

# 2016 Workshop Information

## **Inquiry Based Education**

Working from and inquiry-based education model the facilitator of the environmental outreach is also an engaged learner with the foundational belief that the workshops being shared are rich, living and generous places for wonder and exploration.

Inquiry is not merely ‘having students do projects or be lectured on a topic’ but rather strives to nurture deep, discipline-based way of thinking and doing with students.

As an entry point, inquiry involves learners:

- . tackling real-world questions, issues and controversies
- . developing questioning, research and communication skills
- . solving problems or creating solutions
- . collaborating within and beyond the classroom
- . developing deep understanding of content knowledge
- . participating in the public creation and improvement of ideas and knowledge
- .

While we have workshops to choose from, we have found our best success comes from working with teachers to develop projects that relate to areas students are covering in class. Tying it together with the project and experiential nature of the workshop delivery allows this program to have a deep and lasting effect on students and provides them a starting point for developing complex projects and methods for sharing what they have learned with their peers, home and community. For project based workshops we often develop a series or workshop and support with teachers and/or directly with classes or interested students.

Contact Michelle at 250-709-7972 or email [sdenviro2016@gmail.com](mailto:sdenviro2016@gmail.com) for more information and to register. Please note that workshops are limited so book early in the school year.

# Workshops 2016

## **Zero Waste Workshops**

This set of workshops corresponds with the Cowichan Valley Regional District's (CVRD) 12 Big Ideas #9 – Get Serious About Zero Waste. Asking residents of the CVRD to re-think how we handle our waste, the following six workshops were designed to inform students how they can both individually and collectively work towards minimizing their impact on the environment.

### **1.) Recycle Relay Races**

Overview: In teams of three, students must sort clean trash items into the best conservation category of reduce, recycle and reuse. As a team they must tell the class why they choose each category for each item and why it is the best choice for that item. This activity has different methods of delivery each designed towards appropriate grade levels.

Time: 45 minutes

Age Group: K-Grade 3

Learning Outcomes: Physical Education, Science & Arts

### **2.) Trash Talk**

Overview: In this lesson students will investigate a bag of trash to find out how much of the contents of the bag actually needs to go to the landfill. Students will create two class posters that show which items are recyclable and which ones are not. They will complete a math activity to determine how many bags of trash their families generate.

Time: 45 minutes

Age Group: K-Grade 3

Learning Outcomes: Science & Environment

### **3.) Back to the Future of Solid Waste**

Overview: Students will get blasted into the year 2050. In a time where generations of people have NOT recycled, what would the future of that kind of world look like? In 2050 hard decisions will have to be made as people will be mandated by their governments to start putting all of their trash in their own backyards, playgrounds, beaches, parks, and farmland. Students will look at what is and can be done to prevent this from occurring, and will be asked to work together to create a newspaper article for the year 2050 based on the changes made now.

Time: 60 minutes

Age Group: Grades 4-7

Learning Outcomes: Science, Social Science & Language Arts

#### 4.) How Long Does Trash Last?

Overview: Students will have a display of commonly discarded household items at the front of the room. They will work in groups to guess how much energy went into to making these products, where the energy came from, how many miles it travelled on its journey here, how many other natural resources were used in making it, and then guess how long each household item takes to decompose if left in a landfill. Students will present there answers to the class and then the class will have to vote on who they think is closest before the answers are revealed.

Time: 60 minutes

Age Group: Grades 4-7

Learning Outcomes: Science & Social Science

#### 5.) Vermi-Composting

Overview: This lesson introduces the idea of composting and gives students a chance to learn about worms, to build a worm bin together, and to have hands-on experience with composting in their classroom. Worm bins are a great opportunity for hands-on learning about the process of composting. Further workshops can be arranged with teachers after this first worm bin building workshop.

