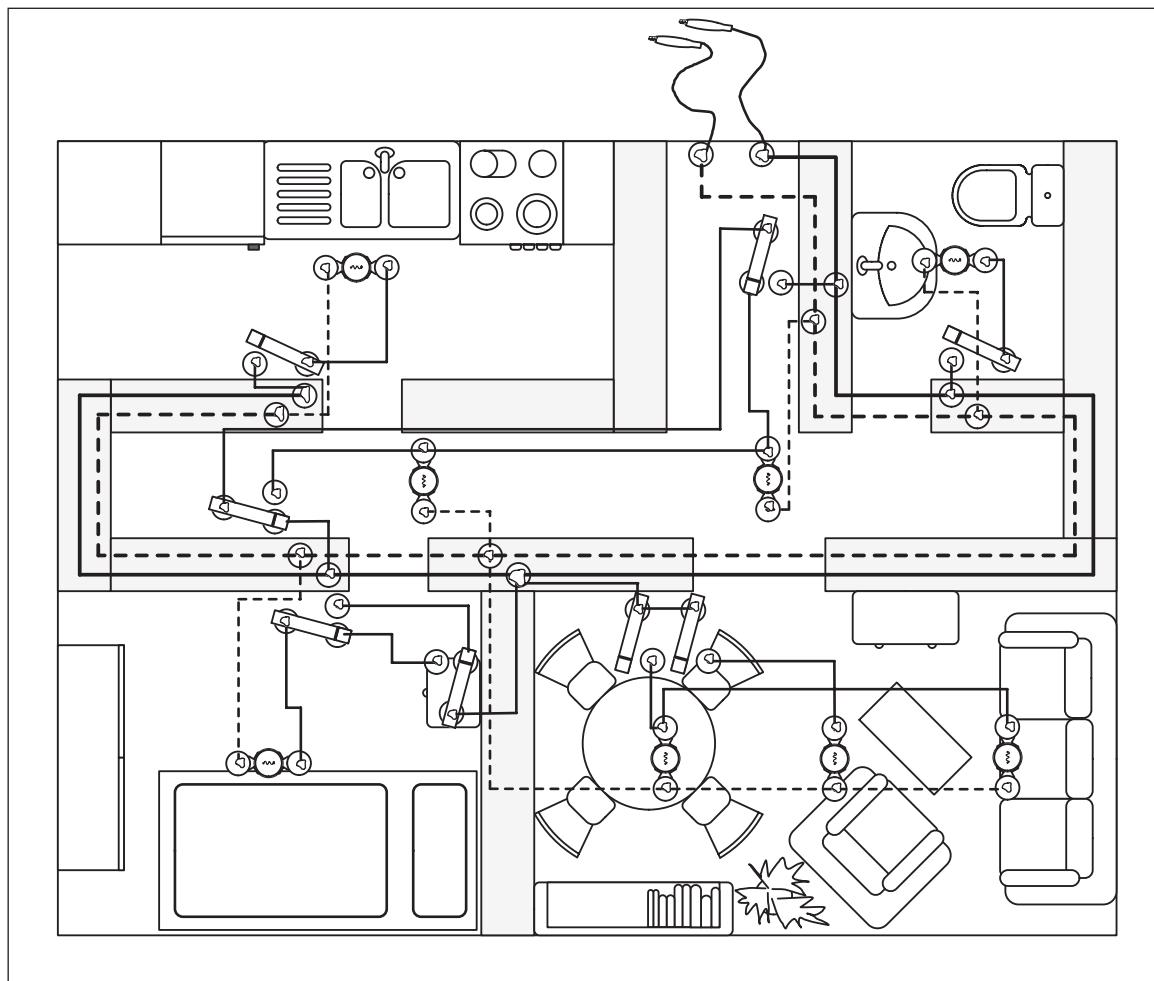


# OPITEC

## Hobbyfix

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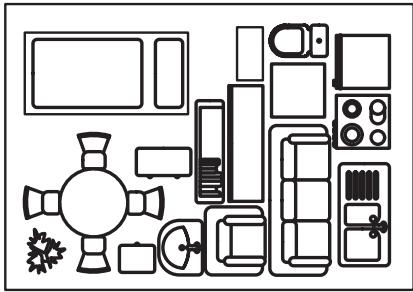
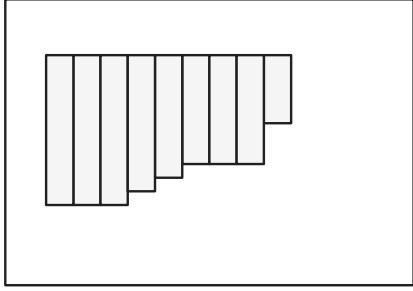
*Model for home  
electrical installation*



### Please Note

The OPITEC range of projects is not intended as play toys for young children. They are teaching aids for young people learning the skills of Craft, Design and Technology. These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Danger of suffocation!

**Parts list:**

Description	Material	Quantity.	Size	Diagram
<b>Base</b>	Plywood	1	8 x 300 x 400 mm	
<b>Furniture</b>	Printed paper	1		
<b>Wall</b>	Printed paper	1		
<b>Switches</b>	Bronze strip	2	0,2 x 5,5 x 250 mm	
<b>Bulbs</b>		10	E10	
<b>Bulb holder</b>		10	E10	
<b>Cable</b>	Switch wire	2	2000 mm	
<b>Battery</b>	Crocodile clip	1		
<b>Contacts</b>	Drawing pins	48		
<b>Necessary tools:</b>				
Scissors Pencil, ruler All purpose glue Side cutters Soldering iron 30 Watt, solder, flux Colour pencils				

## 1. Instructions:

- 1.1 Making the rooms
- 1.2 Planning the installation
- 1.3 Making the switches
- 1.4 Installing the lights and switching

