Brightwater

So our inquiry assignment is below. This is what we did in the fall.

Pre-teaching

At school students had to define many terms related to their field of study – words relating to water and water sheds for grade 8 and words relating to ecology for grade 7. These I got out of the back of the textbooks. Because we went during the second week of school I did not have a lot of pre-teaching done prior to our excursion.

We did talk about the scientific process and students formed hypothesis before we arrived at brightwater. To make the hypothesis students had to have some background information, so students had a period or two to research their question.

At Brightwater

We split into two groups, with the science facilitator working with one group and myself with the other. Grade 8 students had to design a way to set their fish traps in the middle of the creek, without getting wet. This took about an hour. Then we scouted locations, and placed the traps. This whole activity took until about noon. During this time students were also recording information and observations

The grade 7 group was working with the science facilitator, looking at plant species on the hill top. The facilitator was helping them work with field guides to identify three different plant species. They then had to take detailed observations of the plants, and the soil it was growing in. The more detailed the better.

In the afternoon we switched groups

Grade 8 went with the science facilitator to creek dip, where they recorded everything they caught and the number (they were supposed to anyway, a template for this will work better next time) of species caught. At the end of the session they collected and checked their fish traps, and recorded anything they caught in these. Then they cleaned up and got ready to head back to school

Grade 7 went through the same activity as the morning, but this time they were in the valley bottom, near the creek, with me as their facilitator.

Post teaching

Students took their observations and photos, and turned them into movies to document the trip. We plan on doing the same activity in the spring, so we are able to compare results, and see how the watershed changes over time. We are also continuing on in the units of study – water and ecology.

Itinerary

Time	Grade 7 – 10 students → 2 groups of 3 and one group of 4 students, can work in a common area, but each group works together as a team on their own "plot" **1 facilitator**	Grade8 – 17 students → one group of 5 students, 3 groups of 4 students, can work in a common area, but each group works together as a team. **2-3 facilitators**
9:00	Leave school	
9:30-11:30	Ecology study with Liz on plains • Identify and observe 3 tree, 3 shrub and 3 grass species (if available) • Count species • Record location on a map • Observe, describe and analyze soil in the location • See assignment below	Fish traps with Lowe • Design & set • Test temp. of water • Assess turbidity • Assess pH? • Watercycle talk? • See assignment below
11:30ish – 12:15ish	Lunch	Lunch
12:20-2:30	Ecology study with Lowe • Same as above, but in the valley bottom.	Water session with Liz (and 2 adult helpers) • Check traps • Species count from creek dipping • Species identification from creek dipping • Record on iPad • See assignment below
2:30	Back to school	Back to school

Gr. 7 group members - _____

Research question "why might some plant species grow in some areas and not others?"

Form a hypothesis as to why plant species are found where they are

You will be working with a science facilitator in the morning.
Locate a site on a hill top, and record it on your educations/google map we created at school. At this location you will be

- identifying up to three tree and three shrub species with in a 5m^2 area
- identifying up to three grass species within a 1m^2 area (about the size of a hula hoop)
- RECORD each of these species on the educreations map, using different colour ink or shapes to represent different species.
- PHOTOGRAPH each species using the ipad
- RECORD observations and notes from the facilitator in the NOTES app. You need at least 5 observations for each species. (height, colour, leaf pattern, seeds, number of them in the area)

Once you have identified plant species it will be time to examine the soil they are living in.

- As a group you need to OBSERVE and DESCRIBE the soil in this area, using the NOTES app.
- What is it's composition? Attempt to estimate %'s
    - Clay
    - Organic matter
    - Sand
    - Loam
- How does the soil smell? Does it crumble in your hands or form a ball? Is it full of moisture or well drained? Lots of compost and rotting stuff or not much?
- General observations – are the plants tall or short? Why do you think this? Why do you think these plants are found on hill tops?

After lunch we will repeat the same process in the valley bottom.
REMEMBER to RECORD observations in NOTES and EDUCREATIONS and PHOTOGRAPH species.

Don't forget to answer your research question

Gr. 8 group members -

_____

Research question – **" What might a healthy watershed look like?" and "considering what a healthy watershed might look like, is Brightwater a healthy watershed?"**

We need to discover if there are still fish in the Brightwater creek over the winter. We know it is a spawning ground in the spring, but we are curious if any fish over winter here. We will be designing and putting fish traps in the creek, WITHOUT GETTING WET, to attempt to catch some fish. You will have the first part of the day to work in your group to design a way to suspend the trap in the middle of the creek, about 20cm off the bottom. You will be able to use selected materials from the Brightwater site, as well as what we bring with us.

- You NEED to sketch your plans in the educreations app on the ipad before we will let you set it.
- Each member of your team needs to be involved in the design process.

Using educreations and the screenshot of googlemaps we took in class, mark where your group set the trap, so we can use it later.

With our Science facilitator you will be conducting a creek dipping expedition. Before you dip, mark the location on your educreations map, with a different colour ink. Then measure the

- pH, water temperature and estimate the turbidity. Record this in the NOTES app, on the ipad.

Once that is done you will be ready to dip. You will have one student dipping, 2 identifying and counting and one recording on the ipad. You need to :

- photograph the species you find
- identify them with the facilitator's help
- count the number of individuals in each specie you discover
- Mark all you dipping locations on the map
- RECORD EVERYTHING IN THE NOTES APP

After you finish dipping and have washed out the nets it will be time to check the traps. Go with your facilitator to collect the traps. If you catch anything make sure to PHOTOGRAPH and IDENTIFY and measure it before you let it go.

Collect all of the equipment and return to the school house.

Don't forget to answer your research question