Time: 60 minutes (depending on grade)

Age Group: Grades 4-12

Learning outcomes: Science

#### 6.) Solid Waste The New “Cool”

Overview: A fun and engaging workshop on making the environment the new “cool”. This workshop combines ethnographic studies on how the media determines for the public what is “cool” with the impact our coolness has on the environment. Everything from solid waste management, greenhouse gas emissions, water conservation will be compared and contrasted to all the “stuff” we have that makes us cool. It helps youth understand how they have a great deal of say in what becomes the next “cool”, this workshop will encourage youth to develop a campaign that will bring the three “R’s” into the next fashion trend.

Time: 60 minutes

Age Group: Grades 5-12

Learning Outcomes: Science, Social Science & English



## **Water Conservation Workshops**

This set of workshops corresponds with the Cowichan Valley Regional District's (CVRD) 12 Big Ideas #6 - Don't Hog the Water: When More is Less. With the goal of maintaining the integrity of the Cowichan Region's five major watersheds, this set of eleven workshops has been designed to address the various levels in which human activity impacts our watersheds, and to provide insight and tools for improving individual and community water use practices.

### **1.) The 1000th Fred**

Overview: While accompanying Fred the Fish as he travels down stream, students will act as participants in the simulation of an eco-system becoming polluted. As the simulation plays out, different items will be added to Fred's water habitat. Each item will represent various pollutants which are derived from numerous real-life sources ("cause"), and will result in an increasingly polluted environment ("effect"). Students will be asked to develop simple solutions they can make in their daily lives to protect and preserve our watersheds. Through this workshop, students will also explore the means of preventing water pollution, the solutions to the problems that arise from water pollution (ie. the impacts on watershed systems and the ecosystems they support), and the varied uses of water and the importance of clean water in our daily lives.

Time: 45 minutes

Age Group: K-Grade 3

Learning Outcomes: Science & Social Studies

### **2.) "Water, Water What Do You See?"**

Overview: Students will be introduced to the ecosystems in their community. From this, they will create a class book that will tell the story of their current conservation habits, how these habits effect the life found in the identified ecosystems, learn new water conservation habits, and identify people they can invite to do the same

Time: 90 minutes, or two 45 minute sessions.

Age Group: K-Grade 3

Learning Outcomes: Language Arts & Science

### **3.) Let's Learn About Water**

Overview: Students will be read a story about water and then asked the following questions, and will together make posters based upon their answers.

- Who likes water?
- What is your favourite thing to do with water?
- What would happen if there was no water?
- How could we make sure that we never run out of water?

Time: 45 minutes

Age Group: K-Grade 3

Learning Outcomes: Arts, Language Arts, Science & Social Studies

#### **4.) The Same Old Water**

Overview: Students will plan and conduct a simple investigation to gather information on ways to clean dirty water. They will look at the closed loop-cycle of water on our planet. Students will create Save Water Reminders to teach or remind family members to conserve water.

Time: 45 minutes

Age Group: Grades 4-7

Learning Outcomes: Science, Social Studies & Language Arts

#### **5.) All the Water in the World**

Overview: The goal of this workshop is to show students how the water cycle functions. They will learn of the impacts that improper waste disposal and water pollution have on the water cycle, and will develop solutions they believe can help to protect the water cycle and our planet. To accomplish this goal, students will create a concept map based on the water cycle. They will describe the terms polluting and wasting water, and will demonstrate the concept of the hydrosphere as related to the Cowichan Watershed.

Time: 45- 60 minutes

Age Group: Grades 4-7

Learning Outcomes: Science & Social Science

#### **6.) Wasting Away**

Overview: Students will develop a graphic way of visualizing the concept of a million by referencing an historical event where a large amount of raw sewage was dumped into a river. In the first workshop, the students will be introduced to the concept of a million by creating containers that will hold a million small items. In the second workshop, the students will create a model of the Cowichan River. Using the concept of a million from the previous workshop, they will see what happens to this river by simulating the action of dumping raw sewage into the model.

