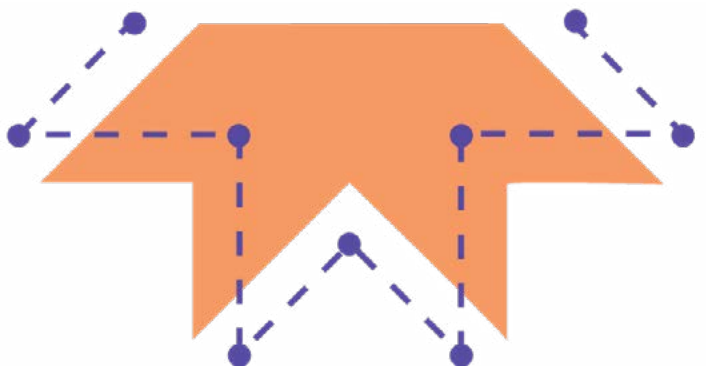
family guide

TECHstyle TALES

Make. Learn. Share.

Explore technology with your family! Learn about circuitry, e-textiles, and programming together—use old and new technology to bring your stories to life.

name



TechStyle Tales Schedule

DAY 1: WHAT DO CIRCUITS HAVE TO DO WITH ME?

Get to know each other

DAY 2: LET'S ALL PLAY ON THE CIRCUIT PLAYGROUND

DAY 3: INPUTS, OUTPUTS & SEWN CIRCUITS

DAY 4: INPUT IDEAS, OUTPUT INNOVATIONS

DAY 5: CELEBRATE OUR LEARNING!

Share your stories, what you learned, and celebrate your community!

Every workshop day will have four sections:

1. SHARING

2. STORYTELLING

3. EXPLORING

4. ACKNOWLEDGING

There will always be food, and you can always take breaks if you need to.

things to remember

Computer login:

Backpack number:

Notes:

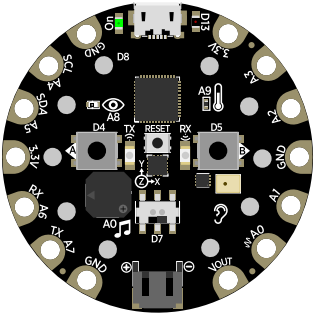
E-TEXTILES KIT

Conductive thread

Sewable LEDs

Coin Cell battery and holder

Sewing needles



Adafruit Circuit Playground Express

Alligator clips

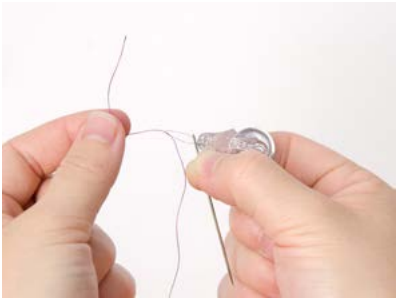
Micro USB cord

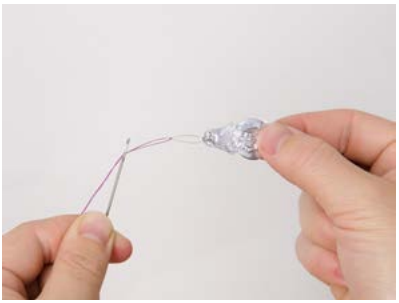
AA Battery holder

For more information, go to
https://learn.sparkfun.com/tutorials/lilypad-basics-e-sewing
and
https://learn.adafruit.com/adafruit-circuit-playground-express/overview

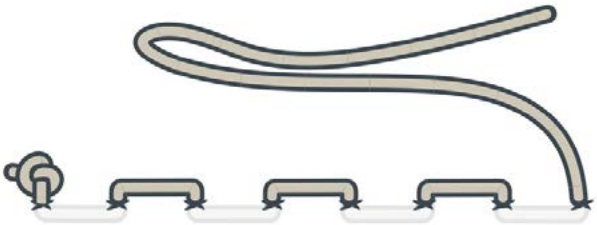
SEWING TIPS

Using a needle threader





Running Stitch



sheet 1

Each family will be making a project based
on a place that is important to them

Where are some places that are important to your family?

Think about different places:

Where is your family from?

