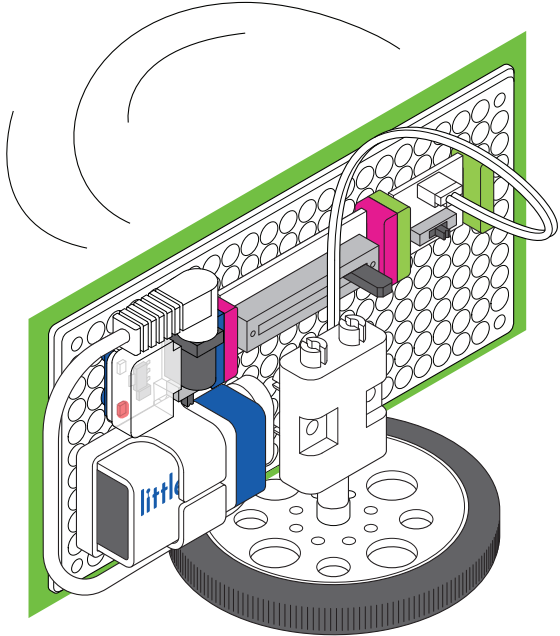


ENVIRONMENTAL SIGN



GUIDED

DESIGN CHALLENGE

Design an activation system that displays an environmentally conscious sign to park visitors.



WRITE

EXPLORE

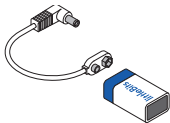
- Complete Writing Box #1.



CREATE

CREATE

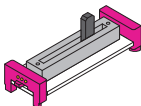
1. Gather your invention tools.



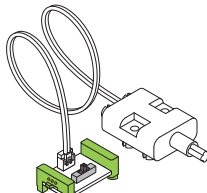
a1 battery & cable



p4 power



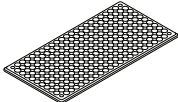
i5 slide dimmer



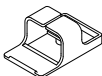
o25 DC motor



a25 wheel



a26 mounting board

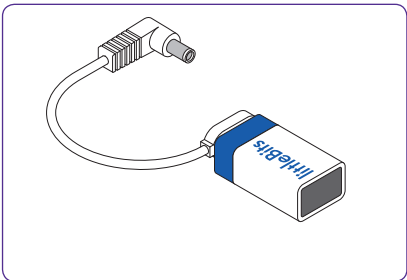
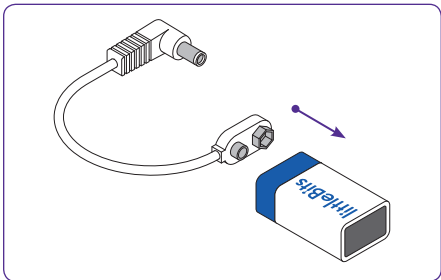


a31 battery clip

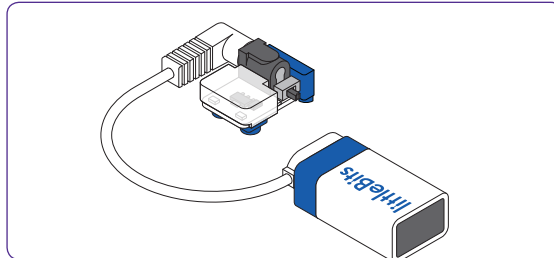
Other materials:

- Construction/colored/ cardstock paper
- Markers/drawing materials
- Tape/glue
- Scissors
- Optional: Decorating materials (stickers, glitter, etc.)

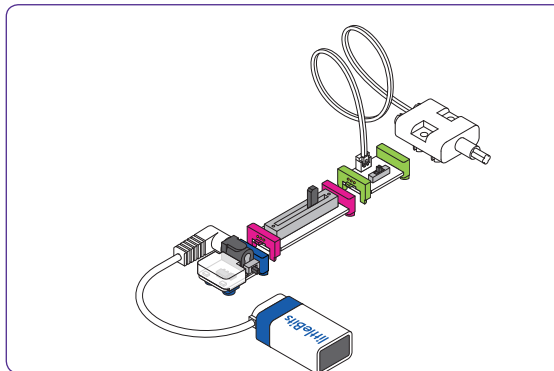
2. Attach the battery cable to the battery.



