

Learning objectives for STEM activity involving “tinkering” with paper circuits:

Science

- Understand that electricity is a form of energy that can be used to make things work.
- Learn about the basic components of a simple circuit: battery, conductor (copper tape), and light source (LED).
- Explore the concept of a closed circuit and how it allows electricity to flow.
- Observe and describe what happens when a circuit is open or closed.
- Develop critical thinking skills to troubleshoot and fix problems in their circuits.

Technology

- Learn how to use simple tools and materials safely (scissors, tape, copper tape).
- Develop fine motor skills through cutting, taping, and connecting components.
- Gain experience with basic engineering design principles, such as trial and error and iterative design.
- Understand the importance of following instructions and working carefully.

Engineering

- Design and build simple paper circuits using provided materials.
- Experiment with different circuit configurations to create various light patterns.
- Identify and solve problems that arise during the building process.
- Develop creativity and innovation by designing unique and personalized circuits.

Mathematics

- Practice counting and measuring skills to determine the length of copper tape needed.
- Develop spatial reasoning skills by visualizing how the components will fit together.
- Use basic geometry concepts to understand the shape and size of the circuit components.

Additional Learning Objectives

- Develop teamwork and collaboration skills by working with peers.
- Foster curiosity and a love of learning about science and technology.
- Build self-confidence and resilience through hands-on experimentation.
- Develop problem-solving and critical thinking skills.
- Encourage creativity and imagination through open-ended exploration.