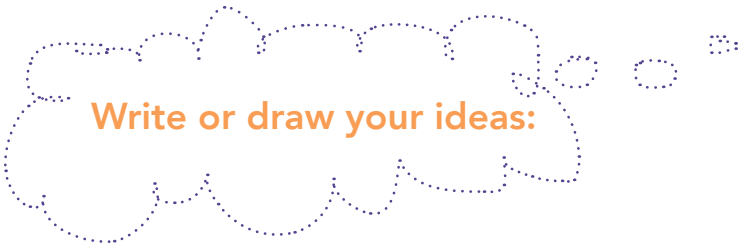
Where do you like to go together?

Where is your home?

Where do you gather with family or friends?

Where does a meaningful story take place?

Is there a room, building, or natural space that is special?


Write or draw your ideas:

sheet 2

Choose one place that is important to your family:

What makes this place important to you?

What is your **experience** in that place?

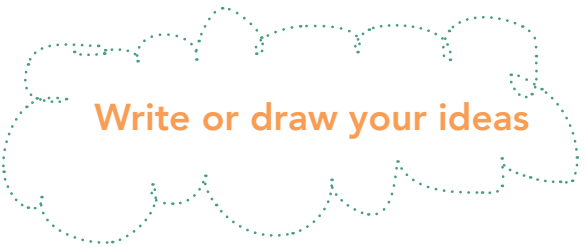
What do you ***smell*** there?

What do you **hear** there?

How do you **feel** there?

What do you **see** there?

What do you **do** when you're there?


Write or draw your ideas

sheet 3

Select a few images that you want to include in your e-textiles project

Discuss with your family:

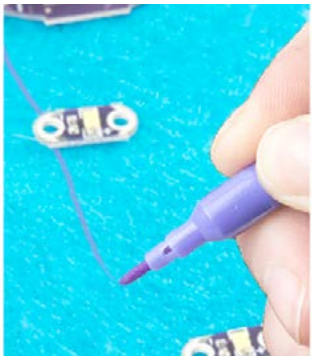
Do you want to tell one story with your project, or do you want to make a collection of memories?

Who wants to make each part?

Who wants to try out something new?
Is there something you want to learn or practice?

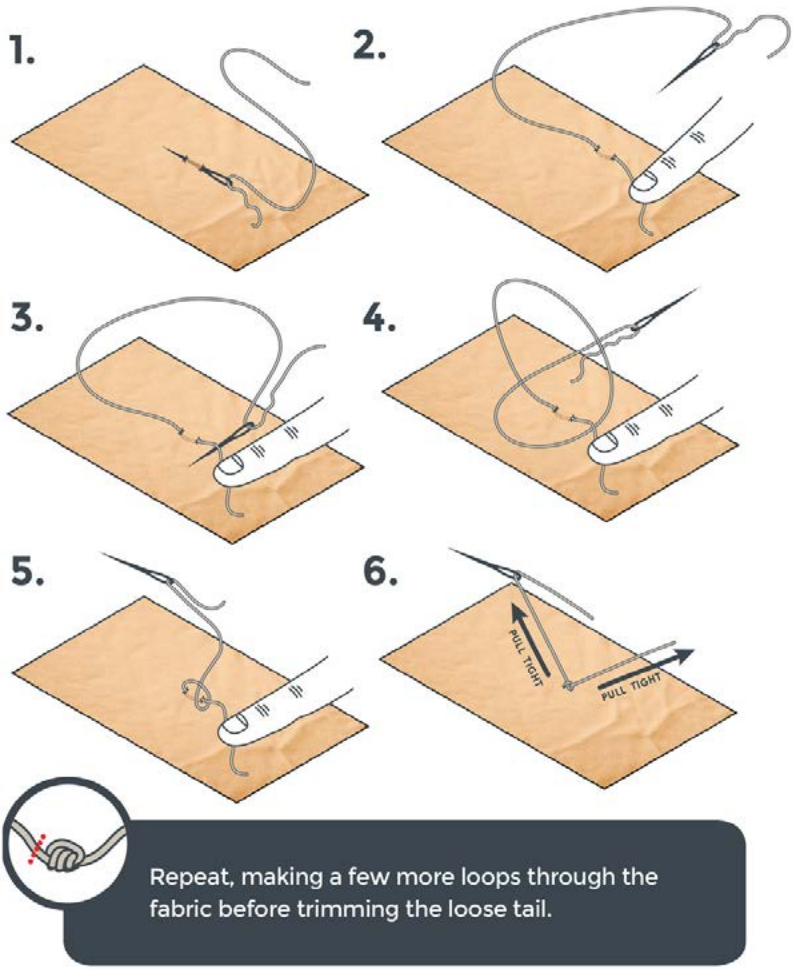
Who wants to do diagramming?
Programming?
Sewing?
What else?

