

In **Ohm's Law**, students explore how changing the voltage (V) or resistance (R) influences current (I) 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 V and R are varied.

ACCESS sim features (sound on/off, keyboard shortcuts)

Accessibility Features



Description



Alternative Input



Sound

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.

Sound Features

- The pitch of the slider notes is proportional to the size of the current in the circuit and not dependent on specific slider positions. As a challenge: try to achieve the same note (same current) with different slider positions.
- See the Sound Features Video for more useful tips on how concepts and sound are integrated in this sim. For additional details on all sounds used in this simulation, see the published [Sound Design Documentation](#).

Suggestions for Use

Sample 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 published activities for Ohm's Law [here](#).

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