

Treat it Right!®

Storm Water

Constructed Wetland Field Trip



Name: _____

Date: _____

Welcome

The City of Edmonton is pleased to welcome you to our constructed wetland field trip. This field trip is part of the **Treat it Right!**® public education program that was initiated by the City in 2008.

The constructed wetlands are just one of the kinds of storm water lakes that the City operates and maintains to manage all of the rainfall and snow melt that we have in our City.

The constructed wetlands not only help manage all that precipitation and runoff but also they help to protect the environment.

Enjoy your visit.



Getting started

What is a wetland? _____

What is the role of constructed wetlands in Edmonton? _____

How can we tell if the wetland is healthy? _____



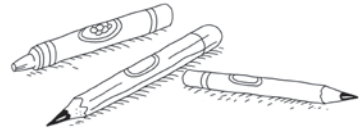
Wetland Checklist

Can you find these birds and animals at the wetland?

Use the laminated sheet to help you identify these organisms during your visit to the wetland.

Mallard Duck <input type="checkbox"/>	Blue-wing Teal <input type="checkbox"/>
Lesser Scaup <input type="checkbox"/>	Common Tern <input type="checkbox"/>
Canada Goose <input type="checkbox"/>	Red Winged Blackbird <input type="checkbox"/>
Common Grackle <input type="checkbox"/>	Red Necked Grebe <input type="checkbox"/>
California Gull <input type="checkbox"/>	Franklin Gull <input type="checkbox"/>
Tree Swallow <input type="checkbox"/>	Sparrow <input type="checkbox"/>
Muskrat <input type="checkbox"/>	Coot <input type="checkbox"/>
Other _____ <input type="checkbox"/>	Other _____ <input type="checkbox"/>

Sketch and question



Take a look around you. In the box below, sketch what you can see.
Do not take long, just sketch the basic outlines.

A large rectangular box with a wavy border, intended for sketching.

Now come up with five questions about the wetland. Use the “Wh” forms below.

Who _____

What _____

Where _____

When _____

Why _____

Wetland Water Experiments

Take a sample of water from the constructed wetland.

Visual

Is there anything in the water? If so, what is it?

Odour

Carefully smell the water; does it have any unusual odours? What are they?

Turbidity

Look into the white bin and estimate how clear the water is by giving it a percentage of 0 - 100% (0% is very dirty and 100% is very clear).

Temperature

Using a thermometer, measure the temperature of the water.

The temperature is _____ °C



pH Level

Place the pH paper in the water. Remove it and mark down the pH level using the scale provided.

The pH is _____

Why do you think it is important to carry out these experiments at constructed wetlands?



Location, Location, Location

Check off what is available at this site to determine whether or not these animals would make this constructed wetland their home.

Dragonfly	Red Winged Blackbird	Muskrat
<input type="checkbox"/> Water with sun and shade	<input type="checkbox"/> Bulrushes on which to perch and claim territory	<input type="checkbox"/> Duckweed, pondweed, bulrushes and plant roots
<input type="checkbox"/> Plants that emerge out of the water on which to lay eggs	<input type="checkbox"/> Seeds from plants	<input type="checkbox"/> Shrimp, snails, frogs and insects
<input type="checkbox"/> Insects in and out of the water for food	<input type="checkbox"/> Spiders, mosquitoes, flies	<input type="checkbox"/> Slow moving fish
<input type="checkbox"/> Flowers around pond (to attract insects)	<input type="checkbox"/> Slugs, snails	<input type="checkbox"/> Shrubs
<input type="checkbox"/> Rocks for sitting on	<input type="checkbox"/> Reeds and tall grass for nesting	<input type="checkbox"/> Mud
<input type="checkbox"/> Clean water for drinking	<input type="checkbox"/> Trees	<input type="checkbox"/> Clean water
	<input type="checkbox"/> Water	<input type="checkbox"/> Grass



What might you need to add or change in this constructed wetland to encourage more animals to make it their home?

Draw an example of a bird, mammal, fish, or amphibian that would live in a wetland, and explain three ways that it has ADAPTED to live in a water environment. (For example, many ducks have webbed feet that make them fast swimmers.)




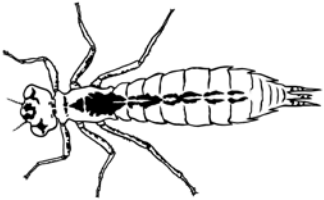

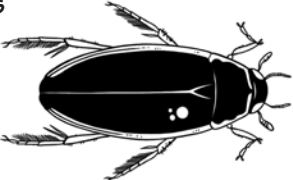
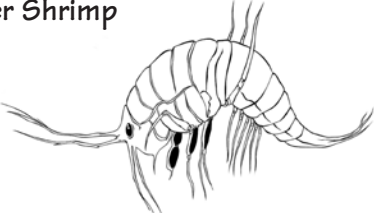
My animal has adapted to live in water because:


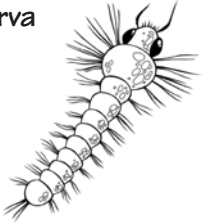
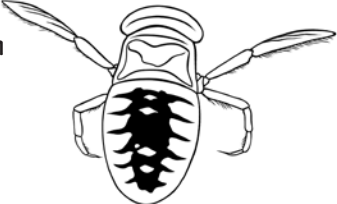
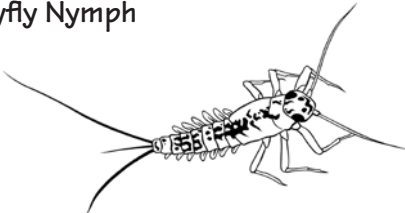
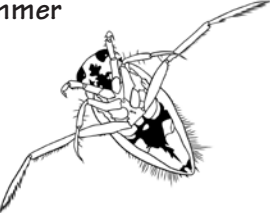
a) _____

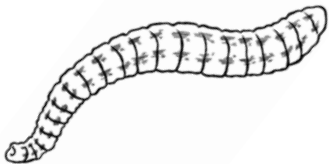

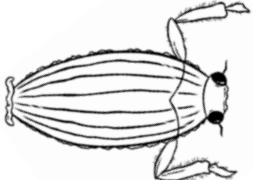


b) _____

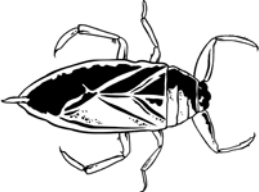



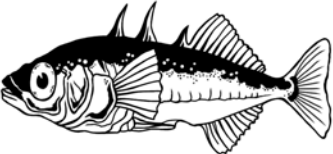
c) _____

Aquatic Life You Might See

Aquatic Life	Size	Description
<p>Water Strider</p> <input type="checkbox"/> 	<p>10 to 15 mm</p>	<p>Water striders walk along the surface of the water. They have hairy feet and dig their claws into the water for traction.</p>
<p>Dragonfly Nymph (Larva)</p> <input type="checkbox"/> 	<p>Up to 50 mm</p>	<p>Found on the bottom of the pond. They eat many other insects.</p>
<p>Water Mite</p> <input type="checkbox"/> 	<p>2.5 to 5 mm</p>	<p>Water mites are often found in the vegetation along the shore. They are often red.</p>
<p>Predacious Diving Beetle (Adult)</p> <input type="checkbox"/> 	<p>10 to 40 mm</p>	<p>Usually found in deeper parts of the pond. They trap air under their wings and use it to breathe under water.</p>
<p>Water Shrimp</p> <input type="checkbox"/> 	<p>5 to 20 mm</p>	<p>Swim using their legs which move very fast. They hold their food with their front legs and then chew it.</p>

Aquatic Life	Size	Description
<input type="checkbox"/> 	0.2 to 3 mm	Found throughout the pond. They use their antennae to propel themselves in the water.
<input type="checkbox"/> 	3 to 15 mm	Found just below the surface. They have tubes on their heads that they use like snorkels.
<input type="checkbox"/> 	5 to 15 mm	Often cling to vegetation. They swim using their large legs like oars.
<input type="checkbox"/> 	15 mm	Found on the bottom clinging to rocks. They feed on plants.
<input type="checkbox"/> 	10 to 15 mm	Often found just below the surface. They swim on their backs.

