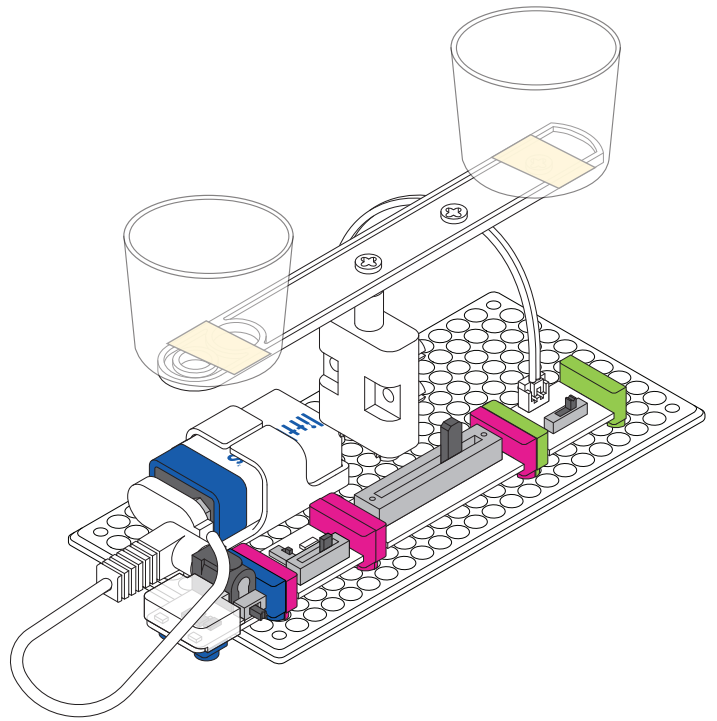


SNACK ROBOT



GUIDED

DESIGN CHALLENGE

Build a robot that serves you snacks while you study!



WRITE

EXPLORE

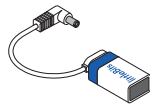
- Complete Writing Box #1 and 2 in your guided handout.



CREATE

CREATE

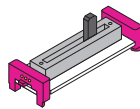
1. Gather your invention tools.



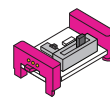
a1 battery & cable



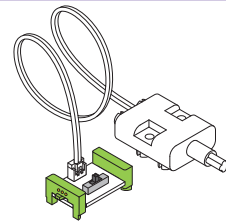
p4 power



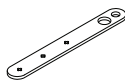
i5 slide dimmer



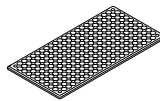
i13 light sensor



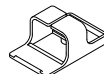
o25 DC motor



a23 mechanical arm



a30 mounting board

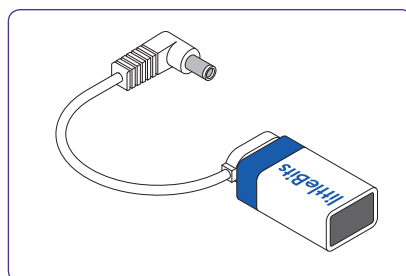
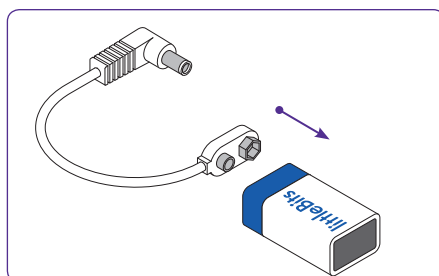


a31 battery clip

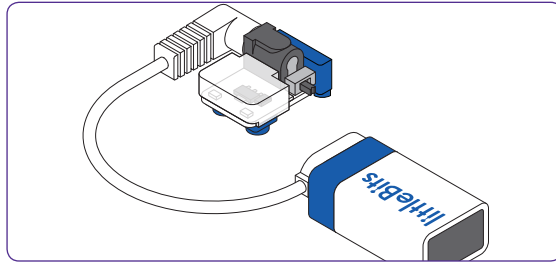
Other materials:

- Small paper cups (2)
- Tape
- Scissors
- Optional: Markers and decorating materials

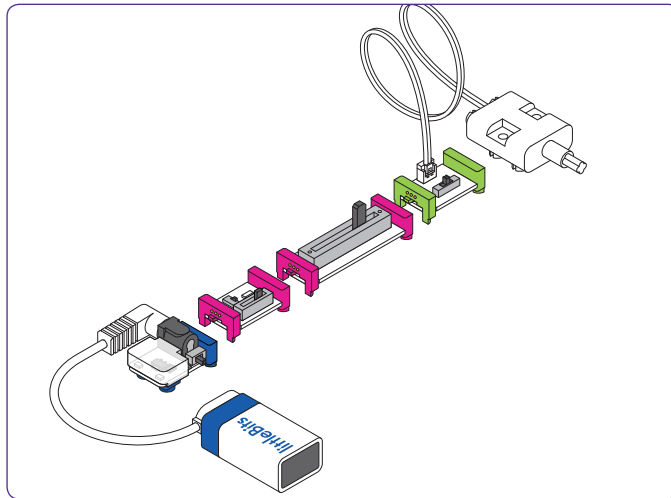
2. Attach the battery cable to the battery.



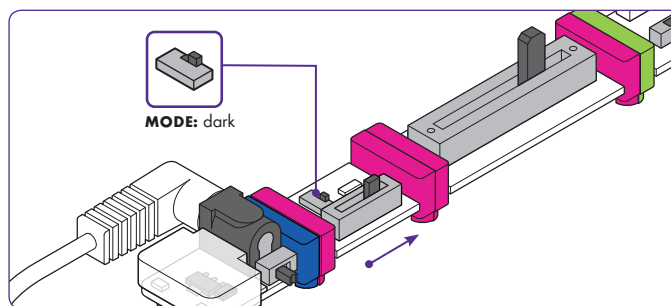
3. Attach the power Bit to the battery cable assembly.



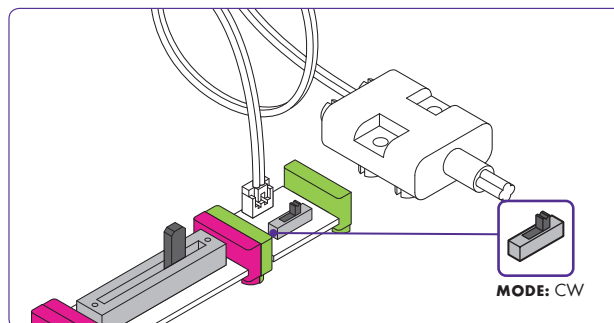
4. Snap this circuit together.



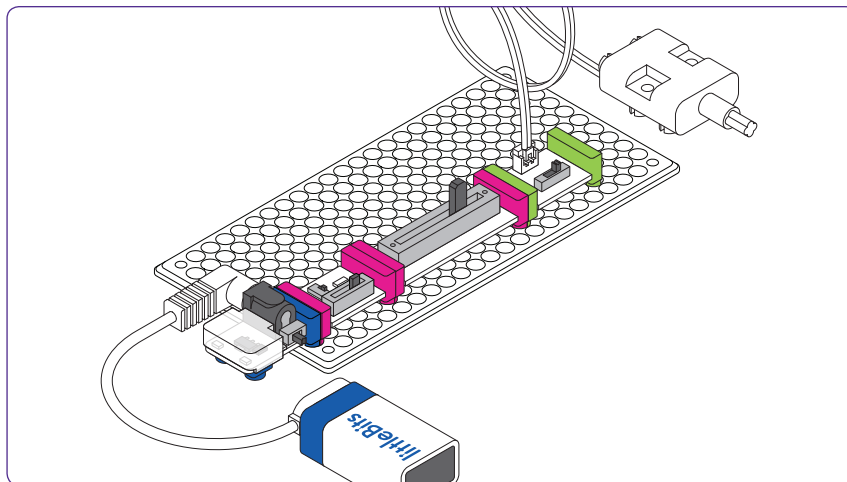
5. Switch the light sensor Bit to "dark" mode and slide the sensitivity towards the "+" sign.