E-TEXTILE SEWING TIPS

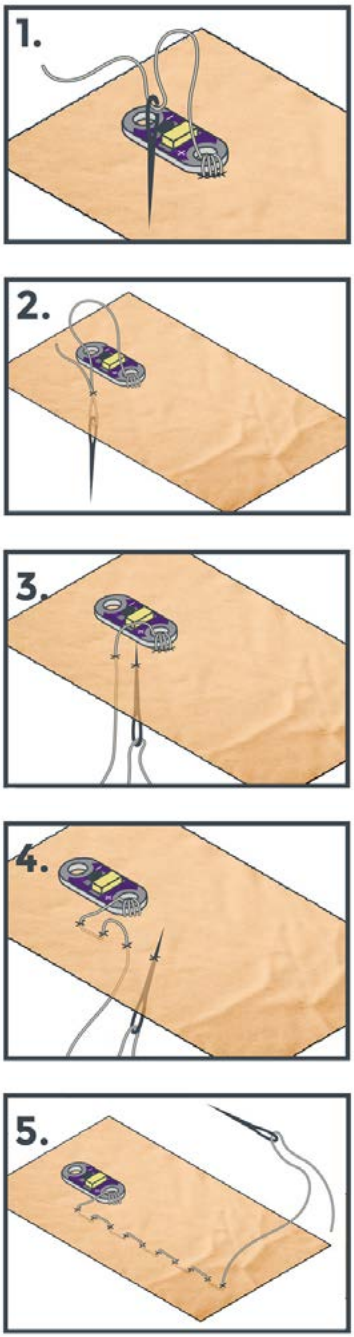


Draw your connections with marker or chalk on your cloth before sewing

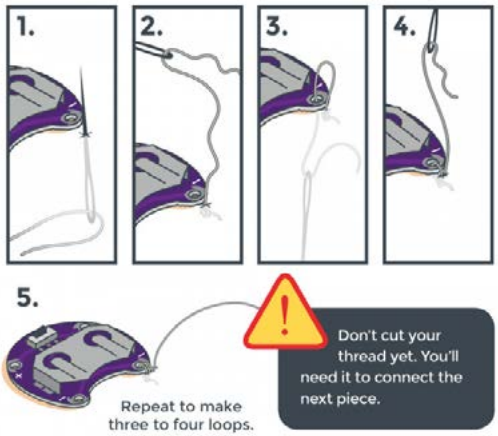
Tying a Starter Knot

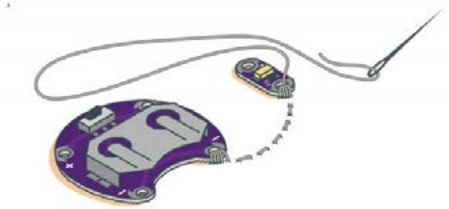


Sewing from an LED

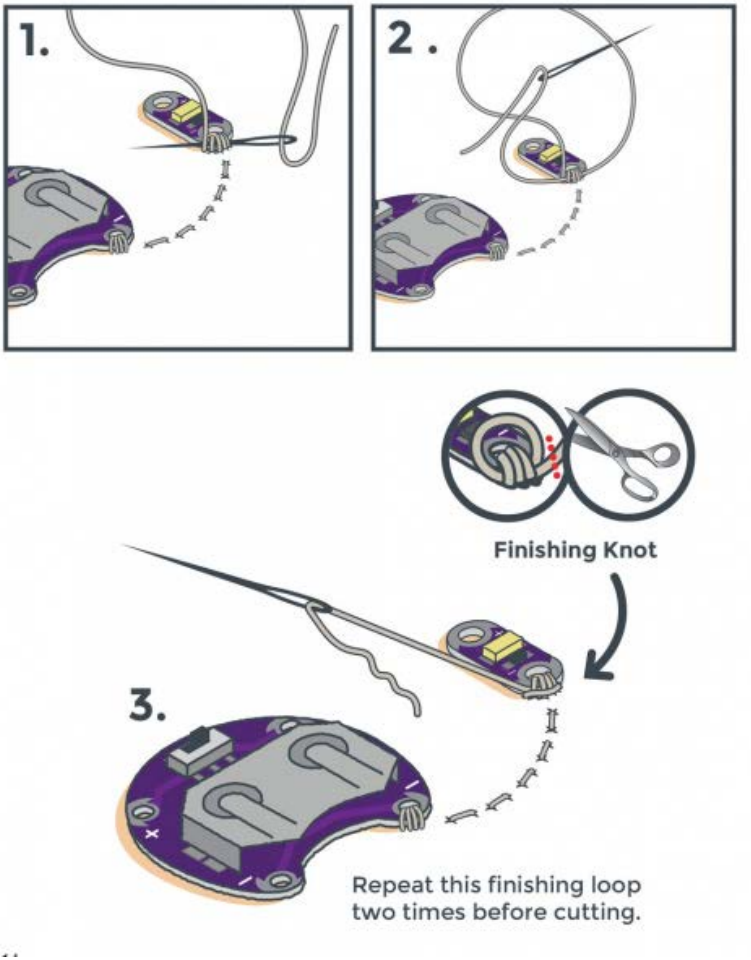


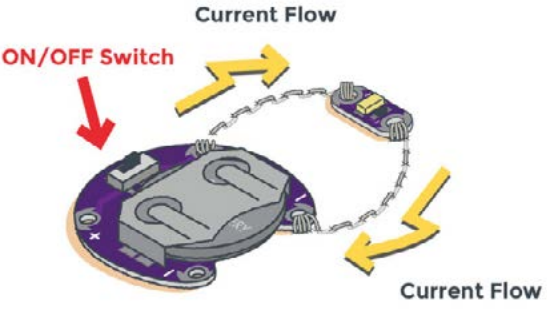
Sewing from the battery pack



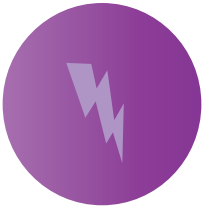


