

Virден Collegiate

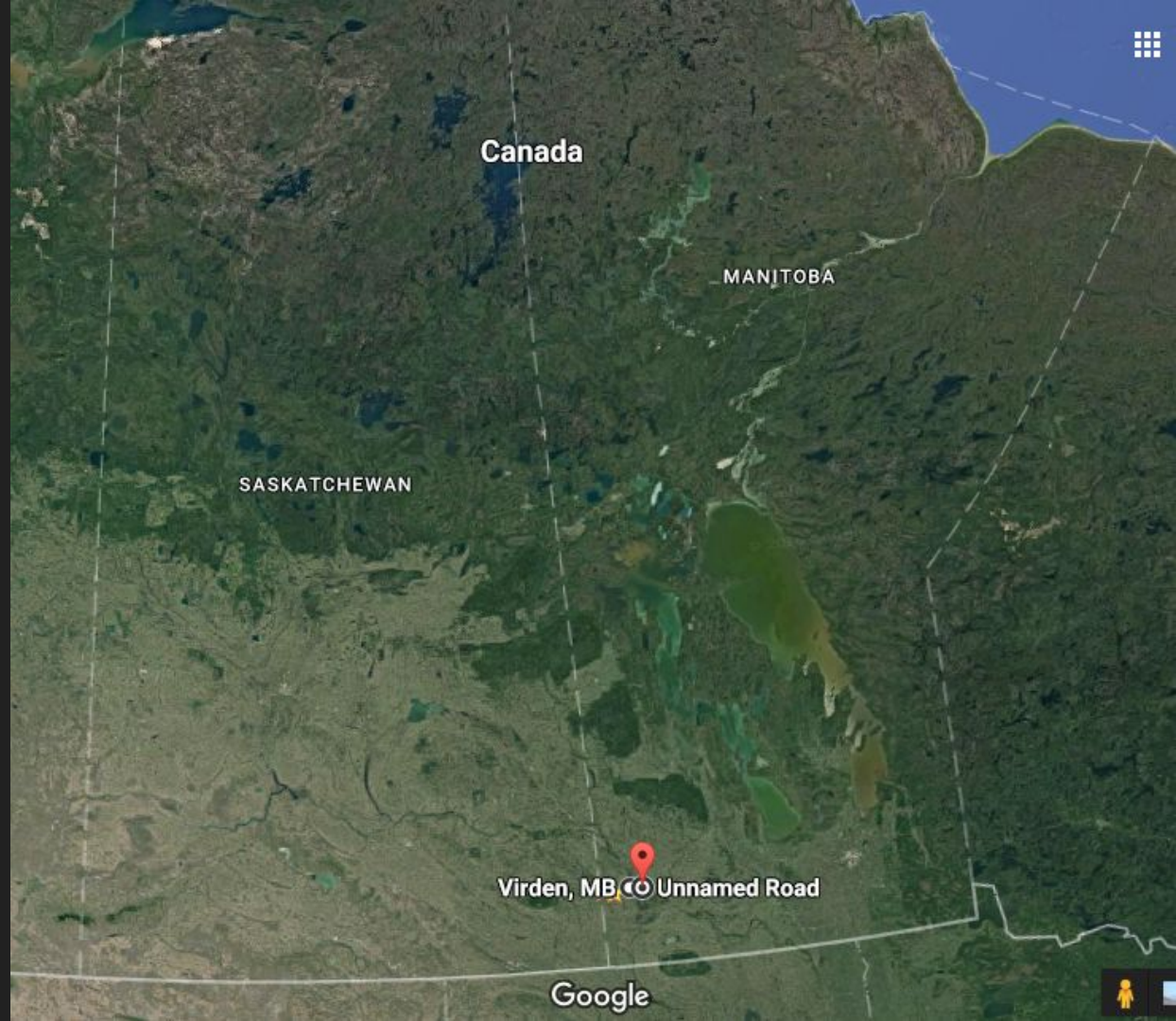
Wetland Center of Excellence

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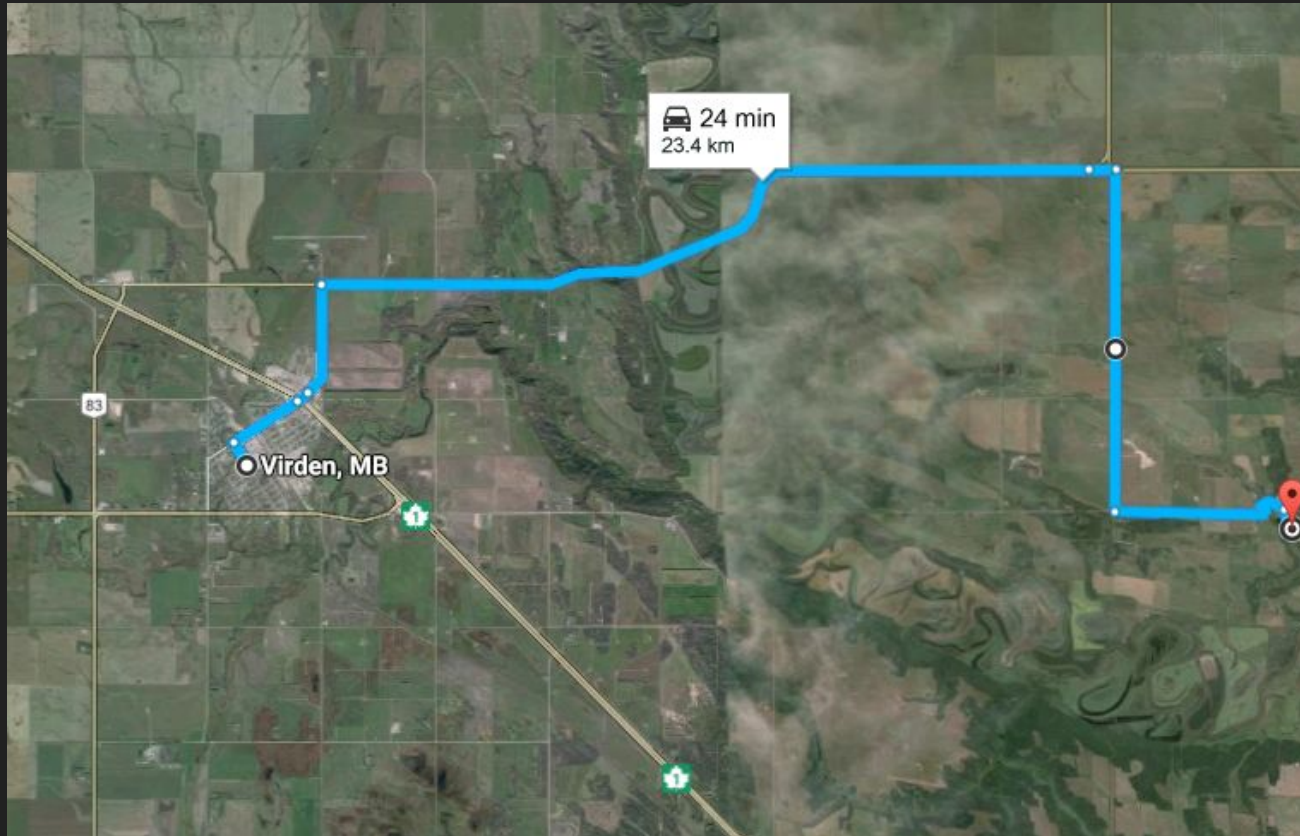
Eternal Springs (15 min. NE of Virден, Manitoba)

CANADA

Location in Canada



Map from Virden



Wetland: Eternal Springs

This Wetland is
connected to
Million Dollar Creek.