Aquatic Life	Size	Description
<p>Leech</p> <input type="checkbox"/> 	<p>10 to 100 mm</p>	<p>Flat body, dark coloured worm with a sucker at each end of its body. Moves like an inchworm and swims in ribbon-like fashion. Eats snails, larvae, and worms and some suck blood.</p>
<p>Predacious Diving Beetle (Larva)</p> <input type="checkbox"/> 	<p>Up to 80 mm</p>	<p>Live in shallow areas. Swims by dogpaddling with legs. Predator that eats insects, minnows, and tadpoles. Has a very sharp bite.</p>
<p>Whirligig Beetle</p> <input type="checkbox"/> 	<p>3 to 18 mm</p>	<p>Small, shiny black beetle that zooms around on the surface of the water. Feeds on small insects.</p>
<p>Damselfly Nymph</p> <input type="checkbox"/> 	<p>Up to 25 mm</p>	<p>Lives on bottom of pond or on underwater plants. Has three leaf-like gills on end of body. Eats insects and plankton.</p>
<p>Snail</p> <input type="checkbox"/> 	<p>10 mm to 30 mm</p>	<p>Moves around slowly on a muscular foot that extends out of shell. Uses rough 'tongue' to scrape up algae and dead plant material.</p>

Aquatic Life	Size	Description
<p>Giant Water Bug</p> <input type="checkbox"/> 	<p>Up to 45 mm</p>	<p>Large, flat, brown bug usually found among plants. Swims by kicking its hind legs. Eats a variety of aquatic animals.</p>
<p>Caddisfly Larva</p> <input type="checkbox"/> 	<p>5 to 15 mm</p>	<p>Builds a tubular home using bits of plants, sand grains or old snail shells. Walks slowly along the bottom, carrying its home, and eats algae and small aquatic animals.</p>
<p>Frog</p> <input type="checkbox"/> 	<p>50 to 100 mm</p>	<p>Short, tailless green or brown body. Lives in moist places and lays eggs in water, which hatch into tadpoles. Skin absorbs water and oxygen. Eats small water animals.</p>
<p>Emerald Shiner Minnow</p> <input type="checkbox"/> 	<p>Up to 60 mm</p>	<p>Slender body, with a greenish band from back of gill cover to tail. Short, rounded snout. Eats algae, plants and aquatic insects.</p>
<p>Stickleback Fish</p> <input type="checkbox"/> 	<p>50 to 80 mm</p>	<p>Has no scales, but has hard, thin, bony plates on the side of its body. Spines on the back. Colours range from red to yellow-orange to black.</p>

Pond Dipping

Critter 1	Critter 2
Draw it	Draw it
Name it	Name it
How has it adapted?	How has it adapted?

Critter 3	Critter 4
Draw it	Draw it
Name it	Name it
How has it adapted?	How has it adapted?

Environmental Assessors

You are going to carry out an 'Environmental Assessment'. What evidence did you see that something negative has happened at the wetland? Note the problems in the chart.

Examples could be:

- Litter
- Polluted water
- Flooding



We will discuss possible solutions near the end of the field trip.

Problems	Solutions

As an environmental assessor, you are going to write a paragraph telling what you would say to people who are creating problems in the wetland. Be sure to point out how their actions are causing these problems, and what they should do to better take care of the wetland.

Conclusion

This wetland is:

Healthy ☐

Very healthy ☐

Unhealthy ☐

Very unhealthy ☐



What behaviours could people change to make this a healthier wetland?



Constructed Wetland Certificate

The City of Edmonton is pleased that

of _____ School

participated in the Treat it Right!® Storm Water Constructed
Wetland Field Trip and Program. We proudly provide you with this
certificate and hope that you will continue to help protect
the constructed wetlands and the environment.

Student Signature: _____

Date: _____

Congratulations!

Janice Dewar, B.Ed., M.Ed.

Education Officer

City of Edmonton