Time: 2 x 45 minute classes

Age Group: Grades 4-7

Learning Outcomes: Technology, Math & Social Studies

#### **7.) Plastic Island**

Overview: Welcome to the “Plastic Islands” where no one seems to want to buy real estate here yet it is the fastest growing land mass on the planet. Students will learn about the plastic islands that are forming in the ocean and how human activity contributes to them. They will learn about the effects this is having on ocean's ecosystem including marine animals and plants. They will brainstorm to develop ways we can help to stop its growth, to raise awareness, and to clean-up the ocean. Students will look at the current swell of garbage heading to the coast of Vancouver Island as a close to home case study. Follow-up workshops to this activity are available. Please contact the workshop facilitator for more information.

Time: 60 minutes

Age Group: Grades 7-9 (can be adapted to all grade levels but not recommended under grade 3).

Learning Outcomes: Science, Social Science & English

### **8.) Watershed 101**

Overview: Students will work with a watershed model to identify, collect and analyze data about a local watershed issue. This year (2012-2013) the focus will be on the weir (barrier across a river designed to alter the flow characteristics) in Cowichan Lake and the effects it has upon the river. They will identify and list individuals and/or groups who might be interested in or affected by a local watershed issue, identify factors contributing to this issue, generate possible courses of action to solve this problem, and evaluate the advantages and disadvantages of these actions. Lastly, students will select a proposed solution, recommendation, and/or course of action, will determine its feasibility, and will plan for its implementation.

Time: 45 minutes

Age Group: Grades 4-7

Learning Outcomes: Science, Social Science & English

### **9.) Is Our Water For Sale? “The case of The Lorax vs. Todd-Sic Waste”**

Overview: Students will review a mock law case in which a city has brought a business to court because the business has been dumping waste into the local river. Before commencing with this case, the class will need to educate themselves about the case and the decision-making model so that they can conduct an informed and fair trial. Following, the class will set-up a mock trial that will include defending this business, prosecuting this business, and deciding the verdict. The mock trial they produce will be tried before learners in other grades to help them understand about how important it is to keep our water supply clean and to demonstrate to others that volunteering for the common good helps everyone.

Time: 45 minutes

Age Group: Grades 4-7

Learning Outcomes: Science & Social Science

### **10.) How I Pollute the Water**

Overview: This workshop will begin with a discussion of the sources of storm water pollution. Specifically, students will list ways in which individuals contribute to the pollution of runoff at their homes, schools, and businesses. The list might include littering, improperly dumping oil and other hazardous wastes, not picking up pet waste, allowing cars to leak fluids, fertilizing lawns, and failing to remove leaves and grass clippings from sidewalks and gutters. In groups of 4-6, students will brainstorm ways to educate others about storm water pollution. They will be challenged to develop a community education plan to inform the local community about storm water issues and pollution prevention. Methods might include: posters, flyers, door hangers, web pages, plays, songs, public service announcements on TV or radio, storm drain stencilling, newsletters, or community presentations.

Time: 60 minutes

Age Group: Grades 8-12

Learning Outcomes: Science, Social Science & English

### **11.) Algae Bloom and Our Oceans: A Case Study on the Hidden Effects of Carbon and the Ocean** –developing Lake Cowichan as a case study

Overview: Students will perform a controlled experiment examining the changes in the ocean water due to a chemical dump in the ocean. This is based on a real time event happening off the coast of British Columbia, near the Douglas Channel. Students will learn what eutrophication is and how excessive nutrients affect water quality. They will develop an understanding of the role of phosphorus and nitrogen compounds in the eutrophication of water systems, and will identify non-point sources of nutrient enrichment. Then, through media releases, google earth and other sources, students will look at the current issue of the Douglas Channel, and will brainstorm cause and effects of tampering with this ecosystem and the potential impact this may have all the way down the coast of BC.

