Lesson 13: Accelerometer

Overview

In this lesson, students will explore the accelerometer and its capabilities. They'll become familiar with its events and properties, as well as create multiple programs utilizing the accelerometer similar to those they've likely come across in real world applications.

Purpose

This lesson gives students an opportunity to work with the accelerometer sensor and explore its orientation properties and accelerometer-specific board events. Students will see the purpose and uses of an accelerometer in real world devices and programs and create their own versions of some of these applications. To do this, students will need to refer back to their past knowledge of the counter pattern to create functional accelerometer-based apps.

Assessment Opportunities

1. **Recognize the use and need for accelerometer orientation (pitch and roll).**

   Wrap Up: Students should mention several real world applications for the accelerometer.

2. **Use the data event to continually update an element's properties.**

   Code Studio: see rubric on bubble 7.

Agenda

Warm Up (5 minutes)
What Makes a Sensor?

Activity (35 minutes)
The Accelerometer

Wrap Up (5 minutes)
Journal

Objectives

Students will be able to:

- Recognize the use and need for accelerometer orientation (pitch and roll).
- Use the data event to continually update an element's properties.

Links

Heads Up! Please make a copy of any documents you plan to share with students.

For the teachers

- **Accelerometer Events** - Resource
- **CSD Unit 6 - Physical Computing** - Slides
- **The Accelerometer** - Resource

Introduced Code

- `accelerometer.getOrientation(orientationType`

Teaching Guide

Warm Up (5 minutes)

What Makes a Sensor?

Prompt: Refer back to the analog sensors, what makes a sensor a sensor? Could an accelerometer be a sensor?

Discussion Goal

Students have been exposed to sensors in previous lessons but have only seen a few aspects of what a sensor can measure. This discussion gives students a chance to think about the characteristics of a sensor, while also thinking about the other possible characteristics of a sensor they haven't been exposed to.

Share: Have students share their thoughts and ideas in small groups.

Activity (35 minutes)

The Accelerometer

Transition: Send students to Code Studio.

1-4 **Orientation**

1 2 3 4

5-9 **Accelerometer Events**

5 6 7 8 9

Assessment Opportunity

Level 7: You can use this level as a formative assessment for students. Click inside the level to view a rubric and leave feedback to your students

Wrap Up (5 minutes)

Journal

Prompt: What are some uses for pitch and roll in an everyday app?

Assessment Opportunity

Students should think of several applications for the accelerometer, explaining how knowing the pitch and roll could be useful.