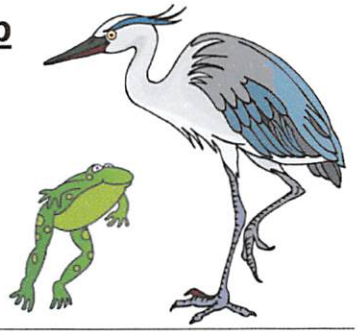
Campbell Valley Regional Park Field Trip

"POND PEEKING"

Grades KN – 3

Friday, June 8, 2018

10:30 - Noon



We have arranged a field trip at the Campbell Valley Regional Park for students in Grades KN – 3 on Friday, June 8, 2018. We will meet in the parking lot at 8th Avenue and 200th Street in Langley at **10:15 am**. Parents are welcome to join the group as helpers, if they wish – please see the attached sheets from Metro Vancouver on *"How to be a Great Adult Helper"* and *"Park Etiquette"*. If you have younger children, you are welcome to enjoy other areas of the park while Home Quest students participate in the workshop.

Field Trip Description: Water scorpions, diving beetles and sideswimmers are some of the unusual creatures that live in the underwater world of ponds. Discover more about their fantastic forms, life cycles and how they interact with each other and their environment. Sample activities:*

- Pond Dip: Collect aquatic organisms from the edge of the pond, learn how to identify them and discover how they change as they grow.
- Frog Life Lottery: Role play how hard it is to survive to adulthood as a frog through this life cycle game.
- Heron Sneak: Learn how prey survive predators in this game of heron-and-frog (cat-and-mouse).

*(*Activities may vary depending on the location, leader, group age or teacher request.)*

This trip is "rain or shine", please dress appropriately for the weather! Terrain can be wet and muddy, even on nice days. Students should wear appropriate layers and footwear. Umbrellas are discouraged.

Accidents can be the result of the nature of the activity and can occur with or without any fault on either the part of the student, or the school board or its employees or agents, or the facility where the activity is taking place. By allowing your son/daughter to participate in this activity, you are accepting the risk of an accident occurring, and agree that this activity, as described above, is suitable for your child.

I give _____ *(name of student[s])* permission to participate in the Campbell Valley Regional Park "Pond Peeking" field trip on Friday, June 8, 2018. I understand that my child may be exposed to certain risks while participating in this activity. Accidents and injuries may occur.

☐ *I will remain with my child's group to help supervise.*

_____ _____

Signature of Parent/Guardian Date

_____

Printed name of Parent/Guardian

METRO VANCOUVER REGIONAL PARKS FIELD TRIPS

How to be a Great Adult Helper

Metro Vancouver programs are active, hands on and educational.
By getting involved, you and your child can get the most from our outdoor classroom.
Here are some tips to make this field trip productive for everyone.

Dress appropriately. Comfortable walking shoes and outdoor clothes are essential for all programs. Boots or washable shoes are a must for beach, pond and stream programs.

Please turn off ringers on cellular phones and pagers.

Be prepared to get involved! A park program is a great opportunity to have some fun, play a game, and interact with your child and their classmates. Be prepared to participate in activities such as slug stroking. You might like it!

Set a good example. By listening and then passing on clear instructions for smaller group activities, you will be in the best position to support your interpreter in protecting both the children and the park. Please demonstrate the level of attention and involvement you would expect from the children. Conversations to the side can be distracting for everyone.

Help with supervision. Inappropriate behaviour from one or two children can ruin the experience for the whole group and may require you to give a gentle reminder to those children. A behaviour or first aid situation may require you to supervise a smaller group while the interpreter deals with the problem. Consider arranging childcare for younger siblings.

Thank You for Helping!

We appreciate your support and hope you and your children have a rewarding experience in Regional Parks.

Park Etiquette

While visiting the Park, please take the opportunity to teach your group how to respect and care for natural spaces. Our Regional Parks are home to a myriad of plants and animals, from tiny insects to giant evergreens. Make your visit a positive experience for all living things! If we care for and protect our parks, they will be ours to enjoy for many years.

The following are some guidelines for good park etiquette:

Walk quietly and you will see more wildlife.
If you see any animals or birds, observe them quietly.
Don't chase them or try to catch them.