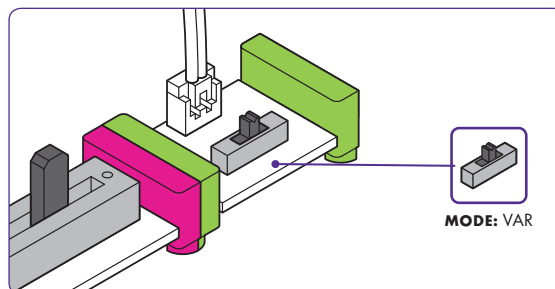
3. Attach the p4 power Bit to the battery cable assembly.



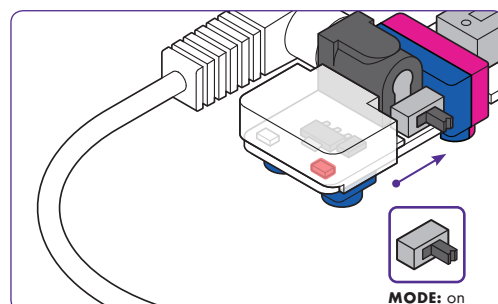
4. Snap this circuit together.



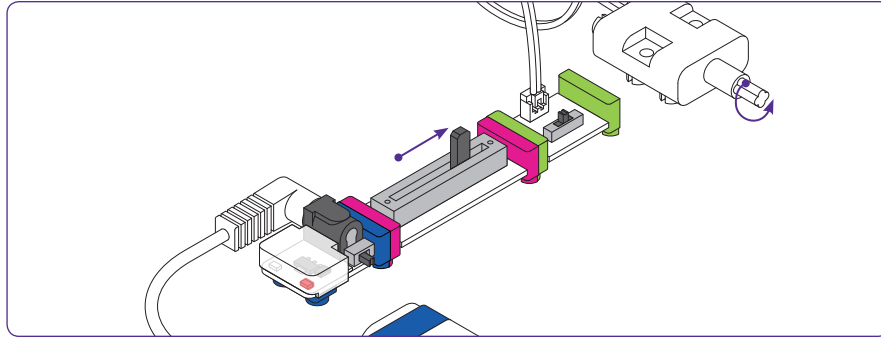
5. Set the DC motor to "var" (variable mode).



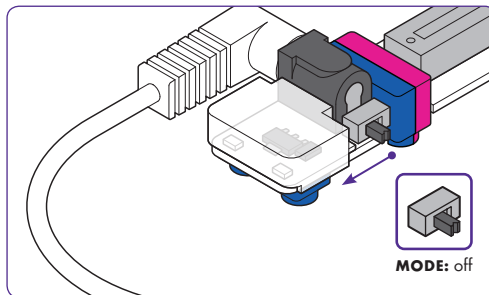
6. Let's test that your circuit works! Power on your circuit.



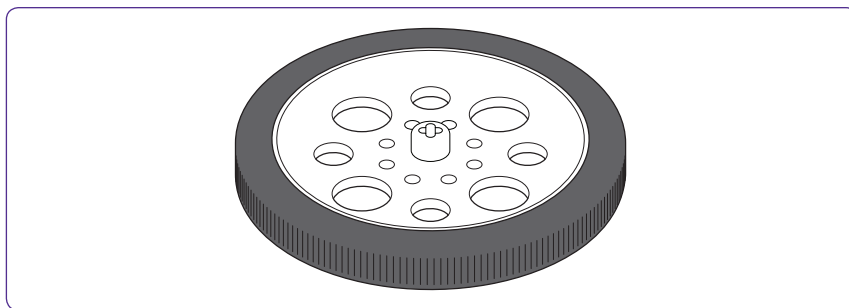
7. Slide the dimmer to the right. The DC motor shaft should spin.



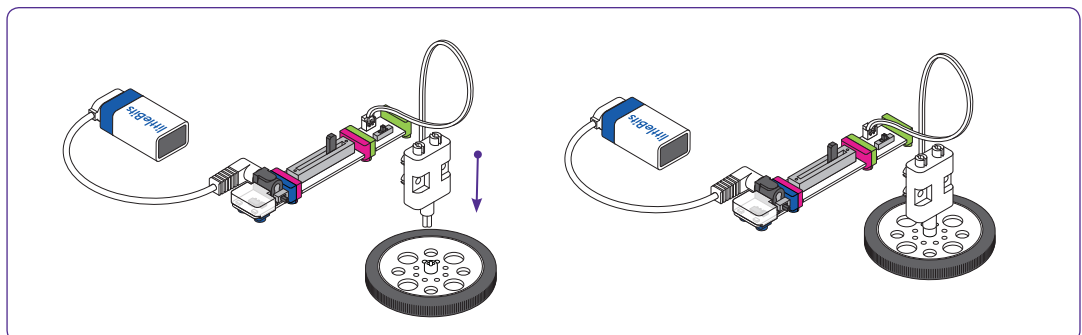
8. Power off your circuit.



