

In *Faraday's Law*, students can investigate how a changing magnetic flux can produce a flow of electricity.

The screenshot shows the PhET Faraday's Law simulation interface. A central panel displays a circuit with a light bulb and a voltmeter connected to a coil of wire. A bar magnet with its South (S) pole facing the coil is positioned to be moved through it. A 'Field lines' checkbox is visible below the coil. To the right, a control panel includes a magnet icon with a flip arrow and a play button. Surrounding the main interface are five green callout boxes with white text:

- OBSERVE** the magnitude and polarity of the induced emf (pointing to the voltmeter).
- VIEW** the magnetic field lines (pointing to a separate diagram of field lines around a magnet).
- MOVE** the magnet through the coil (pointing to the magnet in the coil).
- COMPARE** two different coils simultaneously (pointing to two coil icons).
- FLIP** the polarity of the magnet (pointing to the magnet flip control).

The bottom of the interface features the text 'Faraday's Law' and the PhET logo.

Suggestions for Use

Challenge Prompts

- How many ways can you cause induction? Explain your method(s) citing evidence from the simulation.
- Sketch two different situations in which the light bulb lights up. Indicate the N/S poles of the magnet and the direction of its motion. What is the direction of the induced current in each case?
- Predict what happens to the brightness of the bulb when the number of turns in the coil is reduced by half, but the speed of the magnet remains the same.
- How does the speed of the magnet affect the brightness of the bulb?

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

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