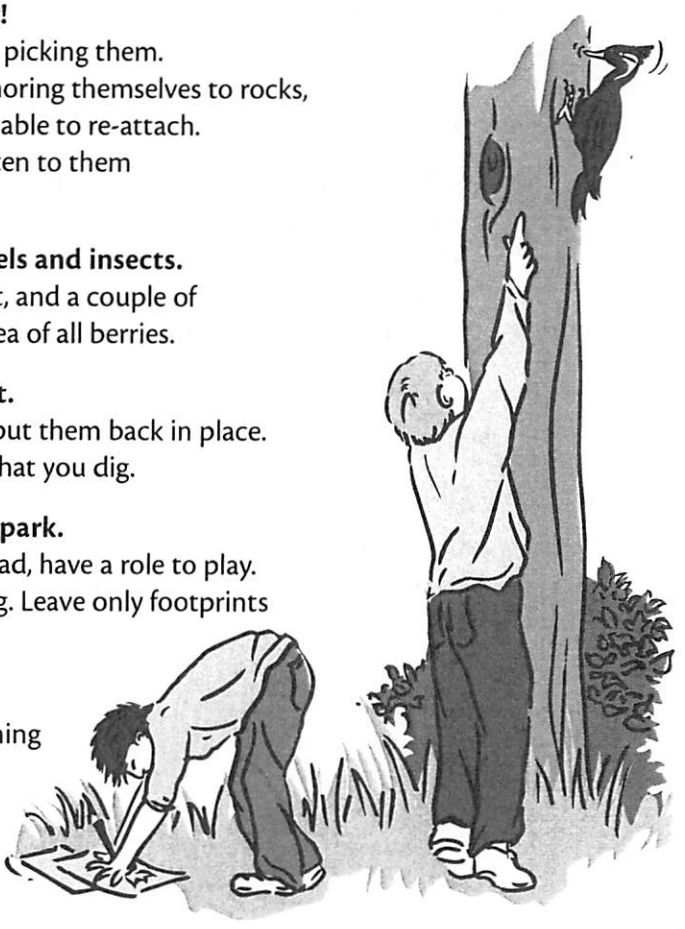
Stay on designated trails at all times.
Walking off trails kills small plants and damages the roots of trees.
Do not climb on logs or trees.

If it is attached to something, leave it!
Learn about leaves and flowers without picking them.
Some beach creatures stay alive by anchoring themselves to rocks, so if you pick them off they may not be able to re-attach.
Look at them, smell them, feel them, listen to them – and leave them for others to enjoy.

Leave the berries for the birds, squirrels and insects.
Berries make up a large part of their diet, and a couple of hungry groups of people can strip an area of all berries.

Leave everything the way you found it.
If you look under logs or stones, gently put them back in place.
Never take a log apart. Fill in any holes that you dig.

Do not take anything home from the park.
All things found in Nature, living and dead, have a role to play.
Think of ways to "collect" without taking. Leave only footprints and take only memories.



Enjoy Your Visit!
We hope your group has a memorable and enlightening experience in Regional Parks and we look forward to seeing you again.

PARK INTERPRETER REFERENCE
POND ORGANISMS

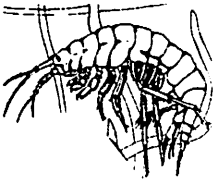
ANIMALS

Daphnia
Crustacean - Filter Feeder

Daphnia are found by the thousands near the water surface and form the base of the pond food chain. They look like tiny bits of dirt that move on their own, propelled by their antennae. Daphnia follow a daily migration route: at the surface of the water at dusk and to the lower level during night, rising and dawn and down again during the day.

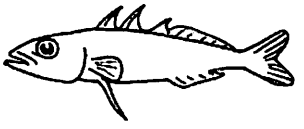
Copepod
Crustacean - Filter Feeder

These tiny crustaceans are also called "Cyclops" because they have one eye between their antennae. They are hard to see since they are so small. They use their antennae and hind legs to swim. Females carry two egg sacs during the breeding season that look make them look a bit like Mickey mouse.
Diet: organic debris (part of the decomposition chain)
Predators: minor food source for aquatic insects, fish, carnivorous zooplankton



Sideswimmer
Crustacean - Scavenger

Also called scuds or amphipods, they swim on their sides using their many legs. They have two kinds of legs (*amphi* means both kinds and *pod* means foot): long walking legs on the first half of their body and shorter, simpler swimming legs on the rear half. Related to shrimp, they breathe through gills and are bottom dwellers, hiding under whatever they can find. Because so many animals feed on sideswimmers, females will lay up to 50 eggs every 10 days.
Diet: decaying plant and animal matter
Predators: larger insects, fish, birds, amphibians



