

Ag Mechanic Skills

Electricity Unit

Ms. P

Topic Title	Hours	Freshman Course
Circuits and Wire Identification	4	
Attaching Cable Clamps and Stripping Romex	1	
Stripping Wire and Making Loops	1	
Installing Wires to Switch and Duplex	1	
Connecting Wires to Switch, Light, and Duplex	1	
Four-Way Outlet	2	
Electrical Unit Test	1	
TOTAL TIME FOR UNIT = 11 hrs		

UNIT GOAL: Students will develop the knowledge and skills necessary to accomplish basic electricity jobs.

Essential Question: What is essential in designing an electrical project?

Unit Objectives

Upon completion of this unit, the students will be able to:

1. Interpret basic agricultural electrical plans.
2. Practice the rules for personal and group safety while working in an agricultural mechanics environment.
3. Know the relationship between accepted shop management procedures and a safe working environment.
4. Understand proper basic electrical circuit and wiring techniques with nonmetallic cable and conduit as defined by the National Electric Code.

Expanded Outline

Day 1-4

Topic Objectives: Upon completion of this lesson, the student will be able to:
Interpret basic agriculture plan

Special Materials and Equipment: PowerPoint, notes packets

Evaluation: Electrical Safety Test

Day 5-8

Topic Objectives: Upon completion of this lesson, the student will be able to:

1. Interpret basic agricultural electrical plans.
2. Practice the rules for personal and group safety while working in an agricultural mechanics environment.
3. Know the relationship between accepted shop management procedures and a safe working environment.
4. Understand proper basic electrical circuit and wiring techniques with nonmetallic cable and conduit as defined by the National Electric Code.

Special Materials and Equipment: Utility knife, cutting board, Romex, circuit box, cable clamps, wire nuts, light fixture, light switch, duplex receptacle, long nose pliers, wire strippers, cable cutters, regular screwdriver, Philips screwdriver

Evaluation: Completed Circuit

Day 9-10

Topic Objectives: Upon completion of this lesson, the student will be able to:

1. Interpret basic agricultural electrical plans.
2. Practice the rules for personal and group safety while working in an agricultural mechanics environment.
3. Know the relationship between accepted shop management procedures and a safe working environment.
4. Understand proper basic electrical circuit and wiring techniques with nonmetallic cable and conduit as defined by the National Electric Code.

Special Materials and Equipment: Wire strippers, utility knife, long nose pliers, flat head screwdriver, Philips screwdriver, four-way outlets, junction box, extension cords, Romex

Evaluation: Completed Four-way Outlet

Day 11

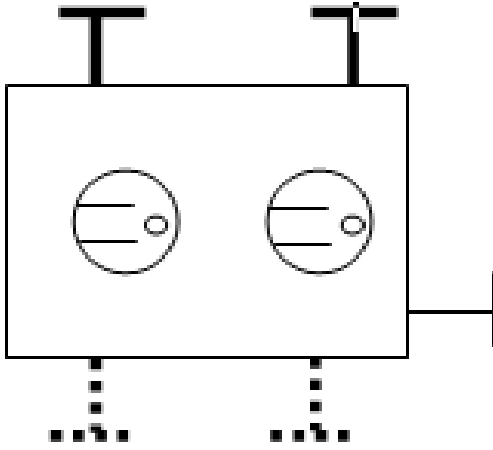
Unit Exam

Tools/Materials/Supplies

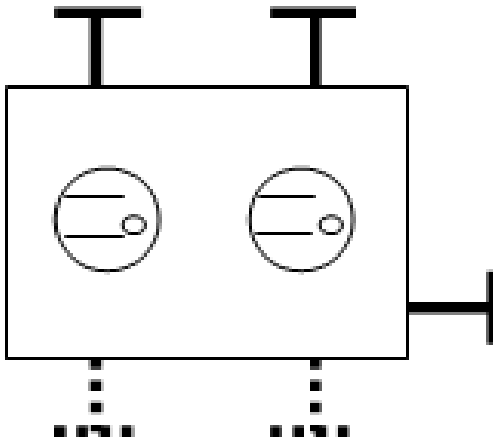
Materials:	Tools:
(12) Circuit Boards (12) Light Fixtures (12) Light Switches (50) Outlets (25) Junction Boxes Romex (25) Extension Cords (25) Circuit Board/Four-Way Outlet Plans Wire Nuts	(12) Wire Strippers (12) Utility Knives (12) Long Nose Pliers (12) Flat Head Screwdrivers (12) Philips Screwdrivers Tape Measures

Name:

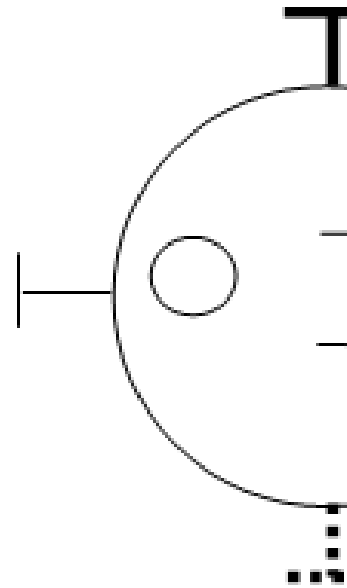
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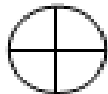
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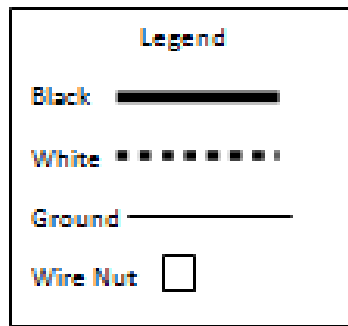


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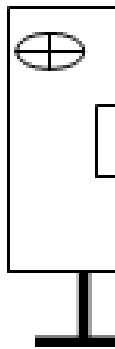
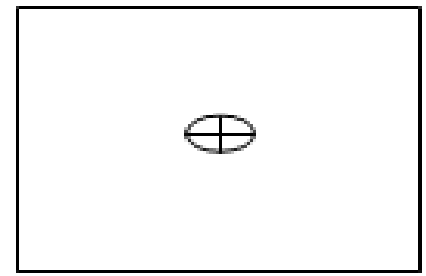
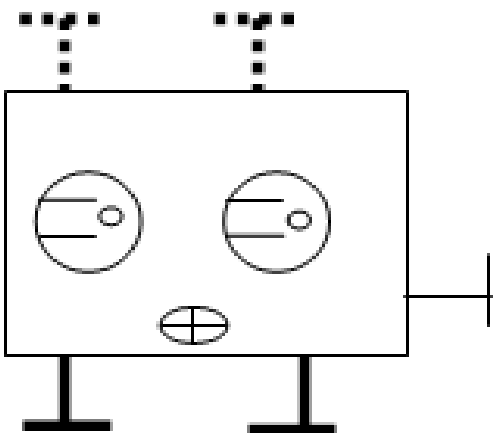
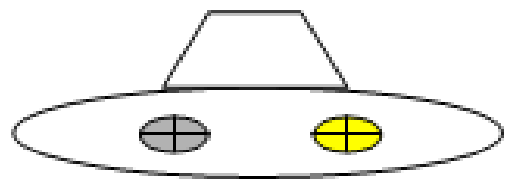
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Name: _____

Period: _____



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Ag Mechanics Skills 1
Electricity Unit Test
(35 Points)

(20) 1. Write the letter of the correct answer in the space to the left of each number.

- | | |
|---|------------------|
| _____ 1. Produced when electricity flow with resistance. | A. Amps |
| _____ 2. Consists of two wires and a light, heater or motor. | B. Circuit |
| _____ 3. A wire that technically does not carry electricity. | C. Conductor |
| _____ 4. Loss of voltage as it travels along a wire. | D. Conduit |
| _____ 5. The most common material used in making wire. | E. Copper |
| _____ 6. Measurement of electrical pressure. | F. Electricity |
| _____ 7. Any material through which electricity easily flows. | G. Gauge |
| _____ 8. Measurement wire diameter. | H. GFI |
| _____ 9. The common name for nonmetallic sheathed cable | I. Ground wire |
| _____ 10. A device that measures the amount of electricity used. | J. Heat |
| _____ 11. Measurement of the amount of work that can be done. | K. Hot wire |
| _____ 12. A form of energy that produces light, heat and magnetism. | L. Insulator |
| _____ 13. Any material which restricts the flow of electricity. | M. Meter |
| _____ 14. Measurement of the flow of electricity. | N. Neutral wire |
| _____ 15. A wire that acts as a safety device in case of a short circuit. | O. Romex |
| _____ 16. Rigid or bendable tubing that contains electrical wires. | P. Short circuit |
| _____ 17. Caused when electricity travels back to its source too fast. | Q. Voltage drop |
| _____ 18. The wire that carries the electricity. | R. Volts |
| _____ 19. Types of outlets usually found in wet locations. | S. Watts |
| _____ 20. Used to connect two or more wires together. | T. Wire nut |

(3) 2. Draw a line from the wire color to the correct color screw.

Black wire Green screw

Green wire Gold or brass screw

White wire Silver screw

(6) 3. List the three common colors for the following types of wire.

Hot

A.

B.

C.

Ground

A.

B.

Neutral

A.

(5) 4. A piece of romex has the following information printed on it: 12-2 w/g. Explain the meaning of that information.

(1) 5. Circle the correct answer to the following statement:

I was "shocked" at how much I learned from this unit.

True

False