

# FOSS ENERGY MODULE—WEEK 3

---

**Hello Students, Teachers, and Families,**

This package includes **Home/School activities for Energy Investigation 3—Electromagnets**. During school closures, the FOSS team will be expanding the **Home/School Connection Center** on the FOSS website <https://www.fossweb.com>.

Families can access Home/School Connections and many other resources (multimedia, streaming video, and *FOSS Science Resources* interactive e-book) on FOSSweb through the class pages set up by the teacher. The teacher will need to provide the class username and password for full access. .

If the teacher has not set up Class Pages, families can still access the **Home/School Connections Center** page from the main FOSSweb login page. No registration is necessary for this access.

The Home/School Connections for each module are active investigations that can be conducted at home (inside or outdoors). New activities are added to FOSSweb each Friday.

**For reading science content at home** when you can't get to a library, we **recommend NSTA's Interactive eBooks**. Many of these books are on our recommended books lists, and all of these books are full of fantastic content. As of today, NSTA has made this content entirely free for the time being. No login required!

<https://www.nsta.org/ebooks/>

In addition, we recommend going to the website for your local city or county library. Many libraries offer ebooks through multiple providers.

**If you haven't used FOSSweb resources before, here's how.**

**For Students and Families:** To sign in to FOSSweb, use the user name and password provided by your teacher. This might be a Common Class or Individual Student login. Here's a short video to get you started on FOSSweb

**For Student Sign in Video:** <https://youtu.be/Fcfjbt7Li2k>

**For FOSSweb help:** <https://www.fossweb.com/student-parent-help>.

**FOR TEACHERS:** For help in setting up and using Class Pages, use the Walk-through Videos on FOSSweb: <https://www.fossweb.com/fossweb-walkthrough-videos>

Visit the Home/School Connection for each module you teach, select the specific assignments that will be most relevant to your students at this point in instruction. Communicate with families about which content you are assigning through the Class Pages Notes on FOSSweb or through any other established parent communication channel your school has in place.

**Tech support on FOSSweb:** <https://www.fossweb.com/contact-us#jotform>

Sincerely, The FOSS Team at the Lawrence Hall of Science

# HOME/SCHOOL CONNECTION—WEEK 3, A

## Investigation 3: Electromagnets

**NOTE: This activity involves making a circuit using a D cell (battery). For safety reasons, you must have an adult working with you on this activity.**

**Focus Question: How does the number of winds of wire around an iron nail affect the magnetism?**

### Materials:

- A large iron nail with with a wide, flat head
- About 3 feet (about 1 meter) of thin coated (insulated) copper wire
- A new D-cell (D-size battery, and **not** a rechargeable one)
- Paper clips

### Suggested procedure:

1. Wrap most of the wire around the nail. Leave about 8 in. sticking out on both ends.
2. Remove about an inch of plastic coating from both ends of the wire.
3. Attach **ONLY ONE** of the wires to an end of the battery. You can use tape to secure that one wire. **Don't tape both wires to the battery.**
3. The second wire you will just touch to the end other end of the battery, but don't tape it. **Only touch it for few seconds and then remove it from the battery. Keep the circuit open most of the time. NOTE: Be VERY careful as the wire can get hot.**
4. Touch the head of the nail to the paper clips and see how many you can pick up.
5. Change how you wrap the nail to see if you can pick up more or less.

In your notebook answer the focus question.

### Read "Electricity Creates Magnetism" and "Electromagnets Everywhere" in FOSS Science Resources: Energy eBook

To access the interactive eBook, login to FOSSweb with the user name and password provided by your teacher. Click on the Energy Module, and go to the Media Library. Click on the eBook.

- Make a list of common devices that use electromagnetism to work.

### Engage with online activity: Virtual Investigation—Electromagnet Experiments

To access the Online Activities, login to FOSSweb with the user name and password provided by your teacher. Click on the Energy Module, and go to the Online Activities. Go to **Virtual Investigations, Electromagnet Experiments**

In your notebook make a diagram, label and briefly explain an electromagnetic system.

# HOME/SCHOOL CONNECTION—WEEK 3, B

.....

## Investigation 3: Electromagnets

### Research Project

Research your electric company suggestions on conservation of electricity.

### Suggested procedure:

In your notebook make a list of actions that conserve energy and a list of actions that waste energy.

- Ask your family members who is your electric company or cooperative. With your family's permission, look online at your company's website.
- Look at their website for any ideas that conserve energy or waste energy. What are their suggestions. Add to your notebook.
- Are there certain times of the day electricity is more expensive?
- Are there certain activities that use lots of electricity?
- Discuss with your family your list and see if there are any energy saving tips your household can do.
- Survey the different uses of electricity in your home.