LESSON 5 - More Than One Way to Skin a Cattail

Focus:

» Identify the cattail as an example of a wetland plant.

» Identify the function of a cattail in the ecosystem, the parts of a cattail and the function of each part.

» Document their findings using a variety of methods.

» Understand the difference between how Aboriginal people and western scientists identify plants and animals.

Curriculum Connection:

5.10-3 Identify plants and animals, both in and around the water

Educational Setting:

» Field Trip

Key Learnings:

» Particular species of plants and animals are more or less prevalent in particular wetlands, especially the cattail

» Cattails have a function in the wetland and are useful to both Aboriginal and non-Aboriginal people, in various ways

» Aboriginal and western scientists study (have come to understand) cattails in different ways

Materials and Resources Required:

» The Noble Cattail" Worksheet Parts 1 and 2

» Plastic document covers for worksheets.

» Pencils or pens.

» Rubber boots.

» "The Noble Cattail PowerPoint." (Use the PowerPoint If you are not able to go on the field trip)

Teacher Preparation:

1. Background information

Cattails have been used in both western and Aboriginal societies. Western and Aboriginal scientists look at this plant quite differently and come to know different things about the plant itself.

Cree people call the cattail "otawuskwa". Cattails have been used by the Cree in many ways, including as a medicine (to stop bleeding and as an antiseptic on wounds), as well as traditional food (an excellent source of starch). The Cree people have also discovered through Indigenous Science methods, over hundreds of years that the outside skin of the cattail cannot be used in the preparation of medicine or food, because it is very poisonous.

Western scientists have named the cattail Typha latifolia. The knowledge they have gained about cattails and what role they play in the wetland is gained through observation and through tests they perform in the laboratory.

For example, scientists found high levels of a heavy metal, known as arsenic in the roots of cattail in the laboratory experiments. Then, scientists performed an experiment that demonstrated the rate and capacity of these plants to remove heavy metals (such as arsenic) from wetlands. They found that cattails draw the harmful metals from the water through their roots, thereby improving the water quality of receiving environments. Scientists have now applied this knowledge of how arsenic is drawn up into cattails to develop a technology for treating water that is heavily loaded with metals.

When looking at the cattail itself, the western scientist may look at the structure of the plant. A cross section of the stem of the flowering part reveals a pattern of holes. The holes in the center of the stem send air to the roots. Holes around the outside of the stem conduct water and help support the stem.

2. Photocopy "The Noble Cattial" Parts 1 and 2 for each student in the class.

Note to Teacher :

If you are not able to take your class on a field trip to a wetland site please use the "The Noble Cattail" PowerPoint presentation included in this lesson plan. Students can still utilize the "The Noble Cattail" worksheet to record what they see in the PowerPoint slides`.

Launch:

» View the Cattail identification PowerPoint with students to increase their knowledge of the parts of the cattail.

» Once the class has viewed and discussed the PowerPoint divide students into groups with 2-4 students in each group. Have students gather required materials and prepare to leave on the field trip.

» Each student will need to take the "Noble Cattail" worksheet, a plastic cover, and a pencil/pen with them for use on the field trip.

Did You Know :

That the cattail pulls harmful metals up and out of the water and cleans our environment. The skin and roots of the cattails are poisonous (where the harmful metals are stored), but other parts can be used as medicine and food.

Activate:

While at the wetland site each group will:

» Examine a cattail. Identify all of its parts.

» Complete a sketch of the cattail including naming all of the parts of the cattail.

» Tally how many clumps of cattails are observed at the wetland being visited.

Connect:

When students return to the classroom, have each group share their field trip observations. During their presentations, they can show the drawings that they made and talk about the kinds of animals that they think might use a cattail.

The Noble Cattail – Part 1

NAME: _____

Cattail *(Typha latifolia)* - Select a cattail to examine with your group. In this space sketch the cattail as accurately as you can and label each of the parts of the cattail and its uses.

The Noble Cattail -Part 2

NAME: _____

Role in the wetland

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_____

_____

Observations from a western science "lens"

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Use by Aboriginal Science

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Tally of clumps observed in the wetland visited on the field trip:

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The Noble Cattail -Part 2

Answer Key

Role in the wetland

- Provide food for animals and other plants when they decay.
- Provide seed to create new cattails.

Observations from a western science "lens"

- Scientists use cattails to remove heavy metals from water and therefore from food sources.
- Cattail and rat root remove metals from water through their roots, and improving the water quality of receiving environments.
- Scientist`s knowledge of how arsenic is drawn up into cattails is applied to develop a technology for treating water that is heavily loaded with metals. This knowledge has strong industrial applications for mining.

Use by Aboriginal Science

- Medicine.
- Cattail leaves were great weaving material for floor mats, baskets, roofing thatch and chair seats and were used for caulking canoes, houses and wooden barrels.
- Leaves were formed into dolls and other toys for children.
- The cattail's fruiting stalk was used for mattresses, kneeling pads in canoes and even raincoats.
- The down was used as diaper material.
- It was used as cushioning for cradle boards, dressings for burns and as quilting material inside moccasins.
- The inside of these water plants are used for insulation and as a fire starter; parts of the cattail are edible. Cattails are preferred as a wilderness torch, assuming the right materials are on hand to create them. Soak the heads of cattails in oil in lard.

Tally of clumps observed in the wetland visited on the field trip: