



**ELECTRICAL
GROUP
TRAINING**

Induction Hand Skills Manual ADVANCED

**REMEMBER
Quality & Pride
=
Good Workmanship**

Apprentice Name: _____

Date: _____/_____/202__

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Advanced Hand Skills Manual - Apprentice Requirements

Apprentices receiving the Advanced Hand Skills Manual are also required to complete the following tasks from the original Hand Skills Manual:

- Risk Assessment Checklist (RAC) - 5 Basic Steps
- Field Officer Demonstrations:
 - How to use a Multimeter
 - How to use a Volt Stick
 - Isolation Procedure (IITT)

Apprentices must also sign and return the **EGT OFFICE COPY** to the EGT Staff Representative for the following:

- Hand Skills Practical - Apprentice Tasks
- Circuit Breaker Lockout Device Acknowledgement
- EGT Uniform & Personal Protective Equipment (PPE) Acknowledgement

Project 1:

Mounting Blocks & Conduit Boxes

Step 1

Collect all mounting blocks from the shelves & return to your workspace.

Step 2

Fix all mounting blocks onto your board, as per diagrams.

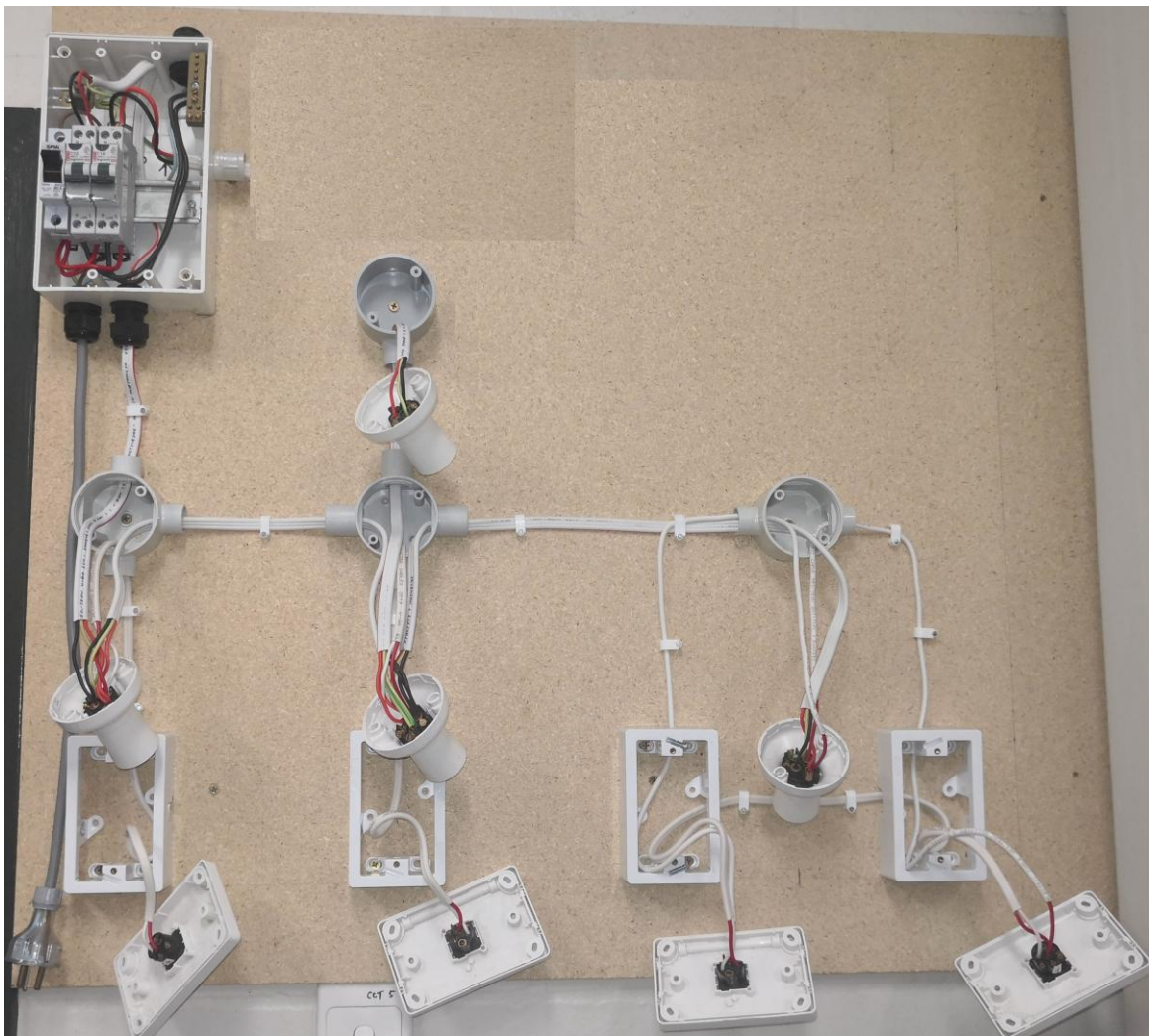
Your Trainer will inform you if you are to include the advanced section as indicated.

