

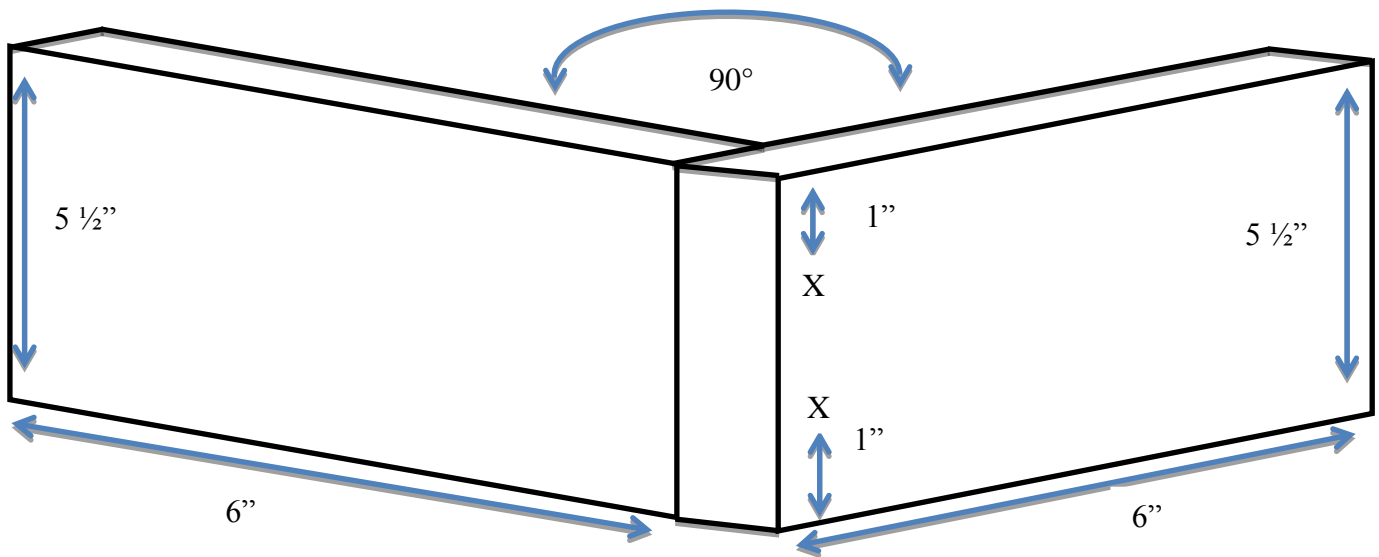
Iowa State FFA Agricultural Mechanics Career Development Event 2014

State of Iowa
Department of Education
Iowa State University
Department of Agricultural
Education and Studies

CONTESTANT NAME _____

CONTESTANT SCHOOL _____

Structural Systems Carpentry Skill



Utilizing the diagram above, use the countersink bit to drill two holes prior to driving two screws into the 1x6 boards provided. X indicates where the screws should be inserted to connect the two boards.

| Evaluation Score Card | <u>Points</u> | |
|--|---------------|--------|
| | Possible | Earned |
| Correct configuration | 2 | _____ |
| Top Screw is fleshly placed 1" from the top with no cracks | 9 | _____ |
| Bottom Screw is fleshly placed 1" from the Bottom with no cracks | 9 | _____ |
| Safety | 5 | _____ |
| Total | 25 | _____ |

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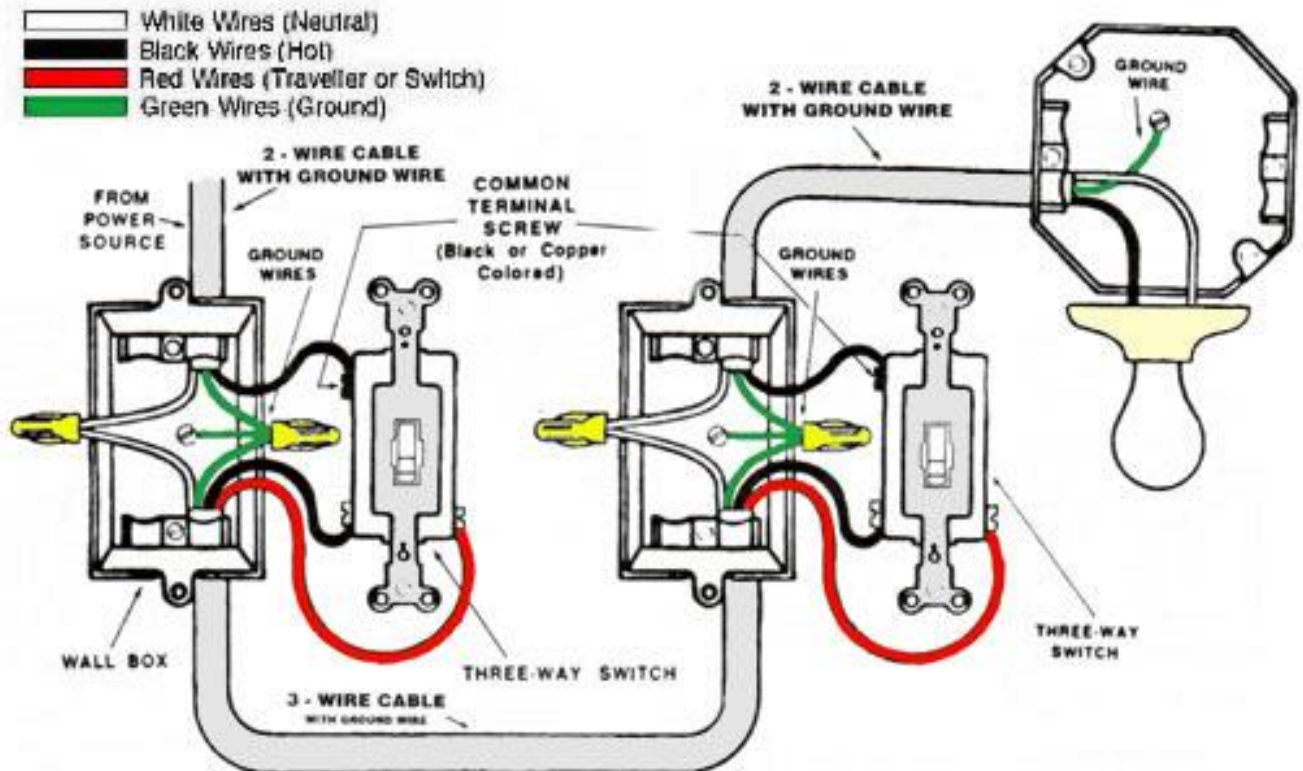
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Electrical Systems Electrical Wiring

Using the diagram below wire the light receptacle to the 3-way switches.

Two three-way switches control one light with the electric power coming through the first switch, flowing to the second switch, and then to the light fixture. The ground wire goes through both switch boxes and the ceiling light box and it is connected at all junctions, except the light, with a pigtail (short piece of wire) and wire connector. The hot wire in the drawing is black and is connected to the COM terminal. The neutral wire is white. Track each with a finger to its conclusion at the light fixture to ensure proper connection. Some light fixtures with a chain pull have a ground connection.



Evaluation Score Card**Points**

| | Possible | Earned |
|---|-----------------|---------------|
| Selected two three-way switches | 2 | _____ |
| Selected the correct wires | 2 | _____ |
| Ran the neutral wires correctly | 2 | _____ |
| Ran the hot wires correctly | 3 | _____ |
| Ran the ground wires correctly | 3 | _____ |
| Ran the traveler wire correctly | 3 | _____ |
| Wires were installed in the correct direction | 3 | _____ |
| Connections are tight | 4 | _____ |
| Safety | 3 | _____ |
| Total | 25 | _____ |