Three-spined Stickleback
Fish - Predator

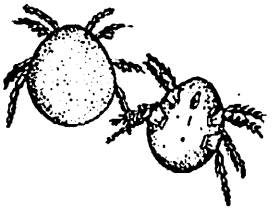
This small fish has three spines on its back which can be raised for protection. The male builds a nest and protects his young offspring. It uses its mouth to scoop up its food.
Diet: zooplankton, algae, insect larvae, small crustaceans, tiny animals
Predators: important food source for herons, mergansers, pond mammals

Pond Snail
Mollusc - Scavenger

Pond snails can be found at the pond bottom eating dead plants and animals. They have a tiny scraping mouth called a radula. Their tentacles have eyes and touch receptors at the tips. The foot contains part of the snail's digestive system. They can take in air a the water surface with their sac-like "lungs" but can also stay underwater absorbing oxygen through their body surface.
Diet: algae, green plants, dead plants and animals
Predators: many animals such as insects, waterfowl, pond mammals

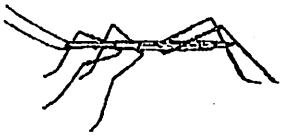
Leech
Annelid - Parasite

Leeches are flattened worms that do not like light. They breathe through their skin and move using their mouth and tail suckers. They have toothed jaws and a strong sucking mechanism in their throat. Most are parasitic, feeding off the blood of fish, snails, frogs, reptiles and mammals – including humans. They will also eat snail meat and insect larvae. They can survive a long time between meals because of digestive "storage tanks" for blood. When ephemeral ponds dry up, they are able to survive by digging into the mud and living in a semi-dormant state. They were used a lot in the past for medicinal purposes to bleed people. They are still used to a lesser degree to reduce bruising and other ailments.



Mite
Arachnid - Parasite

These small arachnids suck blood from their insect or amphibian hosts. Their eight legs are attached to their body. They are tiny and bright red.



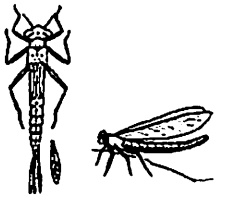
Water Scorpion
Insect - Predator

The water scorpion flies from pond to pond looking for daphnia and other small animals to eat. They spend most of their time on plants lying in wait or slowly stalking their prey. Their stick-like body looks like the plants they hide in while waiting to ambush their prey. They move so slowly and seldom that microorganisms like algae will colonize them and other aquatic insects like backswimmers and caddisflies will lay their eggs on them. Water scorpions are actually insects, not scorpions.
Diet: small swimming crustaceans and insects

Water Strider
Insect - Predator

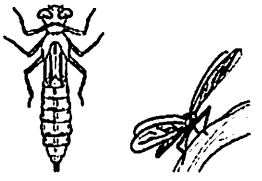
Water striders skate across the water surface on feet covered with waxy hairs. When disturbed, they can dive without getting wet, thanks to their water-repellant scales and hairs covering their body. When it rains, they leave the water surface to hide under leaves on shore. They feel and see

the light from the movement of small insect prey on the water surface. They communicate with each other by creating wave patterns. These insects can fly from pond to pond.
Diet: crustaceans, small insects
Predators: birds, fish, some small mammals, parasitized by mites



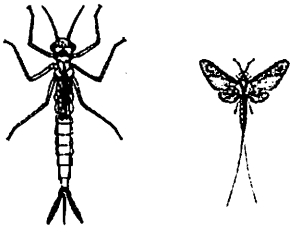
Damselfly Nymph
Insect - Predator

The young nymphs live in the pond and are often green or brown. They swim with a wiggle and sit on plants waiting for their food to swim by. The lower lip shoots out to grab prey. They breathe through their three tails. The adult damselfly flies around the pond and its wings sit straight along its back at rest.
Diet: flying insects e.g. mosquitoes, honey bees
Predators (nymphs): ducks, wading birds, larger insects
Predators (adults): frogs, martins and other birds