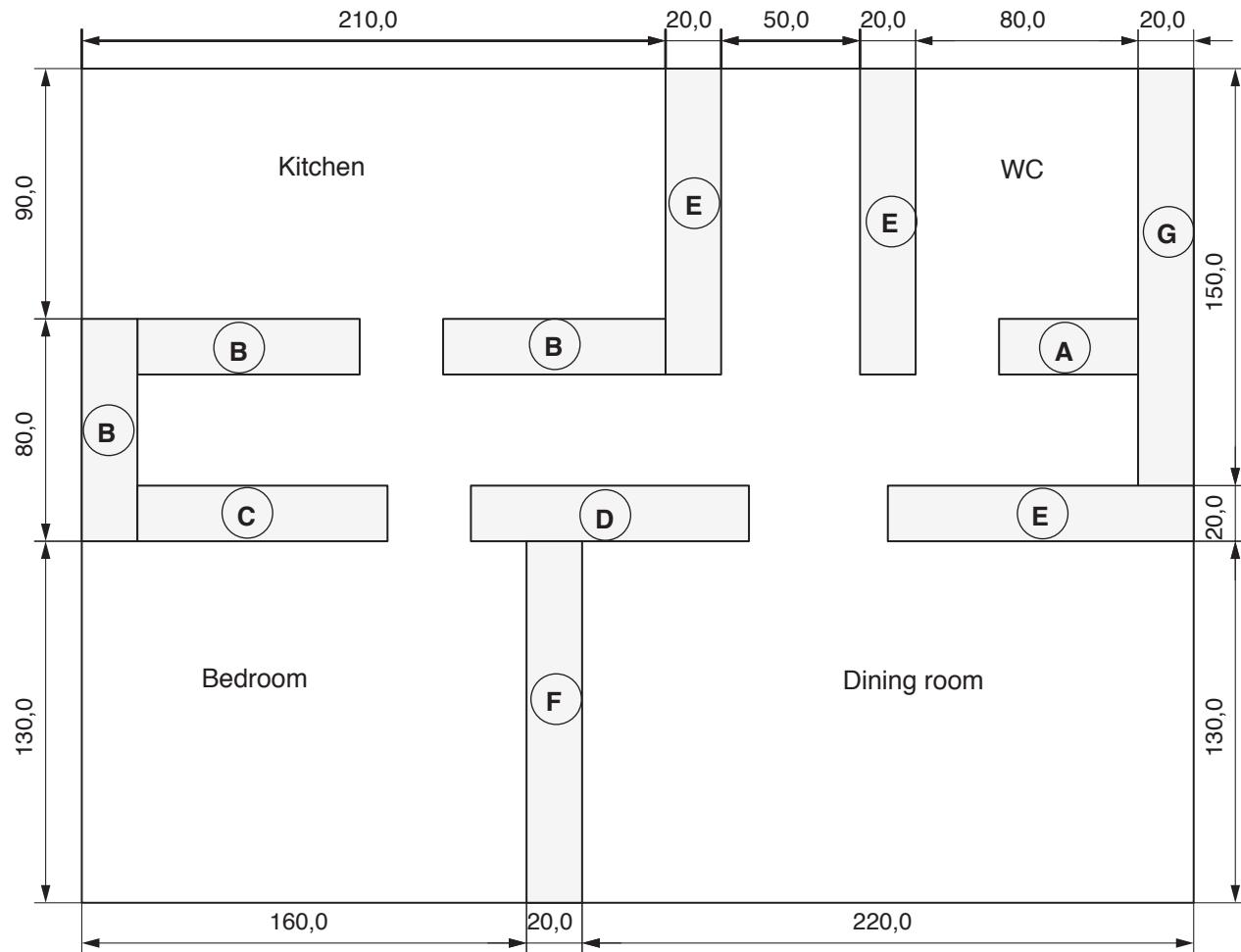
### 1.1 Planning the rooms

#### General:

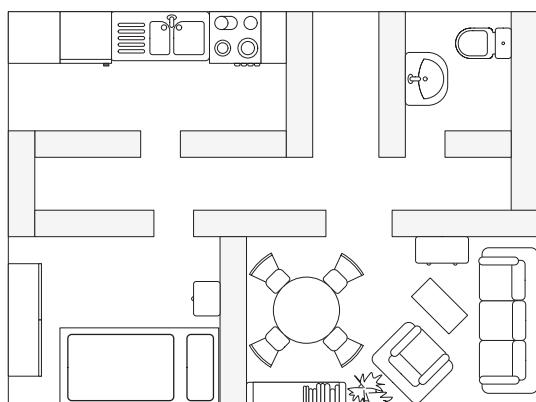
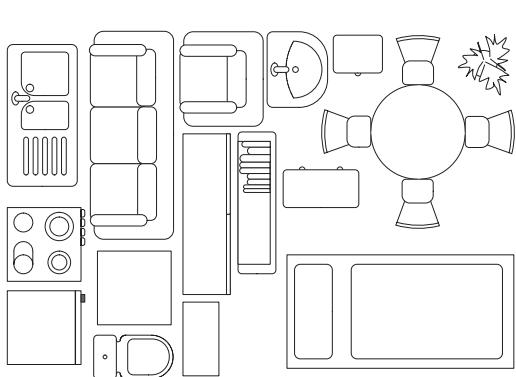
The room plan given is only a suggestion, you can of course develop your own design.

Planning the switches you have to take account account of the materials available in the pack

- 1.1.1 Take the wall stripes ( See page 7 ) and glue them to the base.



- 1.1.2 Colour the furniture and glue the pieces into the various rooms.



## 1.2 Planning the electrical installation

### General:

Before installing lights and switches an electrical installer will usually draw up a wiring plan and a function plan. The plan uses symbols to demonstrate the various functions.

### Symbols:

Function plan Installation plan

Wire



Connection



Connection T joint



Wires crossing ( Not joined )



Earth connection



Junction box



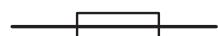
On/off switch



Changeover switch

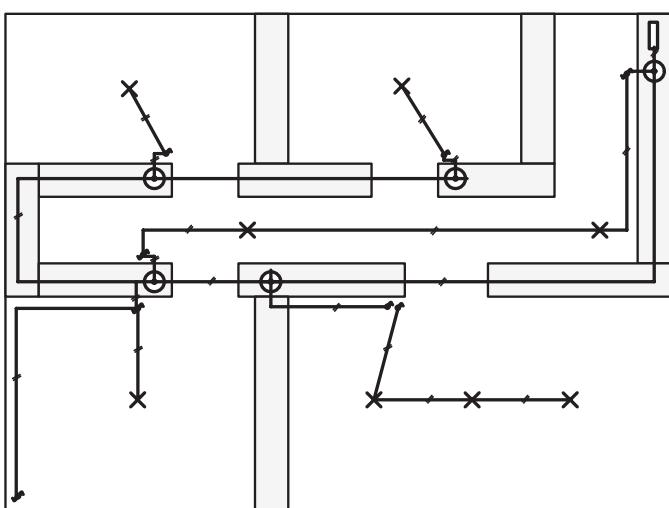


Bulb

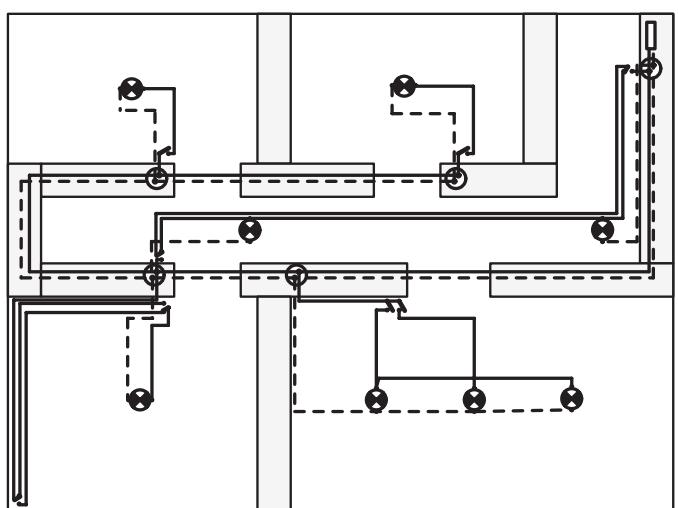


Fuse

Installation plan



Function plan



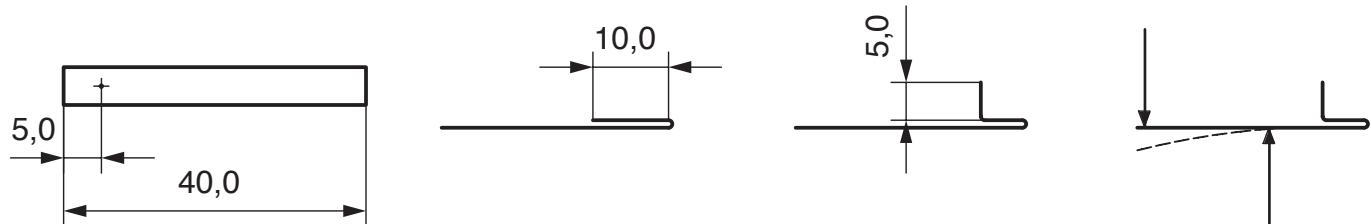
### 1.3 Making the switches

1.3.1 Cut from the bronze strip 8 lengths each 40mm long

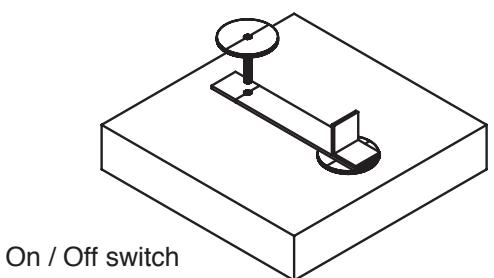
Make a hole with sharp pointed bradawl in one end and then drill a 1mm hole, 5 mm in from the end