Ensure to use the correct screws as demonstrated by your Trainer on each mounting block.
Ensure all mounting blocks are evenly spaced and level.
(Refer to example Project Board).

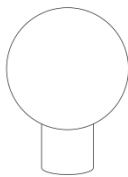
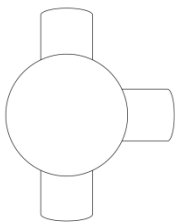
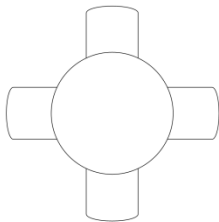
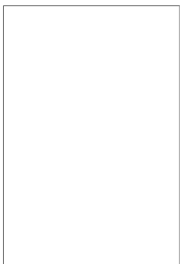
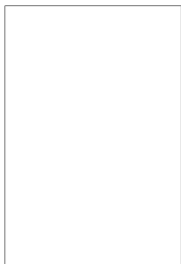
Step 3

Have your Trainer check your work and move onto the next project.

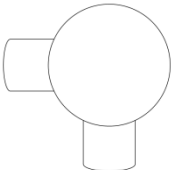
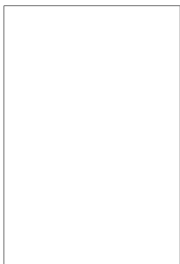
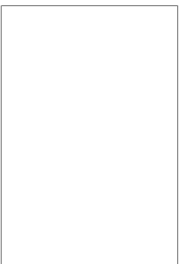
Project Board



Existing
Load
Centre



Additional for Advanced Learners



NOTE: Have your Trainer check your work at each step.

Step 1

Gather the following materials:

- A Length of 1.5mm Single active
- 1 batten holder
- 2 single switches

Step 2

Disconnect your batten holder and lighting socket separating all the actives (you can leave the Neutral and Earths twisted together) & remove the twin actives from the circuit.

Step 3

Using one of the twin active cable's wires in your strappers between your 2 light switches. Run in 1 single SDI cable from the first switch to your batten holder & from the second switch to the lighting socket.

Step 4

Clip your cables into place using the right sized clips ensuring the cables stay neat and straight.

