

BristleBots

WHAT: Bristlebots are made of a vibration motor, battery, toothbrush, and foam tape. The robot is brought to life by completing a simple circuit between the battery and motor.

YOUR CHALLENGE:

Use the materials provided to design your own bristlebot.

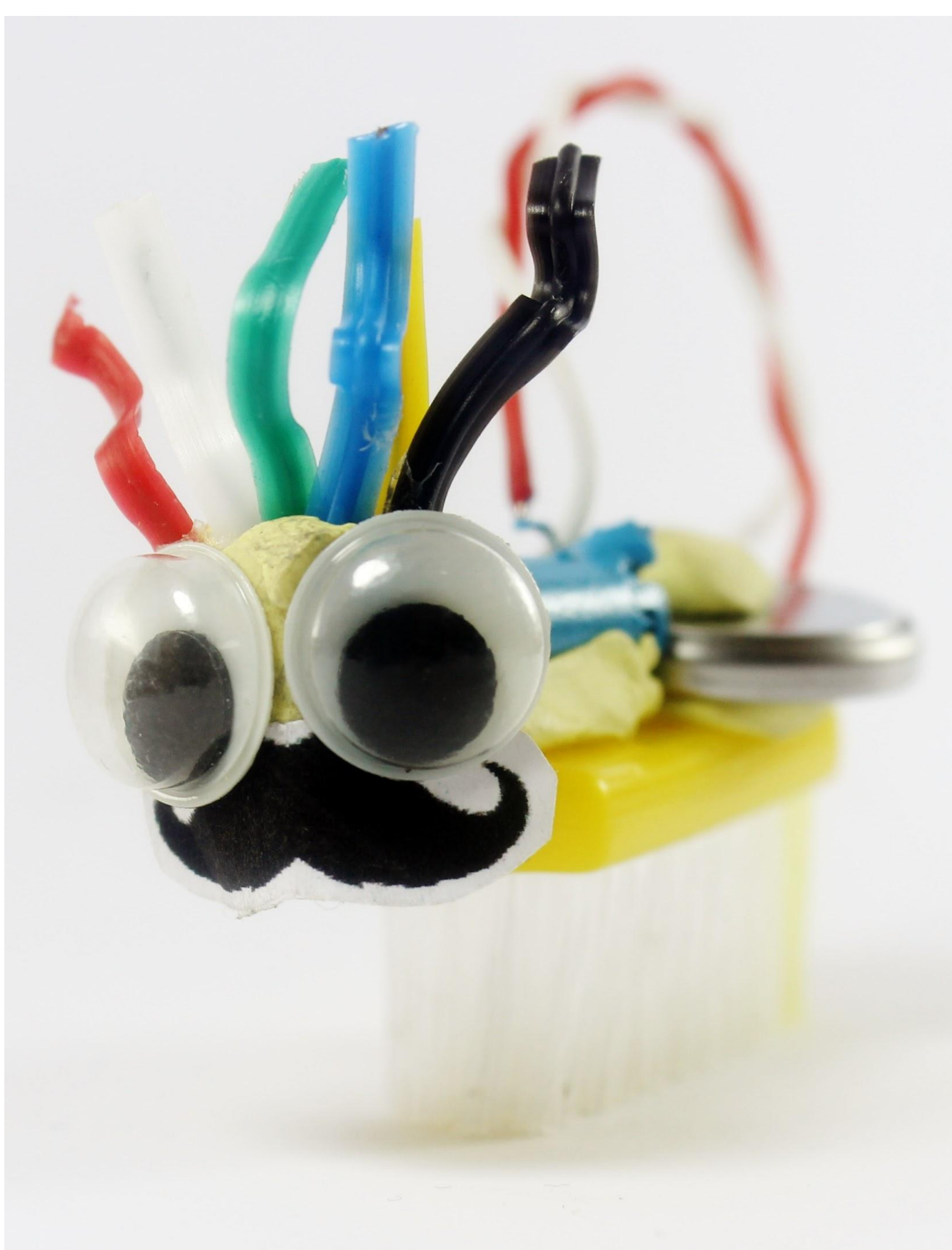
- Can you make a switch?
- Can you redesign your bot to move faster, slower, straight, or in circles?
- Design a bot with animal or creature characteristics?



