



Electricity Unit

Lesson 2 of 7

Safety in Electricity

Created: 08/2025 by the National FFA Organization

Description of Lesson: *This lesson introduces students to safety in electricity and 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. Identify electrical safety hazards and explain the danger each presents.
2. Analyze electrical safety scenarios and recommend safe alternatives.
3. Apply knowledge of safety rules and cite specific violations and corrective actions.
4. Explain the function and importance of key safety devices.

Suggested Grade Level:

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

Suggested Time: 60 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Textbook: Agricultural Mechanics Technical Systems, 2nd Edition, <https://www.g-w.com/agricultural-mechanics-technology-systems-2024>
2. Website: Agricultural Technology and Mechanical Systems CDE, <https://FFA.box.com/s/lm54vln05kzwexi6nx5rzajzrc1d5dxx>

Related Resources:

1. SAE Idea Cards, <https://FFA.box.com/s/0i0438zo941eymcncqpgabh5iqzzlrpg>

Equipment and Supplies Needed:

1. A copy of the "Watt Could Go Wrong?" worksheet for each student
2. Printed sections of the [Electrical Safety Notes](#), one copy per student
3. A copy of the [Scenario Cards](#), one set per student, printed and cut out
4. Paper and pencils for sketching
5. Markers or colored pens

Vocabulary:

1. Amps
2. Circuit
3. Conductor
4. GFCI (Ground Fault Circuit Interrupter)
5. Grounding
6. Insulator
7. Shock
8. Volts

Name: _____

Cross-Curricular Connections:

Science	English/Language Arts
Analyze how electrical current, resistance and heat can cause safety issues.	Complete RAFT writing to explain concepts from unique roles and audiences.

SAE and FFA Connections

1. Agricultural Technology and Mechanical Systems CDE,
<https://ffa.box.com/s/lm54vln05kzwexi6nx5rzejrc1d5dxx>
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/17rfprvu3x41irdnlcnrfoeca5fyt6fs> (Word)

<https://ffa.box.com/s/2lj4q9dbsr9qc9hxa6cqn2kf9bzf4whz> (PDF)

<https://docs.google.com/document/d/1cxWUIMBSkualT6JdEL-YsY5mW7oj43DJtLQqJAO-A7l/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

Name: _____

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:** What is something in your house you think might be an electrical hazard? Why?
2. **Introduction:** *Most of us are around electricity every day, but we don't always think about the risks. Electricity can be incredibly helpful, but it can also be dangerous if not handled correctly. In this lesson, you'll dive into the basics of electrical safety, explore real-life situations where things can go wrong and learn how to spot and fix hazards before someone gets hurt. By the end, you'll be ready to keep yourself and others safe when the power is on.*
3. **Activity:** Each student needs a copy of the worksheet "Watt Could Go Wrong?"
 - a. **Part 1:** Give students a copy of the Electricity Safety notes. Share with students that they are a safety inspector who just completed a walk-through of a classroom or home. Based on what they've learned from their electrical safety notes, their job is to create a short, engaging message to help others avoid unsafe practices. They should complete the RAFT assignment using the directions on their student activity sheets and the provided rubric.
 - b. **Part 2:** Divide students into pairs or groups. They should go around the room to the different scenarios you have cut out and taped up, and complete the chart on their student activity sheets. At the conclusion of the activity, have a class discussion to go over the answers. Finally, they will answer the two conclusion questions.
 - c. **Part 3:** Students will design a space like a bedroom, classroom, garage, kitchen or living room in the space included on their student activity sheets. In their drawing, they should include at least five electrical hazards. Once they are done, direct students to swap drawings with a partner and analyze their drawings. Their job is to spot and label as many hazards as they can in their partner's drawing. Direct students to complete the chart on their student activity sheets as they analyze.
 - d. **Part 4:** Direct students to complete the reflection questions on their student activity sheets.
4. **Follow-up:** Have students walk through a room at home or school and identify three electrical hazards. Have them write what makes each one unsafe and how it could be fixed.
5. **Optional – Extended Learning Opportunities (Not factored into time requirement):**
 - a. Have students find a real news article about an electrical fire or shock incident. Then, write a short summary and explain what could have prevented it.
6. **Exit Ticket:** If you had to explain the importance of electrical safety in one sentence, what would you say?

Name: _____

Watt Could Go Wrong?

Part 1

Directions:

Using the electricity safety notes given to you by your teacher, complete the RAFT activity below.

Electricity Safety RAFT Writing Assignment

You are a safety inspector who just completed a walk-through of a classroom or home. Based on what you've learned from your electrical safety notes, your job is to create a short, engaging message to help others avoid unsafe practices. This is your chance to turn technical knowledge into a creative and useful message that can educate others.

Your RAFT Task

Role:	Safety Inspector or Electrician
Audience:	Middle School Students or Younger Siblings
Format:	PSA Poster, Letter or Informational Comic
Topic:	How to avoid common electrical hazards at home or school

Your writing should include:

- At least three common electrical hazards and what makes them dangerous.
- One or two electrical safety tips from the notes.
- A consequence that might happen if the rule is ignored.
- Language that is clear and understandable for a younger audience.
- Optional: Add drawings or visuals if creating a poster or comic.

