The trees in my neighbourhood

The trees in my neighbourhood is a pedagogical scenario designed for Québec Secondary Cycle One (7th grade) teachers and students. Its objective is to develop a sense of ecocitizenship by encouraging critical thinking and action. It is also a continuation of the virtual exhibit *Trees Inside Out.* The subject area targeted is science and technology.

The trees in my neighbourhood aims to understand the connections between trees and quality of life. The knowledge acquired over the course of these activities helps appreciate and analyze the environment of trees near school and home. Students build on this in the final activity by performing an eco-act: plant a tree after having studied its requirements, the function to be attributed to it and the characteristics of the planting location.

The scenario is comprised of five modules divided into several activities related to the Québec Education Program (see below):

Module 1: *I identify the trees around me* – 4 activities – 2 hours 45 minutes
Module 2: *My tree can multi-task* –3 activities – 4 hours 30 minutes
Module 3: *Trees and stress* – 3 activities – 2 hours 15 minutes
Module 4: *Each tree has its own soil requirements* – 2 activities – 1 hour 45 minutes
Module 5: *Plant a tree* – 2 activities – 1 hour 45 minutes

Although global progression is suggested, each module can be used independently.

Links to the Québec Education Program

Target audience: Secondary Cycle One
Subject area: science and technology
General objectives:
- Measure the impact of trees on our quality of life, and become aware of their presence
- Develop scientific thinking by initiation to research protocol
- Provide basic knowledge about the connection between trees and their environment

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Cross-curricular competencies

CCC1: Use information

CCC3: Exercise critical judgment

CCC4: Use creativity

CCC5: Adopt effective work methods

CCC6: Use information and communication technologies

CCC9: Communicate appropriately

Competencies in the subject area of science and technology

SAC1: Seek answers or solutions to scientific or technological problems:

- define a problem
- choose an investigation or design scenario
- carry out the procedure
- conduct an experiment
- analyze the results or solution

SAC2: Make the most of knowledge of science and technology:

- understand how technical objects work
- understand natural phenomena

SAC3: Communicate in the languages used in science and technology:

- participate in exchanging scientific and technological information
- divulge scientific or technological knowledge or results
- interpret and produce scientific and technological messages

Strategies, techniques, attitudes

Strategies: explore various ways of solving the problem, use different tools for recording information (for ex. diagrams, notes, graphs, procedures, logbook), use tools to display information in various formats (data tables, graphs or diagrams), use various means of communication (for ex. oral presentation, written presentation, Web page)

Techniques: use measuring instruments, use observational instruments

Attitudes: curiosity, attentiveness, team spirit, interest in comparing ideas with those around them, receptive to original solutions, intellectual rigor, objectivity, methodical approach to one's work, willingness to cooperate effectively with others, respect for life and the environment

Summary of the pedagogical scenario
The trees in my neighbourhood

In Module 1, students learn to use an identification key. They use this tool and their knowledge in Module 2 to understand the impact of trees on the environment. They fill out a questionnaire and take measurements. Module 3 addresses the influence of the environment on the tree and the diseases that can have an impact on it. In Module 4, they study soil textures and link them with the requirements specific to each species. In Module 5, students identify one or several species of trees to plant in the location they have studied, and get their hands dirty!

Description of the modules

Module 1: *I identify the trees around me* − 4 activities − 2 hours 45 minutes
Students learn to use a tree identification key through several activities that can be carried out in the schoolyard or in the classroom. After covering the basic concepts of taxonomy and binomial nomenclature through a set of observations, a series of questions and a discussion session, students understand the need to classify trees according to genus and species. A game helps them realize the importance of morphological criteria for identifying trees correctly. Ultimately, they are able to understand the use of an identification key through its application in the schoolyard.

Module 2: *My tree can multi-task* − 3 activities − 4 hours 30 minutes
Students discover the role of trees in relation to their environment. First, they become aware of the beneficial effects of trees on our quality of life, through a small urban planning project. They then fill out a questionnaire, and, as a homework assignment, ask their acquaintances to complete it as well. With the help of a series of measurements and observations made outside in the schoolyard or along the street, and in a park or wooded area, students use the results of their observations and the questionnaire to reach the correct conclusions.

Module 3: *Trees and stress* − 3 activities − 2 hours 15 minutes
Students discover the influence of the environment on tree development, and the diseases that can affect it. After identifying different stresses and establishing their relationship with tree physiology, students head outdoors to diagnose trees along the street. In a discussion session, they debate the question of whether the diseased trees should be cut down, treated or left on their own.

Module 4: *Each tree has its own soil requirements* – 2 activities – 1 hour 45 minutes
Students become familiar with the types of soil texture and relate them to the tree's needs. In the first activity, they perform a tactile test to identify soil texture. In the second activity, they use measurements to verify their observations. Finally, they link each soil texture to the tree species that can adapt to it. They recommend a species to be planted, as a function of the texture of the soil near the school (in Module 5 – optional).

Module 5: *Plant a tree* – 2 activities – 1 hour 45 minutes
Students determine which tree species they wish to plant at the location they have selected based on various criteria. They follow planting steps and fill out an **experiment worksheet** to consolidate what they have learned.