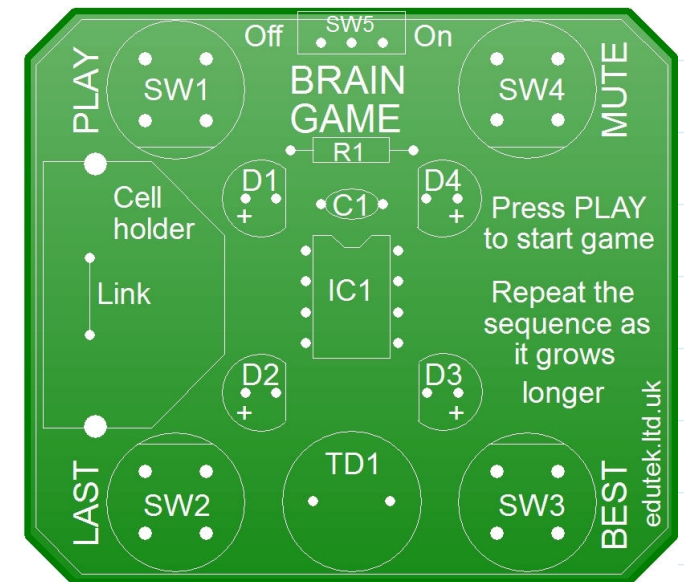
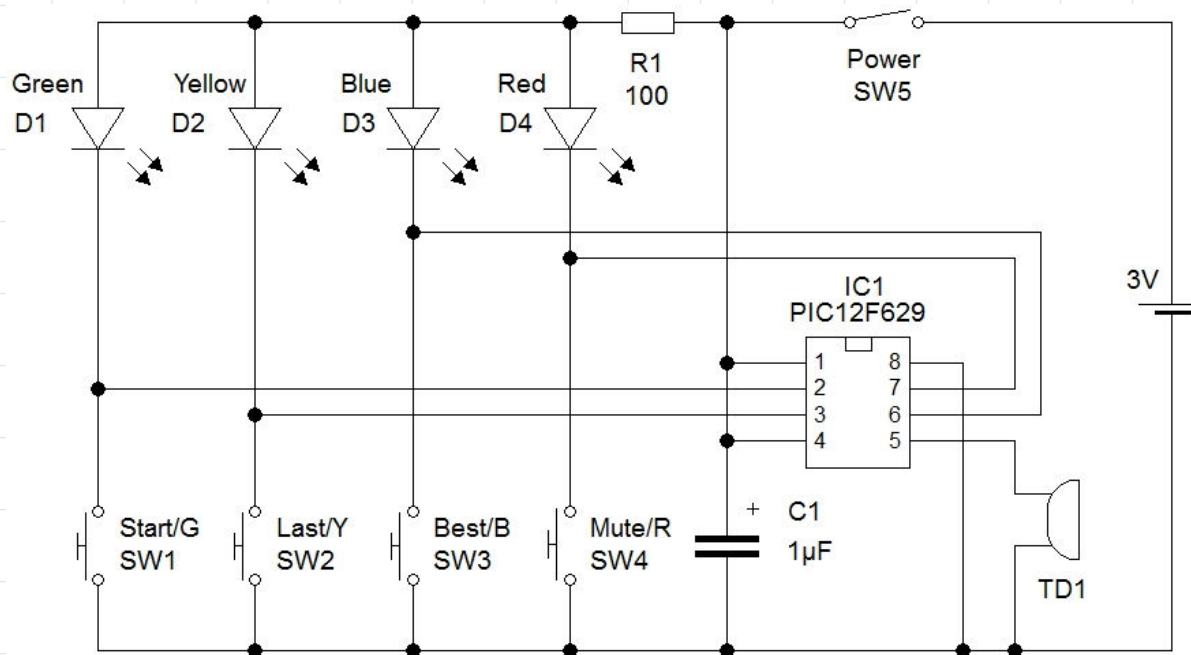


# BRAIN GAME KIT



# CIRCUIT DIAGRAM

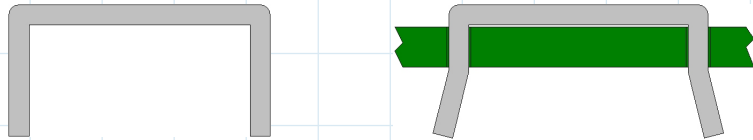
The Brain Game circuit is shown below with the Circuit Board. The components have labels, such as R1 and IC1 which can be matched up on the board. You can also see the outlines of the components to help you place them.