Need Ideas? Try One of These:

- Write a letter to a younger sibling warning them about using damaged cords.
- Create a poster showing how to use GFCI outlets and why they're important.
- Design a comic strip where a character breaks a safety rule and learns the hard way.
- Write a message from the point of view of a power strip that's tired of being overloaded!

RAFT Rubric

Criteria	Excellent (4)	Good (3)	Developing (2)	Limited (1)
Content Accuracy	All safety facts are accurate and clearly explained.	Most safety facts are accurate and explained.	Some safety facts are inaccurate or unclear.	Safety facts are mostly inaccurate or missing.
Inclusion of Required Elements	Includes at least three hazards, at least one safety tip and a consequence	Includes two hazards, one safety tip and a consequence.	Includes only one hazard and/or is missing some elements	Missing most or all required elements
Creativity and Voice	Highly creative and engaging; strong voice/tone	Some creativity and voice; moderately engaging	Limited creativity: tone is flat or inconsistent.	Lacks creativity or voice; not engaging
Audience Awareness	Perfectly tailored to a younger audience	Mostly appropriate for a younger audience	Partially considers the younger audience	Does not consider the audience's age
Presentation and Effort	Neat, polished and clearly shows strong effort	Mostly neat and shows good effort	Somewhat rushed or messy; moderate effort	Poorly presented; minimal effort shown

Name: _____

Part 2

Directions:

You and your team will rotate through electrical safety situations posted around the room. Your job is to become safety experts by identifying the hazards and coming up with safer solutions. Record your answers in the chart below. Use your notes from Part 1 as needed.

Scenario	What Is the hazard?	What Could Go Wrong?	How Would You Fix It?

Complete the reflection questions below after your class discussion.

Reflection Questions:

1. What is one safety rule you'll be more aware of now after this activity?

2. If you had to add one more scenario to the activity, what would it be?

Name: _____

Part 3

Directions:

Design a space like a bedroom, classroom, garage, kitchen or living room in the area below. In your drawing, include at least five electrical hazards. Once you are done, swap drawings with a partner and analyze their drawing. Your job is to spot and label as many hazards as you can in your partner's drawing. Complete the chart below as you analyze.

Hazard	Why It Is Dangerous	Safety Rule

1. What electrical hazards were the easiest and hardest to spot in your partner's drawing?
2. What does that tell you about how we notice or overlook danger in real life?

Name: _____

Part 4

Directions:

You're now an Electrical Safety Detective! Before graduating from safety training, complete your final report below.

1. What is one fact or safety rule that shocked your brain (in a good way)?
Example: "I had no idea that ..."
2. Sketch or describe an electrical hazard you've seen in real life. Then write one step someone could take to fix or avoid it.
3. Write your best piece of advice for someone younger than you about staying safe with electricity.
4. On a scale of 1 to 5, how confident do you feel about spotting electrical hazards now?
(1 = Not confident, 5 = Very confident)

"Before this lesson, I didn't realize _____, but now I know _____."

5. What part of the lesson was your favorite, and why? You can draw it, write it or describe it like a comic panel.

Name: _____

KEY: Watt Could Go Wrong?

Part 1

Directions:

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Part 2

Directions:

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Scenario	What Is the Hazard?	What Could Go Wrong?	How Would You Fix It?
1	Touching electrical device with wet hands	Shock or electrocution from moisture conducting electricity	Always dry hands before using electronics
2	Overloading a power strip with high-wattage appliances	Fire due to overheating or power strip failure	Use multiple circuits and limit devices on one strip
3	Extension cord across a hallway, creating a tripping hazard	Cord damage or tripping, leading to shock or injury	Reroute the cord or use proper covers
4	Using a frayed charger cord	Shock or fire from exposed wires	Replace the charger entirely
5	Placing a plugged-in speaker next to a full sink	Electrocution risk from water contact	Keep electronics away from sinks or water sources
6	Using an electric mower on damp grass	Shock or tool malfunction from moisture	Wait until conditions are dry before mowing
7	Using a cracked and damaged outlet	Shock or fire from exposed wiring	Report and replace broken outlets
8	Sticking a metal knife into a plugged-in toaster	Shock or electrocution from contact with live parts	Unplug toaster and use a wooden/plastic tool
9	Using a power tool with the ground prong missing	Shock risk due to lack of proper grounding	Do not use; replace the plug or the tool
10	Charging a phone under a pillow while sleeping	Fire from overheating under flammable material	Charge on a flat, open surface away from bedding

Complete the reflection questions below, after your class discussion.

Reflection Questions:

1. What is one safety rule you'll be more aware of now after this activity?

Answers will vary.

2. If you had to add one more scenario to the activity, what would it be?

Answers will vary.

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Answers will vary.	Answers will vary.	Answers will vary.
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1. What electrical hazards were the easiest and hardest to spot in your partner's drawing?
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2. Sketch or describe an electrical hazard you've seen in real life. Then write one step someone could take to fix or avoid it.

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3. Write your best piece of advice for someone younger than you about staying safe with electricity.

Answers will vary.

4. On a scale of 1 to 5, how confident do you feel about spotting electrical hazards now?
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"Before this lesson, I didn't realize _____, but now I know _____."

Answers will vary.

5. What part of the lesson was your favorite, and why? You can draw it, write it or describe it like a comic panel.

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