It is maintained by the
**Virден Area Wildlife
Assoc. & volunteers.**



Viriden Collegiate's Wetland Center of Excellence

- Established in 2010 (Ray Cochrane)
- Julie Mathieson is the teacher co-ordinator since Ray Cochrane retired in 2012
- Every year we have 1 boy from Grade 12 and one girl from Grade 12 as our Wetland Leaders (**extra-curricular**).
- There are four trainers (a boy & girl each from Grade 11 & Grade 10).
 - 2016 Leaders - Johanna Sachs, Alec Anderson, Kait Bansescu
 - 2017 Leaders - Erin Coulter & Shane Keown
 - 2018 Leaders - Leah Richard & Caleb Lesnar

2016 VCI Wetland Leaders

From Left to Right:

Kait Bancescu

Alec Anderson

Johanna Sachs



Students
Collect
Spring Water
To Use
For
hand-wash
stations

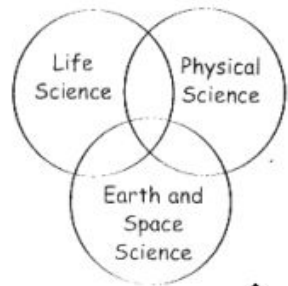


Fort La Bosse School Division Schools Involved:

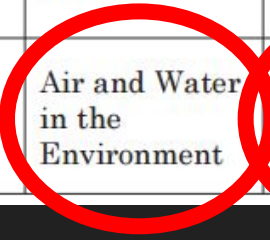
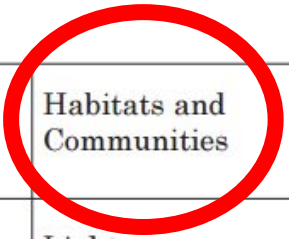
- Virden Collegiate Institute - 6 High School Students run the whole day

- Elementary Schools that attend (this is part of the Grade 4 Science Curriculum).
 - Mary Montgomery School - Grade 4 (Virden) - 28 students
 - Goulter School -Grade 4 & Grade $\frac{3}{4}$ split (Virden) - 42 students
 - Reston School - Grade 4 Class - 13 students
 - Elkhorn School - Grade 3 & 4 Classes - 12 students
 - Oak Lake Community School - Grade 3 & 4 class - 17 students

TOTAL OF 112 Students who attended the 2016 Wetland Center of Excellence



Grades Clusters	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
Cluster 0	Overall Skills and Attitudes (to be integrated into Clusters 1 to 4)				
Cluster 1	Trees	Characteristics and Needs of Living Things	Growth and Changes in Animals	Growth and Changes in Plants	Habitats and Communities
Cluster 2	Colours	The Senses	Properties of Solids, Liquids, and Gases	Materials and Structures	Light
Cluster 3	Paper	Characteristics of Objects and Materials	Position and Motion	Forces that Attract or Repel	Sound
Cluster 4		Daily and Seasonal Changes	Air and Water in the Environment	Soils in the Environment	Rocks, Minerals, and Erosion



Highlights of our Wetland Center Activities

4 Stations:

- 1) Water Quality Testing
- 2) Critter Dipping
- 3) Soil Quality Testing
- 4) Rock & Mineral Identification
- 5) LUNCH

1) Water Quality Testing

(South-Central Eco-Institute Kits)

The screenshot shows the homepage of the South-Central Eco-Institute website. At the top left is the logo, which consists of a magnifying glass over a water drop, followed by the text "SOUTH CENTRAL ECO INSTITUTE". To the right of the logo is a login form with fields for "username:" and "password:", and a green "submit" button. Below the login form is a large blue banner featuring a cartoon scientist character in a white lab coat and red tie, holding a magnifying glass. To the left of the scientist is a vertical navigation menu with wooden arrow-shaped buttons for: HOME, ENTER COLLECTED DATA, REVIEW DATA, GRAPH DATA, OUR WATER SITES, WATERSHED MAP, MISSION, SUPPORT DOCUMENTS, KENT'S CALENDAR, and PARTNERS. To the right of the scientist are two large green buttons: "RUN A REPORT" and "ENTER YOUR DATA", each with a "Click Here" link. Below these buttons is a section titled "BROWSE OUR SCEI WATERSHEDS" with three circular image thumbnails showing different water bodies.

