



Electricity Unit

Lesson 1 of 7

What Is Electricity?

Created: 08/2025 by the National FFA Organization

Description of Lesson: *This lesson introduces students to the basic concept of electricity and how it is used in daily life. It is a supplement to the National FFA Agricultural Technology and Mechanical Systems Career Development Event (CDE). These lessons are designed to be used in order.*

Student Learning Objectives:

After completing these activities, students will ...

1. Define electricity in simple terms
2. Recognize electricity's use in everyday life and agriculture
3. Identify the three core parts of an electrical system (source, path, load).

Suggested Grade Level:

Grades 9 and 10 (This lesson is written so instructors can scale up or down based on class needs.)

Suggested Time: 50 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Website: Agricultural Technology and Mechanical Systems CDE, <https://FFA.box.com/s/lm54vln05kzwexi6nx5rzajzrc1d5dxx>

Related Resources:

1. SAE Idea Cards, <https://FFA.box.com/s/0j0438zo941eymcncgpgabh5iqzzlrpg>

Equipment and Supplies Needed:

1. A copy of the "Electricity 101: Powering Our World" worksheet for each student
2. A copy of the [Electricity Card Sort Cards](#), one set per group of two or three students
3. [What Is Electricity? PowerPoint](#)

Vocabulary:

1. Circuit
2. Conductor
3. Electricity
4. Insulator
5. Load
6. Path
7. Source
- 8.

Cross-Curricular Connections:

Science

English/Language Arts

Identify the three basic components of an electrical system.	Define and use key vocabulary related to electricity in written and verbal explanations.
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SAE and FFA Connections

1. Agricultural Technology and Mechanical Systems CDE,
<https://ffa.box.com/s/lm54vln05kzwexi6nx5rzajzrc1d5dxx>
2. Agricultural Proficiency Area: Agricultural Mechanics Design and Fabrication,
[FFA.org/participate/awards/proficiencies/](https://ffa.org/participate/awards/proficiencies/)
3. Foundational SAE Connections: Agricultural Literacy

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

<https://ffa.box.com/s/csyov8d723mu3n39vk67719umphc3tm5> (Word)

<https://ffa.box.com/s/abeza6c8qmplrqc5z0lq5gh3ns4nmld0> (PDF)

<https://docs.google.com/document/d/1Ljtj-GX0USTmYyaqzqUEBPjeThsmJT2BQdbaulLqGF4/copy> (Google)

These Activities Are Aligned to the Following Standards:

AFNR Performance Element

- PST.04. Plan, build and maintain AFNR structures.

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.

Common Career Technical Core

- AG-PST4 Plan, build and maintain AFNR structures.

Common Core – Reading: Informational Text

- CCSS.ELA-Literacy.RI.9-10.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Common Core – Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups and teacher-led) with diverse partners on grades 9-10 topics, texts and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-Literacy.SL.9-10.4 Present information, findings and supporting evidence clearly, concisely and logically such that listeners can follow the line of reasoning and the organization, development, substance and style are appropriate to purpose, audience and task.

Common Core – Science & Technical Subjects

- CCSS.ELA-Literacy.RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon or concept; provide an accurate summary of the text.
- CCSS.ELA-Literacy.RST.9-10.4 Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.
- CCSS.ELA-Literacy.RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

AFNR Career Ready Practices

- CRP.02. Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- CRP.04. Communicate clearly, effectively and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.07. Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.
- CRP.08. Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem and devise effective plans to solve the problem.

Partnership for 21st Century Skills

- Information Literacy
- Initiative and Self-Direction
- Productivity and Accountability

Lesson Plan:

1. **Bell Ringer:** Look around this room. List three things you think need electricity to work. What would happen if they stopped working?
2. **Introduction:** *Have you ever plugged something in or flipped a light switch without really thinking about it? Electricity is all around us — powering your phone, your lights, even parts of your school and farms across the country. But what is electricity exactly? Where does it come from, and how does it work? In this lesson, you'll start to explore how electricity powers your world by looking at real-life examples, learning a few key terms and figuring out what makes electrical systems tick.*
3. **Activity:** Each student needs a copy of the worksheet “Electricity 101: Powering Our World.”
 - a. **Part 1:** Direct students to complete the chart on their student activity sheets as you go through the “What Is Electricity?” PowerPoint. When done, have students select two of the vocabulary words to complete the activity.
 - b. **Part 2:** Students will apply what they learned through their notes. Divide students into small groups of two or three students. Give each group a set of the “electricity card sort cards.” They will use the category headers (source, path and load) to sort each object card into the correct category. Once they have completed their sort, check their answers. Once they are correct, have them record the answers in the chart. Use the following questions to guide their sorting.
 - Does this item provide electricity? → Source
 - Does it carry electricity? → Path
 - Does it use electricity to do something? → Load
 - c. **Part 3:** Have students walk around the classroom. They should look for items that use electricity. For each item, they should decide if it is a source, path or load. Then explain what it does and if it needs electricity. When done, students will answer the conclusion questions.
4. **Follow-up:** Encourage students to compare and contrast their lists of electric items with their peers.
5. **Optional – Extended Learning Opportunities (Not factored into time requirement):**
 - a. Have students explore different electric items they have at home and how they work together.
6. **Exit Ticket:** Describe something in your home or school that uses all three parts: source, path and load. What would happen if one part stopped working?

