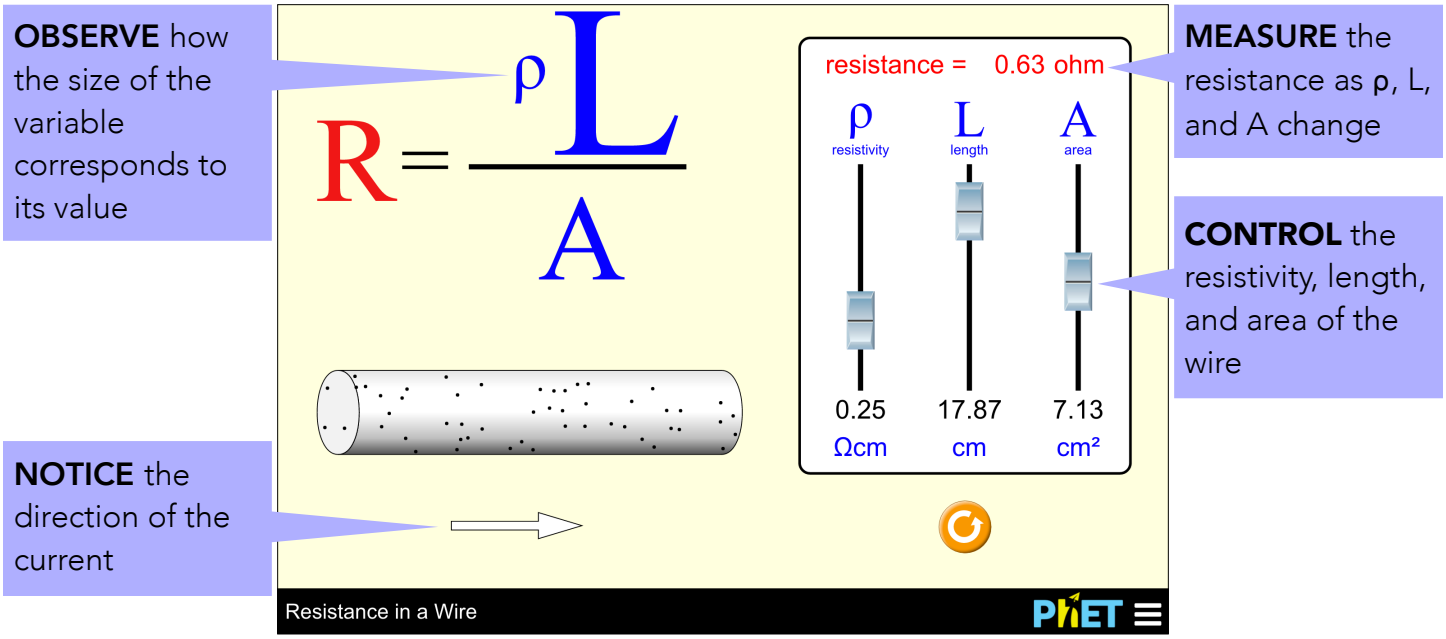
Resistance in a Wire

Tips for Teachers

In ***Resistance in a Wire***, students explore how changing the resistivity, length, and area of a wire affects its resistance.



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 collision between the electrons and the cations in the lattice, which results in a larger resistivity.

Suggestions for Use

Challenge Prompts

- What variables affect the resistance in the wire? How can you maximize/minimize the resistance in the wire?
- If the area of a wire is doubled, how does its resistance change? Explain.
- How does the resistivity relate to the resistance? Can the resistivity of a material be changed?
- Describe what happens to the flow of electrons when the wire becomes (a) longer or (b) thinner.

See all published activities for Resistance in a Wire here.
For more tips on using PhET sims with your students, see Tips for Using PhET.

Rouinfar, February 2016