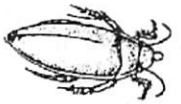
Dragonfly Nymph
Insect - Predator

The young dragonfly crawls along the pond bottom looking for mosquito larvae and tadpoles. The lower lip shoots out to grab prey. It spends up to five years as a larva and breathes through internal anal gills while escaping predators by using jet propulsion out of their anuses. The adult dragonfly holds its wings out from its back at rest and can often be seen flying around the pond. Some can reach flying speeds of 60 km/hr! They use their six legs to catch prey while flying. Though super speedy, the adults have very poor hearing. Some scientists think they may not be able to sense sound at all. With 50,000 eyes their vision is excellent. Many of the dragonfly's adaptations haven't changed much since their ancestors lived 30 million years ago.
Diet/Predators: see damselfly



Mayfly Nymph
Insect - Herbivore and Scavenger

Mayflies can be distinguished by the active gills lining both sides of their abdomen which they pump to breathe. Look for the three tails. Their presence is a sign of good water quality. The adult mayfly emerges and lives only one or two days without eating; its sole purpose is to mate. They are the major converters of plant to animal tissue; their role in aquatic ecosystems in comparable to the role of mice and rabbits in terrestrial ecosystems.
Diet: algae, detritus (decomposing plants)
Predators: very important fish food (most common model for angler "flies)



Predacious Diving Beetle
Insect - Predator

During both the larva and adult stages they are fierce hunters. As larvae they are often called "Water Tigers." They live up to 5 years and will excrete an offensive fluid to scare their predators. "Scavenger Beetles" are similar looking, but are smaller and eat pond debris.
Diet (larvae): insects, crustaceans, snails, small fish
Diet (adult): varies from shrimp to small fish, even tadpoles several times its size
Predators: frogs, fish, wading birds, raccoons, skunks

Whirligig Beetle
Insect - Scavenger

They are often found in groups on the water surface. They are named for their behaviour of swimming quickly in circles. They swim very fast, up to 1 m per second! The waves from swimming may act as echolocation to find food. Their eyes are divided so they can see above and below water at the same time. They emit a defensive secretion so even though they spend most of their life in plan view on the water surface, fish and other predators do not eat them. When it dives underwater, it takes a bubble of air under its wings and on the tip of its abdomen.
Diet: small animals and organic matter trapped on the water surface

Water Boatman
Insect - Scavenger

When a water boatman dives beneath the pond, air is trapped beneath the wing so it can stay underwater a long time. Its back legs look and act like oars. Adults are strong flyers. "Backswimmers" are similar insects with red eyes. They swim on their backs while hunting for prey. They are much more predatory.
Diet: mainly plant debris sifted from muddy bottom, occasionally green algae and tiny organisms (protozoa, mosquito/midge larvae)
Predators: birds, fish, frogs

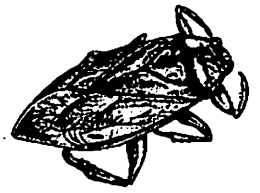
Caddisfly Larva
Insect - Scavenger

These insect larvae build a tubular home out of twigs, wood, duckweed, or sand, held together with silk, that they carry with them. Their presence is a sign of good water quality. They later turn into a moth-like adult insect that lives for only a few days.
Diet: organic matter
Predators: important food for many fish (commonly mimicked in "flies" for anglers), also eaten by birds such as swallows

Mosquito Larva
Insect - Filter Feeder

Mosquitoes are an important part of any healthy wetland and are the main food source for dragonflies and bats. Larvae are called wigglers and pupae are called tumblers. Adults feed on nectar. Females require a blood meal before they

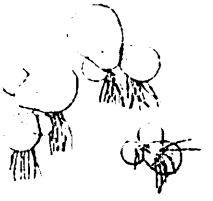
can lay their eggs.
Diet: plant juices, blood of amphibians to mammals
Predators: dragonflies, damselflies, swallows, bats



Giant Water Bug
Insect - Predator

Watch out for this large hunter who is also called a "toe biter". The front legs hold onto prey and the back legs are designed for swimming. When it catches its prey, it injects a poison to kill it, and then sucks the body juices through its straw-like mouth.
Diet: insects, tadpoles, snails, fish, even small frogs!
Predators: ducks, herons

PLANTS



Duckweed
Spirodela polyrhiza

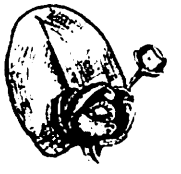
Duckweed is tiny, and produces the plant kingdom's smallest flowers. As the name suggests, it is excellent food for ducks. Duckweed can spread to cover the entire surface of ponds during spring and summer. In the fall, it sinks to the bottom to overwinter.