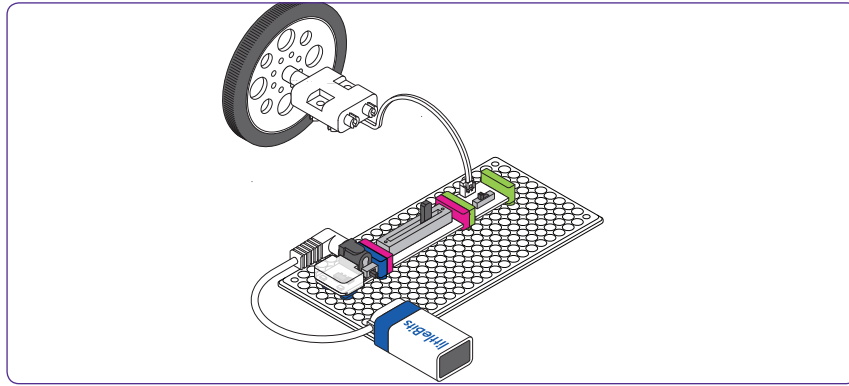
9. Now pick up a wheel and lay it on the table with the longer axle side facing up.



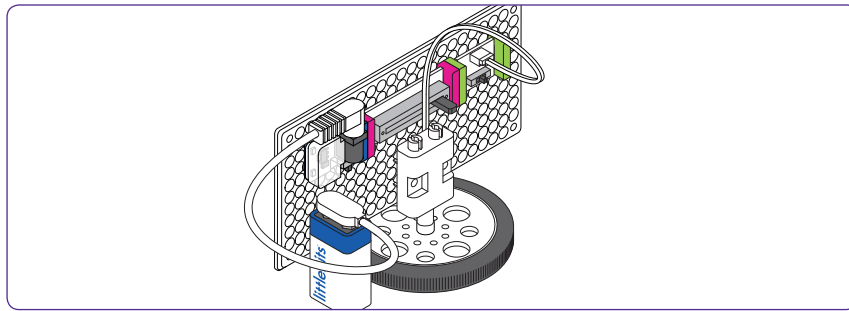
10. Line up the DC motor axle with the cross shape of the wheel and gently press.



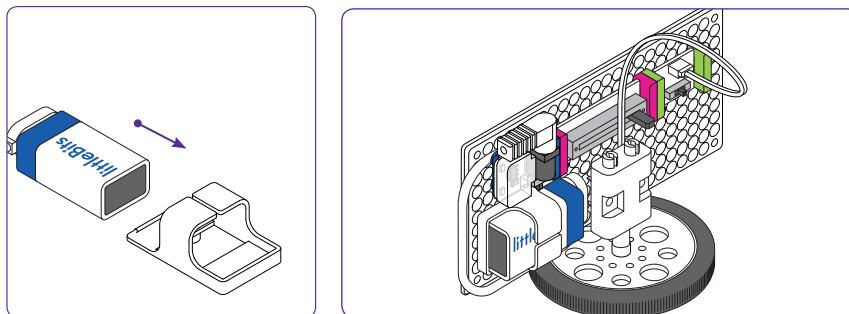
- 11.** Press your circuit onto the mounting board.



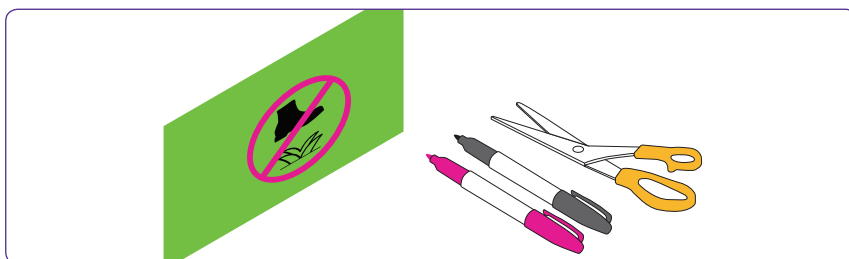
- 12.** Press your DC motor onto the edge of the mounting board.