Time: 60 Minutes

Age Group: Grades 8-12

Learning Outcomes: Science, Social Science, English & Law

## **Sustainable Transportation Workshops**

This set of workshops corresponds with the Cowichan Valley Regional District's (CVRD) 12 Big Ideas #10 – Be Carbon Neutral. In partnership with BC Transit, the CVRD is working to administer a public transit service within the Cowichan Valley that contributes to reducing the number of motor vehicles travelling on its roads. Accordingly, the following five workshops are designed to inform students how they can reduce their environmental impact by re-thinking their transportation choices.

### **1.) The Air Pollution Investigation**

Overview: Students will participate in a scientific inquiry activity regarding the air they breathe - both inside and around their classroom and their homes. They will plan and conduct a simple investigation to gather information on air quality. Students will also help to reduce air pollution by shutting off lights, toys, machines and appliances, and by reducing their travel in cars.

Time: 45 minutes

Age Group: K-Grade 3

Learning Outcomes: Science & Language Arts

### **2.) Act Out on Air Pollution**

Overview: Students learn to understand the greenhouse effect by acting it out. Students each take on different roles related to the causes of climate change and act-out both the cause and effect. Once complete, they will give feedback about what happened when they played different roles and will relate this information back to their own lives including how transportation is used, what transportation is used for, and how it impacts the environment. Finally, students will identify ways of lowering their reliance on transportation that produces greenhouse gases, and will list alternatives to it. Delivery of this workshop will vary from grade to grade, and can be adapted to various age groups.

Time: 45 minutes, Age Group: K-Grades 3

Learning Outcomes: Science, Language Arts & Arts

### **3.) How Do I Get Around?**

Overview: Students document and consider the transportation choices they make, problem-solve around alternatives, and pledge to implement positive change in their travel routines. They will figure out how they get to all of their activities for one week: school, social events, recreation, shopping, etc...Recording their starting point, where they went to, the approximate distance, and why they made the trip, students will tally-up the total distance traveled and the type of transportation used (car, bike, walk, etc.). Following this, students will then share their findings in small groups, and will be asked to identify transportation choices, alternatives, and challenges. As a class, students will brainstorm ways to reduce their reliance on cars, and will generate a class list. They will be asked to consider in their transportation decisions, to discuss alternatives (biking, walking, carpooling etc...), and to outline some of the challenges that make alternatives difficult to choose? Following this, students will develop alternative plans for travelling over a one month period and will calculate how much energy they saved. In accomplishing this, students will use a carbon calculator to gauge their carbon footprint and to compare emission levels as they change their transportation behaviour.

Time: 45 minutes, Age Group: Grades 4-7

Learning Outcomes: Science, Social Science & Math

### **4.) Follow the Cell**

Overview: Students look into the life cycle of the cell phone to gain a deeper understanding of the diverse natural resources that are required to produce this single product. Students then take this insight and apply the reflection process to a product of their choice in small groups, outlining the ecological footprint that we make when we use various products. Students will learn to look more deeply at the products that they use and gain an appreciation for the energy, labor and resource-intensive processes that go into them. They will look at the natural resources used, identify where they come from, what impact the resource extraction has and is having on the earth, how the people in mining communities across the globe are impacted, and what products are ethical and green. Students will also dive into what happens after a call phone leaves our hands, and will calculate the total energy and impact used to produce, create and recycle a cell.

Time: 45 minutes, Age Group: Grades 7-9

Learning Outcomes: Science, Social Science & Math

### **5.) My First Car**

Overview: Looking at the history of transportation, the gas and oil industry, and the future of oil and gas, this workshop will address the effects our first car will have on air quality and resource extraction. Students will be encouraged to come-up with alternatives to car ownership. This can be a lively class when students are challenged with the idea that owning a car may be a thing of the past if we are committed to taking care of the environment as it forces them to look at what they are willing to live without.

Time: 80 minutes (can be over 2 classes if teacher would like film to supplement this workshop)

Age Group: 8-12

Learning Outcomes: Science, Social Science, English & History

## 6.) Green Ride

This unit shows students how emissions are created, used, and measured. Students explore efficiency using a lab activity. Students plan and carry out a project to advocate for conserving energy and using green technology. They demonstrate to members of the school or local community their learning about renewable energy that promote conservation and alternative transportation. The purpose of this unit is to empower learners to advocate for responsible use of transportation and their carbon footprint.

