

Focus:

Recognize that plants, animals, insects and birds living in wetlands ecosystems have physical and/or behavioural adaptations that make them suited for life in the wetland.

Examine various wetlands species; identify and describe the adaptations that make them suited to living in a wetland.

Curriculum Connection:

5.10-4 Identify and describe adaptations that make certain plants and animals suited for life in a wetland

5.10-8 Recognize that some aquatic animals use oxygen from air and others from water, and identify examples and adaptations for each

Key Learnings:

- » Structural (physical) adaptations occur over many years
- » Behavioural adaptations can occur immediately to accommodate the immediate needs of plants and animals for survival. They may become long term behaviours if required by the species for survival
- » Human beings have created many "inventions" based on what they have learned from animal adaptations
- » Aboriginal people have studied animal adaptations for thousands of years as a means of surviving and thriving in their own environments

Note To Teacher

Student research can be brief or extensive, based on the amount of time available. You may wish to have students take one or two class periods to conduct research or you may wish to create a timed challenge: i.e. "How much information can you find on the adaptation of your research subject in 20 minutes? We will all report back in 20 minutes to share what we have found with the class."

Teacher Preparation:



Cattail Adaptations to Wetlands:

- » Cattails can live in fresh or somewhat salty water, and can live in up to 2 feet of water or grow in floating mats.
- » Cattails have two ways to propagate (spread): they create seeds in their flowers that are distributed by the wind. Their roots also produce new growth from offshoots. These roots are called rhizomes. Rhizomes grow new shoots quickly; creating thick stands that provide cover for many animals.
- » Cattails send out a toxin that stops other cattails from taking over in well-established stands.
- » Cattails have waxy leaves to protect them from the water.
- » Cattails have thin stalks and leaves to protect them from breakage in strong winds and rough water. This makes them less likely to tear or break below the surface with new outcropping of root systems.

Materials and Resources Required:

- » Cattails that you have collected yourself stripped down to 3-4ft strips
- » Tape
- » Glue

Launch:



Explain to the students that the class is going to play a guessing game and that the students need to be in groups of 3 to play the game. Explain that the teacher will give a clue; the group cannot shout out a response until the clue has been completely delivered AND the team has consulted with one another, agreed upon an answer and raised their hands to give their answer. Start the game by delivering Clue #1. The group that successfully answers the riddle/clue will be assigned the animal in their response as their research subject. Continue in this manner until each group has been assigned an animal or plant.



Ask students to record the name of their research subject for the next part of their class work and invite them to consider each of the rest of the clues silently in their own minds, as the rest of the groups finish the game.

- Clue #1:** Unlike you, I like it when my hair is oily. It keeps me warm and dry. Also....If I were human, I would be an engineer. (Beaver)
- Clue #2:** When someone calls me a sucker I like it. Also... I am a vampire without legs. (leech)
- Clue #3:** Good luck getting past my silky trap to catch me. Also... I have more legs than you do. (spider)
- Clue #4:** My neck is brought to you by the letter "S". Also... Fish can swim in my mouth. (heron)
- Clue #5:** I might lick you, but I guarantee you won't do the same to me. Also... Look at all my warts. (toad)
- Clue #6:** Air? Water? I can breathe it all! Also... Whoa my tongue is long... (frog)
- Clue #7:** I have a big needle for a mouth. Also... I'm so famous, human's have made a spray, a netting and a burning coil just to keep me away! (mosquito)
- Clue #8:** You won't find me meowing any time soon! (cattail) Also... It is hard to meow when you don't have a voice.

Activate:



Introduce the cattail in terms of adaptations to an environment. Explain to the students how the cattail uses its adaptations to thrive in wetlands. (See teacher preparation for support). Explore with the students whether these are STRUCTURAL adaptations or BEHAVIOURAL adaptations. For each of the adaptations: facilitate a discussion regarding WHY the cattail may have made the adaptation.

Finally, invite the class to think about the worksheet “The Noble Cattail” they completed. How have Western Scientists used their knowledge of cattail adaptation to create clean water? How have Aboriginal people used their knowledge of cattail adaptation to heal themselves?

Following the discussion of cattail adaptations invite students to give examples of other adaptations that come to mind from the species identified in the riddle game played at the beginning of the class.



Challenge students to learn as much about the adaptations of their research subject as possible in the time allotted for research. Have them determine whether each adaptation they have discovered is physical or behavioural in nature. (See Note to Teacher)

Connect:

Explain to students that even after their life in the wetlands cattails have many uses to human beings. Invite students to participate in the production of their own cattail mat to be created with the cattails that you and/or your students have gathered on one of your field trips to a wetland.

Instructions:

1. Cut out several long slender leaves 3-4 feet long, if possible, 2 inches wide and tapering to a point.
2. Lay out 5 to 15 of the leaves on a table or the floor. Beginning in the center, weave leaves over and under through the first set.
3. Real cattails are used for this project; careful collection and use of the cattails (taking only what they need and using all of the cattails they collected) is also a powerful teaching regarding the preservation of our wetlands.