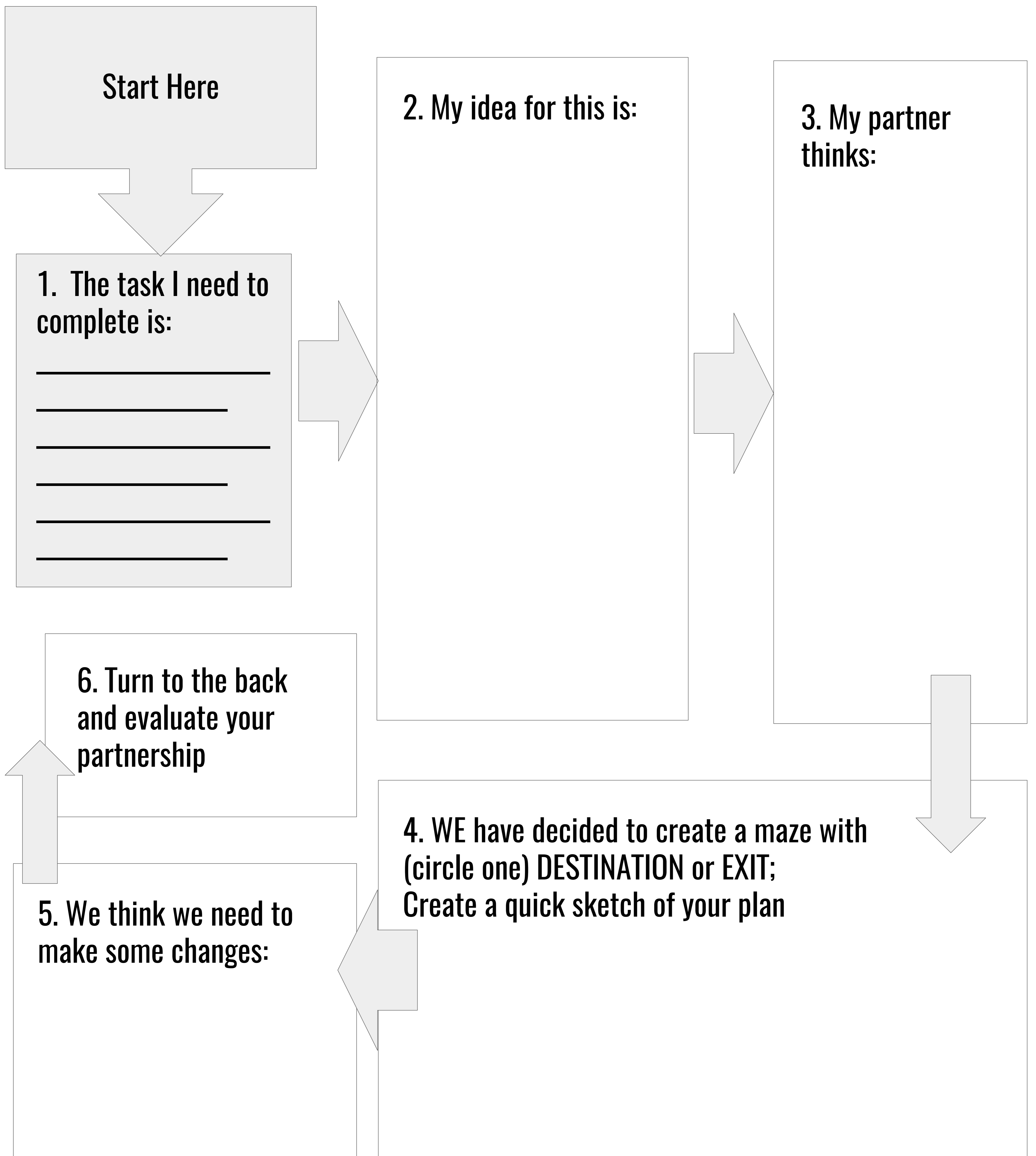


BristleBot Hints...