Tying a Finishing Knot





Sewing a circuit



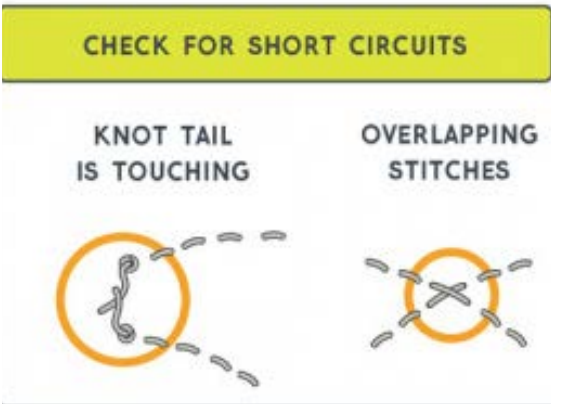
WHAT IS A SHORT CIRCUIT?

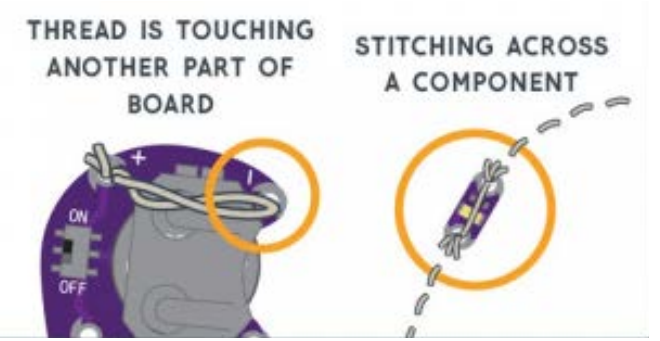
In short, it is an unwanted or unintentional path that current can take which bypasses the routes you actually want it to take.

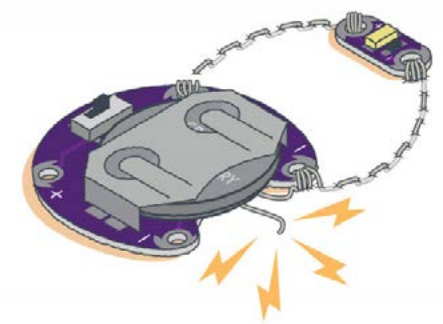
In this case, it usually means the current is going right back to the battery and skips the component (LED).

