

GOING OUTSIDE

with Fort St. James Secondary School



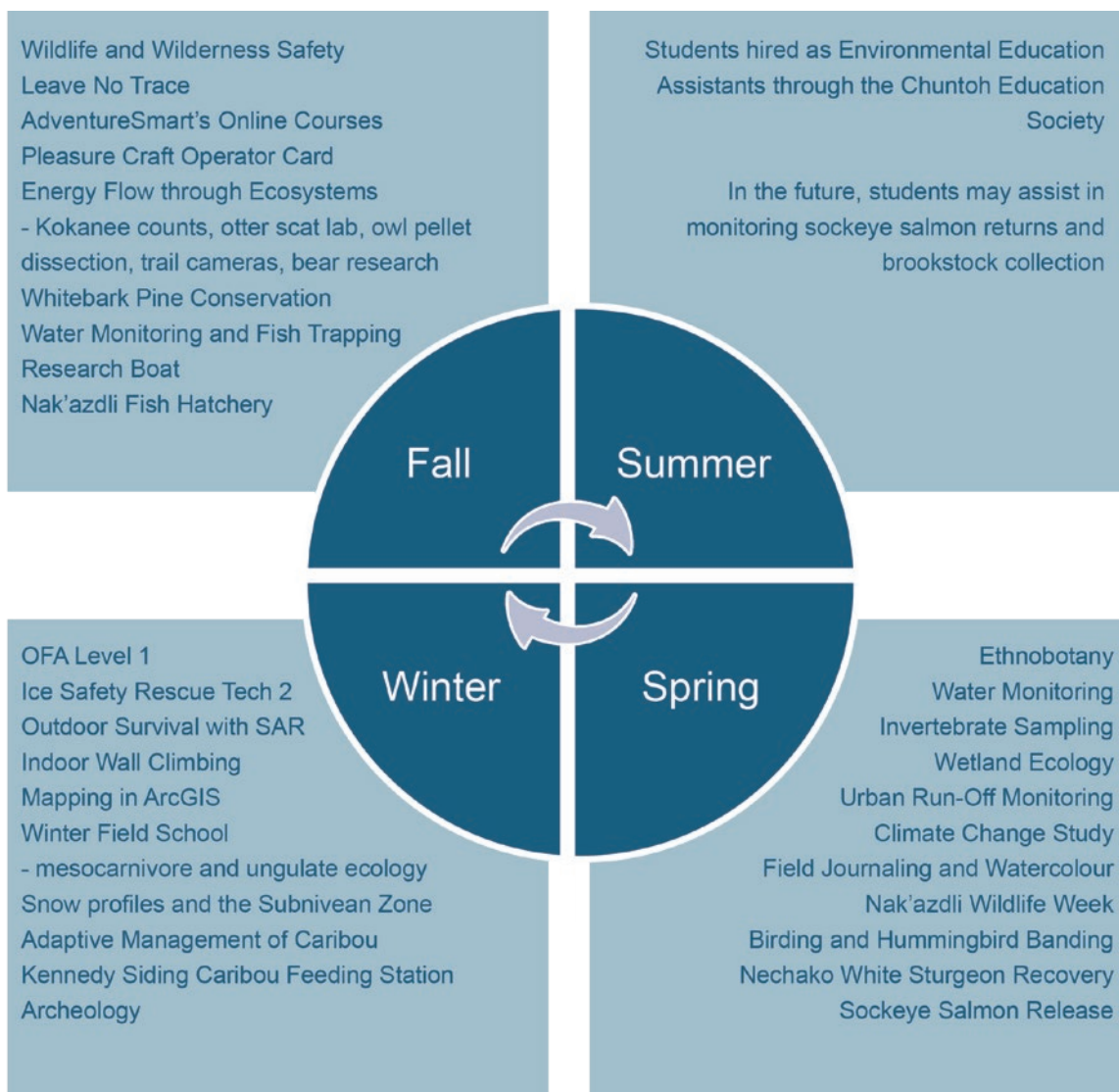
ENSOE 11/12 students monitor dissolved oxygen, pH, turbidity and temperature in a local creek

by
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Class looks a little different for some students at Fort St. James Secondary School. Rather than grabbing a chair and taking a seat when the bell goes, students pull on a pair of chest waders, turn on a GPS, and head into the great outdoors. Binders are replaced by field notebooks and data sheets, densimeters and water test kits fill student backpacks, and local experts and field guides direct the day's learning targets. Our classroom might be the creek, a research forest, the fish hatchery, or even our school's very own research boat. This is ENSOE 11/12!

