

T

Tinker

4

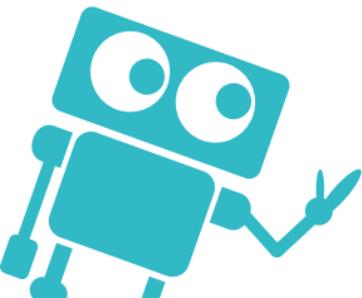
Points

# Chibitronics

## LED Bookmark

Create a bookmark  
that lights up.

MackinMaker



# T

Tinker

# 4

Points

## Materials:

- Chibitronics Chibi Lights LED Circuit Stickers STEM Starter Kit
- Construction paper, tape, scissors, markers and optional hole punch and string (for tassel)

## Quick Start:

1. Cut a bookmark out of construction paper.
2. Create a simple one LED circuit.
3. Draw out your circuit on the bookmark.
4. Lay down circuit tape to make a path to the coin cell battery (leave a gap for the sticker LED).
5. Add the battery, decorate, and add a hole and tassel if you want!

## Hints and Tips:

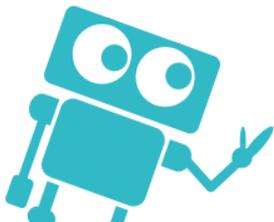
- The Chibitronics site has great video resources to help you, so make sure you watch those at: <https://chibitronics.com/how-to-page/>.
- LEDs have a positive and negative side, look on the sticker for the + and – symbols. Also remember that the top of the coin cell battery is positive, the bottom is negative.

- If your light isn't working, try flipping your battery over to see if your LED light is in reverse.
- If your light is still not shining, make sure your LED has a strong connection and that your foil is flat.
- Make sure your circuit tape is flat, that the connections to all of the components are secure, and that there are no cracks in your circuit tape.

## Extended Challenges

**Art:** Make a bookmark inspired by your favorite artist, painting, or style. How can you incorporate the function of this bookmark with your unique artistic style?

**English/Language Arts:** Create a bookmark representing a specific genre of books (mystery, historical fiction, sci fi, etc.). Add in quotes from your favorite book, or pick a poem to write on your bookmark. For an extra challenge, try to light up a Haiku poem that you wrote.



S

Skill-Up

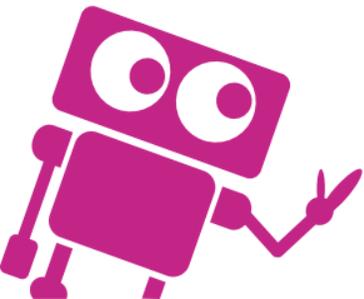
8

Points

## Chibitronics ChibiBot

Design and create a robot that lights up. Can you add multiple lights to it?

MackinMaker



**S**

Skill-Up

**8**

Points

## Materials:

- Chibitronics Chibi Lights LED Circuit Stickers STEM Starter Kit
- Construction paper, tape, scissors, markers other craft materials (optional)

## Quick Start:

- Watch or read the Chibitronics, parallel circuit tutorial to learn the basics at: <https://chibitronics.com/parallel-circuit-tutorial/>.
1. Assemble the materials you will need to make your robot and think about what you want to create. How can you add light to better communicate what is happening with the robot?
  2. Plan out what you will draw it and how you want it to light up.
  3. Draw out your robot and use coloring materials or construction paper to make it colorful and more unique.
  4. Add the battery to test your circuit and add more features as time allows.

## Hints and Tips:

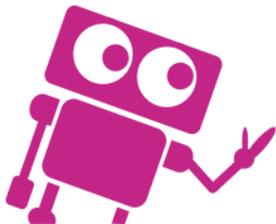
- The sticky side of circuit tape is NOT conductive, so try not to rip and stick pieces together. Instead, use one continuous piece of circuit tape when possible—leaving gaps only for LED stickers.

- Using parallel circuits allows you to light up multiple LEDs at the same time. Think of your circuit like a ladder or train track where one side is positive and the other track or rail is negative. Making a path (or multiple paths like rungs) and adding an LED between the positive and negative rails will light them up. If you want more information, go to the Chibitronics website!
- If your light isn't working, try flipping your battery over to see if your LED light is in reverse.
- If your light is still not shining, make sure your LED has a strong connection and that your foil is flat.
- Make sure your circuit tape is flat, that the connections to all of the components are secure, and that there are no cracks in your circuit tape.

## Extended Challenges

**Science:** Use this activity to explore parallel circuits and electricity flow. Once you master the basic circuit, see if you can learn how to add switches, alternate pathways, or sensors to trigger your LEDs.

**English/Language Arts:** Instead of a robot, choose a character from a story you have read. How can you depict them in a way to best show the character's traits using lights from Chibitronics?



D

Design

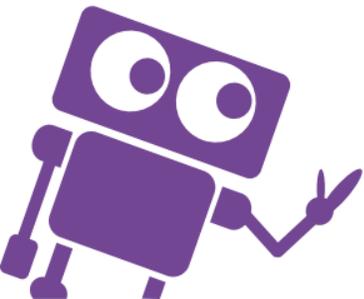
15

Points

## Chibitronics Switching It Up

Design an outdoor scene that includes a switch which turns on at least one star at night.

