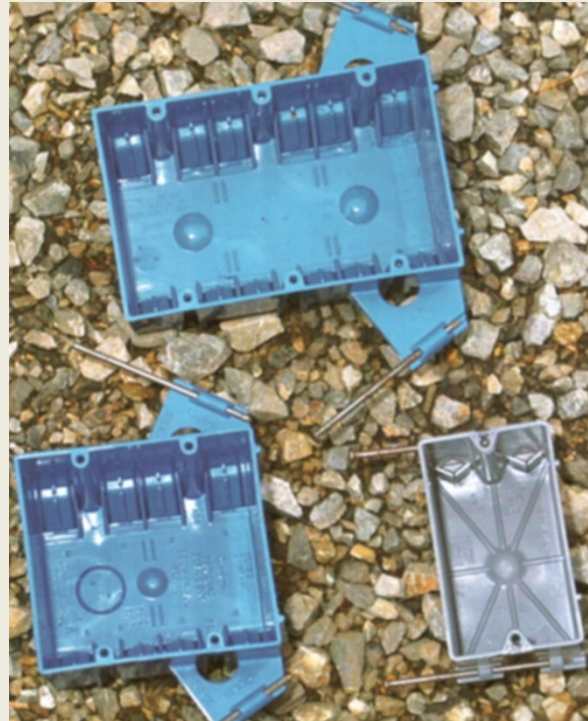


# Home Electrical Wiring

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).

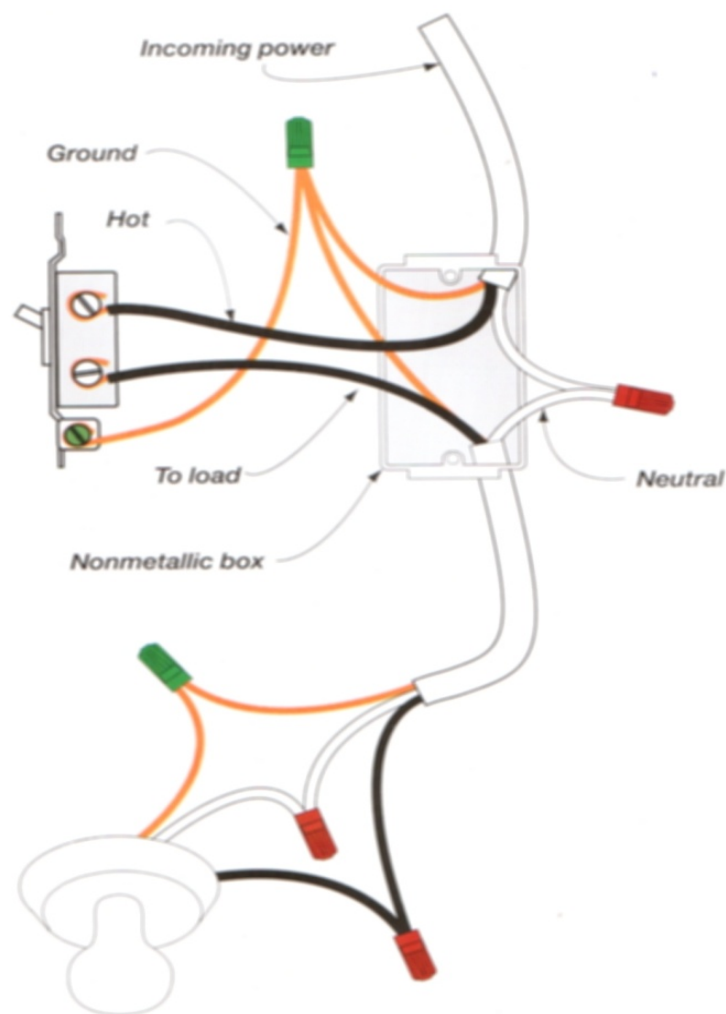


# Wiring a Single Switch

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.