Situated in north central British Columbia, Fort St. James is a mecca for natural resource management and outdoor recreation. Many of our families' cultures, values, hobbies, and sources of incomes are connected to the land, inspiring myself and a colleague to develop a course that promoted both student engagement and stewardship of our local environments. And so ENSOE 11/12 came to be, an eight-credit cross-curricular course that combines Environmental Science and Outdoor Education.

I do not consider myself to be a seasoned outdoor teacher, but I would like to share what we have accomplished with this course, along with our challenges and plans for the future. Guided by BC's curriculum, the activities in ENSOE 11/12 largely depend on seasonal field conditions, student interests, access to local experts, current research, and funding. While every semester looks a little different, the figure below highlights the broad range of fieldwork and skills introduced to students in this course.



A Summary of the ENSOE 11/12 Fieldwork and Skills by Season

LEANING ON LOCAL EXPERTS

The phrase “guide on the side” certainly describes my teaching approach in ENSOE 11/12. My role has shifted from delivering content to connecting students with experts who deliver the content for me. I model active learning as I engage in the activities beside my students. I encourage them to be curious, and to ask questions about their surroundings. I look out for their safety. I often use the pronouns “we” and “ours” to describe this course, because it truly takes a team of invested people to make it happen.

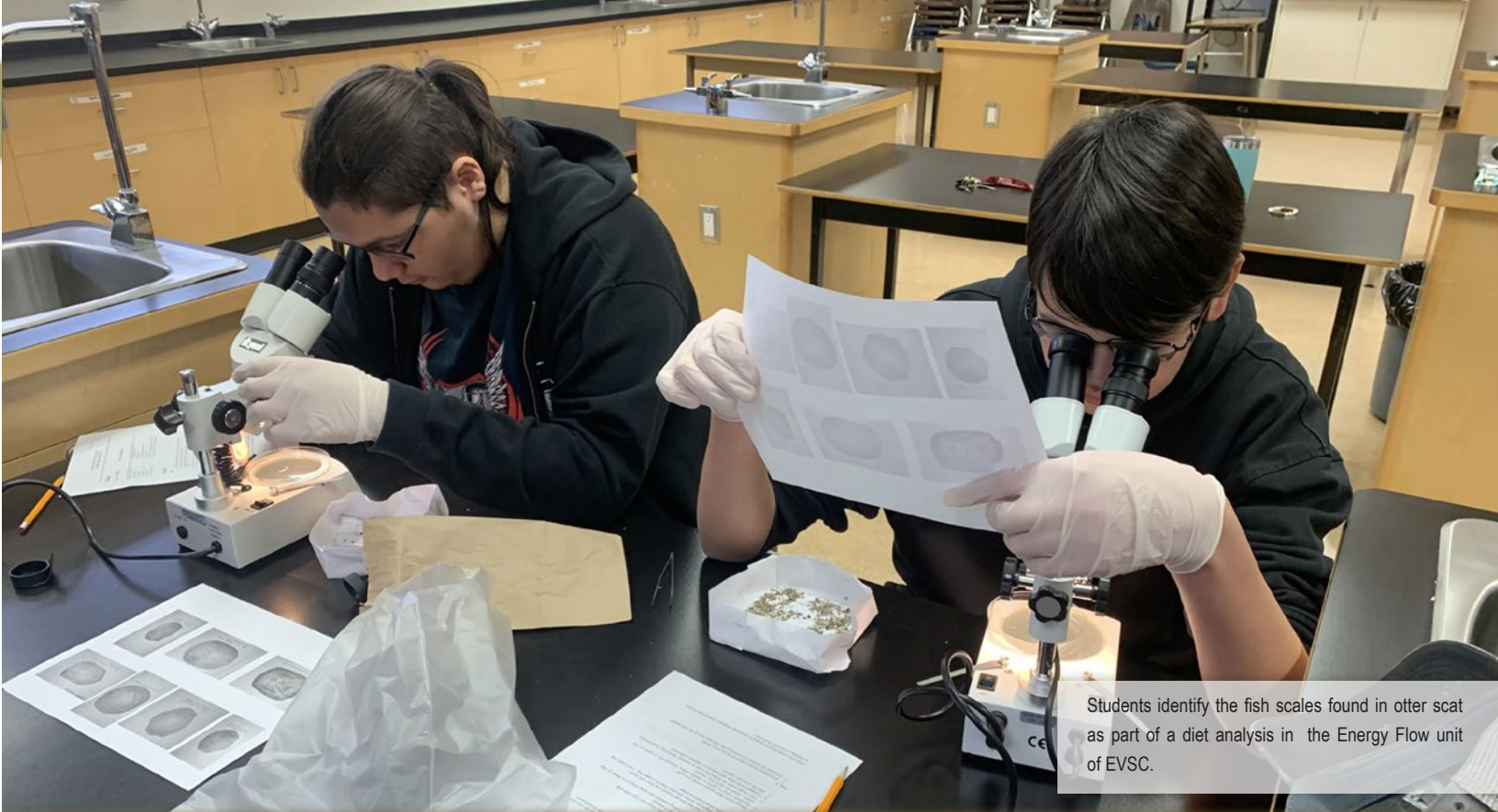
The Chuntoh Education Society, a local nonprofit charity, plays an integral role in connecting us with Dakelh Indigenous knowledge holders, wildlife biologists and foresters, and they also secure critical grants. The Yinka Huwunline Stewardship Department and Nak’azdli Whut’en Fish Hatchery host tours and loan equipment to the course. Wildlife biologists and foresters from the John Prince Research Forest host quarterly field schools. The University of Northern BC’s (UNBC) KOH – Koh-Learning in our Watersheds – program has provided us with monitoring equipment and ecologists. Search and Rescue volunteers guide us through wilderness survival. Department of Fisheries and Oceans (DFO) technicians dissect fish with us, and help us identify future restoration work. BC Parks has introduced us to soapberry and squirrel monitoring, and OVERhang (Outdoor Vertical Education and Recreation) trains us in first aid and ice rescue. The list goes on and my motto has become, “If you ask them, they will come.”



