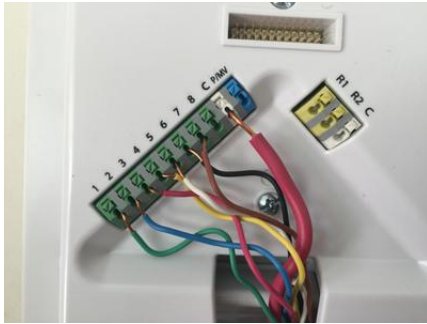


Photo Description



This image shows a green terminal block with numbered connections (1-8) and colored wires plugged in. A blue wire and colorful cables are connected to the terminals, demonstrating how electricity can travel through different pathways. There is also a yellow box labeled with connections on the right side, showing another way to control where electricity goes.

Scientific Phenomena

Anchoring Phenomenon: How does electricity move through wires to make things work?

This image illustrates electrical circuits and pathways. Electricity flows through the colored wires and terminal connections when they are properly linked together. The terminal block acts as a "hub" that allows electricity to travel from one wire to another. When wires are connected correctly, electricity can flow; when disconnected, the flow stops. This is the foundation of how everyday devices (lights, fans, toys) receive the power they need to function.

Core Science Concepts

- * **Electrical Pathways:** Electricity travels along wires in a continuous loop called a circuit. It needs a complete path (with no breaks) to flow and power devices.
- * **Connections and Control:** Terminal blocks and connectors let us choose which wires electricity flows through, allowing us to control which devices turn on or off.
- * **Safe Electricity Flow:** Different colored wires help electricians and engineers organize electrical systems so electricity goes exactly where it's needed without danger.
- * **Energy Transfer:** Electricity is a form of energy that moves through metal wires to deliver power to lights, motors, and other devices we use every day.

Pedagogical Tip:

For Kindergarteners, avoid abstract electricity concepts. Instead, use familiar analogy: "Electricity is like water flowing through pipes—it needs a complete path to travel, and we can turn it on and off at different points." Let students feel (safely!) the difference between a completed and broken circuit using battery-powered devices they can manipulate.

UDL Suggestions:

UDL Strategy - Multiple Means of Representation: Provide both visual (diagram of circuits) and tactile (battery holders with real wires they can connect) explorations. For students with visual impairments, allow them to feel the smooth terminals and thick wires while you verbally describe the connections. For English learners, pre-teach color words (red, blue, yellow, green) in context before the lesson.

Discussion Questions

1. "What do you think happens when we unplug one of these wires?" (Bloom's: Understand | DOK: 1)
2. "Why do we use different colors of wires—what could the colors help us remember?" (Bloom's: Analyze | DOK: 2)
3. "Can you trace the path that electricity takes from the battery, through the wires, and back again?" (Bloom's: Apply | DOK: 2)
4. "What would happen if we built a circuit that powers a lamp—would the light work if we removed one wire?" (Bloom's: Evaluate | DOK: 3)

Extension Activities

1. "Build a Simple Circuit with Batteries" — Provide each small group with a AA battery, two wires, and a small LED light or buzzer. Guide them to connect the wires to complete the circuit and watch the light turn on. Ask: "What happens when we remove one wire?" (Emphasize: Never use household electricity.)
2. "Color-Coded Pathway Game" — Create a large floor circuit using colored tape (blue, red, yellow, green) arranged in a loop. Have students walk along the "electricity pathway," then stop when you remove one section of tape, demonstrating a "broken circuit."
3. "Conductor and Non-Conductor Sorting" — Provide safe materials (plastic straws, foil, wooden blocks, metal spoons) and ask: "Which ones could electricity flow through?" Group them while discussing why metals conduct electricity better than plastic or wood. (Use visual demonstrations only—no electrical testing for K students.)

NGSS Connections

Performance Expectation (K-PS2-1): Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

Relevant Disciplinary Core Idea:

* K-PS3.A Energy can be transferred in various ways between objects and systems.

Crosscutting Concepts:

* Cause and Effect — Electricity only flows when there is a complete circuit; breaking the circuit stops the flow.

* Systems and System Models — A circuit is a system with inputs (power source), connections (wires), and outputs (devices that light up or move).

Science Vocabulary

- * Circuit: A path that electricity travels along, like a loop that electricity follows to power lights or toys.
- * Wire: A thin metal cord that electricity can flow through safely to reach devices.
- * Terminal: A connection point where wires plug in, like a socket where electricity can enter or leave.
- * Electricity: Energy that flows through wires and powers machines, lights, and devices in our homes.
- * Connection: When two wires or devices are joined together so electricity can flow between them.

External Resources

Children's Books:

Electricity Everywhere* by Betsy Duffey (Simple introduction to where electricity comes from and how we use it)

Pop! Uses of Energy* by Rebecca Felix (Colorful photos showing energy in action, including electricity)

The Darkest Dark* by Chris Hadfield and Kate Fillion (Engaging story about light and darkness that introduces young learners to energy concepts)

YouTube Videos:

* "Electricity for Kids: A Simple Circuit" by Homeschool Pop — A 3-minute video showing how to build a battery circuit with a light. Very visual and age-appropriate. https://www.youtube.com/watch?v=Pr96eWzDh_s

* "How Electricity Works" by National Geographic Kids — Animated 4-minute explanation of circuits, energy flow, and everyday uses of electricity with vibrant graphics perfect for Kindergarten. <https://www.youtube.com/watch?v=oqJRwZQxRd0>

Teacher's Note: This lesson is best scaffolded across 3–4 short sessions (15–20 minutes each) to maintain Kindergarten attention spans. Always emphasize electrical safety and keep all demonstrations controlled with low-voltage batteries only.