Tools used for Water Quality Testing can be found in this [pdf document](#).



This is a picture of Jo collecting water using the Van Dorn so that students could measure the amount of Nitrogen, Phosphorus, pH, temperature, and turbidity of the water.

2) Critter Dipping

- Dock
- D-Frame nets
- Life-Jackets
- Chest Waders
- Forceps
- Sorting containers
- ID Sheets

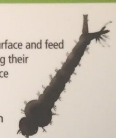


MARSH MONSTERS

Mosquito Larva

"Little dark-coloured sticks" that float under the surface and feed on algae and protozoa through brushes surrounding their mouth. Wiggles wildly downward from water surface when disturbed.

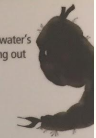
Ranges from 3 mm to 15 mm



Mosquito and Midge Pupa

A tiny, dark-coloured comma floating under the water's surface. It breathes through hollow tubes sticking out of the top of its head.

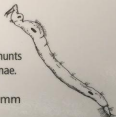
About 10 mm in size



Phantom Midge Larva

This ghost-like insect larva is almost invisible. Only its dark air sacs are clearly visible to the eye. It swims freely by flicking its body, then drifting. It hunts small crustaceans and insect larvae using its antennae.

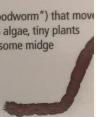
Ranges from 2 mm to 20 mm



Midge Larva

A tiny, dark-red, worm-like larva (also known as a "bloodworm") that moves along the bottom of the marsh in the mud. Eats algae, tiny plants and other dead things along the bottom (note: some midge larva can be dark green).

Ranges from 7 mm to 30 mm



Seed Shrimp

Tiny crustacean that is green in colour. Common in mats of algae and vegetation or mud on pond bottoms. Scurries around using its legs and antennae, filtering bacteria and dead plant material out of the water.

Ranges from 1 mm to 3 mm



Water Flea

Pink or orange in colour, this tiny crustacean moves up and down in short hops by using its enlarged second pair of antennae. Feeds on algae and bacteria.

About 2 mm in size



Water Mite

Usually red (sometimes black), this tiny spider relative feeds on worms, small crustaceans, larvae and plankton. Swims by wildly beating its eight legs.

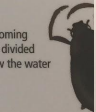
Ranges from 1 mm to 6 mm



Whirligig Beetle

This small, shiny black beetle is usually seen zooming around on the surface of the water. Each eye is divided into two parts so they can see above and below the water at the same time. Feeds on small insects.

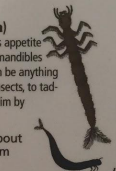
Ranges from 9 mm to 10 mm



Predacious Diving Beetle (Larva)

Also called a "Water Tiger" because of its voracious appetite for insects. Has a long streamlined body and large mandibles (jaws) that they use to capture their prey, which can be anything from other predacious diving beetles and aquatic insects, to tadpoles and even small fish. An active hunter, they swim by moving their body in an up-and-down motion.

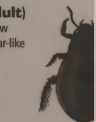
Ranges from about 14 mm to 38 mm



Predacious Diving Beetle (Adult)

A shiny, dark-brown beetle often has dull yellow markings on its sides. Swims by paddling its oar-like legs, and eats a variety of aquatic animals.

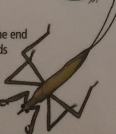
Ranges from 10 mm to 35 mm



Water Scorpion

Lives underwater but projects a breathing tube at the end of abdomen through surface from time to time. Feeds on insects, seizing its prey with strong front legs.