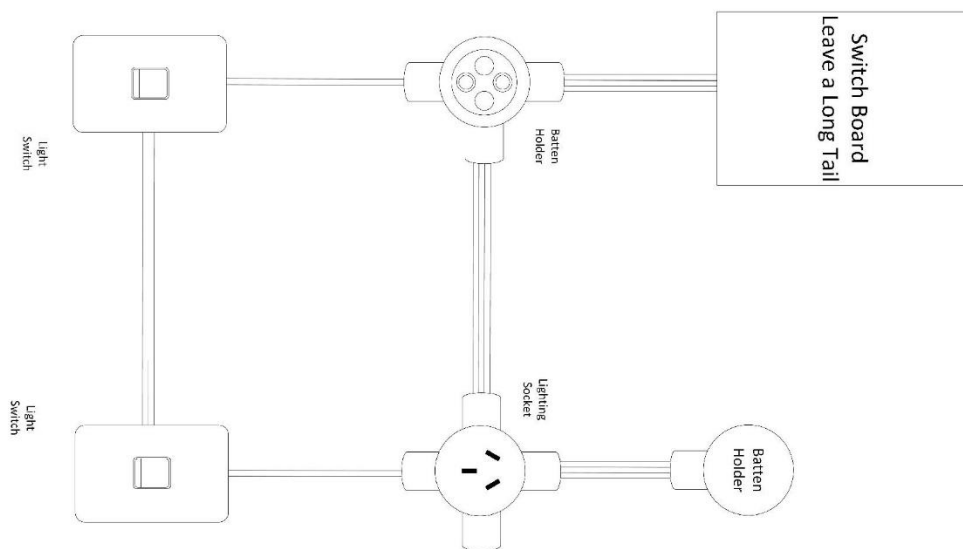
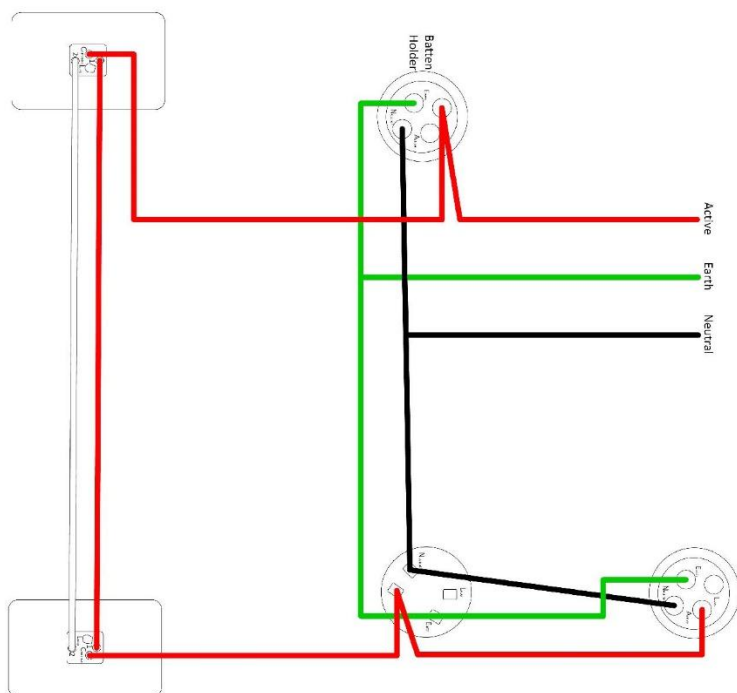
Step 5

Terminate your batten holder, lighting socket and switches into one 2-way circuit. Ensure you strip and twist your cables neatly, have no insulation crimped and do not have copper protruding the terminals.

(Refer to diagram over page).

Step 6

Have your Trainer check your work and pack down your workstation.



Project 3:

Wiring & Lighting Circuits

NOTE: Have your Trainer check your work at each step.

Using the mounting blocks in the indicated section on Project 1.

Step 1

Gather the following materials:

- A Length of 1.5mm TPS 2 core & E
- A Length of 1.5mm Single active
- A Length of 1.5mm TPS twin active
- 1 batten holder
- 2 single switches'

Step 2

Using your twin active cable wire in your strappers between your 2 light switches.
Run in your single SDI cable from each switch to your batten holder & 1.5mm TPS 2 core & E from the existing lighting socket to your new batten holder.

Step 3

Clip your cables into place using the right sized clips ensuring the cables stay neat and straight.

