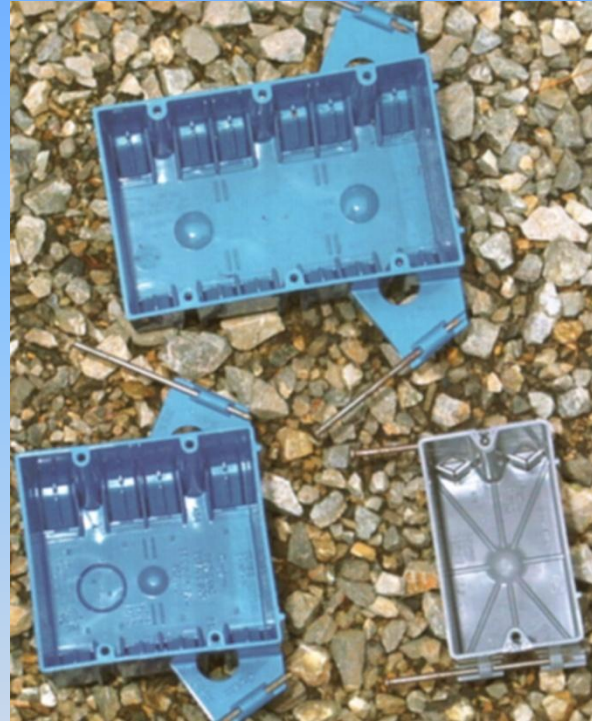


Home Electrical Wiring

Switches – Types and how to wire a single switch and 3 way switches

Types of Switch Boxes

- Most general use is the nonmetallic type because they are cheaper, easy to install, but they damage easily.
- Metal boxes are required for mounting on the exterior surface of a wall.



Types of switches

- Different quality. You get what you pay for.

- **Single pole switch** – has 2 terminals (screws). The switch simply turns a load on and off. The screws will be brass meaning the hot wire is switched (interrupted).

- **Three way switch** – has 3 terminals (screws). There are 2 terminals for the hot wires (brass) and 1 terminal for the common (dark colour screw).