Reaches up to 50 mm



Water Strider

Runs on the surface of the water with its long, skinny legs. Feeds on small insects.

Ranges from 10 mm to 15 mm

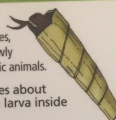


MARSH MONSTERS

Caddisfly Larva

Builds a tube-like home using bits of grass, leaves, sand grains and even old snail shells. Walks slowly along the bottom eating algae and small aquatic animals.

Case measures about 8 to 25 mm with larva inside



Dragonfly Nymph

Greenish in color, it usually walks slowly on the bottom or among vegetation. Eats worms, insects, small crustaceans and plankton.

Ranges from 10 mm to 45 mm



Mayfly Nymph

Similar to the damselfly nymph, except the projections at the end of its body are finer. Eats algae, small animals and plant material.

Ranges from 7 mm to 40 mm



Backswimmer

The backswimmer is black and white in colour with large red eyes. It is boat-shaped and swims along its back using its legs like oars. Preys on insects and small fish. Often confused with water boatman.

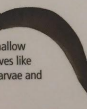
Ranges from 7 mm to 15 mm



Leech

A flat-bodied, dark-coloured worm with a sucker at each end of its body. Abundant in calm, warm, shallow water. It swims waving in ribbon-like fashion or moves like an inchworm along the bottom. Eats snails, insect larvae and worms. Only a few suck blood.

Ranges from 9 mm to 80 mm and can even reach up to 125 mm in length



Snail

Moves around on a muscular foot extending out of a spiral or orb shell. Uses a rough "tongue" to scrape up algae and dead material for food.

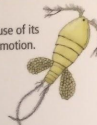
Ranges from 5 mm to 36 mm in length



Copepod

This small crustacean is often called "cyclops" because of its single eye spot. Moves in constant, jerky swimming motion. Eats dead plants and animals and is very tiny.

Less than 2 mm long



Damselfly Nymph

Usually found on the bottom or attached to plants underwater. Has three leaf-like gills at the end of its body. Eats insects and plankton.

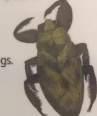
Ranges from 10 mm to 34 mm



Giant Water Bug

This large, flat, brown bug is usually found among plants. It eats a variety of aquatic animals, even tadpoles and small fish. Swims by kicking its hind legs.

Ranges from 20 mm to 60 mm



Sideswimmer

A freshwater shrimp, greyish in colour that swims on its side by beating its many legs. Largely scavengers, some feed on plants.

Ranges from 5 mm to 20 mm long



(Dock) Fishing Spider

Having the ability to move across the top of the water without breaking the surface tension, the dock spider "fishes" by resting one or more of its feet on the water so that it can feel the vibrations of an insect trapped in the surface film of the water below.

Up to 25 mm body

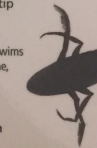
75 mm from leg tip to leg tip



Water Boatman

Slender and black with fine yellow bars, this bug swims by paddling its long, skinny, oar-like legs. Eats algae, dead plants and animals. Often confused with backswimmer.