Step 4

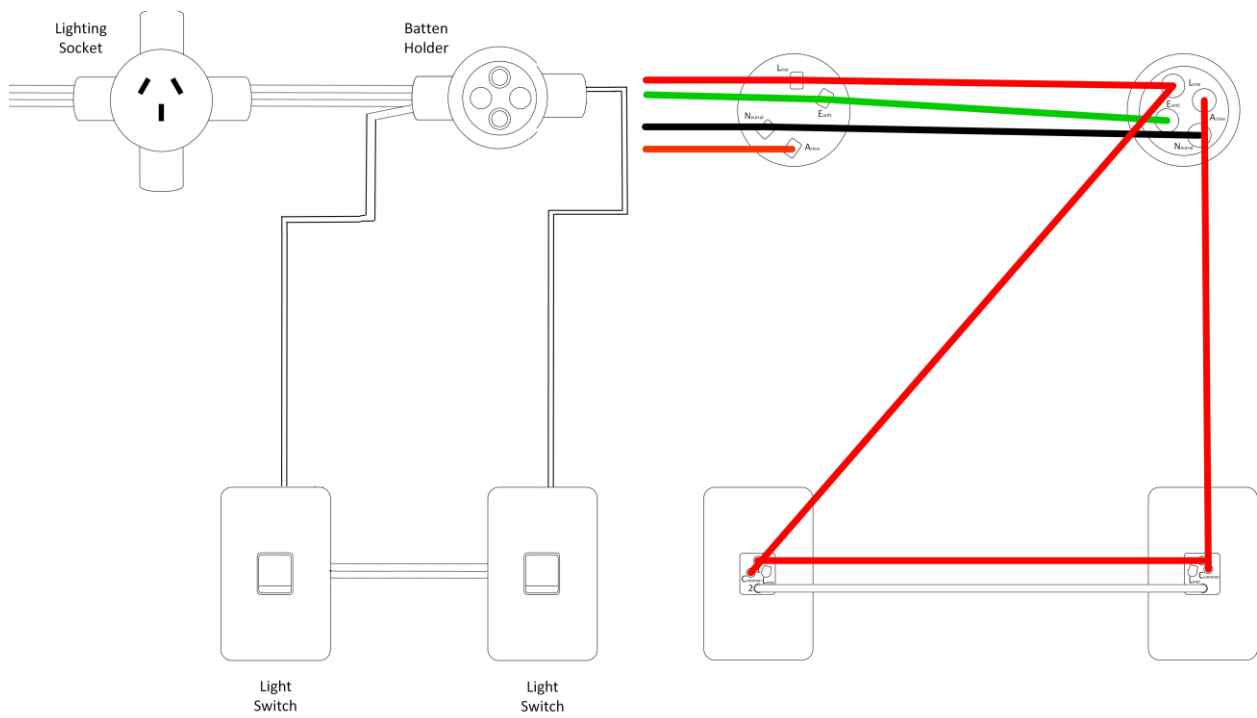
Terminate your batten holder and switch's. Ensure you strip and twist your cables neatly, have no insulation crimped and do not have copper protruding the terminals.
(Refer to diagram over page or example board).