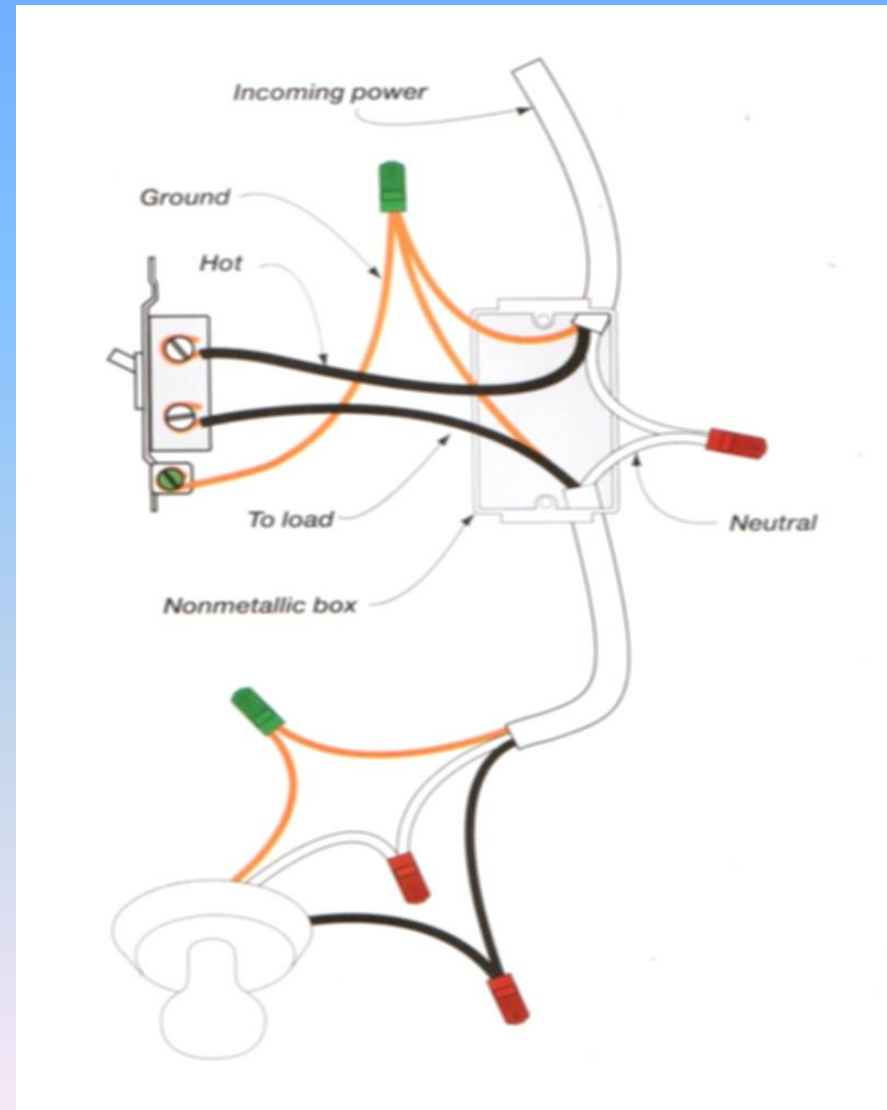


Wiring a Single Switch

When power is at the switch box

- Wiring a single switch is very simple. The switch just needs to be inserted into the “hot” wire between the incoming power and the load.

- A good practice is to install the incoming hot wire on the top terminal and the bottom terminal goes to the load.

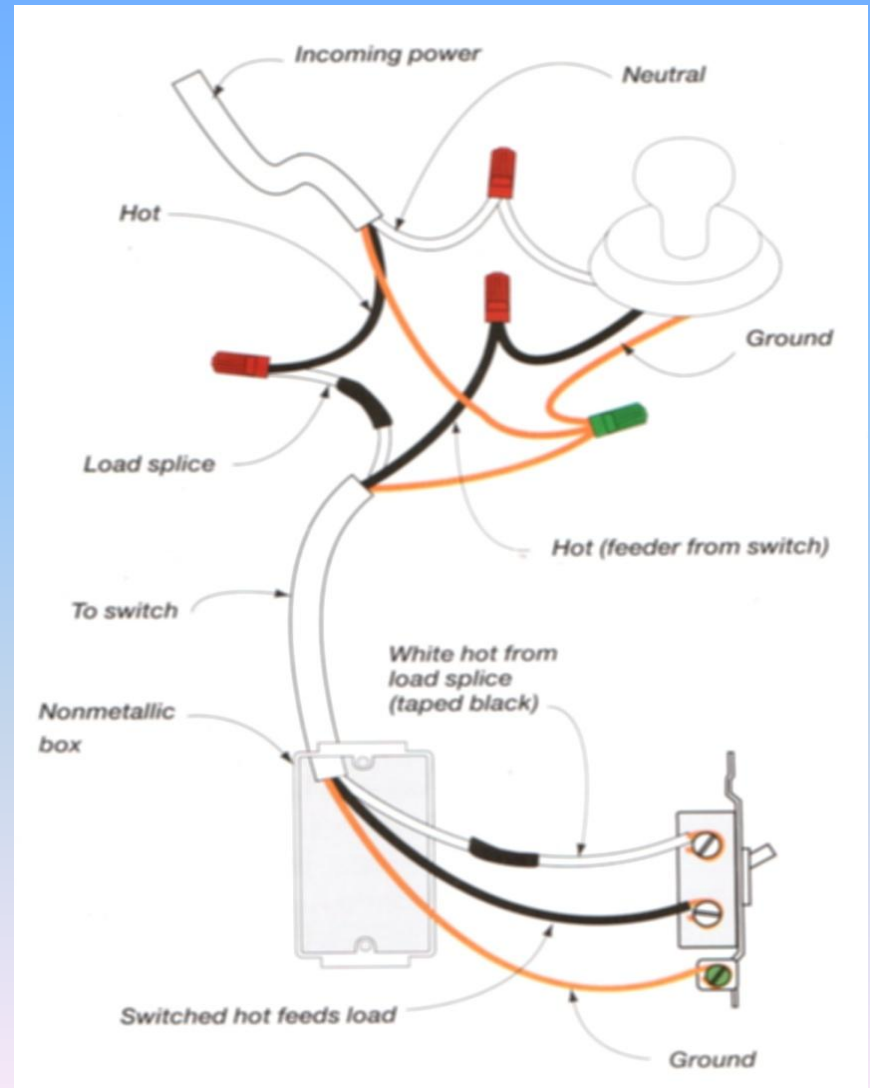


Wiring a Single Switch

When power is at the light

- If the power is at the load (light) a little more complexity is involved.

- The neutral of the incoming power goes to the load (light).
- The hot wire needs to go to the top of the switch but because the cable going to the switch has a white and black wire in it, you tape the white wire black at both ends, representing hot and attach it to the top of the switch.
- Then the black wire is connected to the bottom of the switch and run back to the load to complete the circuit.

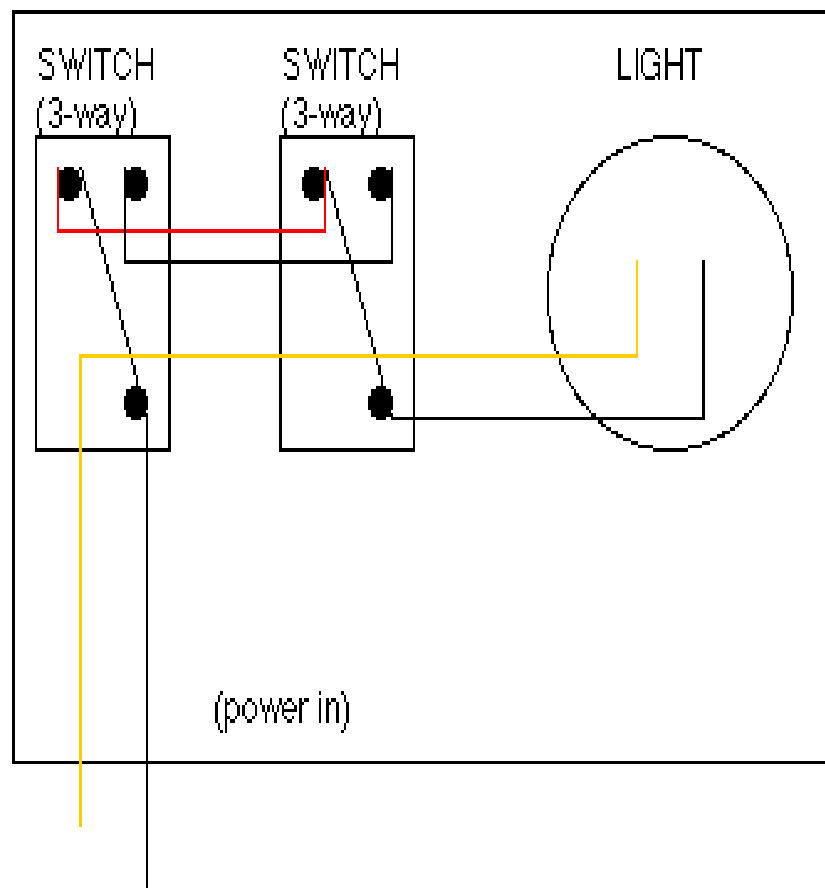


3-way Switches – power at switch

- A 3-way switch is used when you have a long hallway, set of stairs or more than one entrance into a room and you want to control the light from either end.

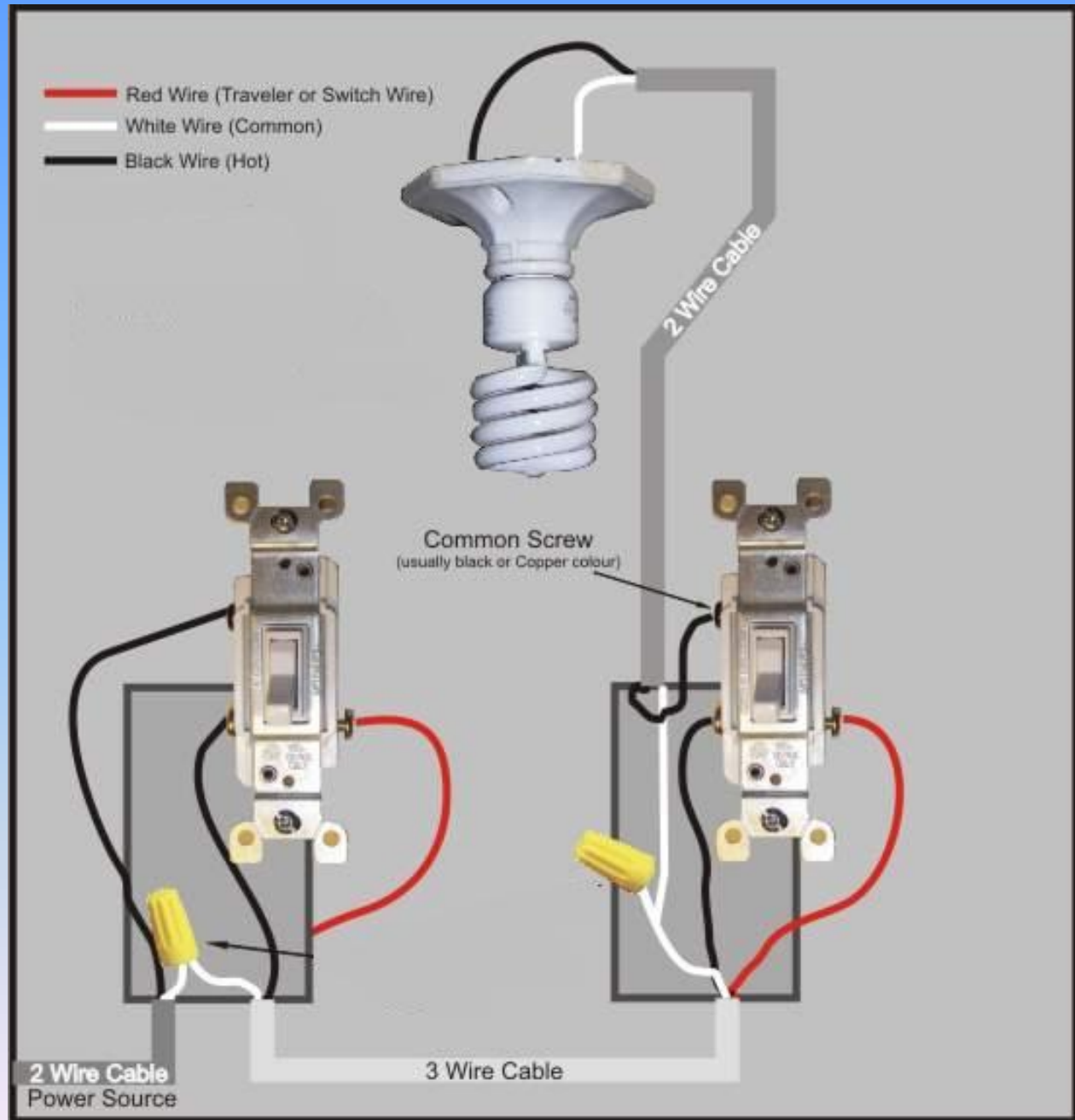
- There are 4 rules to getting a 3 way switch right.

- #1 Connect the incoming power hot wire to the common on one of the switches
- #2 Connect the incoming power neutral wire to the load.
- #3 Connect the load hot wire to the common on the other switch.
- #4 Connect the traveler wires (no polarity) to the two leftover terminals on each switch.

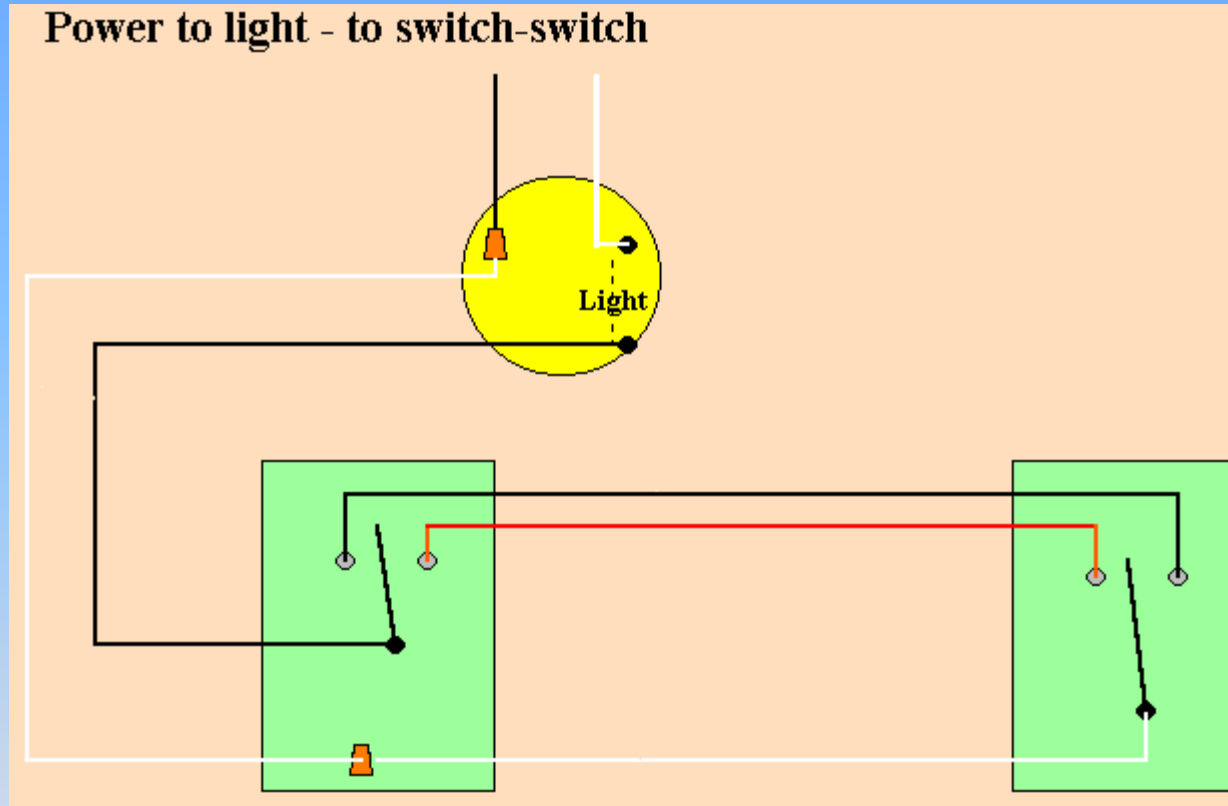


4 Rules

- #1 Connect the incoming power hot wire to the common on one of the switches.
- #2 Connect the incoming power neutral wire to the load.
- #3 Connect the load hot wire to the common on the other switch.
- #4 Connect the traveler wires (no polarity) to the two leftover terminals on each switch.



3-way Switches – power at light



The same 3 rules apply to getting a 3 way switch right even when the power comes from the light.

- Connect the incoming power hot wire to the common of the switch
- Connect the incoming power neutral wire straight to the load (light) and the load hot wire to the common on the other switch.
- Connect the traveler wires (no polarity) to the two leftover terminals on each switch.

Lab #7

(Wiring a 3 way Switch – power at the light)

1. Remove all connections to the switches and light.
2. Remove the power wire from the right switch box and run it into the light box at the top instead.
3. Keep the 14/3 wire that goes between the switches.
4. You are now ready to follow the diagram to the right.

****REMEMBER TO ATTACH THE GROUND WIRE TO EACH BOX**

****Don't forget to TAPE the white wire as HOT!!!**