Ranges from 4 mm to 15 mm

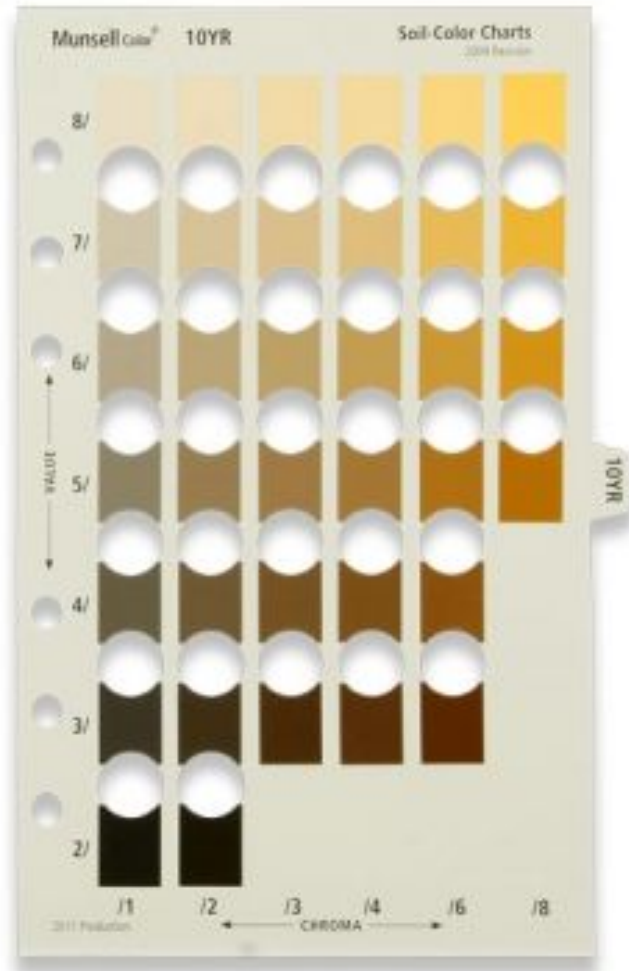
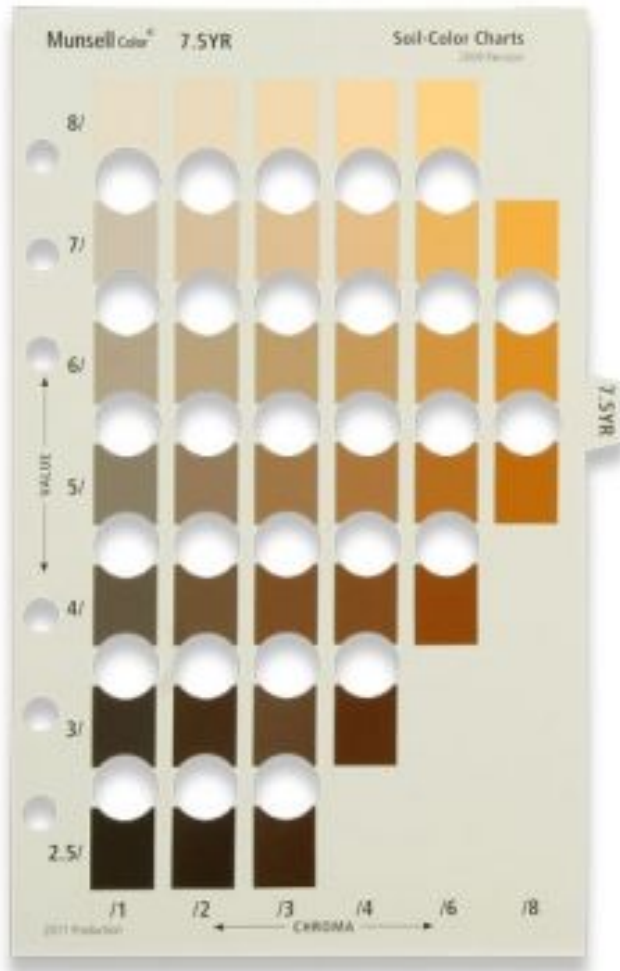


3) Soil Analysis

- Soil Probe, LaMotte NPK analysis kits



Munsell Colour Chart





Erin and Alec explain how the macro-nutrients Nitrogen, Phosphorus and Potassium affect plant growth.