For more help:
http://sewelectric.org/troubleshooting/electrical-problems/

troubleshooting

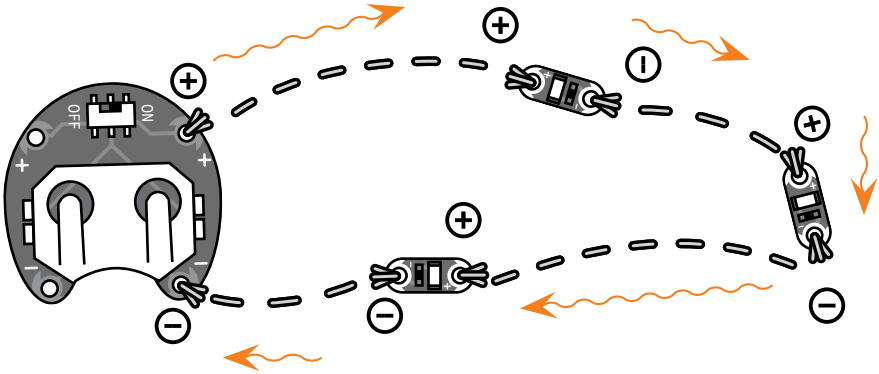




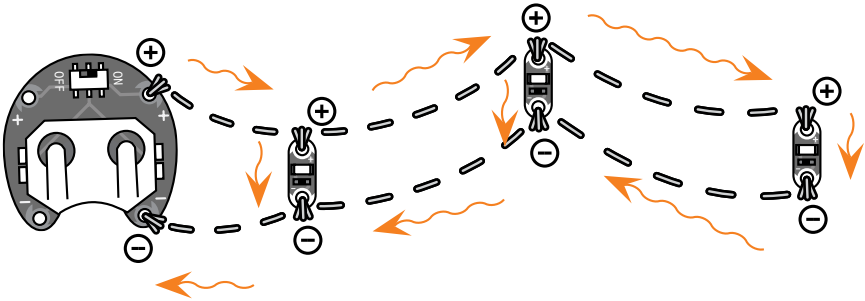


Types of Circuits

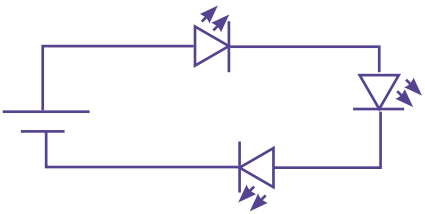
SERIES



PARALLEL



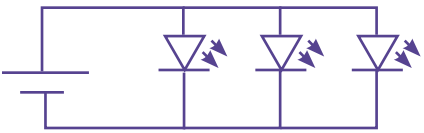
SCHEMATIC



Electricity flows through the circuit from the battery through **all** components before returning to the battery.

You will probably notice the lights getting dim or not lighting up!

SCHEMATIC



Electricity flows from the battery through **each** component and back to the battery, creating three circuits in parallel.

Each light gets its power directly from the battery, so they will probably all be bright!

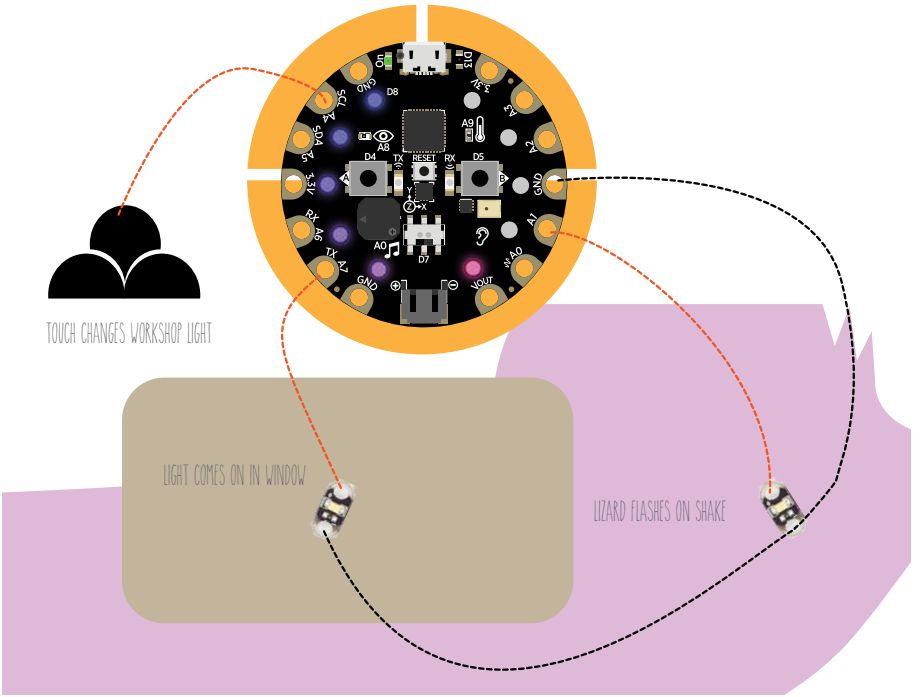
DIAGRAM YOUR PIECE!

