's climate, geography, etc.
2. **What kinds of biotic characteristics make this ecozone unique?** Students will need to research the key plant and animal organisms that live in this zone.
3. **How do the living and non-living things interact in this ecozone? Provide an example.** Students will need to think about the kinds of food chains and webs found in their zone, and how the abiotic and biotic elements allow for particular organisms to survive.

Students will then present their findings on their displays, which should clearly communicate the answers to the above questions. The displays can be created from various mediums, such as a poster board, a shoebox diorama, or media presentation - creativity is encouraged!

## Wrap Up

Once students are finished developing their displays, the classroom will be turned into a "life size" Manitoba. The displays will be placed around the room where the ecozone is located in the province, i.e. the southern arctic ecozone displays will be placed in the northeast part of the class, while the boreal shield ecozone displays can be in the middle of the class. Students will walk around and write down at least one interesting fact they learned from each ecozone, and that will be used as their exit slip or as notes used for a future test.

Conclude by explaining that as a class you will be visiting Oak Hammock Marsh Interpretive Centre, which is a type of wetland ecosystem and part of the boreal plain ecozone, where you will be learning more about the interconnected relationships between living and non-living things.

*We would love to see your students' ecozone displays! Send us pictures via email or tag us on social media!*

Email: [ohmic@ducks.ca](mailto:ohmic@ducks.ca)

Facebook:

@OakHammockMarsh

Twitter:

@OakHammockMarsh

Instagram:

@oakhammockmarsh

Pinterst:

Oak Hammock Marsh

Mail:

Oak Hammock Marsh

Interpretive Centre

P.O. BOX 1160

Stonewall, Manitoba

Canada

R0C 2Z0

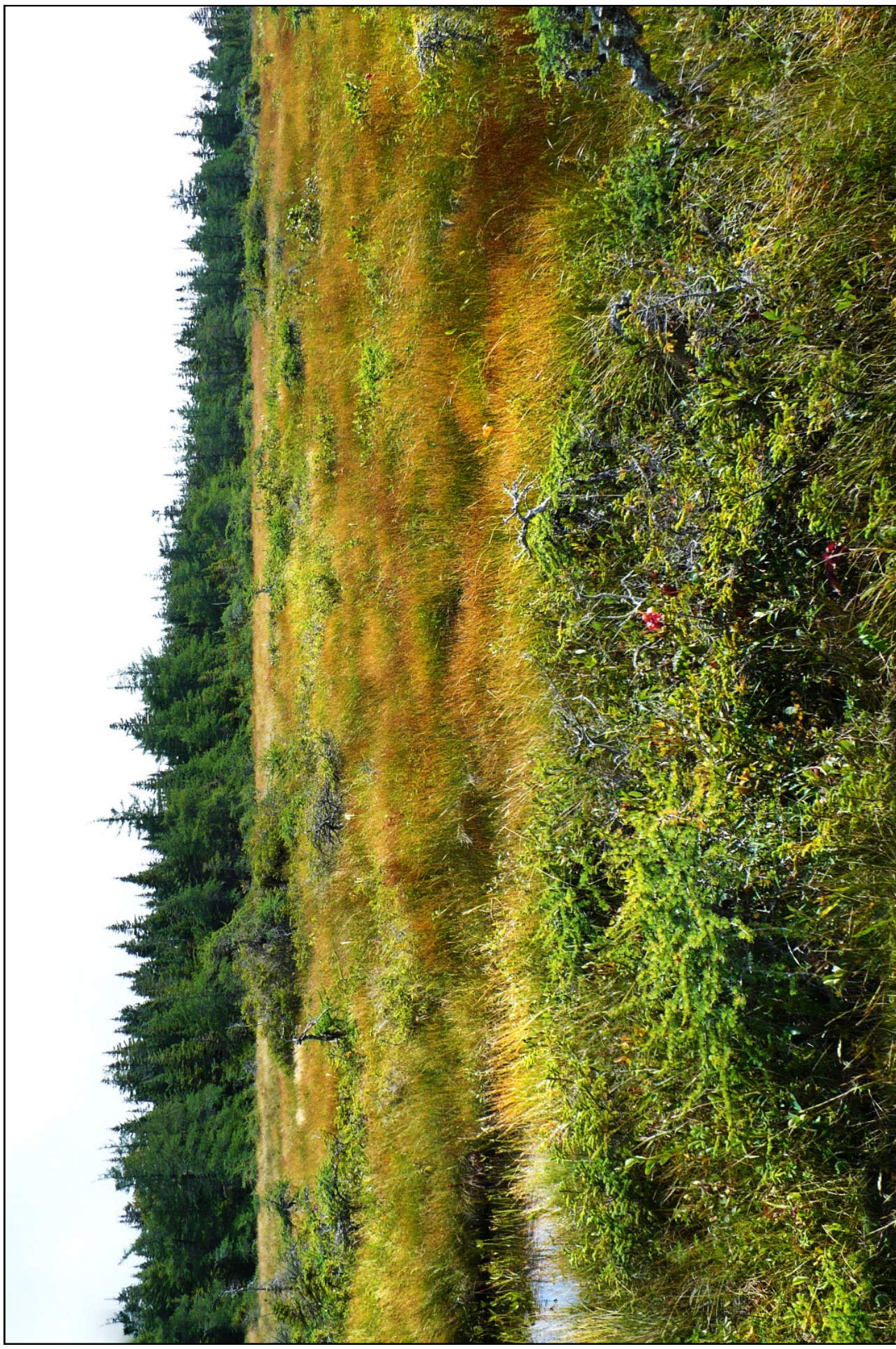
## Extension:

*Invite other students to your class's Manitoba Ecozones Fair during a lunch hour or a break. Your students can stand by their displays presenting information and answering any questions other students may have.*

*If you wish to host such a fair, review what makes excellent presentations with your class. Encourage your students to add materials that can help engage younger students, especially things that can be touched (like a stuffed animal representing an animal from that ecozone).*



# Wetland—Bog



*Image from Wikipedia.*



### **Key Characteristics of Bogs:**

- Peat-covered (peat is a brown, soil-like substance made of decaying *Sphagnum* mosses )
- Isolated from ground water
- Rain-fed
- Low nutrients in the water and acidic
- Dominated by *Sphagnum* mosses with tree, shrub or treeless vegetation cover



# Wetland—Fen



*Image from Ducks Unlimited Canada.*



### **Key Characteristics of Fens:**

- Peat-covered (peat is a brown, soil-like substance made of decaying *Sphagnum* mosses )
- Exposed to ground water; water at surface is moving
- Fed by rain, streams and groundwater
- More nutrients in the water than bogs and is less acidic
- Greater variety of plants than bogs: grass meadows, shrubs, and trees



# Wetland—Swamp



*Image from Ducks Unlimited Canada.*

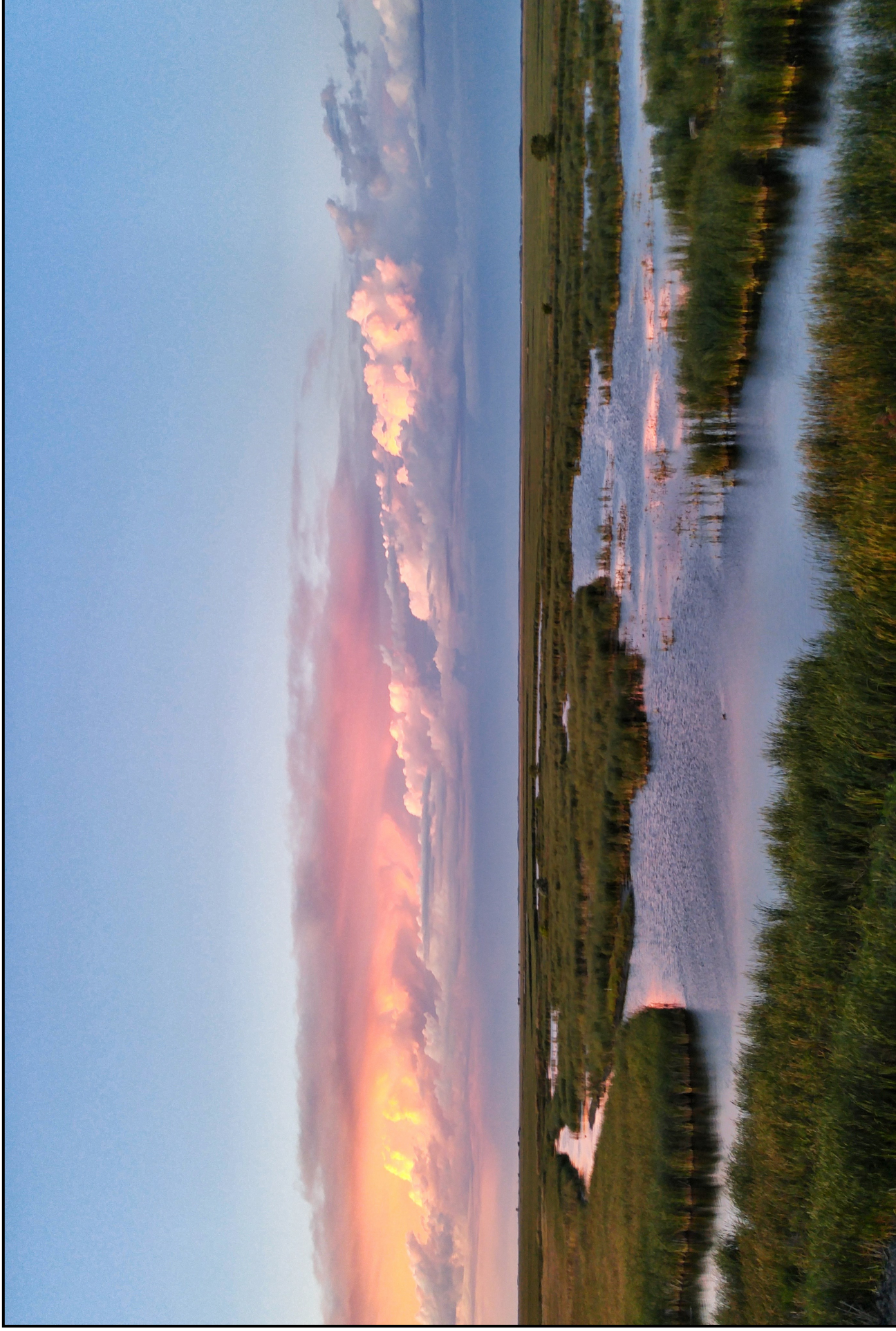


### **Key Characteristics of Swamps:**

- Non-peat forming wetland
- Has flowing water; flooded for the majority of the growing season
- Waterlogged soil, often standing water
- Vegetation is dense, and can include coniferous or deciduous trees, or tall shrub thickets



# Wetland—Freshwater Marsh



*Image from Ducks Unlimited Canada.*

### **Key Characteristics of Freshwater Marshes:**

- Non-peat forming wetland
- Frequently or continually flooded with shallow, slow moving water
- Waterlogged soil that is oxygenated, which allows for plants to form roots
- Nutrient rich water offers greater plant diversity, such as cattails, reeds, rushes, or sedges
- No trees



# Shallow Open Water



### **Key Characteristics of Shallow Open Water Wetlands:**

- Locally known as ponds, sloughs and marshes
- Non-peat forming wetland
- Standing water, often a transition between lake and marsh
- Fewer emergent plants but submersed plants may be present