Name: _____

Electricity 101: Powering Our World

Part 1

Directions:

Fill in the blanks as your teacher goes through the PowerPoint.

Term	Definition	Example	What Would Happen If It Were Missing?

Choose two of the vocabulary words from above and define each by drawing a picture.

Vocabulary Word:

Picture:

Vocabulary Word:

Picture:

Name: _____

Part 2

Directions:

Now it's time to apply what you learned through your notes. Work in a small group. Use the category headers — Source, Path and Load — to sort each object card into the correct category. Once you have completed your sort, have your teacher check your answers and then record the answers in the chart below. Use the following questions to guide your sorting.

- Does this item provide electricity? → Source
- Does it carry electricity? → Path
- Does it use electricity to do something? → Load

Item	Category (Source/Path/Load)	Why Did You Choose This Category?

1. In your own words, explain what source, path and load are and their relationships to each other.

Part 3

Name: _____

Directions:

Walk around the classroom. Look for items that use electricity. For each item, decide if it is a source, path or load. Then explain what it does and if it needs electricity. When done, answer the conclusion questions below.

Item	Source/Path/Load	What Does It Do?	Needs Electricity? (Yes/No)

Reflection Questions

1. What is one new thing you learned about how electricity works?

2. If something in your house stops working, how could knowing about Source, Path and Load help you figure out what is wrong?

3. What would happen if one part of the electrical system (source, path or load) was missing?

4. If you had to live one day without electricity, what would you miss the most? Why?

Name: _____

KEY: Electricity 101: Powering Our World

Part 1

Directions:

Fill in the blanks as your teacher goes through the PowerPoint.

Term	Definition	Example	What Would Happen If It Were Missing?
Electricity	A form of energy that flows through materials	Powers lights and tools	Nothing would work
Source	Where electricity comes from	Battery, outlet	There would be no power for anything to run
Path	What electricity travels through	Wire, cord	Electricity wouldn't get to the device.
Load	What uses the electricity	Fan, bulb, phone	Nothing would actually turn on or use the power
Circuit	A complete loop that lets electricity flow	Battery, wire, bulb	Everything would stay off because the loop is broken
Conductor	A material that allows electricity to flow	Metal	Electricity wouldn't be able to move from the source to the load.
Insulator	A material that blocks electricity	Rubber, plastic	Electricity could travel where it shouldn't, creating shocks, sparks or unsafe conditions.

Choose two of the vocabulary words from above and define each by drawing a picture.

Vocabulary Word: *Answers will vary.*

Picture: *Answers will vary.*

Vocabulary Word: *Answers will vary.*

Picture: *Answers will vary.*

Name: _____

Part 2

Directions:

Now it's time to apply what you learned through your notes. Work in a small group. Use the category headers — Source, Path and Load — to sort each object card into the correct category. Once you have completed your sort, have your teacher check your answers and then record the answers in the chart below. Use the following questions to guide your sorting.

- Does this item provide electricity? → Source
- Does it carry electricity? → Path
- Does it use electricity to do something? → Load

Item	Category (Source/Path/Load)	Why Did You Choose This Category?
Fuse	Path	Answers will vary.
Multimeter	Load	Answers will vary.
Surge Protector	Path	Answers will vary.
Power strip	Path	Answers will vary.
Switch	Path	Answers will vary.
Generator	Source	Answers will vary.
Circuit breaker	Load	Answers will vary.
Electric fence controller	Load	Answers will vary.
Toaster	Load	Answers will vary.
Fan	Load	Answers will vary.
Light bulb	Load	Answers will vary.
Phone charger cable	Path	Answers will vary.
Extension cord	Path	Answers will vary.
Wire	Path	Answers will vary.
Electrical outlet	Source	Answers will vary.
Battery	Source	Answers will vary.
Wind turbine	Source	Answers will vary.
Solar panel	Source	Answers will vary.

1. In your own words, explain what source, path and load are and their relationships to each other.

Answers will vary.

Name: _____

Part 3

Directions:

Walk around the classroom. Look for items that use electricity. For each item, decide if it is a source, path or load. Then explain what it does and if it needs electricity. When done, answer the conclusion questions below.

Item	Source/Path/Load	What Does It Do?	Needs Electricity? (Yes/No)
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.	Answers will vary.	Answers will vary.

Reflection Questions

1. What is one new thing you learned about how electricity works?

Answers will vary.

2. If something in your house stops working, how could knowing about Source, Path and Load help you figure out what is wrong?

Answers will vary.

3. What would happen if one part of the electrical system (source, path or load) was missing?

Answers will vary.

4. If you had to live one day without electricity, what would you miss the most? Why?

Answers will vary.