Floating-leaved Pond Weed
Potomogeton natans

Pond-weeds are the largest family of aquatic plants. They have two types of leaves – floating and submerged. Their extensive rhizomes anchor them to the bottom of the pond and also store food for the winter. Floating-leaved pondweed is one of our most common pond plants.

Canada Waterweed
Elodea canadensis

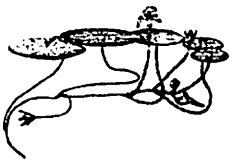
Elodea forms dense masses of stems and leaves under the surface of ponds. It can be identified by its short leaves which grow in whorls around the stem. Beneath the surface of the pond, it provides shelter for insects and fish.



Yellow Water-Lily
Nuphar polysepalum

This native pond lily can be distinguished by its yellow cup-shaped flowers. The floating leaves emerge slightly from the water, which allows this plant to crowd out other pond vegetation. Pond lilies provide habitat for algae, insects, snails, frogs, fish, and others. Red-winged Blackbirds walk on the lily pads in search of food, lifting the leaves for a peek beneath. The seeds can be steamed as a dinner veggie, dried and ground for flour, cooked like oatmeal, or served as mock popcorn.
Examples of aboriginal use: Rootstocks were collected from muskrat dens where gifts of food

were left in trade; Haida still use root as medicine for numerous ailments such as colds, chest pains, cancer; various groups used rhizomes as medicine for tuberculosis; Called "west wind" in Hesquiat; brings calmer weather during westerly storms if person slaps leaf against water yelling "West wind! West wind!"



Water Shield
Brasenia shreberi

Water shield can be distinguished from other floating-leaved pond plants by the jelly-like sheath that covers its stem and leaves. The shield-shaped leaves are from 3 to 12 cm across. The top part of the leaves shed water, while the jelly sheath absorbs water. This helps keep the leaves right side up. Despite the thick jelly-like mucilage, the young leaves are eaten in Japan.

Coontail
Ceratophyllum demersum

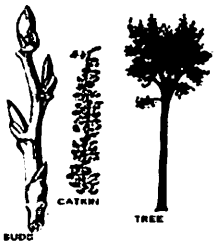
Coontail is an introduced pond plant, native to Florida. The whorls of leaves around the stem make this plant look like a raccoon's tail. Also known as Hornwort, it can grow up to 10 ft. long. A similar plant is Water Milfoil, which is also introduced and is highly invasive.

Cattail
Typha latifolia

Cattails can be found growing up to 2m. tall in still or slow flowing water at the edges of ponds. The brown spike which looks like a cat's tail is the plant's flower. The plant's seeds are encased in fluff which many marsh animals use as nesting material. Cattails provide important food and habitat for pond animals such as muskrats, blackbirds and waterfowl. It was known as a grocery store from the marsh; aboriginals used it for everything from weaving mats for bedding, winter home insulation, capes, blankets, bags (leaves) to stuffing for pillows, wound dressings and diapers (seed fluff). It filters water and is used in sewage treatment and catchments ponds to filter runoff.

Yellow Iris
Iris pseudacorus

These tall yellow flowers are often found around the edges of ponds, where dragonfly nymphs may crawl up their leaves before emerging and water scorpions can sit on their stems waiting for their prey. They are the flower that inspired the fleur-de-lis. Seeds of this plant look like little brown hockey pucks.



Black Cottonwood
Populus balsamifera

Cottonwoods love growing in wet areas, so their leaves, buds, and catkins are often found floating in ponds. They have dark grey bark with deep and shiny dark green heart-shaped leaves. You can also identify them by smell. The buds in the spring are full of a sticky resin which smells wonderful. Various aboriginal groups ate the cambium. Balm of Gilead, a famous skin salve, can be made with the sticky resin and used to treat burns, cuts and skin irritations. Like all other willows, it contains salicylic acid which is used in aspirin and some dandruff shampoos.

Sources:

Castagner, Lynn. 1981. *Pond Life*. Greater Vancouver Regional District Parks Department. Burnaby.

Pojar, Jim and Any MacKinnon. *Plants of Coastal British Columbia*. 1994. Lone Pine Publishing. Vancouver.

Voshell, J. Reese, Jr. 2002. *A Guide to Common Freshwater Invertebrates of North America*. The McDonald and Woodward Publishing Company. Virginia.