Time: 2x45min

Age Group: Grade 5-9

Learning Outcomes: Language Arts, Technology, Math, Science and Socials

## 7.) The Greenhouse Effect

Students will create the Greenhouse Effect in their classroom and be able to explain how the Greenhouse Effect contributes to global warming and then teach the Greenhouse Effect/global warming to a family member. They will learn how sustainable transportation and alternatives can help alleviate the stress on their local environment.

Time: 60min

Age Group: Grade 5-10

Learning Outcomes: Language Arts, Technology, Math, Science and Socials

## 8.) School Special

Once a year a group of students who have demonstrated their dedication to making positive changes towards Zero Waste are selected to head out in the field for the "School Special". Students are picked up by public transit, participate in trivia games on the bus and head to Bing's Creek Waste Transfer Station for a tour of the facility to learn firsthand where their garbage and recycling goes when it leaves the curb.

Time: 2.5 hrs , Age Group: Grade 5-7

Learning Outcomes: Language Arts, Math, Science



## **Blended Workshops**

This set of workshops corresponds with the Cowichan Valley Regional District's (CVRD) 12 Big Ideas #6, #9, & #10. Linking the relationships that exist between water, waste management & recycling, and transportation, this set of workshops is designed to highlight how aspects of human activity, such as consumer habits or driving a vehicle can impact various systems - from watersheds, habitats, to air quality.

### **1.) Just the Facts, Believe It or Not** (Recycling & Zero Waste, Water Conservation & Sustainable Transportation)

Overview: An interactive “Believe It or Not” slideshow/video presentation that compares and contrasts the amount of energy and transportation required to make things from recycled materials. This lesson provides students the opportunity to follow a recyclable material from its conception to the gathering and sorting stage, through its production, marketing and purchase, and finally to its discard and re-purpose.

Time: 45 minutes

Age Group: K-Grade 3

Learning Outcomes: Science, Social Science & Language Arts

### **2.) It's Getting Hot Out Here** (Water Conservation & Sustainable Transportation)

Overview: Students will learn about the impact that rising temperatures are having on our region. They will identify simple and complex strategies for individuals, families, schools and communities to take to both raise awareness about climate change and the different choices that will have a positive effect on reducing emissions. Students work in small groups to discuss impacts and choices around a water shortage in their community, they will be asked to consider the economic and environmental costs of their choices, and will develop a creative way to present their findings to the class.

Time: 45 minutes

Age Group: Grades 4-7

Learning Outcomes: Science, Social Science & Language Arts

### **3.) A Call to Action** (Recycling & Zero Waste, Water Conservation & Sustainable Transportation)

Overview: Students will work to develop a call to action for their school, home or community that are focused on solid waste, water, and greenhouse gas reduction. The first session will focus on what other individuals and schools are currently doing and to brainstorming what the students would like to focus on. The second step will be to create an action plan that identifies timelines, targets, current use, reduction, next steps, and to assign roles. The third step will be to implement the plan, and the fourth step will be to review.

Time: 2-4 x 60 minute classes

Age Group: Grades 8-12

Learning Outcomes: Science, Social Science & English

#### 4.) Rivers Gone Wild (Water Conservations & Transportation)

Go out and explore a local river. Use observation, research, and science to determine the health of a local river. Students focus on the history of, reasons for, and possible solutions to an issue found in our local waterways. Students become aware of global clean water issues and identify different ways the four sectors of society can be agents for change. Students may take action through a demonstration or letter writing, as well as personal commitments to change. Students may present their findings to a school audience and request student pledges toward change. Students will be encouraged to take their findings and present them at home along with their pledge cards and encourage their family members to take on their own challenge.

Time: 1.5 hours

Age Group: Grades 4-10

Learning Outcomes: Math, Philanthropy, Science