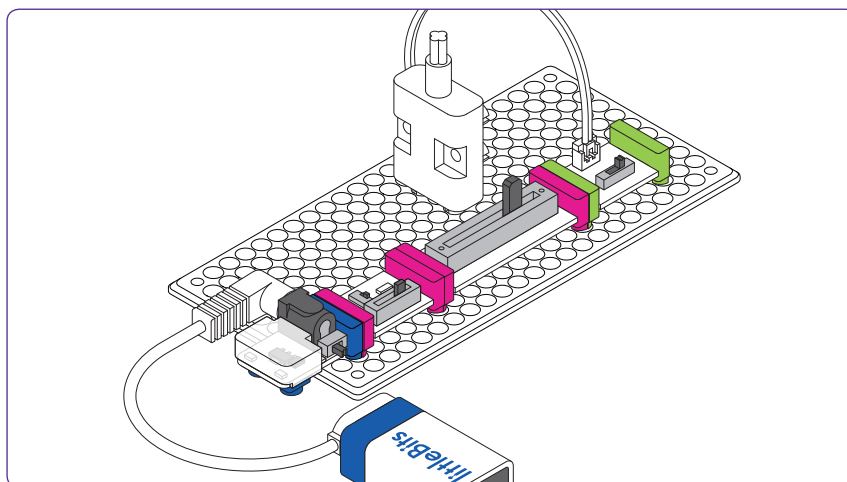
6. Switch the DC motor to "CW" mode.



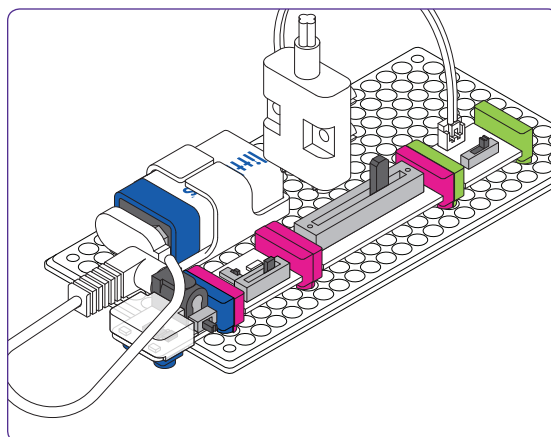
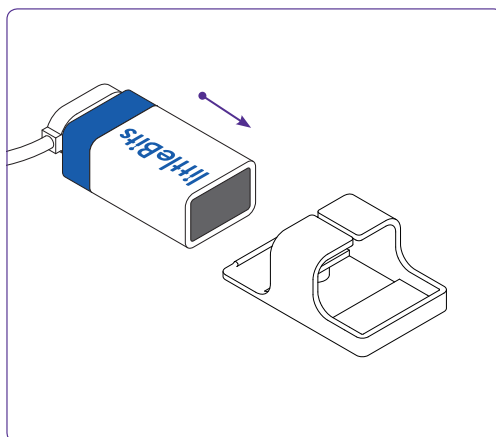
7. Gently press your circuit into a long side of the mounting board.



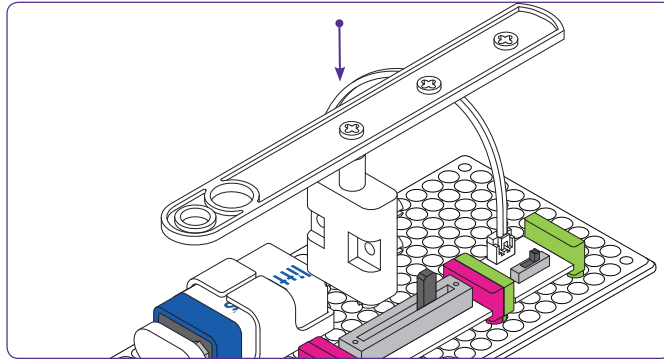
8. Press the DC motor into the center of the mounting board so it stands up.