Label your diagram in whatever way makes the most sense to you.

Some suggestions: a small sun to show lights, letter "S" for sensors, different colors for + and –

example diagram

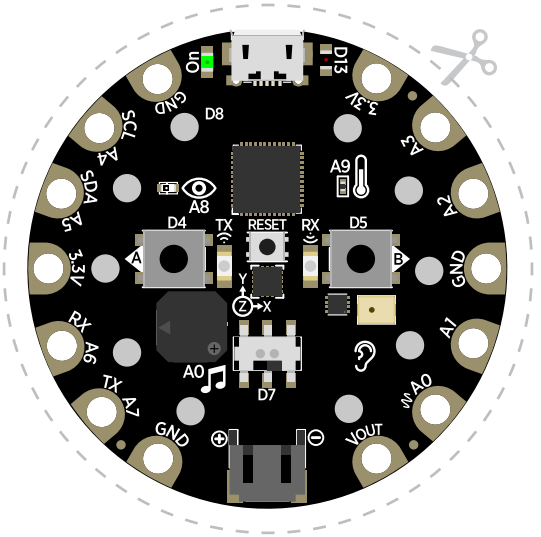
We want to have a light turn on in the window of the home when the cloud is touched. We're going to put a lizard on the pink mountain that flashes red when the Circuit Playground (CPX) is shaken. Maybe the sun will change color like a sunrise, or flash white like lightning.
We'll use the neopixels on CPX for that.



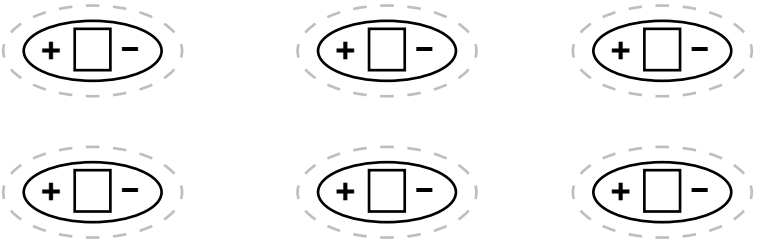
The LEDs we sew can all share the same connection to ground (GND, or –).