Bend the strips as shown in the diagram

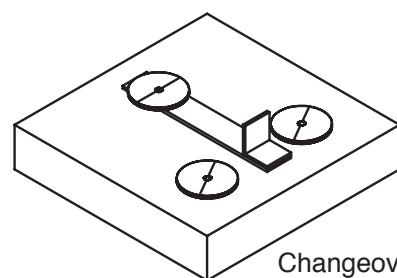
This is so that a good contact ( lightly sprung ) is made



1.3.2 Make up the switches on the base using drawing pins as shown

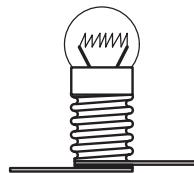


On / Off switch



Changeover switch

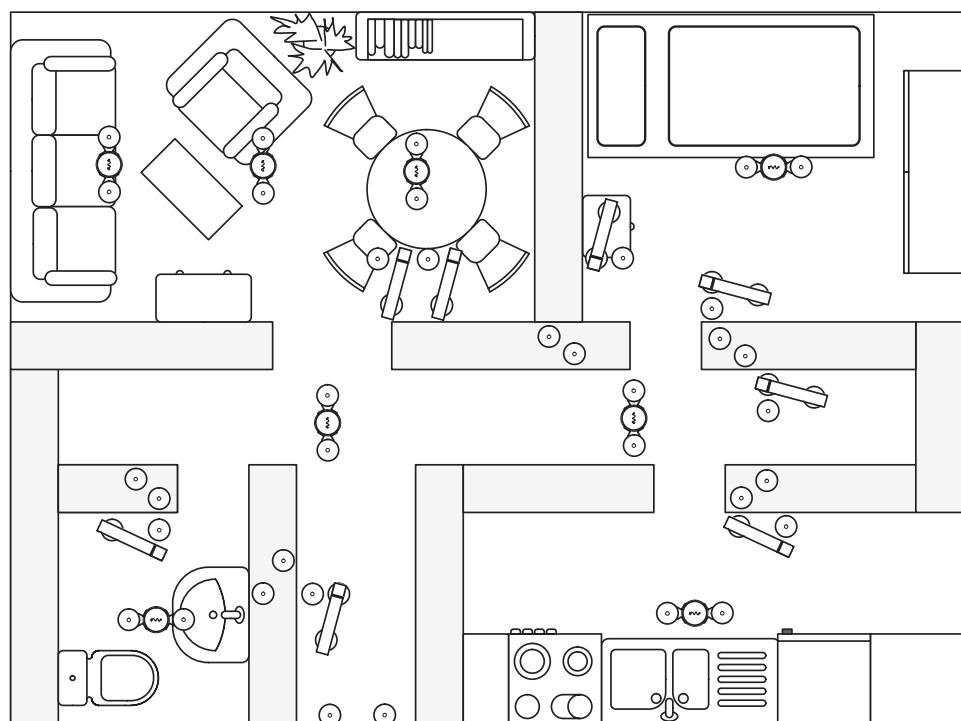
1.3.3 The bulb holders are fixed with drawing pins as shown.



### 1.4 Installing the lights and switches

1.4.1. Lay out the switches and lamps as shown

Each junction will need two drawing pins, as will the battery connection.



#### 1.4.2 Connecting the cables:

The power source is a battery ( 4.5 Volt ) or transformer

To identify the cables it better to mark the positive lines (+) one colour and the negative lines(-) another colour

