

Electric Pinball

Have you ever played a Pinball game at the arcade? Use your kick stick from December 19th to create your own version of the popular game with a Ping Pong ball. Design a buzzer to sound when you hit your target!

TEKS:

4.6C Demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field.

4.6D Design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

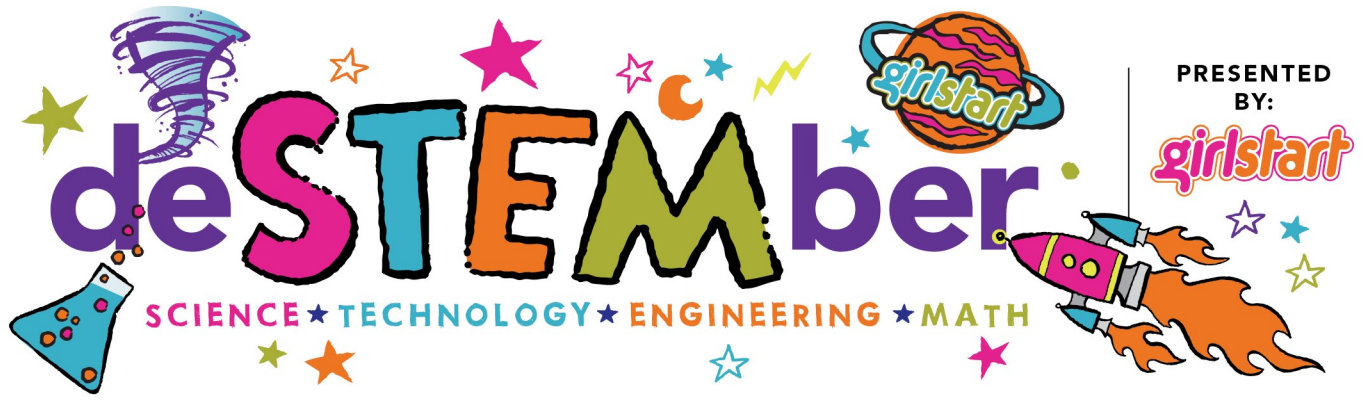
Materials:

- 3 oz. paper cup
- 9V battery and holder
- Aluminum foil
- Buzzer
- Duct tape
- Hook-up wire
- Kick stick from December 19th
- Paper clips
- Ping pong ball
- Scissors
- Shallow cardboard box (top of copier-paper box)
- Wire strippers

How To

1. Connect the battery, battery holder, wires and buzzer to test the buzzer. All wires must be connected to create a closed circuit and so the buzzer will buzz.
2. Think of the game that you want to play. How do you want to sound the buzzer? How can you create a switch so the buzzer buzzes when the ball hits the target? (Ideas for the target, a sheet of foil hanging down, which can be pushed into contact with wires or paper clips when the ball hits the foil. A ball could also be wrapped in foil, and could contact other foil to close the circuit).

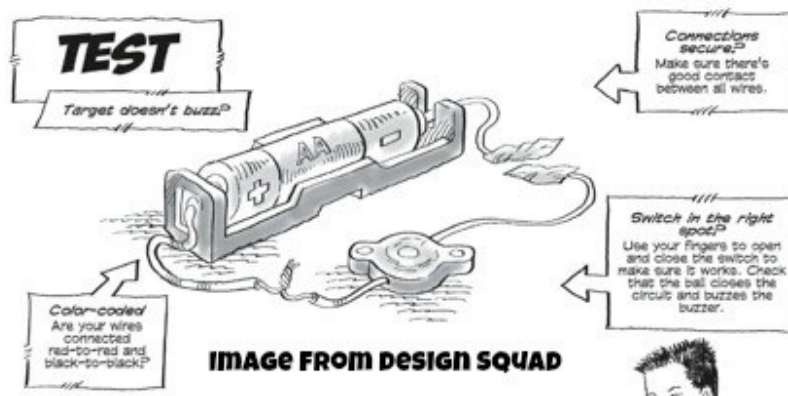
31 Days of STEM FUN!



Electric Pinball

Why Does it Work?

The buzzer only works when the leads are connected red to red and black to black. This is because, to work, a buzzer uses an internal electromagnet. If the current runs the wrong way, the electromagnet doesn't work and the buzzer can't buzz. For the switch to work and the buzzer to buzz, the metal conductors need to touch and contact each other to close the circuit.



Career Connection:

Electrical Engineers study electricity and the equipment to generate and distribute power through the control of machines and communication.

Resources: Pbs.org/designsquad

31 Days of STEM FUN!

www.destember.org | #deSTEMber | © 2013 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart