

In **Ohm's Law**, students explore how changing the voltage or resistance influences current in a circuit.

**OBSERVE** how the size of the variable changes when the value changes.

**MEASURE** the current in the circuit for a given voltage and resistance.

**CHANGE** the voltage or resistance of the circuit.

**TRACK** changes in the circuit as voltage and/or resistance are varied.

## Model Simplifications

- The black dots in the wire represent impurities in the metal lattice. Materials with a high density of impurities have a higher probability of collisions between the electrons and the cations in the lattice, which results in a higher resistivity.
- Because the length and area of the resistor is unchanged, the resistance slider controls the resistivity of the material.

## Suggestions for Use

### Challenge Prompts

- Describe what happens to the current in a circuit when the voltage is increased. What happens when the resistance is decreased?
- Does changing the voltage of the circuit cause a change in the resistance of the circuit? Why or why not?
- Explain why current and resistance are inversely proportional.

See all activities for Ohm's Law [here](#).

For more tips on using PhET sims with your students, see [Tips for Using PhET](#).