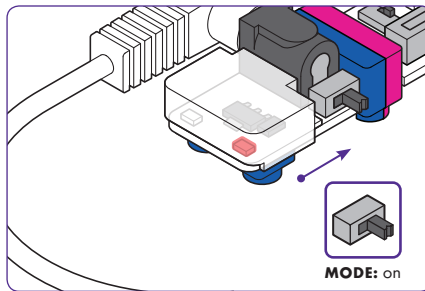
9. Slide the 9-volt battery into the battery clip and press it into the mounting board.



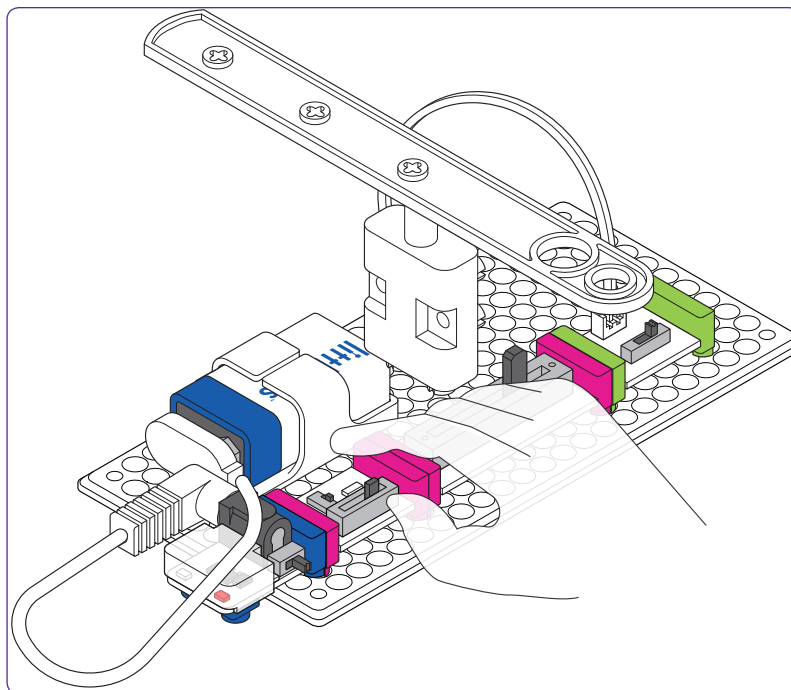
- 10.** Now pick up a mechanical arm and push the center cross hole onto the cross axle of the DC motor.



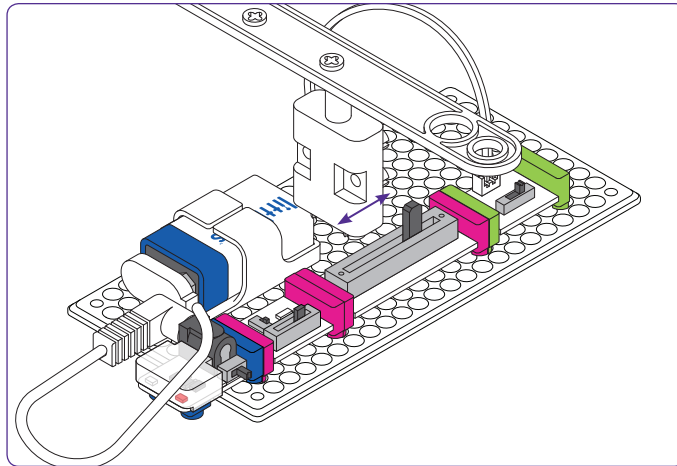
- 11.** Let's test that your circuit works! Power on your circuit.



