Lesson 5: Board Events

Overview

This lesson transitions students from consider the Circuit Playground as strictly an output device towards using it as a tool for both input and output. Starting with the hardware buttons and switch,sing the hardware buttons and switch, students learn to use `onBoardEvent()`, analogously to `onEvent()`, in order to take input from their Circuit Playgrounds.

Purpose

This lesson marks the transition from using the board solely as an output device to using it for both input and output. The `onBoardEvent()` block works much like `onEvent()`, with the most significant different being that the first parameter is a board object (a variable) while `onEvent()` takes a UI element ID (a string).

Assessment Opportunities

1. **Attach an event handler to a hardware input**

   Code Studio: See rubric on bubble 3.

2. **Choose the appropriate event for a given scenario**

   Wrap Up: Students should describe different scenarios that would be more appropriate for different events.

Standards

Full Course Alignment

CSTA K-12 Computer Science Standards (2017)

- ▶ **AP** - Algorithms & Programming
- ▶ **CS** - Computing Systems

Agenda

Warm Up (5 minutes)
Board Inspection: Inputs

Activity (35 minutes)
Taking Input from the Board

Wrap Up (5 minutes)

Objectives

Students will be able to:

- Attach an event handler to a hardware input
- Choose the appropriate event for a given scenario

Links

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

For the teachers

- **CSD Unit 6 - Physical Computing** - Slides

For the students

- **Board Events** - Resource
- **Physical Input** - Resource
- **Physical Output** - Resource

Introduced Code

- `buttons`
- `isPressed`
- `onBoardEvent(component, event, callback)`
- `toggleSwitch`
- `toggleSwitch.isOpen`

Teaching Guide

Warm Up (5 minutes)

Board Inspection: Inputs

Distribute: Pass out a board and USB cable to each pair of students. Let students know that they should not yet plug the boards in.

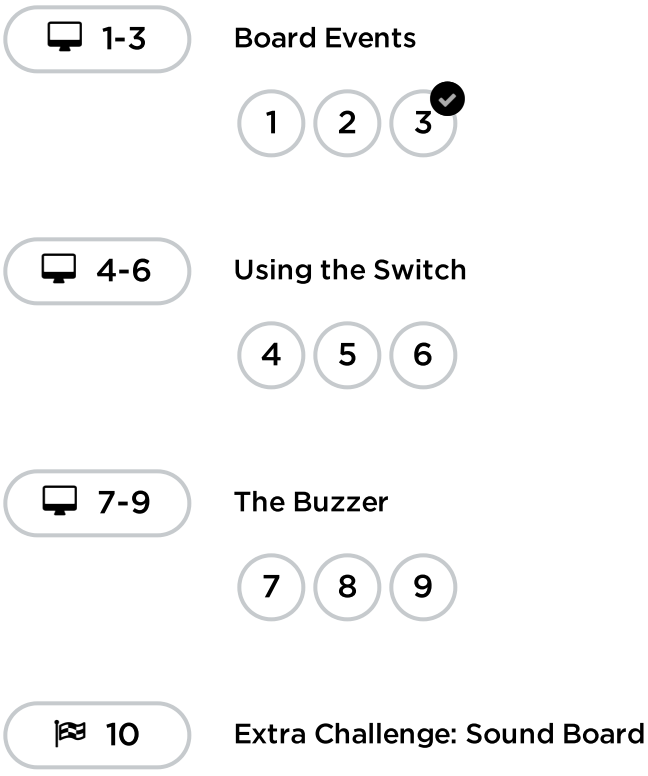
Prompt: Ask pairs to spend one minute looking over the board, focusing on potential input devices. Based on what you already know about this board, how do you think you might use it to get input?

Share: Have groups share back their thoughts to the whole group, keeping track of ideas on the board. Push students to support their ideas with evidence from reviewing the board, but don't worry about ensuring correctness at this point.

Activity (35 minutes)

Taking Input from the Board

Transition: Send students to Code Studio.



Wrap Up (5 minutes)

Journal 3-2-1:

1. What are three types of board events you have seen so far?

2. Describe two different situations and how they would need two **different** events.
3. What's one other event you haven't learned yet, but you think might exist?

Assessment Opportunity

Students should make reasonable choices for when one board event might be better than another. You may want to have a short class discussion before or after this journal prompt to highlight the advanages and disadvantages of each event type.