A wildlife biologist at the John Prince Research Forest shows students how to identify and collect hair from a bear hair snare for identification and diet analysis.



A student sets up a pump for water sampling on the RTX platform with Peter Krahn, P.Eng., of GESL (Genesis Environmental Sciences Ltd.)



Students identify the fish scales found in otter scat as part of a diet analysis in the Energy Flow unit of EVSC.

BUILDING CAPACITY AND CONTRIBUTING TO RESEARCH

ENSOE 11/12 is starting to engage in a few longer term, specialized monitoring projects. Since 2020, SD No. 91 (Nechako Lakes) and Fort St. James Secondary School (FSJSS) have partnered with Nak'azdli and Takla First Nation Fisheries Teams, Chuntoh Education Society, and Genesis Environmental Science Ltd. (GESL) to develop a RiverTraps Selective Fishing System (RTX), commonly referred to as our research boat. Shop students help fabricate and maintain the boat and equipment. ENSOE 11/12 students obtain their Pleasure Craft Operator Cards and operate the boat.

Although we are in the early stages of this project, we look forward to:

- Working with local agencies to identify research gaps and to develop student-led inquiries that can be explored using our KIST groundwater sampler, YSI water quality meter, and Davis climate monitoring station.
- Sharing student findings with regulatory agencies, such as the DFO and BC Ministry of Forests, Lands, and Natural Resources.
- Job shadowing with local agencies who use the RTX platform and ARIS sonar for sockeye stock assessment.
- Pursuing students' personal interests (field work, data analysis, equipment maintenance, safety, ethics, media, networking, grant writing, and more).

For more
information on
this project,
please visit



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CO-TEACHING

I originally developed and co-taught this course with a colleague from the Humanities department. It was a linear course that combined Physical Geography 12 and Environmental Science 11. While we collaborated on all aspects of the course, and normally presented material together, she took the lead on the Physical Geography content, and I led the Environmental Science. Co-teaching prevented inevitable burn-out in the early days when we were consumed with establishing new partnerships with local agencies, purchasing and learning how to use new equipment, navigating field trip policies and forms, and developing locally relevant curricular resources.