Step 5

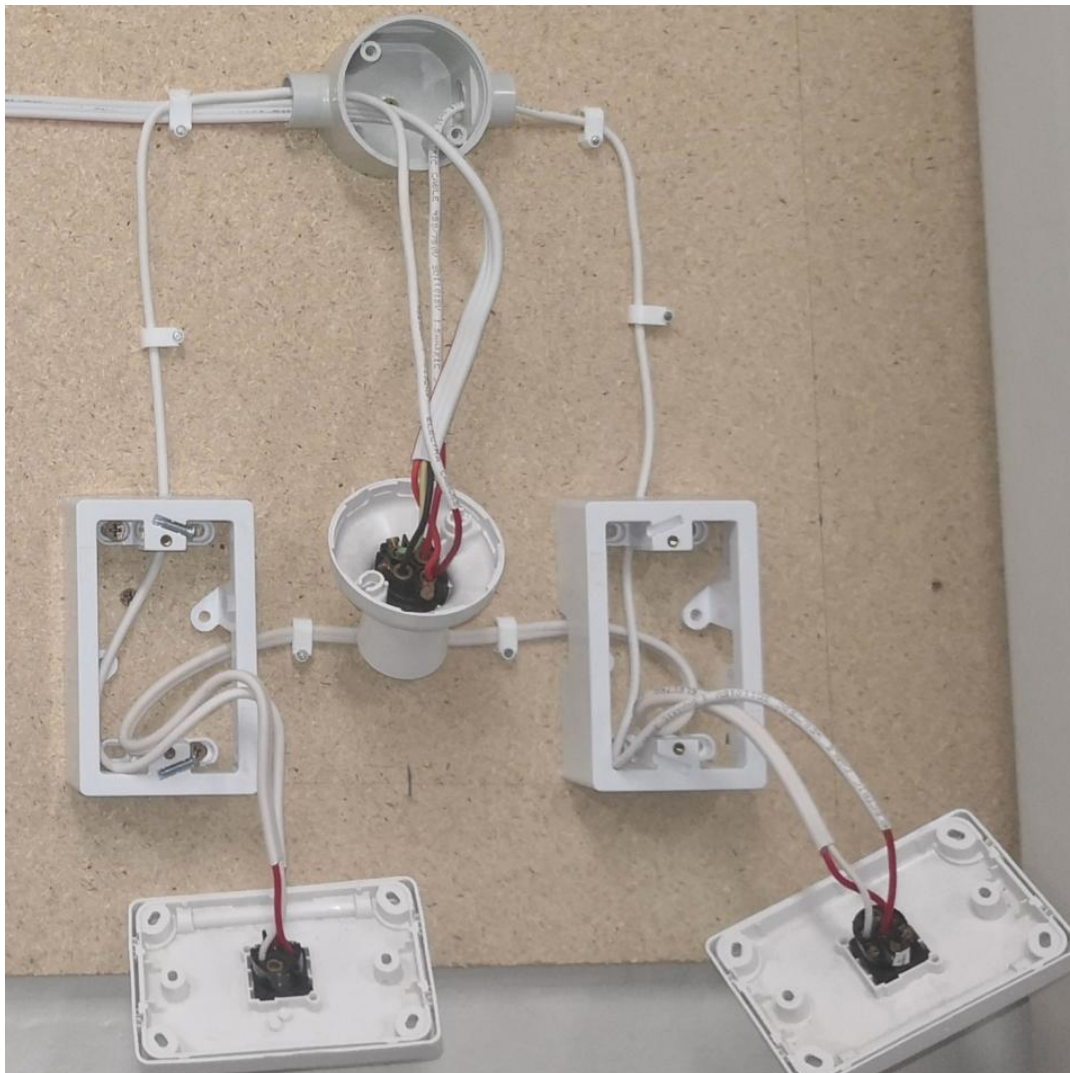
Take apart your Lighting socket from Project 2. Re-terminate this time incorporating the feed cable for the two-way circuit you have just completed.

Step 6

Have your Trainer check your work and pack down your workstation.



