Science Unit: ***Electricity with Applications***

Lesson 6: ***Field Trip to Stave Falls Generating Station***

School Year:	2008/2009
Developed for:	General Gordon Elementary School, Vancouver School District
Developed by:	Scott Morgan (scientist), Bernard Wan and Nathalie Menard (teachers)
Grade level:	Presented to grade 6; appropriate for grades 5 - 7 with age appropriate modifications
Duration of lesson:	5 hours (revise as needed)
Notes:	The Stave Falls Generating Station is near Mission, BC. Tours should be arranged a few months in advance to ensure availability. Tel. 604 462 1222 www.bchydro.com/community/recreation_areas/stave_falls_visitor_centre.html

Objectives

1. To learn how electrical energy is generated using hydro-electric power.

Background Information

In the motor lab we learned how electrical current can be used to create motion. A generator works the opposite way; motion in a generator creates electricity. Hydro-electric power is created when the motion of water falling through a penstock causes a turbine to turn, which causes wires to move through a magnetic field. This motion induces electrical current in the wires. Most of the electrical power generated in BC to power homes and industry is created this way.
The Stave Falls Generation Station tour takes you through a guided tour of a decommissioned hydro station that served BC from 1912 to about 2000.

Vocabulary

Penstock	The tubes that deliver water to the turbines.
Turbine	A device to convert the movement of water into rotational motion.
Induction	The creation of electricity by the movement of wires in a magnetic field.
Hydro	Power created from the movement of water.
Head	The pressure created by deep water.

Introductory Discussion

Where does the electricity we use in our home and school, come from? How is it created?

Science Activity/Experiment

The tour starts with a film that discusses where electricity comes from and how it is dependent on rain. Following is a hands-on interactive set of displays and then a tour through the main station room, from which you can see the 5 turbines, and the switching board. One of the turbines has been opened up so that you can see the working parts inside. The tour briefly goes outside so you can see how the penstocks carry the water to the turbines. At the end of the tour is a hall full of antique electrical

appliances and electrical parts, including an electric car made by the Detroit Electric Car Company in 1912. Tours normally start in the morning and end around noon. If the weather is good, you can take the class down the trail to the lake to eat their lunches.

Closure Discussion

1. What was the coolest part of your trip?

References

Power House at Stave Falls Teacher's Guide (see below)

http://www.bchydro.com/etc/medialib/internet/documents/community/pdf/power_house_at_stave_falls_teacher_s_guide.Par.0001.File.power_house_at_stave_falls_teacher_s_guide.

Staves Falls Generating Station is located at 31338 Dewdney Trunk Rd, Mission. Admission fees are $5 per student. Tel. 604 462 1222

www.bchydro.com/community/recreation_areas/stave_falls_visitor_centre.html