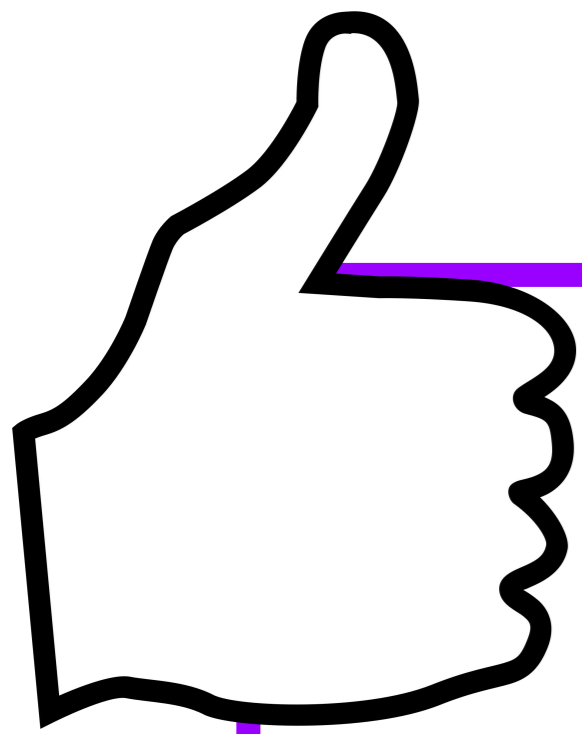
Notice one side of the battery is positive and one side is negative.



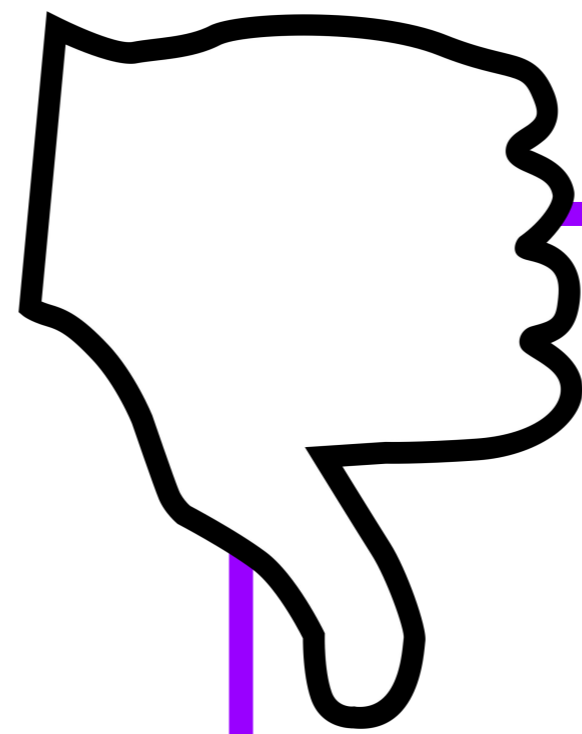
Partner Task Flow Chart



Evaluate your partnership



Things that we did well together:

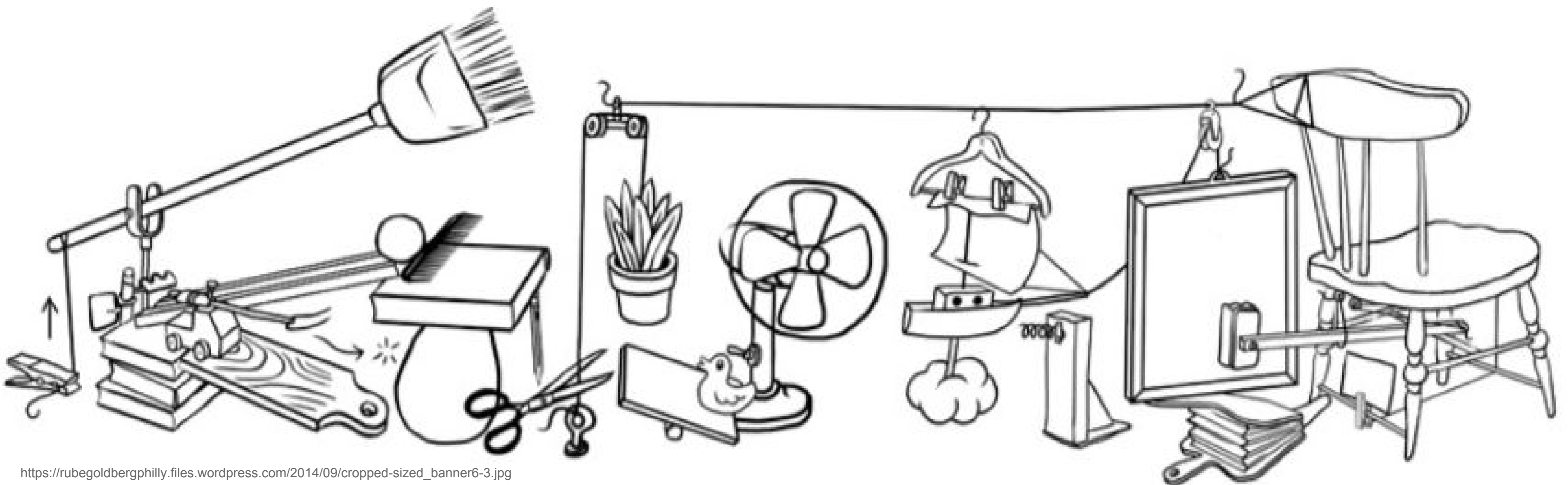


Things we realize we need to work on are:

Did you and your partner meet the Success Criteria: I know I've got it when...Rate each box with a number 1 - 5 (5 is the highest)

- I have shared at least one idea with my partner
- I have listened to and recorded my partner's idea
- I am respectful of my partner (even if I don't agree 100%)
- I stay on Task
- WE complete our assignment and complete the "Partner Task Flow Chart"

Rube Goldberg Challenge



https://rubegoldbergphilly.files.wordpress.com/2014/09/cropped-sized_banner6-3.jpg

WHAT: Born in 1883, Reuben Lucius “Rube” Goldberg was an engineer that liked to create complex machines to accomplish simple tasks. His work started in the form of cartoon and eventually manifested in the real world.

YOUR CHALLENGE:

Create a machine that can perform a simple task through the use of complex chain reactions. Make sure to document your design and collaboration process.

- Can you find a way to integrate your DC Motor?
- Can you design at least 5 chain reactions?
- How tall can you go?
- Can your machine work successfully 2 times in a row?
- How many moving pieces can you create?

