Earth Day: End Plastic Pollution Lesson Plan

Code can help show the state of the environment

The goal of this Hour of Code lesson is to increase students' awareness of the problem of plastic pollution, and the growing Great Pacific Garbage Patch. Students will create a project to help promote awareness of the Ocean's plight.

If there is time, students could make a video for their project, and add a text message for help the message' impact.

Big Idea Let's use code to build environmental awareness.

Tutorial https://app.vidcode.io/project/end-plastic-pollution

Audience Beginner programmers

Time 1 hour:
10 minutes Engage
40 minutes Exploring the code
10 minutes reflection

Standards

CSTA 1B-AP-09 Create programs that use variables to store and modify data.
CSTA 1B-AP-10 Create programs that include sequences, events, loops, and conditionals.
CSTA 1B-AP-15 Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.
CSTA 1B-IC-21 Use public domain or creative commons media, and refrain from copying or using material created by others without permission.
CSTA 1B-IC-18 Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.

Lesson Plan

Engage — **10 minutes**

Show the Gorilla in the Greenhouse animation:
https://www.youtube.com/watch?v=XV0fP4HuFCo
The animation explains how your trash contributes to the Great Pacific Garbage Patch

Explore — **40 minutes**

Direct students to the tutorial**.** They should go through the instructions in pairs using the sample images.

Extend

Gather the students back together for a class discussion. Put the sample project (or one of the student projects) on the board.

- What aspect of the project does each line of code control?
- What does a loop do? How do you make one?
- What can you use an array for?

Evaluate — **10 minutes**

Group reflection questions:

- Does order matter when you're writing code?
- What did every project have in common? What was different?
- What properties did each team decide to change?
- Why is plastic pollution a problem? What can we do to help?

Sample Solution - https://app.vidcode.io/share/F00S0fNMN4

```
// add a movie
movie = video();
movie.source = "Ocean Turtle.mp4";
tint("green", 20);
exposure(20);

// think of plastic things that get thrown away
var plastic_items = ["🎧", "🏸", "🎮", "⛱", "📸", "🔫", "🛍", "🥏"]

// we need a trash counter to keep track of things
var items_counter = 0;

// loop through the trash to create a garbage patch
while (items_counter <= 20) {
 var emoji = text(plastic_items[items_counter % plastic_items.length]);
 emoji.x = Math.random() * movie.width;
 emoji.y = Math.random() * movie.height;
 emoji.size = Math.random() * 80;
 emoji.rotation = Math.random() * 360;
 plastic_items_counter += 1;
}

// rectangle and text statement for the Great Pacific Garbage Patch
var my_rect = rect(0, 0, movie.width, 70, "green", "clear");
my_rect.opacity = .7;
var statement_text = text("The Great Pacific Garbage Patch", 20, 10);
statement_text.color = "lime";
statement_text.size = 40;

// additional comment
var my_rect = rect(0, movie.height-70, movie.width, 70, "green", "clear");
my_rect.opacity = .7;
var my_text = text("Help End Plastic Pollution Now!", 10, 290);
my_text.color = "lime";
```