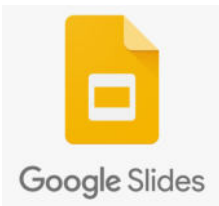### Need digital journals?

Whether you prefer going paperless or need to support distance learning, we recommend using Google Slides and/or Flipgrid. The following pages are for printing and sending home, and the links below are for editable digital journals.

Click here for instructional video.

Digital STEM Journal: Google Slides

The following links are to be used with Google Slides and can be assigned via Google Classroom. Students will need a Google account. If using iPads or iPhones, they need to download the Google Slides app.

You will need a Google Account to access the links. This link makes a copy to your Google Drive.

- Click here for Google Slides Journal

**Prior to assigning to students:**

1. Review the versions provided. Delete any slides you don't want to use.
2. Review the design rules and edit as needed.
3. To prevent students from editing anything on the slides, watch this.
4. Sending a copy of the file to your students, watch this.

Digital STEM Journal: Flipgrid

Flipgrid is a platform to share videos of design solutions. Teachers can moderate responses for a safe environment that builds community. Below is an editable template to help students with a script for their video. This can be combined with the printed or Google Slides journal.

Click here for an editable template.
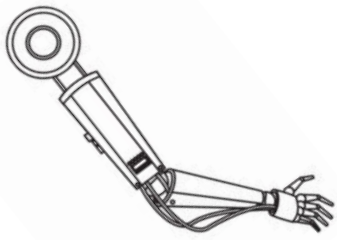
Robot Arm Challenge

Name:_____

1

Your Mission: Learn how to build a moveable robotic hand, and then turn it into a wearable superhero arm!

2

Engineering Design Rules

Follow the instructions in the video to build the robotic hand. Then turn it into an exoskeleton that attaches to your arm to pick up a rock sample (ping pong ball).

- ❏ Attaches to arm
- ❏ Movable
- ❏ Aesthetically pleasing (looks good!)
- ❏ Picks up a ping pong ball

Gather Materials Needed

- ❏ Scissors
- ❏ Tape
- ❏ Marker
- ❏ 3 Straws
- ❏ 5, 12 inch pieces of string
- ❏ Paper
- ❏ Ping pong ball or similar object
- ❏ Recycled materials

3

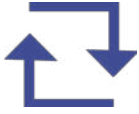**Brainstorm ideas for your design. Draw at least one idea below.**

As you build, make sure your device meets the engineering design rules above!

4 **Build**

Robot Arm Challenge

5

Test → Evaluate → Improve

Test your robot arm! Complete the table below to record results. Keep making changes and re-testing to improve your design.

Trial	Test Results	Ideas for Improvement
1		
2		
3		

6

Share your solution on Flipgrid!   Flipgrid

Write out a script below answering each prompt. Go to Flipgrid using the same code, and record a response to share your design.

1: Share your design! How does it work?	2: What happened during building & testing?