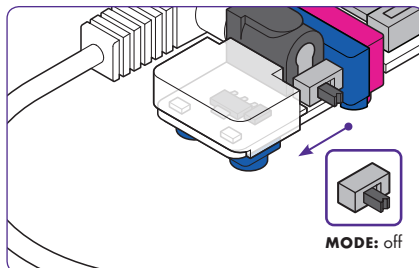
- 12.** When you place your hand over the light sensor Bit, the mechanical arm should rotate.



- 13.** Figure out where the slide dimmer should be set so that the wheel spins slowly but smoothly.

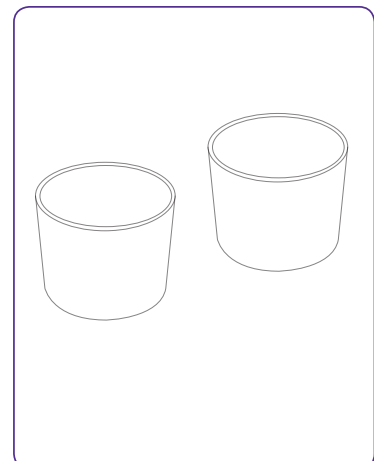
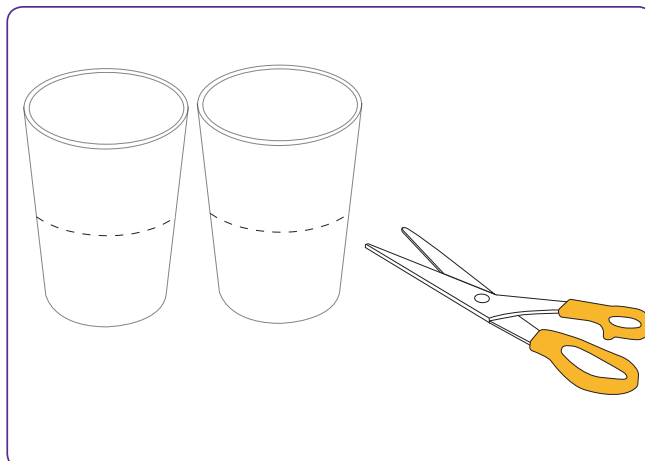


- 14.** Power off your circuit.

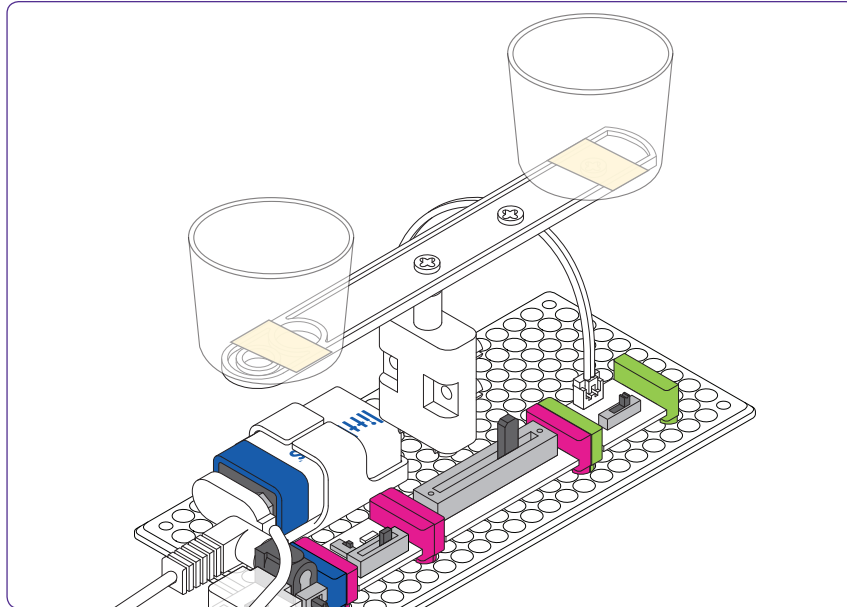


Let's Design our Snack Robot!