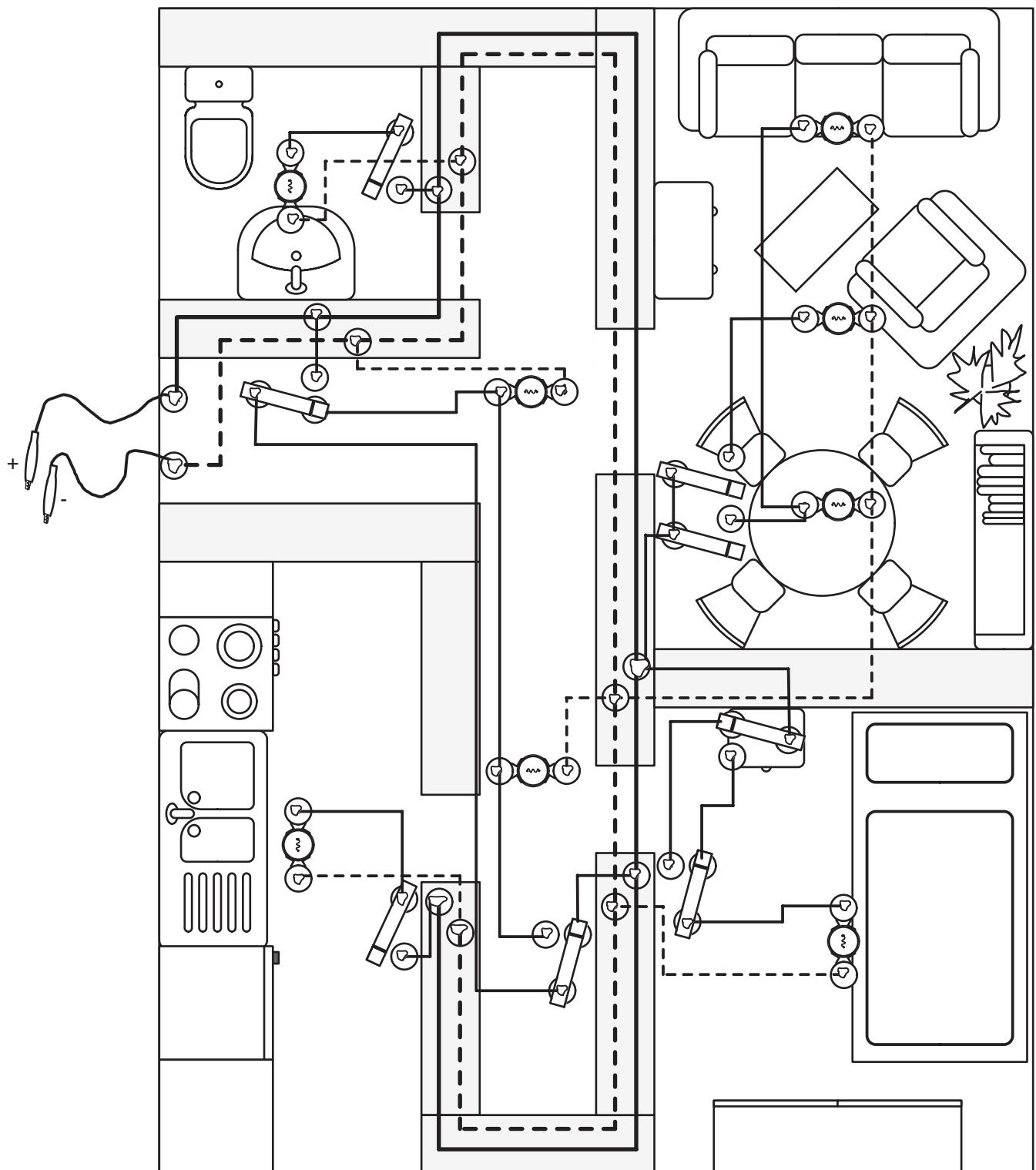
The battery connection is made from the crocodile clip. Cut this in half , remove the insulation from the ends and solder the two leads to the drawing pin connectors as shown. Mark one positive (+) and the other negative (-)

The positive cables are marked on the plan with a full line and the negative ones with a broken line

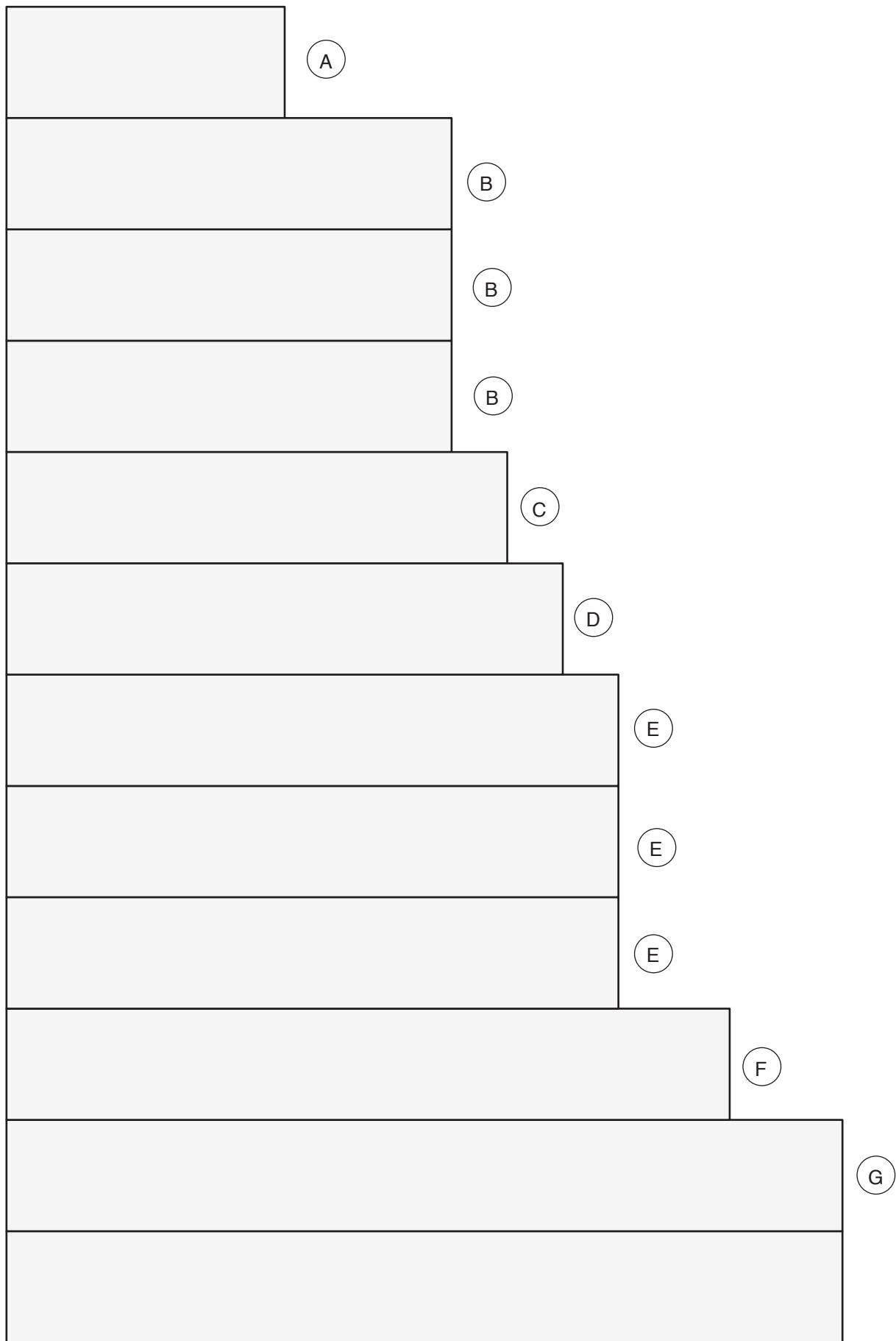
Choose the cable lengths to go between the drawing pins. Remove the insulation from the ends and tin them with solder. Solder them to the drawing pins

Bend the cable to fit where necessary .

#### 1.4.3 Connect the battery to the circuit and check that all the switches, etc function properly.



## Paper patterns for the walls





## Patterns (furniture)