options

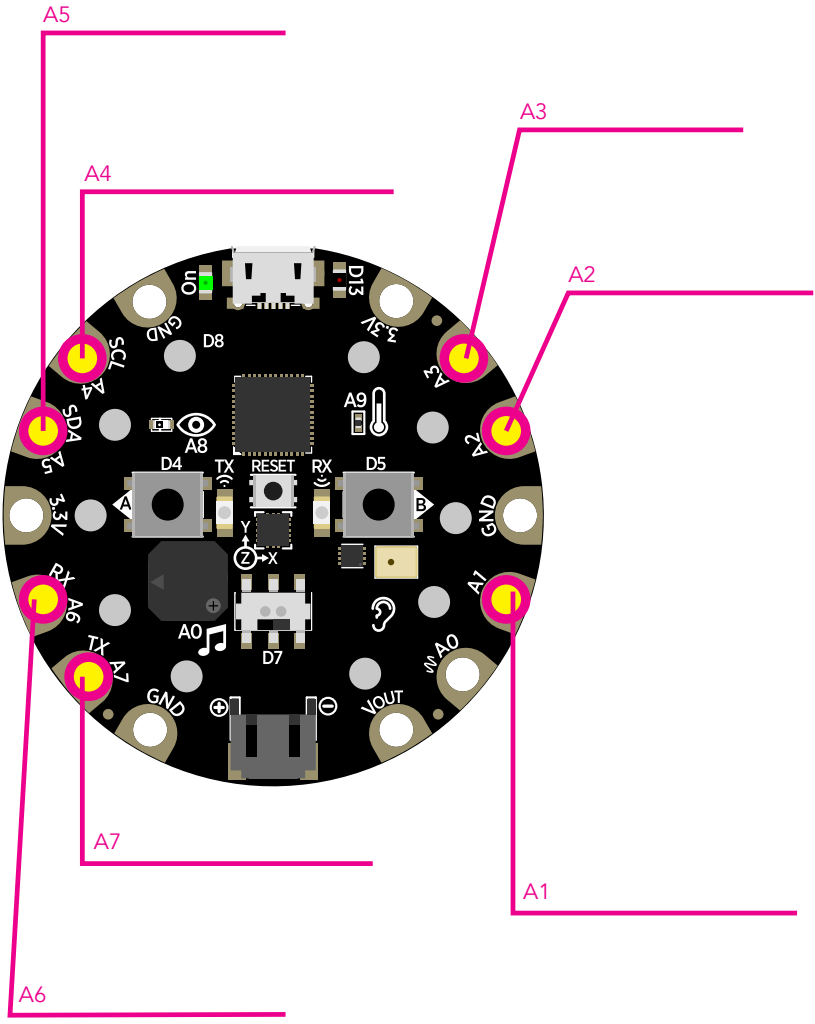
You may want to cut out this diagram to help lay out your pattern



Fill in the color LED you're going to use and tape it down where you want your light



Circuit Playground Touch Sensor Pins



MakeCode

https://makecode.adafruit.com/

final presentation

Discuss:

How you want to share your story as a family? Do you want to act it out, or have everyone take turns telling a part of the story?

About your project:

- What are you most proud of?

  _____

- What was challenging?

  _____

- How did you overcome the challenge?

  _____

- How did you help each other?

  _____

badges

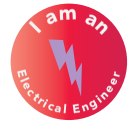
- Creative Maker
- Persistent
- Playful
- Systems Thinker

- Creative Problem-Solver
- Coder
- Persistent
- Logical

- Observant
- Creative
- Storyteller
- Expressive
- Maker

- Question-asker
- Photographer
- Curious

- Historian
- Interviewer
- Teacher
- Speaker



- Curious
- Problem-solver
- Diagrammer
- Careful
- Technician

Creative Maker

Persistent

Playful

Systems Thinker

Creative Problem-Solver

Coder

Persistent

Logical

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Expressive

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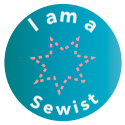

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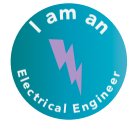