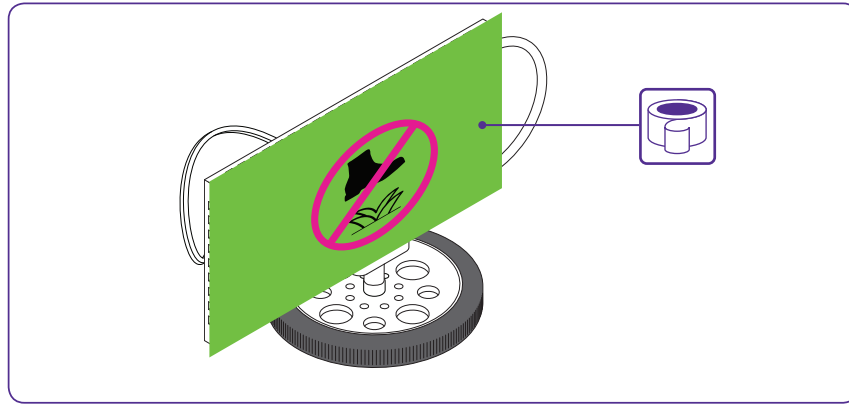
- 13.** Slide your 9-volt battery into the battery clip. Press your battery into the mounting board.



- 14.** Now it's time to create your sign! Customize your message using classroom materials, like construction paper, tape, scissors, pipe cleaners, balsa wood etc.

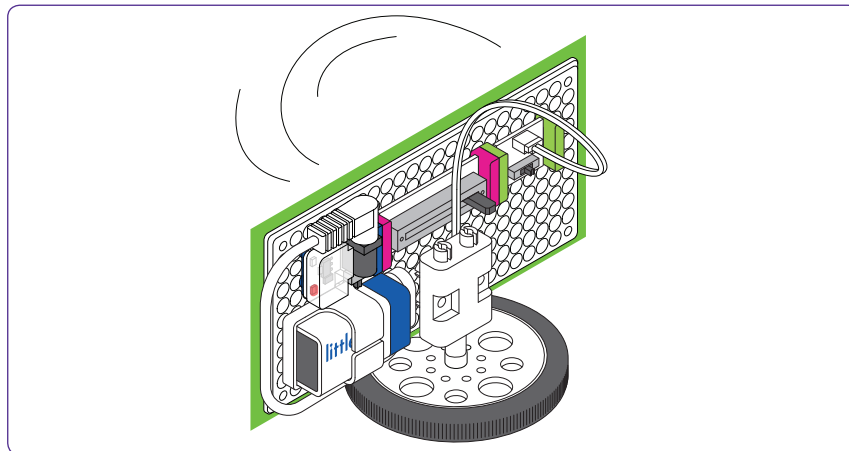


- 15.** When your sign is designed, tape it to the empty side of the mounting board.

**PLAY**

PLAY

- 16.** When your sign is ready, place your sign on the table (with the wheel flat on the table), turn on the power Bit and move the slide dimmer to set the direction and speed.

**REMIX****WRITE**

REMIX

- Complete Writing Box #2 in your guided handout.
- If time allows, try out your ideas!



REMIX



WRITE

SHARE

- Complete Writing Box #3 in your guided handout.



CLEAN

CLEAN UP

- **Until next time, littleBits!** Place the Bits gently back in the box according to the diagram on the back of the Bit Index; return classroom materials to their proper place and check the area around your workstation.

littleBits ENVIRONMENTAL SIGN

Name: _____

CHALLENGE OVERVIEW

Let's engineer a sign for park visitors!

GUIDING QUESTIONS TO REACH LEARNING OBJECTIVES

When might people need a sign to remind them to protect nature and stay safe?



CREATE

1. What behaviors should people do in nature parks to be respectful to nature?

What behaviors should people do in nature parks to stay safe?

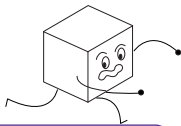


REMIX

2. How could we take our design to the next level? What if we wanted to:

a)...engineer our sign so it spun slower, making it easier to read?





b)...make it stand out even more?

c)...have it only turn on during the day?

try it!



3. Write 2-3 sentences explaining where your sign would be located in a park, and what your sign communicates.