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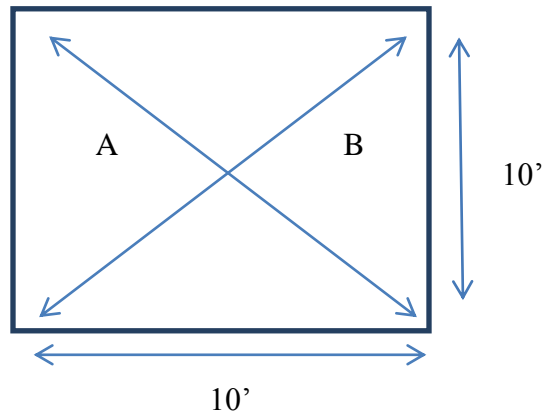
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Environmental/Natural Resource Systems Land Measurement

Your FFA chapter has been selected to work with Iowa State University Extension to operate a test plot at your chapters' land lab. In order to collect accurate yield data the test plots must be 10'x10' squares otherwise the planter will not be able to distribute the seeds evenly. Starting from the fiberglass polls already in place mark out the plot using the flags provided. Please include your name and chapter on the flags using the sharpies provided.



| Evaluation Score Card | <u>Points</u> | |
|--|----------------------|---------------|
| | Possible | Earned |
| All four sides measure 10' (-1 per inch off) | 20 | _____ |
| Measurement A = Measurement B | 5 | _____ |
| Total | 20 | _____ |

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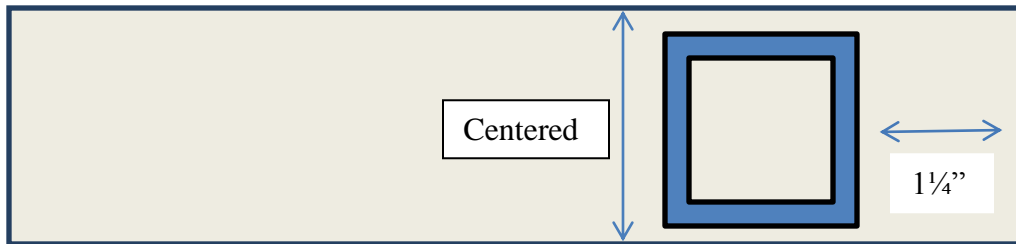
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Metals & Welding Systems

Gas Metal Arc Welding Skill



You will be provided with one welding coupon and one piece of one inch square tubing. Using the Mig welder; weld all four sides of the tubing to the coupon.

DO NOT READJUST THE MACHINE

| Evaluation Score Card | <u>Points</u> | |
|---|---------------|--------|
| | Possible | Earned |
| Square tubing placement (-1 per 1/8" off) | 4 | _____ |
| Weld #1 | 4 | _____ |
| Weld #2 | 4 | _____ |
| Weld #3 | 4 | _____ |
| Weld #4 | 4 | _____ |
| Safety | 5 | _____ |
| Total | 25 | _____ |

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Machinery & Equipment Systems Small Gas Engines

You have been recently hired at one of the local small engine repair shops. One of your co-workers has identified that the issue is related to the electrical system. They suspect that the spark plug is bad, but did not troubleshoot the situation. They grab a new spark plug and hand it to you to install before they are called off to meet with a customer. Before you install the spark plug answer the following questions:

1. Engine model number: _____

2. What year was this engine manufactured? _____

3. Before replacing the spark plug, inspect the current spark plug

Is the spark plug in the engine the same as the spark plug given to you by the other employee? _____

Can the current spark plug be salvaged? _____

What is wrong with the spark plug? _____

What are the correct settings that would remedy the issue? _____

What is the torque setting for installing the spark plug? _____

4. Once you have identified the issue and have reset the spark plug to the correct settings raise your hand and have the judge observe you're setting prior to reinstalling the spark plug. YOU MUST RECEIVE JUDGE'S SIGNATURE TO OBTAIN POINTS FOR THIS SECTION.

Judge's Signature _____

Evaluation Score Card**Points**

| | Possible | Earned |
|----------------------------------|-----------------|---------------|
| Model Identification | 2 | _____ |
| Year built? | 2 | _____ |
| Current Spark Plug | 2 | _____ |
| Servicing the Current Spark Plug | 2 | _____ |
| Identified the Problem | 3 | _____ |
| Correct Settings | 4 | _____ |
| Torque | 2 | _____ |
| Correct Adjustment | 6 | _____ |
| Safety | 2 | _____ |
| Total | 25 | _____ |