

Chibitronics



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STEM-CTE HUB



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Chibitronics

The Chibitronics STEAM Kit blends art, electronics, and design thinking to bring creativity to life with paper circuits. Using peel-and-stick LED stickers, conductive copper tape, and simple components, students can build glowing, interactive projects that teach the fundamentals of electricity, circuitry, and engineering. Perfect for cross-curricular exploration, Chibitronics invites learners to merge storytelling, science, and design in hands-on activities that spark imagination and innovation.



Grade Level

3rd - 8th grades

Group Size

1 - 2 per project

Time Duration

30 - 60 minutes

Content of Kits

Components

- 14x manuals
- 3x foam adhesive packs
- 3x tropical lights packs
- 2x conductive fabric tape rolls
- 2x conductive tape rolls
- 2x white blink LED sticker packs
- 2x white fade LED sticker packs
- 3x swatches of conductive fabric tape packs
- 2x classroom packs



Usage

Getting Started

1. **Introduce Circuit Basics** - Begin with a quick overview of how simple circuits work—highlighting components like power sources, conductors, and loads—using the manuals as visual guides.
2. **Explore Materials Hands-On** - Let students examine LED sticker packs, conductive tapes, and fabric swatches to understand the purpose of each material and how they are used in a paper circuit.
3. **Create a Simple LED Circuit** - Start with a basic project from the manual (such as lighting a single LED) to help students practice laying down conductive tape, attaching a sticker, and completing a closed loop.
4. **Demonstrate Tape Techniques** - Show students how to properly apply copper and fabric conductive tape—emphasizing smooth, continuous lines and strong contact points for reliable conductivity.
5. **Encourage Artistic Integration** - Prompt students to think creatively by combining their circuit work with drawings, cards, or small scenes to personalize their first glowing creation.

Storage

Separate by Component Type – Store stickers and tapes in original envelopes to keep parts sorted, easy to access, and prevent damage.

Troubleshooting

- **LED Not Lighting Up** – Ensure the copper or fabric tape forms a complete, unbroken circuit with solid connections on both ends of the LED sticker.
- **Tape Not Conducting Properly** – Press firmly on all connections and check that overlapping sections of tape are making full contact—especially at corners.
- **Short Circuits** – Avoid tape lines touching or overlapping unintentionally—especially near corners or folds—to prevent shorting the circuit.



Activity Guide

Beginner

Light Up Your Name

Students will draw or write their name on a piece of cardstock and light up one or more letters using a simple circuit. They'll learn to lay copper tape, correctly place an LED sticker, and attach a coin cell battery. This activity introduces closed circuits, polarity, and creativity in a low-pressure, hands-on format.

Intermediate

Mood Card with a Blinking LED

Students will design a greeting card or art piece that includes a blinking or fading LED sticker to match a specific "mood" (e.g., excitement, calm). They'll explore how to integrate foam adhesive and conductive fabric to layer connections while maintaining contact and circuit integrity. This activity deepens understanding of circuit layering and artistic integration.

Advanced

Multi-Light Scene Design

Students will create an interactive scene (like a night sky, cityscape, or underwater world) with at least 3–5 LEDs of different types (solid, blink, fade). They'll plan their layout, troubleshoot power distribution, and use tape techniques to prevent short circuits. This activity combines engineering with visual design and emphasizes efficient planning.

Extension Activity:

Paper Circuit Puzzle Challenge

Students will design a circuit-based puzzle or quiz card. The card will light up only when the correct input (e.g., flipping a switch or folding the paper) is selected. They'll use logic, planning, and testing to ensure their design responds predictably. This open-ended activity fosters invention, critical thinking, and real-world application of circuitry principles.



Learning Extensions

STEAM Connections: Math - Engineering - Science

Learning Objectives:

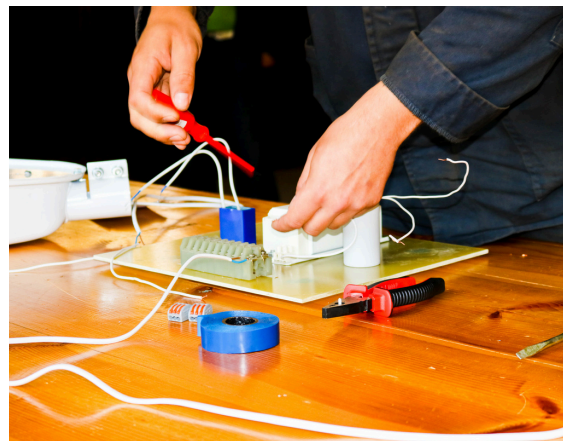
- Understand and apply the fundamentals of simple electrical circuits using conductive materials.
- Identify and correctly connect components such as LED stickers, copper tape, and batteries.
- Develop fine motor skills and attention to detail through precise circuit assembly.
- Strengthen planning and troubleshooting skills by building, testing, and refining working circuits.

Career Connections:

- **Electrical Engineer** – Applies knowledge of circuits and component behavior to design safe and functional systems.
- **Interactive Product Designer** – Combines technology and creativity to create user-engaging tools and media.
- **Graphic or Visual Designer** – Uses visual layout and structure to enhance communication and interaction in print and digital formats.
- **STEM Educator** – Demonstrates how to teach foundational science and engineering concepts using hands-on learning.
- **Toy or Learning Tool Developer** – Designs educational and interactive materials for classrooms, museums, or consumers.

Essential Employability Skills:

- Creativity & Innovation
- Problem-Solving
- Attention to Detail
- Communication
- Perseverance





Resources and Accessibility

Safety Guidelines

- **Avoid Skin Contact with Conductive Tape** – While safe, it's best to minimize prolonged skin contact and wash hands after use.
- **Use Scissors Safely** – When cutting conductive tape or paper, remind students to use scissors properly and store them safely when not in use.
- **Keep Workspace Organized** – Maintain a clutter-free area to prevent materials from sticking together or circuits from being accidentally damaged.

Accessibility

- **Provide Pre-Cut Materials** – Offer pre-cut conductive tape and stickers for students with fine motor challenges to ease the assembly process.
- **Use Larger Paper or Visual Templates** – Provide bold, large-format templates to support students with low vision or spatial processing needs.
- **Offer Alternative Input Options** – Allow students to collaborate in teams where one builds, one designs, and one narrates or presents.
- **Use Adapted Tools** – Provide grip-friendly scissors or stylus pens to help students apply tape and stickers more easily.

Library Catalog



Library Resources



Feedback

QR to feedback survey