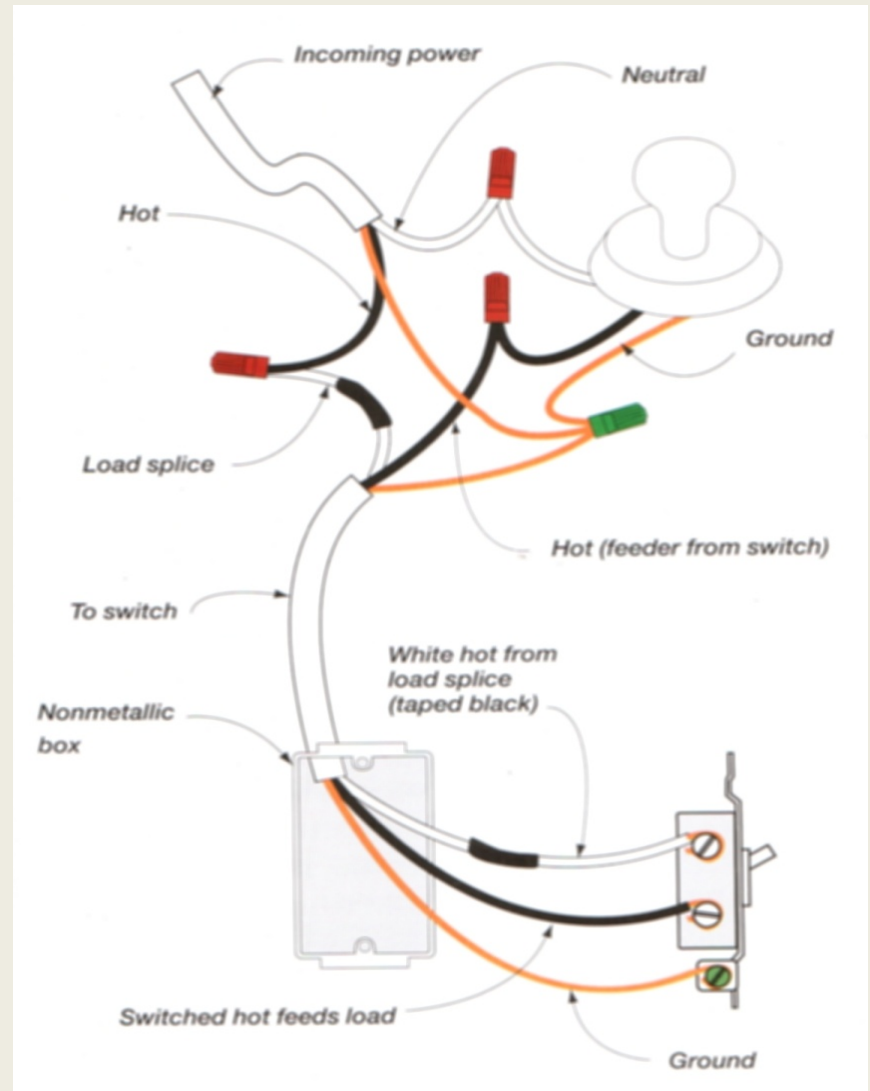
- A good practice is to install the incoming hot wire on the top terminal and the bottom terminal goes to the load.