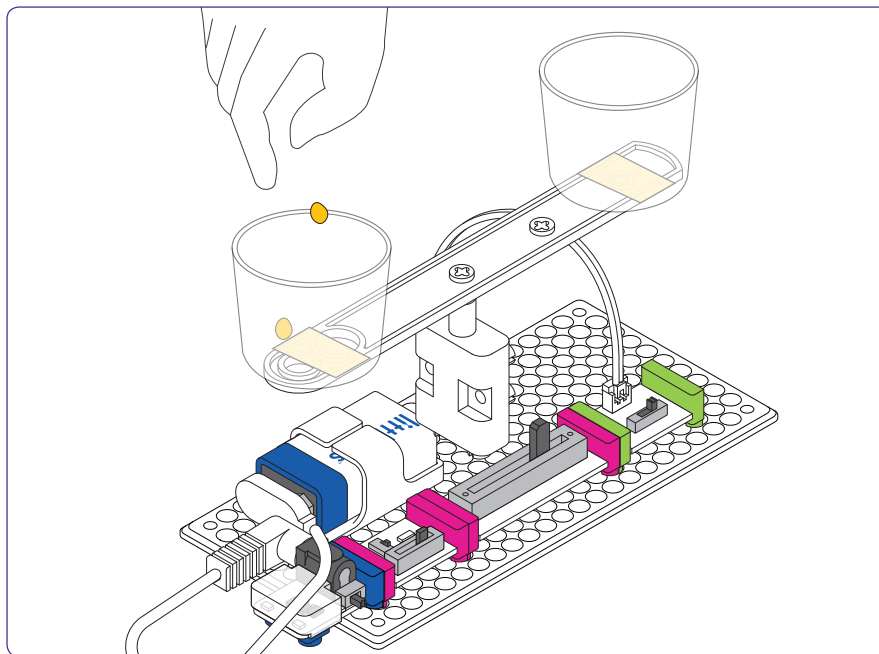
- 15.** Cut the tops off both your cups to create shallow "bowls". If time, label or decorate your bowls to help identify their contents.



- 16.** Tape the bottoms of the cups to the ends of the mechanical arm.



- 17.** If snacks are available, experiment with putting them gently in each cup. If not, use small pieces of balled up paper or other lightweight items to check the balance of your robot.





PLAY

PLAY

- 18.** Power on your snack robot! Experiment with how far away you need to be from the light sensor Bit to activate your robot. How does changing the position of the slider dimmer impact your robot?



REMIX

REMIX

- How could you change your robot to automatically turn on when the lights are turned on? Try it out!
- Complete Writing Box #3 and 4 in your guided handout.



WRITE

CLEAN UP



CLEAN

- **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

SNACK ROBOT

Name:

CHALLENGE OVERVIEW

Let’s build a robot that feeds our minds during study time!

GUIDING QUESTIONS TO REACH LEARNING OBJECTIVES

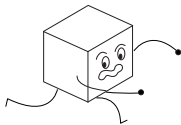
How do we design and build a robot prototype, and how can robots make our lives easier?



1. Write your group’s preferences for doing your homework. What kinds of things or environments help you succeed?

-
-
-
-
-
-
-
-
-
-





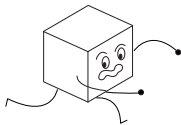
2. Look at the Bits and materials you have for the challenge. Before we start building, sketch how you think our snack serving robot will work.

A large rectangular area with a light blue dotted grid pattern, intended for sketching the design of the snack serving robot.



3. Look back at your sketch above. What’s different in the model you built? Jot down your thoughts in a list.

- _____
- _____
- _____
- _____
- _____
- _____



4. Think back on our list of "Homework Success Preferences" from the beginning of class. Pick one preference and sketch and label some ways that you could remix your robot to perform a new task or solve a problem.

A large rectangular area filled with a light gray grid of dots, intended for sketching and labeling a robot remix.