Making a Doorbell

Description:

Making a doorbell with littlebits.

Objective(s):

1. Students will discuss how and why doorbells work.
2. Students will utilize the Engineering Design Process to build a working doorbell and then improve upon their design.

ISTE/NGSS Standards:

1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

3d: Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions

4c: Students develop, test and refine prototypes as part of a cyclical design process.

MS-ETS-1.1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS-1.2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

Essential Question(s):

How do you make circuits work using inputs?

Materials:

- ➢ littleBit STEM kit
- ➢ Engineering Design Challenge Graphic Organizer

https://docs.google.com/document/d/1UYqqzT3aMgdNVb6-zog02Q4mY686WuM-2iHSEfsyLps/edit

Do Now:

How does a doorbell work? Write a few sentences describing how you think a doorbell might work.

Lesson:

1. Class will work individually or in small groups (2-3 students).
2. Class will discuss what are the important elements you might need when building a doorbell.
3. Each group will attempt to build a doorbell using the materials in their littleBits kit.
4. Once built, students should work to make an improvement to their doorbell - how could it be better? Or, how could you use it for something else?

Closure:

1. Students will complete reflection section of Graphic Organizer.
2. Class will work together to put away littleBits.

Extension:

Students will use their doorbell as a template and build an alarm system that alerts when someone is nearby instead of when a button is pushed.