CANADA LEARNING CODE

CO_2 Trends with Python

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Duration: 2 hours

LEVEL	SUBJECTS	PROVINCES / TERRITORIES	TOOL
Grades 7-8, 9-12	Science and Technology, Mathematics	Across Canada	Python, Trinket.io

Overview

In this lesson, learners will use Python and the Pygal graphing library to visualize data about one of the most important issues facing our country: greenhouse gas emissions and their relation to climate change.

Prep Work

- Familiarize yourself with Trinket:
  - https://vimeo.com/107443021
- Go through the activity yourself (linked under 'Lesson')
- Optionally: Let the students log into Trinket using Google Accounts, Clever or Edmodo to save their programs easily

Lesson

If your learners are new to Python, begin with this Python Code-Along: "Intro to Computer Science" http://bit.ly/teenslc-python-code-along

Show learners how to navigate Trinket, as done in the video above. Demonstrate how to edit and run code.

Key Coding Concepts

- Algorithms
- Conditional statements
- Functions
- Sequence

Terminology

Library

A bundle of reusable code that allows a programmer to achieve something that would otherwise be difficult or impossible. In this case, easy graphics programming.

Function

A list of statements that can be invoked repeatedly in a program, perhaps changing its behaviour on the basis of

Show learners how to navigate within the course using the arrow keys (top, right).

Guide learners along through the Trinket lesson, or have learners progress at their own pace.

Main activity available at:
http://bit.ly/trinket-data-vis-python
(also linked in the slides)

Assessment

Make a plan for how to access students' work in Trinket. You could sign up for Trinket Connect (https://trinket.io/schools) to collect projects, have students email you class links, or gather project links in a shared Google doc or blog.

Extensions

See "Advanced (Optional) Topics" section of Trinket course for Python extensions.

Reflect on what we learned from this data:

- What stood out?
- What is something new that we learned?
- What questions do we still have?

Brainstorm how your class can take action. What can we do to help (A) spread awareness, or (B) help solve this issue?

"parameters" that are passed in.

Curricular Connections

Data visualization, line graphs, bar graphs, mapping data, environmental studies, cause and effect, carbon emissions, Canadian cities

References

Pygal Documentation

http://www.pygal.org/en/stable/