MEED Lesson Plan

Administration

Classes: 3 (30 students each)

Level: Grade 7 curriculum (students in Grades 5 – 7)

Scheduling:

- Date: Thursday March 15th (3 classes in one day)
- Lesson length: 1h

Advance requirements:

- Permission from parents to go off school grounds

Materials required:

- English ivy samples (multiple)
- Pencil/writing utensil (1/student) *
- Hula hoops x 4*
- Plot numbers with stakes
- Field worksheet and ID key (1/ pair of student)

*school to provide

Background

Invasive plants cause greater than $65 billion of damage in British Columbia each year, with this number projected to increase to $139 by 2020[1]. This damage is not only financial, but environmental and cultural. Impacts are anticipated to intensify in the future due to climate change and increases in human-caused land degradation and land use change.

Given the importance of this topic, this lesson is a basic introduction to invasive species and their negative effects on biodiversity and native species. It is a field-based lesson designed to highlight biodiversity changes in a hands-on way, while providing a very basic introduction to assessing vegetation in the field.

Pre-requisite knowledge is understanding of the concept of biodiversity. Familiarity with the concept of competition is an asset.

Learning Objectives

By the end of this lesson, students should be able to:

- Define invasive species (in general terms)
- Identify English ivy (*Hedera helix*), a local invasive species
- Summarize changes in biodiversity due to invasive species establishment

[1] https://bcinvasives.ca/invasive-species/about/what-are-their-impacts-for-bc

Lesson Plan

Advance Setup

- Select plots and place hula hoops with plot numbers
    - Ensure that plot selection supports the intended results of the lesson to illustrate concepts
    - Select plots along trails to minimize disturbance in the park

Classroom – Introduction (10 minutes)

- Introduce myself
- Pre-assessment: ask if any students know what an invasive species is, if yes have them explain
- Explain non-native species
    - Plants get moved around naturally (wind, water, etc.)
    - Humans move them much farther and faster than natural (ships/airplanes, on hiking boots, for gardens etc.)
    - **Non-native species are not naturally found in an area – "imported"**
- Explain invasive species
    - Some non-natives don't survive well (too hot/cold, too wet/dry)
    - Others are very successful because they **don't have natural predators or diseases** (e.g., no insects to eat leaves, not appealing to herbivores) and **good at spreading/reproducing**
    - Results in them taking over – "competitive"
- Learn about English Ivy, originally from Europe – pass around sample
- Instructions of what will happen in park, including:
    - Overview of worksheet (mention that different mosses count as other species)
    - Stay on trails/minimize impact

Park Verdun (35 minutes)

- Walk over to park
- Start at plot #1 and show general route
- Students rotate around plots – note if ivy present and count # of other species in each plot
- Group at meeting point when finished
- Walk back from park

Classroom (15 minutes)

- Compile results on board for each plot
    - Show of hands – ivy present (Y/N)?
    - How many non-invasive present – count up and have students raise hand at number they got
- Using the numbers we find, discuss how invasive species decrease number of other species (relate to concept of biodiversity)
- Summary of key points

Clean up (Katie)

- Remove plots from park

Lesson Adaptations

This lesson could be adapted for older students by:

- Carrying out the project in an area with higher plant diversity
- Having students identify the native plant species (pairing the project with learning plant structures and identification)
- Analysis of collected data – could be basic (calculation of means) or advanced (statistics, such as t-tests)
- Relating findings to other ecological concepts (e.g., competition) in more detail – likely paired with other lessons

This lesson could be adapted for younger students by:

- Labelling or colour coding plots as having invasive species or not having invasive species and having students simply count the number of plants