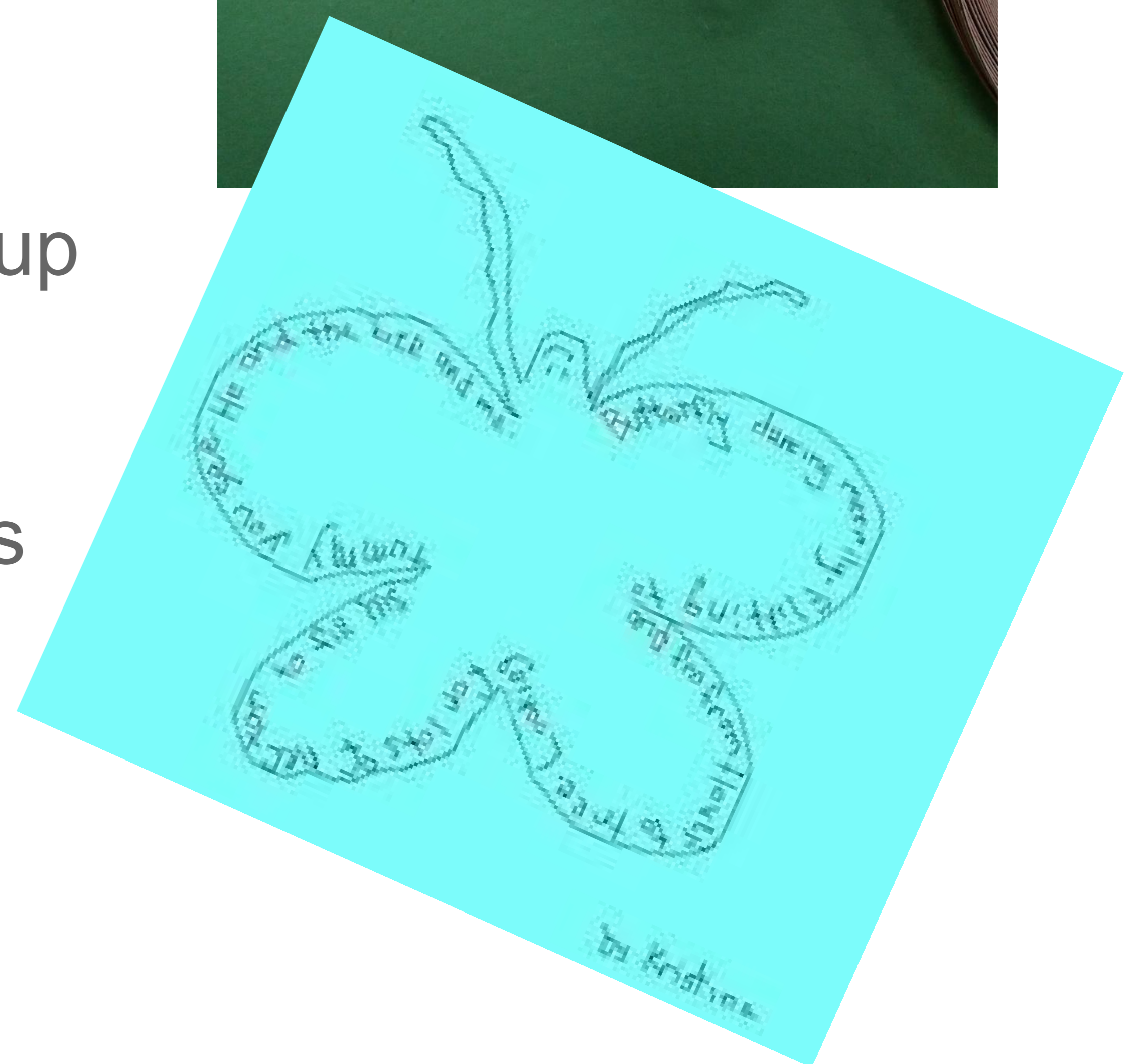
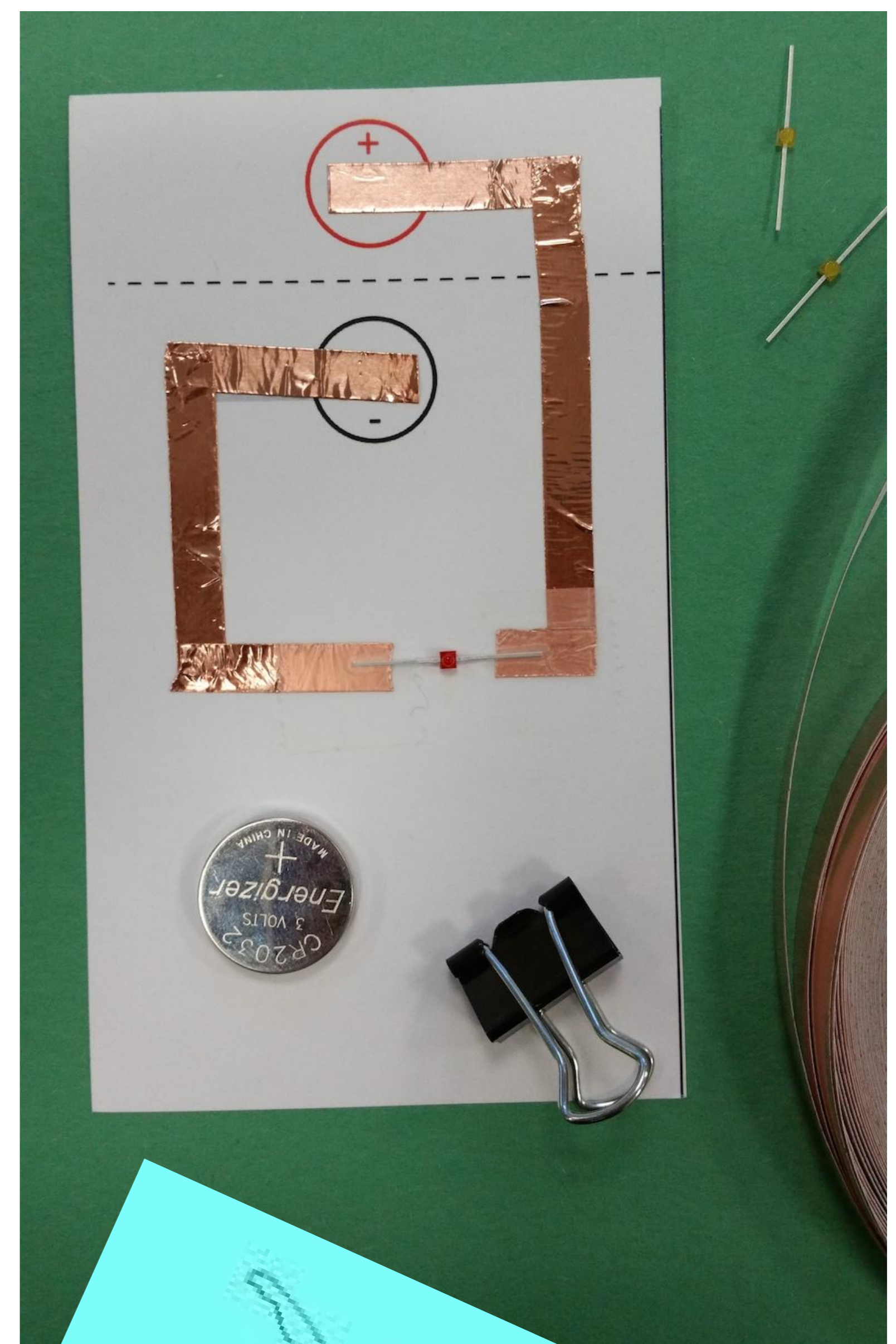
Concrete Poems & Paper Circuits