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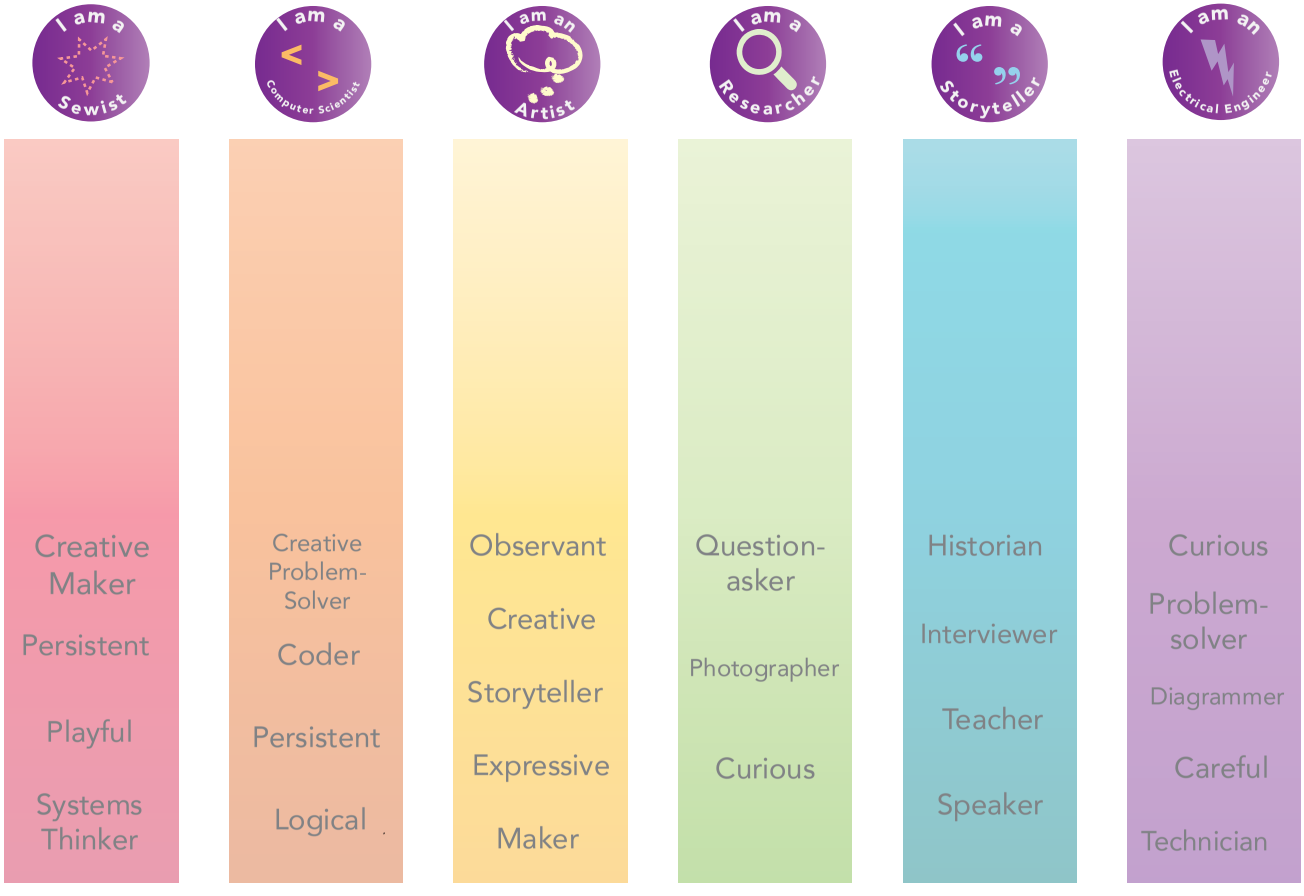
I am a Sewist
Creative Maker
Persistent
Playful
Systems Thinker
I am a Computer Scientist
Creative Problem-Solver
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more resources

Questions? Talk to us!
https://techtales.online/contact/

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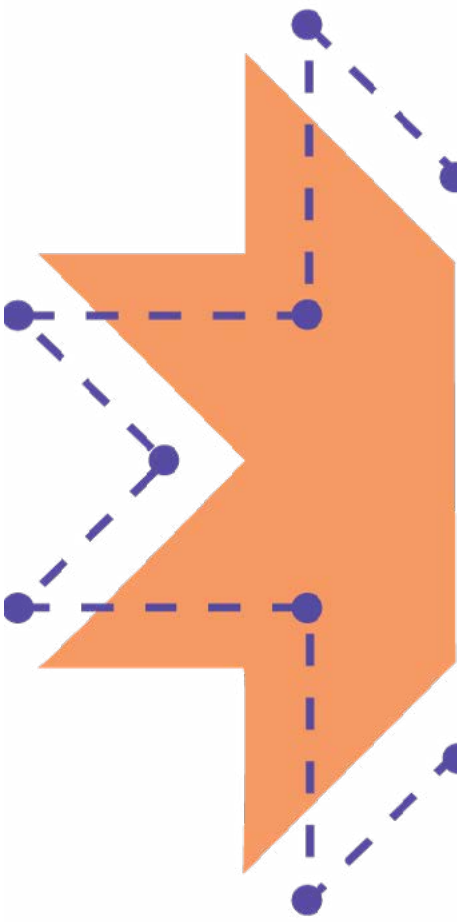
Sew Electric!
http://sewelectric.org/

Make Code
https://learn.adafruit.com/adafruit-circuit-playground-express/makecode
https://makecode.adafruit.com/examples

Circuit Playground Express
Video from Hackster.io
https://www.youtube.com/watch?v=JpjpGAfAkuU

Diagram images from Sparkfun and Sew Electric



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