# 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.

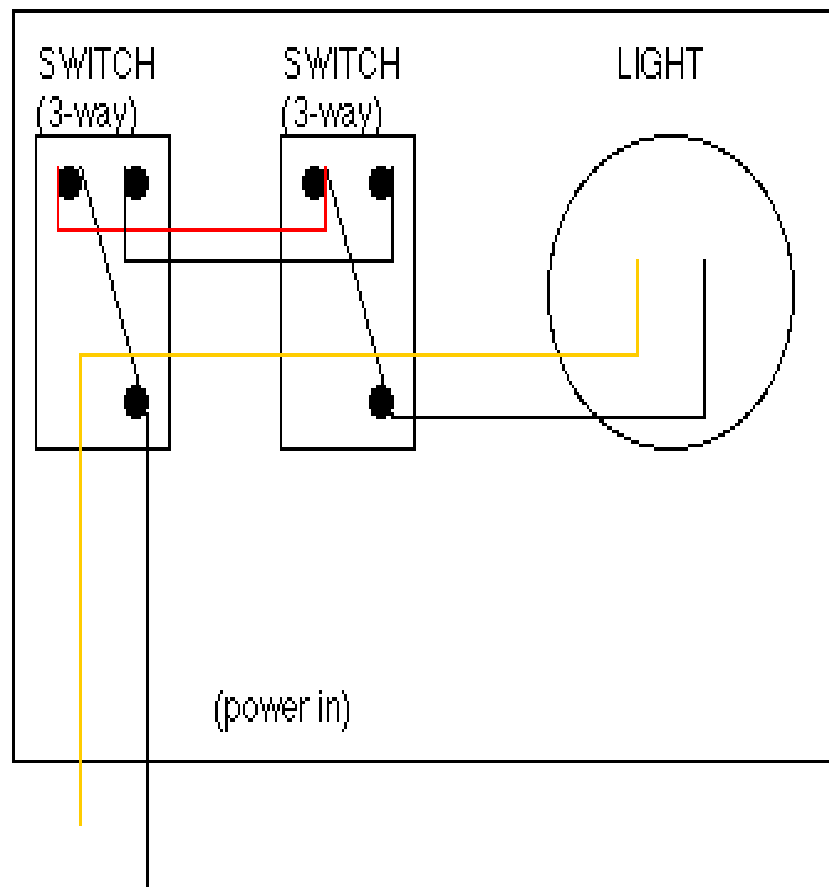


# 3-way Switches – power at switch

- 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.

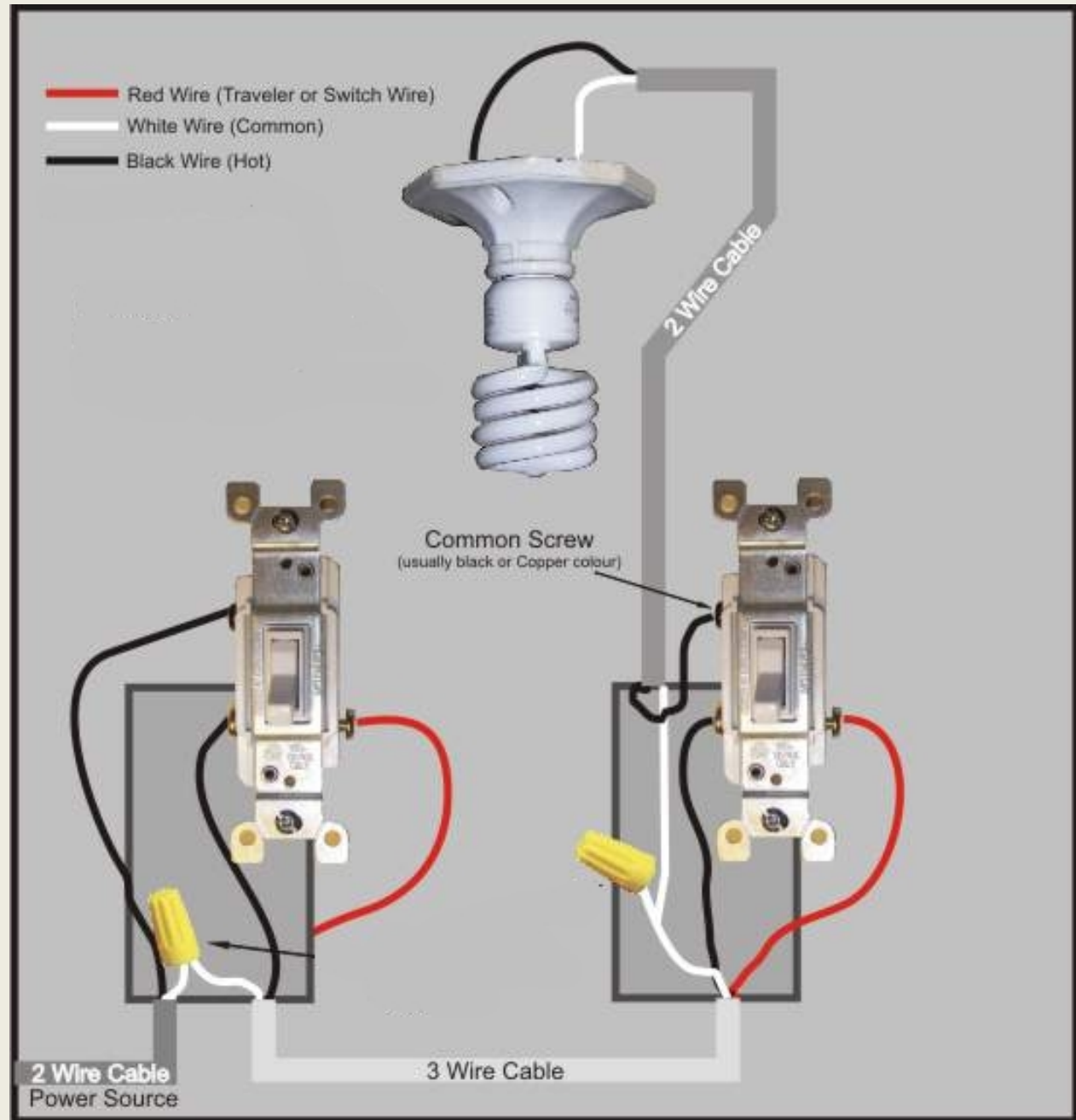
- There are 4 rules to getting a 3 way switch right.

- #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.

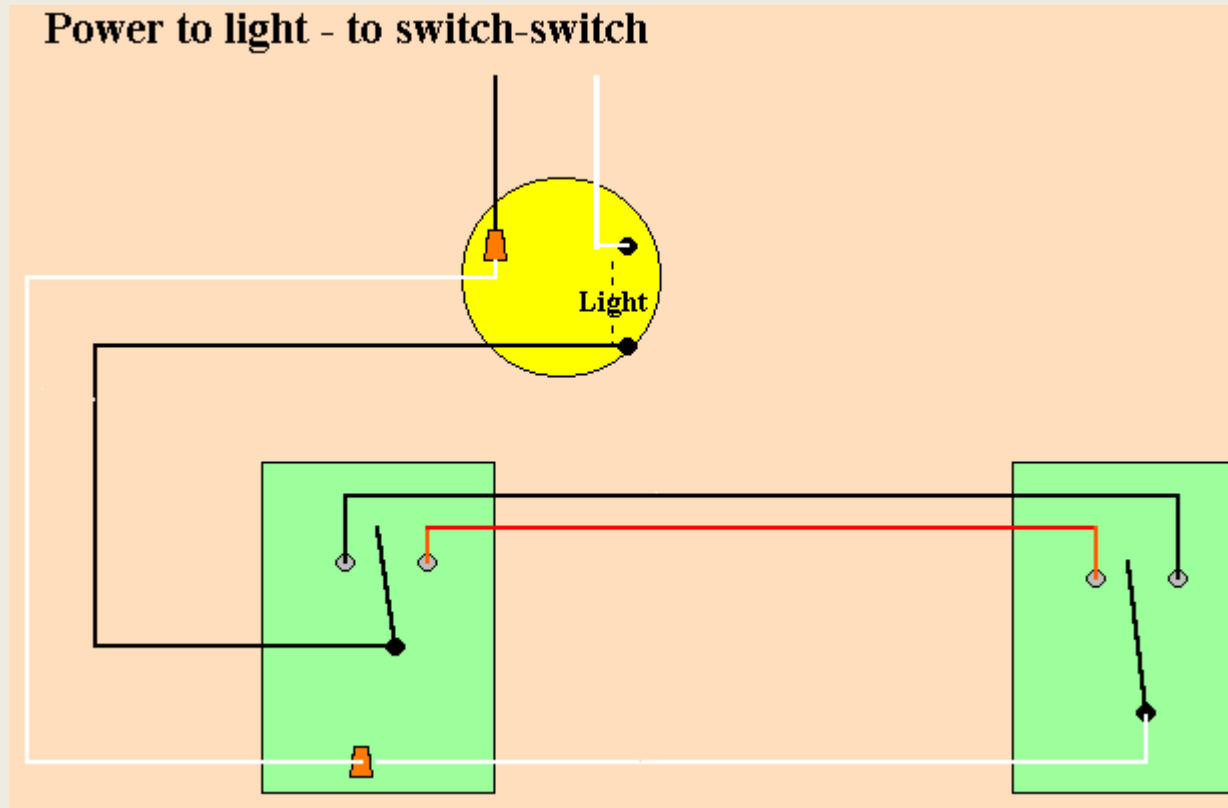


## 4 Rules

- #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.