GETTING CREATIVE WITH THE TIMETABLE

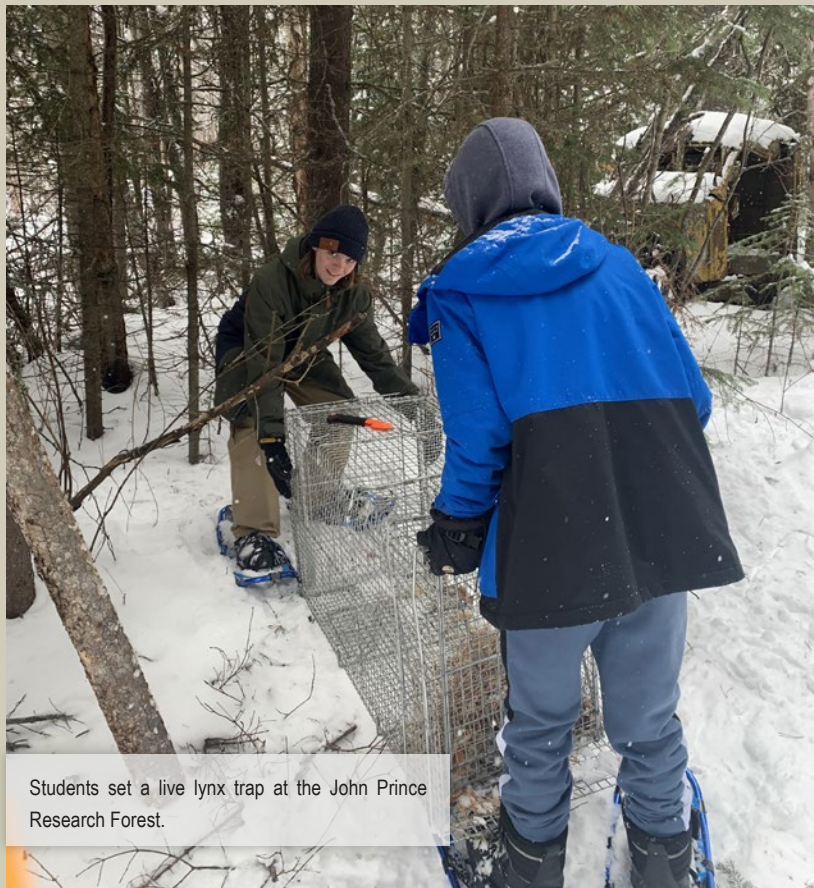
When my colleague retired, we had to rethink the Physical Geography component, and decided to adopt the semester-based ENSOE 11/12 model we now offer. Students can opt to enroll in ENSOE 11/12 twice, either in two consecutive semesters or over two years. They receive credit for EVSC 11/ODED 12 the first time they take the course, and EVSC 12/ ODED 11 the second time. This has also made the course more accessible to those students who could not fit a full year course into their schedules. We also try to schedule this course in a different block than the other, more university-recognized science courses to reduce scheduling conflicts.

“Field work has taught me how to multi-task, improvise and problem solve.

It feels like a real job, not school. I’m learning things, like tying knots, that I use outside of class.”



A student builds a fire outside an emergency shelter with Search and Rescue.



Students set a live lynx trap at the John Prince Research Forest.

“I’ve learned how to connect with my peers who I normally wouldn’t have talked to outside of this class. We choose to work together in the field. We use each other’s strengths to get our jobs done.”

ACCEPTING THAT ASSESSMENT LOOKS DIFFERENT

Assessment in ENSOE 11/12 is completed almost entirely in the field as I observe students working with their peers. Using the proficiency scale, the assessment often resembles a job performance evaluation. Field journals and data pages are collected after each field session. Students provide both self and peer assessments at reporting times. Tests and quizzes are virtually nonexistent, as they do not feel authentic or reflective of the skills students learn in this course. Certifications that are recognized by employers, like Occupational First Aid (OFA) Level 1, are prioritized. Some courses are online, such as the Safe Boaters course, and help students learn how to navigate online learning environments in our digital world.

I hope to incorporate more cross-curricular projects, by making our Photography students responsible for our social media posts, and our Foods and Nutrition students directing our meal prep. We are currently producing a billboard to inform our community of the RTX project, and students will receive some English Language Arts (ELA) credit for the work they complete.

BUYING GOOD GEAR

I have learned a few things about gear over the past couple of years: no students can learn if they are physically uncomfortable, most students underestimate the amount of clothing they will need, and few students will ask for help in sourcing their own clothing and equipment. I now have a selection of outdoor layers that students can borrow and, in some cases, choose to keep. Perhaps the best purchase has been our class set of Reddington chest waders and boots. While gumboots suffice in the shallow water where we conduct our assessments, wearing

waders enables students to move along the creek with more ease and confidence. We also go on field trips to secondhand clothing stores to show students how to purchase affordable, non-cotton clothing.

HAVING ADMINISTRATION SUPPORT

Having administrators and office staff who are supportive, innovative, flexible, and equally passionate about the outdoors is key to this course's success. I have made mistakes: I've booked last-minute trips, I've broken equipment, I've stressed about our lack of progress, and through it all my administrators have remained positive and patient, highlighting our successes, and reminding me that innovation takes time.

CELEBRATING THE WINS

We have had former students carry on to pursue university studies in Wildlife and Fisheries, Forestry, and Ecotourism. We have had students take up new hobbies, like hiking and fishing, and develop a new respect for their bodies, their cultures, and their local environments. I truly believe that connecting youth with our forests and waterways will help us better cope with both our climate and mental health crises. It certainly makes the work I do every day a little bit brighter.



A student practices banding a model of a hummingbird at the John Prince Research Forest.



A student identifies a minnow trapped in Nahounli Creek.