CS for All Challenge: Lesson Plan

Big Idea: Programming can help students share big ideas like what a programmer looks like, how coding can change the world & how students would change the world with superpowers.

Module: CS for All Challenge https://app.vidcode.io/project/cs4all

Time: ## 1 hour

15 minutes background
40 minutes coding
5 minutes reflection

Vocabulary

Function, Argument, Type, String, Number, Properties, Variables

Standards

CCSS.MATH.PRACTICE.MP7 Look for and make use of structure.
NGSS Engineering Practice 5 Using mathematics and computational thinking

Background (15 mins)

The basics of JavaScript

JavaScript is a programming language. Since computers don't speak human languages like English or Spanish, we use programming languages to talk to them. JavaScript is the programming language that we can use to talk directly to web pages.

Functions are the main way of getting things done in JavaScript. A function is an action that has a name. Functions are written with parentheses.

blur(50);

Some functions need one or more **arguments** inside the parentheses. This tells the function extra information about what to do.

Every argument has a **type**. In the function call below, "blue" is a string and 25 is a number.

<div align="center">tint("blue", 25);</div>

A **string** is a word or words. Strings are always written with quotation marks.
A **number** is, you know, a number.

Reference: http://www.w3schools.com/js/js_functions.asp

Students can spend part of this time creating a video on their own and uploading it to Vidcode. They can also storyboard their ideas, and choose where they'll put their elements, which include:
- Text
- Graphics
- Emojis
- Filter effects

Code Challenge (40 mins)

Students create projects that answer the questions: What does a programmer look like? How can coding change the world? If you had superpowers, how would you help people?

Follow the "CS for All" challenge. Read the instructions on the left and do what they say. When you've followed all the instructions, click the button to move on to the next part.

Sample Solution:
Students' solutions will differ. Check that they have the right syntax for each filter they've chosen to use.

```
var emoji = text("=)");
emoji.rotation = 25;

var my_text = "I'm a programmer!";
my_text.font = "Oswald";
my_text.y = 45;

tint("purple", 30);
noise(5);
exposure(20);
vignette(30);
```

Reflection (5 mins)

Who's a programmer? ***You are!***

Does code look like you expected? Is it easy, hard, straightforward, confusing?

What is a function? What functions did we use today?

What is an argument? Point out some of the arguments in your code.

What are two types of arguments you used?

What other ways can you use programming to share your ideas with the world?