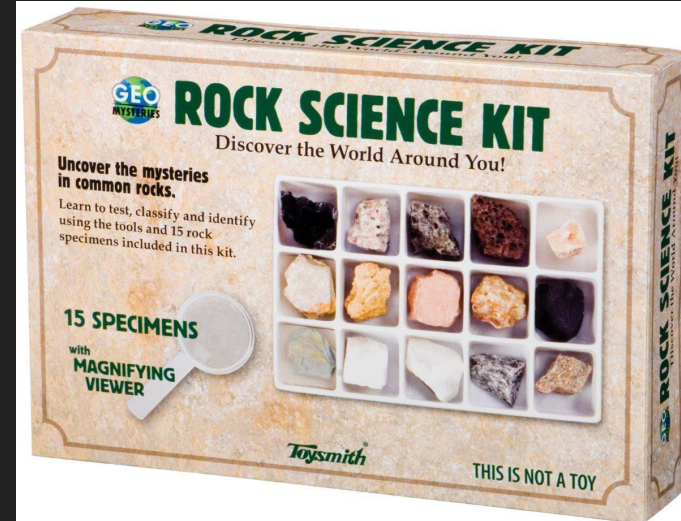
After students learn about these essential macro-nutrients they collect a soil sample using the soil auger, and use the La Motte testing kits to measure the N, P and K of the soil. As they are waiting for their soil chemistry tests, they use a Munsell colour chart to identify the colour of the soil in our area.

4) Rock & Mineral Identification

- Mineral Dichotomous Keys
- Igneous Rocks Dichotomous Key
- Sedimentary Rock Dichotomous Key
- Metamorphic Rock Dichotomous Key
- Streak Plate (ceramic)
- HCl
- Nail
- Magnifying lens
- Glasses
- Gloves

AMAZON
Geo Mysteries
Rock & Mineral
Science Kits

by Toysmith
CDN\$ 58.87



Hubbard Scientific 2100 Rocks and Minerals Collection 100 pcs.

CDN\$ 101.31

AMAZON





Shane explains how to do streak, hardness and chemical tests on rocks (above).

Kait shows students how to use a dichotomous key to ID the various Minerals and Rocks (left).

5) LUNCH!



2016 Schedule of Activities

2016 - Virden Collegiate Wetland Center of Excellence @ Eternal Springs - JUNE 3RD - Itinerary						
Divison of Day	Schools	Time	(Kait, Caleb) Group 1	(Johanna) Group 2	(Erin & Alec) Group 3	(Shane & Leah) Group 4
AM	-Both Goulter Classes (share bus) & -Oak Lake Community School Students	# of students	around 14 students	around 14 students	around 14 students	around 14 students
		10-10:30	Soil Profile & Testing	Critter Dipping	Geology	Water Sampling & Quality
		10:30-11:00	Critter Dipping	Geology	Water Sampling & Quality	Soil Profile & Testing
		11:00-11:30	Geology	Water Sampling & Quality	Soil Profile & Testing	Critter Dipping
		11:30-12:00	Water Sampling & Quality	Soil Profile & Testing	Critter Dipping	Geology
LUNCH		12:00-12:30	LUNCH for both AM & PM groups			
PM	-Mary Montgomery & Reston (share bus) -Elk horn	12:30-1:00	Soil Profile & Testing	Critter Dipping	Geology	Water Sampling & Quality
		1:00-1:30	Critter Dipping	Geology	Water Sampling & Quality	Soil Profile & Testing
		1:30-2:00	Geology	Water Sampling & Quality	Soil Profile & Testing	Critter Dipping
		2:00-2:30	Water Sampling & Quality	Soil Profile & Testing	Critter Dipping	Geology

Exciting Opportunities / Challenges

- **Exciting Opportunities**

- Upon Graduation we award our Wetland Leaders with a cheque for \$500 to use to be put towards post-secondary studies (hopefully in Environmental Sciences).
- We have had all of our Wetland Leaders in the past 7 years move on to post-secondary studies (many in Science).

- **Challenges**

- \$\$\$\$ (we have \$1500 left for the 2017 year).
- We are doing a cookie dough fundraiser this year (which we are hoping will help fund both Envirothon & Wetland Center of Excellence).

For more information, and to access this
Presentation, visit Our VCI Wetland Center of
Excellence Website:

<http://vciwetland.weebly.com/>