Project Board

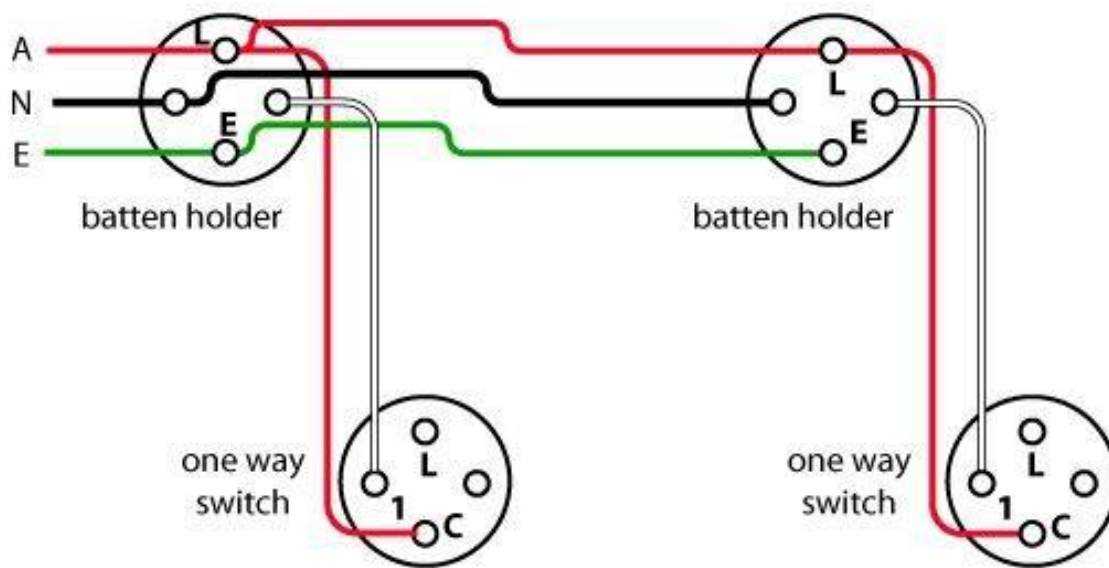


Lighting circuits

Loop at the light

The main method of wiring lights is to use the 'loop at the light' method. Batten and rose light mountings provide additional blank terminals used to join (loop) wires. In most lighting installations 3 core thermoplastic sheath (TPS) cable is used to supply power directly to the light mounting. The active is directed from a loop terminal to the switch via one conductor. Then the switched circuit is directed back to the lamp in a second conductor. Either two single core, or one double core TPS cable is used for this function.

From the light mounting, power can then be looped to other lights in the same circuit or to other separately switched lights. The following diagram shows an example of two lights that share the same supply cable but each have their own switch. Both have been wired with the loop at the light method.



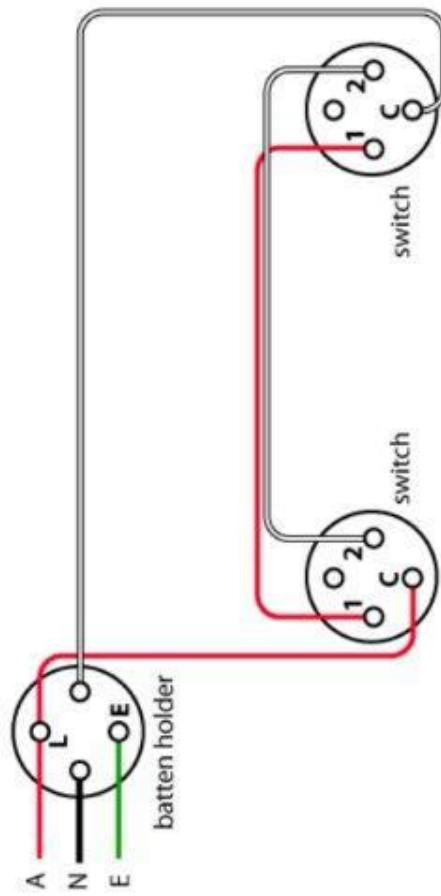
Looping at the light

Lighting circuits

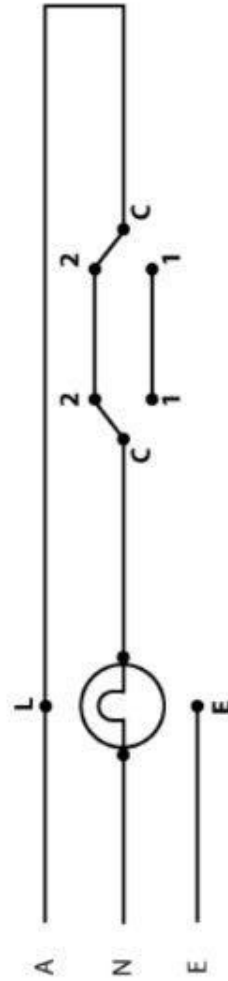
Two way

A two way lighting circuit enables one circuit to be turned on or off by either of two switches. The circuit may have one or more lights in it. This type of circuit uses two of the two way switches.

A wiring diagram and a circuit diagram are shown below.



Two way lighting wiring diagram

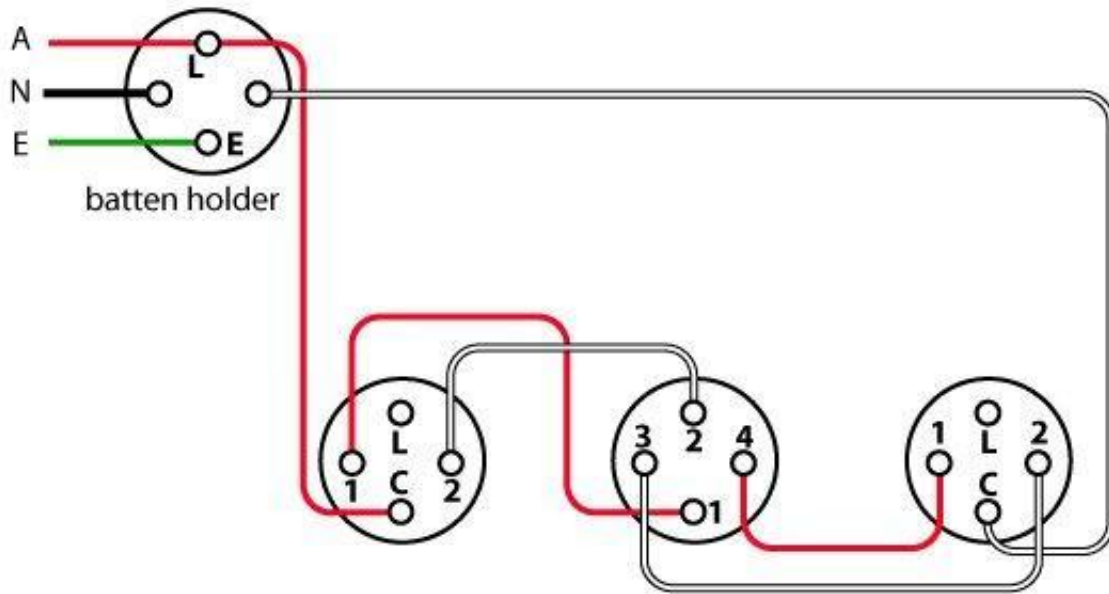


Lighting circuits

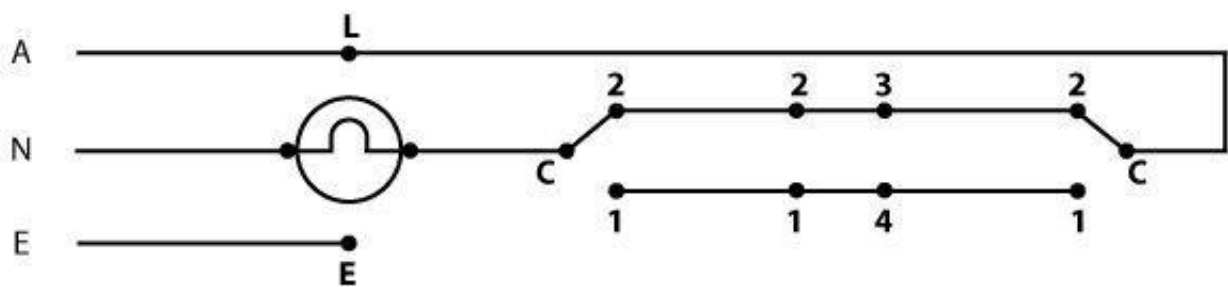
Intermediate

An intermediate lighting circuit is used when one circuit is to be turned on or off by three or more switches. The single circuit may have one or more lights in it. This type of circuit uses two of the two way switches and one or more of the intermediate switches.

A wiring and circuit diagram is shown below.



Intermediate lighting wiring diagram



Intermediate lighting circuit diagram