

## Michael Faraday | Lesson Plan

How did Michael Faraday advance electromagnetism and uphold scientific truth in the face of hostility?

---

Students will learn about Michael Faraday's contributions to electromagnetism and how he courageously challenged established theories, emphasizing the importance of advocating for scientific truth.

### Learning Objectives:

- Explain how Michael Faraday furthered the study of electromagnetism.
- Identify reasons why other scientists were hostile towards Faraday during his time.
- Describe how Faraday shared scientific truth during his time and how he stood up for scientific truth despite hostility.
- Apply the moral principles of Faraday's story to practical examples today.

### Key Vocabulary:

- **Electricity:** The movement of tiny particles called electrons that creates energy, which is used to power things like lights, computers, and other devices.
- **Magnet:** A magnet is an object that produces a magnetic field, attracting certain metals, like iron, to itself.
- **Electromagnet:** A type of magnet created by an electrical current, the strength of which can be altered by changing the amount of current flowing through it.
- **Electromagnetism:** A branch of physics that deals with the electromagnetic force.
- **Hostility:** A strong feeling of opposition or unfriendliness towards someone or something, often characterized by aggressive behavior, antagonism, or a desire to cause conflict.
- **Prototype:** An initial model or early version of a product or invention created to test and refine ideas before producing the final version.

**Educational Standards:** CCRA.L.1, CCRA.L.2, CCRA.L.4, CCRA.W.4, CCRA.R.7, CCRA.SL.1, CCRA.SL.2, CCRA.SL.4, CCRA.W.2, CCRA.L.6,

**Academic Subject Areas:** Biography, Science, Judeo-Christian Values

### What You'll Need

- Video: *Michael Faraday: Pioneer of Electromagnetism* (Watch [Here](#))
- Worksheet: *Michael Faraday: Pioneer of Electromagnetism* (Click [Here](#))

### Lesson Plan (45 minutes)



### Warm-Up: (15 minutes)

1. Initiate a class discussion on honesty. Encourage students to share their definitions of honesty. Prompt students to think of times when being honest is challenging, like when it might lead to trouble or hurt someone's feelings. Invite students to share examples aloud and brainstorm together.
2. Display a copy of the "Michael Faraday Worksheet" and distribute individual worksheets to students.
3. Instruct students to write their definition of "honesty" and an example of when it is difficult to be honest in the Warm-Up Activity. Teachers may need to model an example for students.
4. Once completed, explain to students that Michael Faraday was a famous scientist who did important work in the field of electromagnetics. Ask students if they know what electromagnetism is and give a brief overview. Go over key vocabulary and important concepts.
5. Read the rest of the worksheet as a class so students know what to listen for during the video.
6. Set the stage for the upcoming video by highlighting the theme of honesty. Encourage students to look for ways throughout the video of Faraday standing up for truth even when it is the more difficult thing to do.

### Watch and Complete: (20 minutes)

1. Watch the video.
2. Assist students with completing the worksheet alongside the video.
3. Pause throughout the video to allow students to answer questions.

### Wrap-Up: (10-15 minutes)

1. Allow students 10 minutes to complete the worksheet independently.
2. Collect as formative assessment or discuss in class.
3. Ask students to read aloud their responses to the Making Connections section.
4. Conclude with open-ended prompts for students to reflect on being more honest like Faraday, even if it's more difficult:
  - What do you think motivated Michael Faraday to keep working on his ideas even when other scientists disagreed with him?
  - Can you think of a time when you had to stand up for something you believed in, even if it was hard? How did you feel afterward?
  - How do you think the world would be different today if Michael Faraday hadn't shared his discoveries about electromagnetism?
  - What are some ways we can apply the principles of honesty and courage from Faraday's story in our own lives?
  - Why is it important to challenge established ideas in science and other fields? Can you give an example of when this might be necessary?

- How can we support others who are standing up for the truth, even if it goes against what most people believe?
5. Encourage students to stand up boldly for truth even when it's easier to remain silent.

**Don't have time for the full lesson? Quick Activity (15-20 minutes)**

Distribute the worksheet and allow students to complete it while they follow along with the video.