



Inspiring Mural for Educators



Submitted by

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Lesson

Title: **Inspiring Mural for Educators**

Time required in minutes: 45 min (minimum)

Recommended Grade/Age Group: Adults (can be used with children too: upper primary and up)

Subject(s): Approaches to Learning: collaboration, creativity, communication, critical thinking, problem-solving

Overview

This lesson was originally created for adults. Since we were going to start a Makerspace in my school, I wanted to get teachers interested and excited and I thought of creating an activity with Chibitronics to get them to make pretty things together and make them experience collaboration, a sense of teamwork/unity/togetherness, problem-solving and creativity.

I also aimed at convincing them that “Approaches to Learning” skills are very important and they should reflect on a culture of trial and error and foster curiosity in their students.

Finally, I expected to make connections between their subjects and any age-groups they teach. In this case, teachers in my school work with preschool until grade 12.

Learning Objectives

Create a paper circuit mural to empower educators to take risks, collaborate, create and share a sense of achievement and unity in the process of making with Chibitronics

Standards Supported

[The New ISTE standards for Students - 2016](#) (the teachers are students in this context):

- **Standard 1- Empowered learner:** “Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences”. In particular **Standard 1 D:** “Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies”.

Standard 4- Innovative Designer: “Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.” In particular **Standard 4C:** “Students develop, test and refine prototypes as part of a cyclical

design process.” and **Standard 4D**: “Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems”.

Materials

- Chart Paper
- Chibitronics LED stickers
- Copper Tape
- Scissors
- USB cable
- Templates: basic circuit, parallel circuit
- Coin batteries
- Optional: colors, craft material, photos... to personalize the mural

Pre-lesson Activities/Preparation

Depending on the time you have, you can do, like me, quite a lot of preparation to really convince your audience.

I made a mural templates with zig-zag tracks and cut the chart paper in advance in order to facilitate the activity. One of the track has a colored paper under the copper tape in order to visualize that it is the positive input.

This could have been done with the participants but it would have required much longer and I would have expected the participants to have some background on paper circuitry.

Instructions

1- Getting familiar with the material:

Educators are in small group (4-5) and watch [the video playlist](#) I created to organize three of the videos of Jie Qi on getting started with Chibitronics LED stickers. It covers how to work with copper tape (very useful when starting) and how to make simple and parallel circuits.

2- Provide paper templates for [simple](#) and [parallel](#) circuits so people can experiment. The templates are downloadable on Chibitronics (check hyperlinks).

Pro tip: Before doing this, consider getting familiar with tape (if you have 10-15 min) so that people will be more comfortable with copper tape.

3- Show the mural template prepared in advance and discuss with the whole group on how people will contribute and personalize the mural. Inform the group that each person will have to use their LED Sticker in this template. It is possible to plan how it will look like as a whole or let everyone add their LED stickers one after another. It is recommended to use a USB cable to power the circuits since there will be a lot of stickers ([Trick explained here](#)).

After sticking individual LED and troubleshooting the circuit to make sure it does not flicker, teachers can add a layer on their LED (it can be an image, a drawing, a piece of material, a shape, a photo, a quote that inspire them: see end of the lesson plan).

In our example, they added a quote that represented their pedagogical vision.

The wall is then placed in the Staff Lounge to celebrate learning, innovation, making and a sense of community.

Assessment

This lesson being for PD, there is no “assessment” or the possible assessment would be that the teachers have a chance to express themselves after the activity and reflect on what they learnt and how this experience would have made them reconsider “learning”, “making” and how they could bring in their learning into the classroom in the form of new pedagogical practices, designs or integration of tinkering.

Extension Activities

Teachers could continue learning about paper circuits by visiting the playlist to “[get going](#)” and later, to “[get geeky](#)” with Chibitronics.

Online Resources

Video tutorials: <http://chibitronics.com/learn/>

Lesson plans and template downloads: <https://chibitronics.com/teach/>

Craft tutorials: <https://chibitronics.com/craft-guide/>

Full Circuit Sticker Sketchbook download: <http://bunniefoo.com/chibi/sketchbook-en-v1.pdf>

Facebook: <https://www.facebook.com/circuitstickers/>

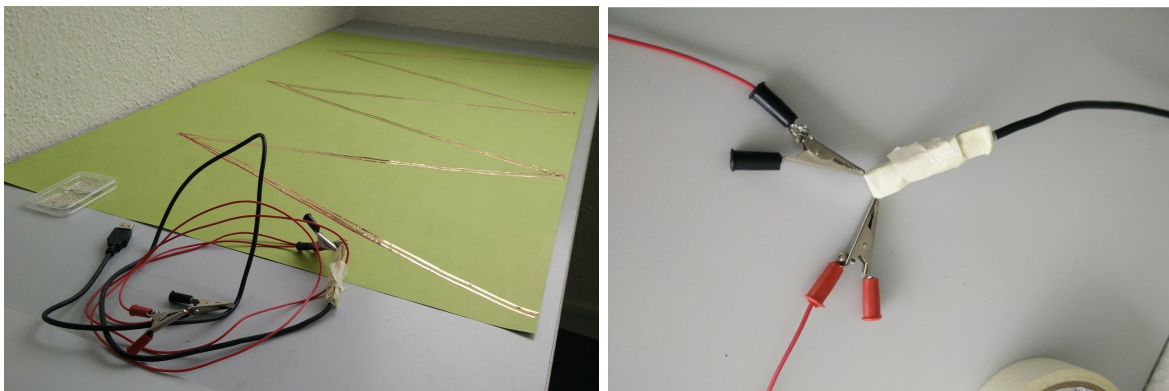
Twitter: <https://twitter.com/chibitronics>

USB cable hack tutorial: <https://chibitronics.com/usb-power/>

Examples and Inspirations for Students (Please include at least one image of an example circuit and one image of the project.)