WHAT: Concrete Poems are written to take the shape of poem's topic. And paper circuits are self-designed simple or complex circuits made of cardstock, copper tape, a 3V battery, and LEDs.

YOUR CHALLENGE: Create a simple circuit to enhance a concrete poem.

CAN YOU:

- Think of a simple poem?
- Create a simple circuit to light up your poem?
- Design a circuit that will bring your poem to life with the LEDs



Green Screen

(Self-Directed Activity)



WHAT: Using the Green Screen app DoInk, you can transport yourself anywhere you want to be!

YOUR CHALLENGE:

Picture yourself in Thoreau's cabin at Walden Pond, or peaking into the windows at Paul Revere's house, or looking up at Hogwarts as you dream about the adventures to come!

CAN YOU IMAGINE YOURSELF:

- Traveling through time!
- Inside your favorite book!
- Standing next to your favorite author!

WHERE TO START:

1. Think about "context" - launch Photos and browse the images in the Better Together Album.
2. Launch Green Screen by DoInk
3. Tap the "+" in the bottom row then tap on the "Image" icon and select your favorite picture from the Better Together album, then select "Use"
4. Now select the middle "+" then select the "Camera" icon *and get ready in front of the green screen!*
5. Have a friend take your picture by tapping the round circle by the play button and select Done
6. To share, tap "Show Export Options" - then Select "Twitter"
7. Type in your message, add **#ILA2017**

(1)

Questions to ponder



How did you arrive at your answer?

Talk me through your thinking

What would happen if...?

Can you find another way to solve that?

Can you convince me?

Can you find another way to explain that?

How did you know to try that strategy?

Did someone get the same answer but by a different way of reasoning?

How is _____ related to _____?

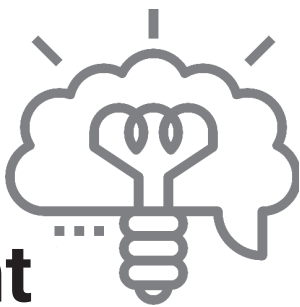
How do you know your solution is correct?

Can you convince someone who disagrees with you?

Does that always work?

(2)

Formative Assessment Strategies



Assess prior knowledge
(Range Questions)

Can you put in your own words what
_____ said?

Use student self-reflection strategy
(thumbs up/down/sideways)

Questioning: Engaging, Clarifying,
Refocusing

Implement gallery walks

Round robin activities to review/assess

I have...Who has?

Action Feedback:

- Would it help if you...
- Show me how you might solve it a different way
- Show me a graph/table that represents this problem
- Put your pencil where you are stuck

4 corners: Students go to individual corners to discuss representations/solutions

Observation Protocols

Exit cards/Ticket to Leave