MackinMaker



**D**

Skill-Up

**15**

Points

## Materials:

- Chibitronics Chibi Lights LED Circuit Stickers STEM Starter Kit
  - Construction paper, tape, scissors, markers and miscellaneous craft supplies
- 

## Quick Start:

1. Gather your supplies.
  2. Plan out your outdoor scene on paper.
  3. Refer to the Chibitronics website for ideas on adding unique switches to your design.
  4. Build, test, experiment, and redesign as needed to make it successful.
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## Hints and Tips:

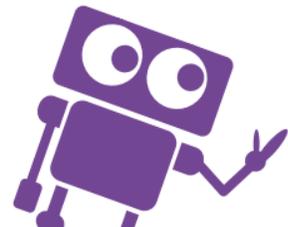
- Innovation takes a lot of trying. So, if your design doesn't work the first time don't be sad, just keep trying, testing, trying and testing some more—engineers call this “iterating.”

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  - If your light is still not shining, make sure your LED has a strong connection and that your foil is flat.
  - Make sure your circuit tape is flat, that the connections to all of the components are secure, and that there are no cracks in your circuit tape.
- 

## Extended Challenges

**Science:** Study a constellation of your choice and include it in your design of the night sky.

**Art:** Embellish your nature design. Can you add any 3D elements to your design?



**G**

Global

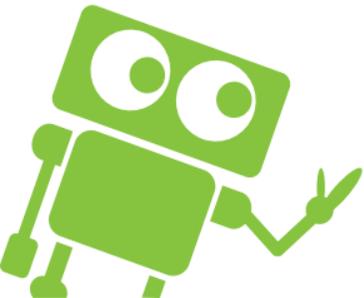
**18**

Points

## **Chibitronics**

### **Country Capitals**

Research a country somewhere in the world or a state in the United States. Do your best to draw that country and design a circuit to make the capital city light up.

**MackinMaker**

## Materials:

- Chibitronics Chibi Lights LED Circuit Stickers STEM Starter Kit
  - Construction paper or poster board, tape, scissors, markers and other miscellaneous craft supplies
- 

## Quick Start:

1. Gather your supplies.
  2. Choose a part of the world to research. Sketch the state or country you chose.
  3. Add in your capital city circuit. Is there anything else you would like to add that you learned through your research? Refer to the Chibitronics website for ideas on adding any unique parts to your design.
  4. Iterate, test, evaluate, and redesign as needed to make it successful.
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## Hints and Tips:

- Innovation takes a lot of trying. So, if your design doesn't work the first

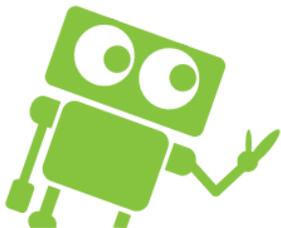
time don't be sad, just keep trying, testing, trying and testing some more –engineers call this “iterating.”

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  - Make sure your circuit tape is flat, that the connections to all of the components are secure, and that there are no cracks in your circuit tape.
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## Extended Challenges

**Geography:** Can you add a pressure switch into your design? Find information on how to make one in the Chibitronics Circuit Sticker Sketchbook.

**English/Language Arts:** Pick a story that you have recently read. Using Chibitronics, create a drawing that helps to represent that story.

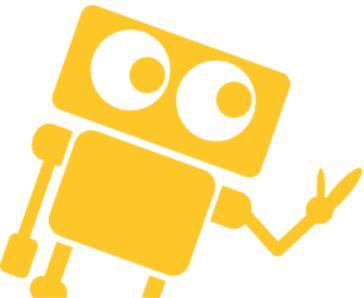


I

Innovator

23

Points



## Chibitronics

### Art Infusion

Invent a way to add lights to an artistic display of your choice. Light up flowers? Or a shadow box? Whatever it is, light up your art to give it that extra flashy pop.

MackinMaker



## Materials:

- Chibitronics Chibi Lights LED Circuit Stickers STEM Starter Kit
  - Construction paper or poster board, tape, scissors, markers and other miscellaneous craft supplies
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## Quick Start:

1. Collect your materials.
  2. Pick an artistic theme.
  3. Review the paper circuit basics (especially if you haven't used them before).
  4. Plan your art and how you'll infuse it with Chibitronics.
  5. Build, test, iterate, and then share with the world!
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## Hints and Tips:

- *Alternate Circuit Tape:* Instead of using circuit tape, try conductive fabric tape instead. Though more expensive, it is easier to work with and is more

forgiving than circuit tape.

- If your light isn't working, try flipping your battery over to see if your LED light is in reverse.
  - If your light is still not shining, make sure your LED has a strong connection and that your foil is flat.
  - Make sure your circuit tape is flat, that the connections to all of the components are secure, and that there are no cracks in your circuit tape
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## Extended Challenges

**Art:** Add in additional art extensions by trying to create a shadow box and a way to trace what is projected. Explore the principles of light and dark: how is it expressed in art?

**Science:** Continue to explore advanced circuit principles. Add in the properties of light waves, or explore the difference between incandescent, LED, florescent, or laser light.