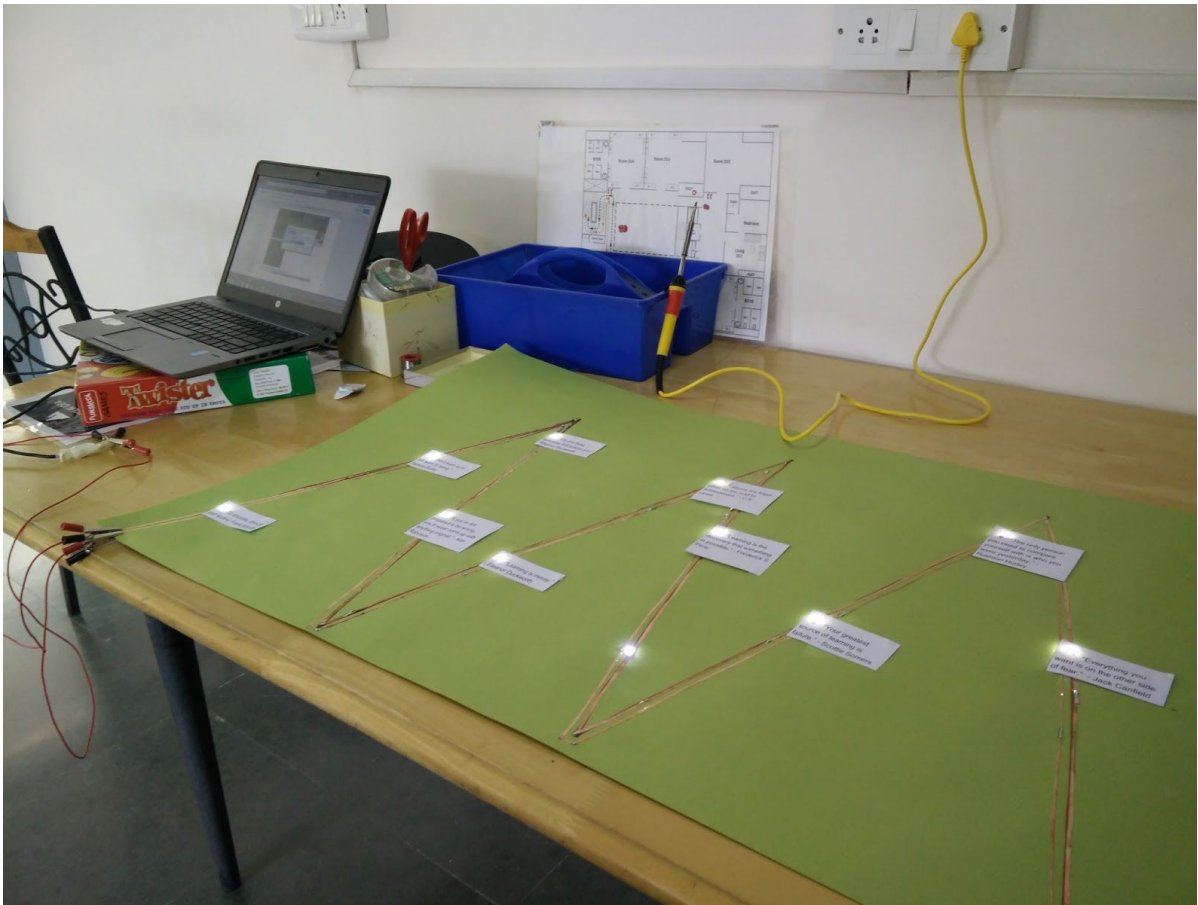
Teachers learning about simple and parallel circuits using Chibitronics templates



The USB trick to power the circuit.



Soldering the corners and the intersections between two pieces of tape to secure the circuit



The final product!

Learning Process (portfolio):

[Video Prototype 1: Lighting up the circuit with the USB trick!](#)

[Video Prototype 2: Soldering, Powering the circuit with the USB cable and adding quotes](#)

Quotes

Quotes that can be used for this activity (you could place the star











above the LED

sticker). Alternatively, you could use the bulb



icons from [iconfinder.com](https://www.iconfinder.com) (creative commons)

 <p>“Your greatest source of learning is failure.” - Scottie Somers</p>	 <p>“Everything you want is on the other side of fear.” - Jack Canfield</p>
 <p>“Learning is messy.” - Eleanor Duckworth</p>	 <p>To innovate, disrupt your routine. Frank Barrett</p>
 <p>“Learning is the discovery that something is possible.” - Frederick S. Perls</p>	 <p>“The only person you need to compare yourself with is who you were yesterday.” - Rushton Hurley</p>
 <p>“Don’t learn to do but learn in doing.” - Samuel Butler</p>	 <p>“Do one thing everyday that scares you.” - Eleanor Roosevelt</p>



“If you’re not prepared to be wrong, you’ll never come up with anything original.” - Ken Robinson



“Failures are finger posts on the road to achievement.” - C.S. Lewis