



THE UNIVERSITY OF BRITISH COLUMBIA

Faculty of Education

Master of
Educational
Technology
Program



iTree- Investigating the Value of a Tree Inclusive Makerspace Challenge

Indigenous Education and Environmental Sustainability

Overview of the challenge

Design thinking tasks promote problem solving, critical thinking, and creativity. This task is a challenge where you are to use the materials provided to design and build a new chair for students. Work together collaboratively and begin by brainstorming ideas for a possible solution. You have to build/construct your design

Materials and Resources Required



Supporting Texts for this Maker Challenge

- a. Dr. Seuss. (1999). [The Lorax](#). Random House.



- b) Silverstein. S. (1964). [The giving tree](#). Harper & Row.



Inclusive Maker Challenge Instructions

“Are we recognizing that the very principles that are shaping how we are creating the 21st Century Makerspace learning environments are those

same principles that have guided the indigenous peoples for centuries, the very principles and values that were taken from them when traditional school was created?” [Zoe Branigan-Pipe, Indigenous Worldviews Inspires THIS classroom MAKERSPACE](#) (April 23, 2016)



- [i-Tree Streets](#) (see background information) can estimate the tree’s effect on greenhouse gasses, air quality, and stormwater overflow. Find a group in your area that is conducting a tree inventory with i-Tree Streets. City governments and conservation organizations can collect the data for use at the local level.
- Using the inspiration from the work listed in the background information, your own understanding of Indigenous values, culture, and relationship with the environment, the UN’s sustainability goals, and a maker mindset, use the tools available to design a functioning prototype of an environmentally sustainable tool such as the iTree to measure the value of a tree.
- Alternatively, you may wish to extend on the design of the iTree to perform increasingly complex and necessary functions. Your prototype should consider decolonized perspectives, language, and functions. Further, you want to make sure that it is culturally relevant, appropriate, representative, and inclusive for all peoples and users

Use the lesson plan templates (printable [design planning sheet](#) and [Tinkercad Design Thinking Process](#)- Digital Process) to ‘make’ your sustainability indicator.

Critical Questions for Consideration

- a) What UN Sustainability goals align with the development of your sustainability indicator?

- b) How are you considering Indigenous ways of learning, knowing, and doing in your design?
- c) How have you incorporated Indigenous worldviews vs. Western worldviews and First Peoples Principles of Learning (see the EDIDA frameworks tab of this website) in your design?
- d) What are you planning on making and why?
- e) What problem(s) are you solving?
- f) Why is this a problem?
- g) What audience are you making this for?
- h) How might this item benefit this audience?
- i) What barriers do you foresee having?
- j) What is your plan of execution?
- k) How might you encourage others in your community to encourage sustainable practice?
- l) How does your design consider the value of a tree (or other sustainable factors)?
- m) How might you showcase this item to a global audience?
- n) What are your next steps?

Background/ Additional Information

Investigation of a digital tool, iTree that allows you to measure the value of a tree.

- i-Tree is a Swiss army-knife collection of tools that people can use to measure the impact of individual trees and forests.



- [i-Tree Streets](#) and [i-Tree Pest Detection](#) are two key instruments in the i-Tree collection



- Read Who Speaks for the Trees?



- An imperative need and value in Indigenous ways of learning, knowing, and doing is to create and maintain **Environmental Sustainability**. The UN has also named 17 [sustainability goals](#).



Inclusivity Focus

When introducing this topic you will want to introduce themes around reuse, reduce, recycle, sustainability, classism, marginalization, and oppression and how fast fashion industries are making it virtually impossible for locally owned businesses to flourish. These are sensitive topics and you will want to investigate these themes from a sensitive, responsive, and inclusive lens. Please check your own inherent biases in order to create a safe and welcoming learning environment for all of your students to freely express their ideas and sound opinions pertaining to this topic.

No Tech, Low-Tech, High-Tech Options

No Tech:

- You can utilize and make available the materials listed above

Low Tech:

- Using the materials provided and the program Tinkercad (you can set up your own free account [here](#).)



High Tech:

- Use the Osmo and Tangram pieces to create and build your design. Consider what shapes are used in your design and how these shapes help to create the most innovative chair. You might also print your design from Tinkercad on a 3-D printer.

Extensions

There are endless opportunities for ways to extend the design of the iTree and Environmental Sustainability from an Indigenous lens for all people to enjoy. To share your own ideas and examples, tweet #UBCMETmakerchallenge