# WIRE LINK

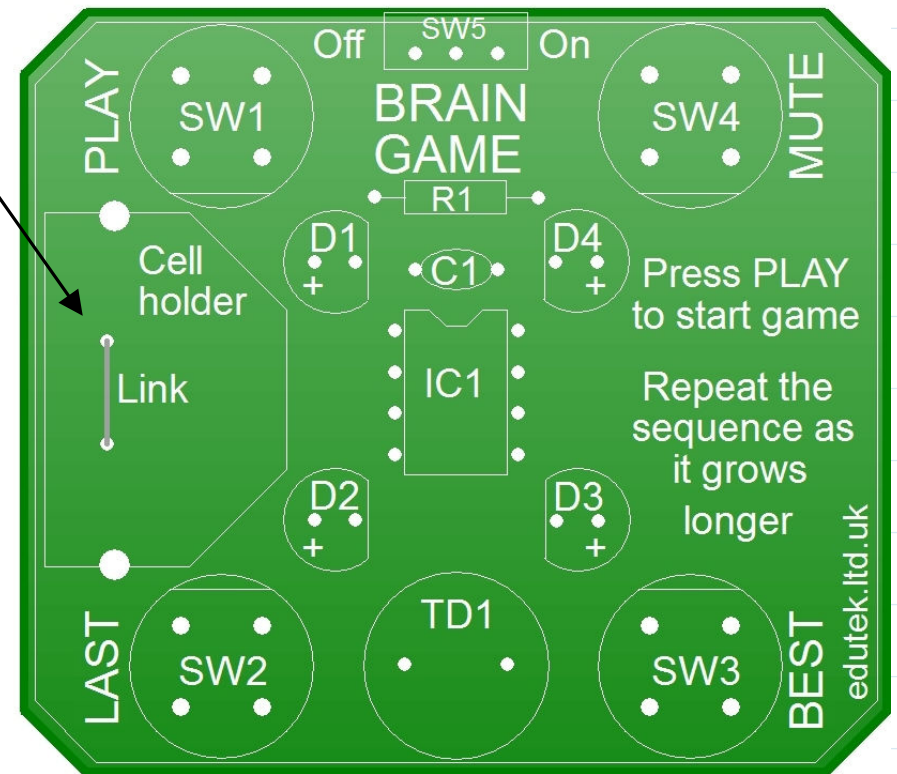
The wire link serves as a power connection.

Cut a piece of tinned copper wire about 2-3cm long and bend it as shown below using pointed-nose pliers.



Insert the link into the PCB and bend the wires slightly to keep it in place while soldering.

After soldering, press the link against a hard surface to flatten it against the board.

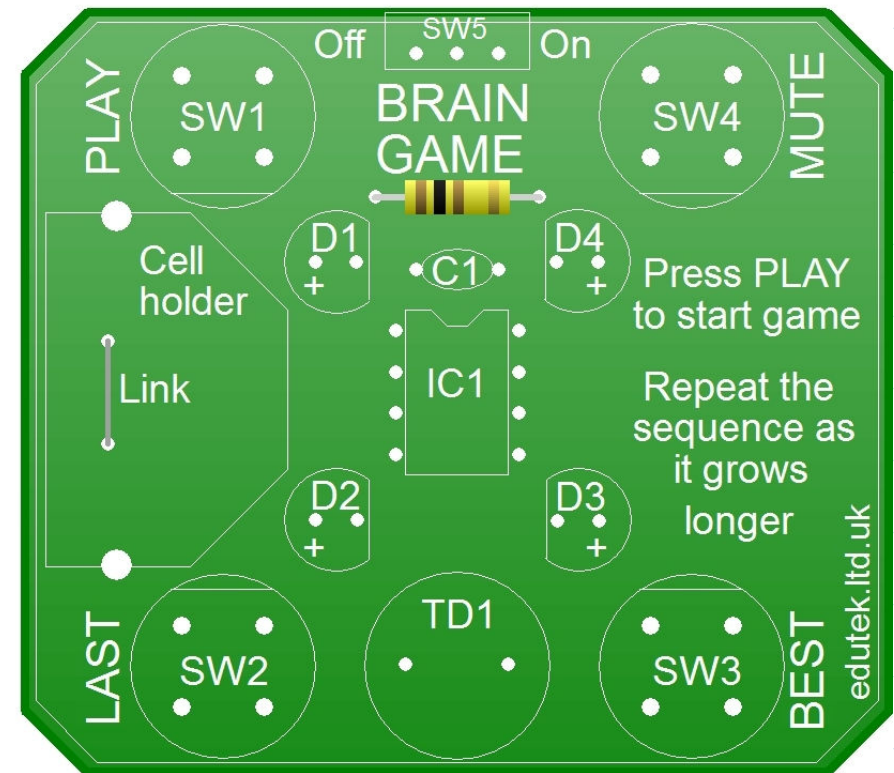


# RESISTOR

There is one resistor, R1.



It is placed in the board as shown. It can be inserted either way round.

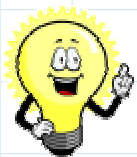
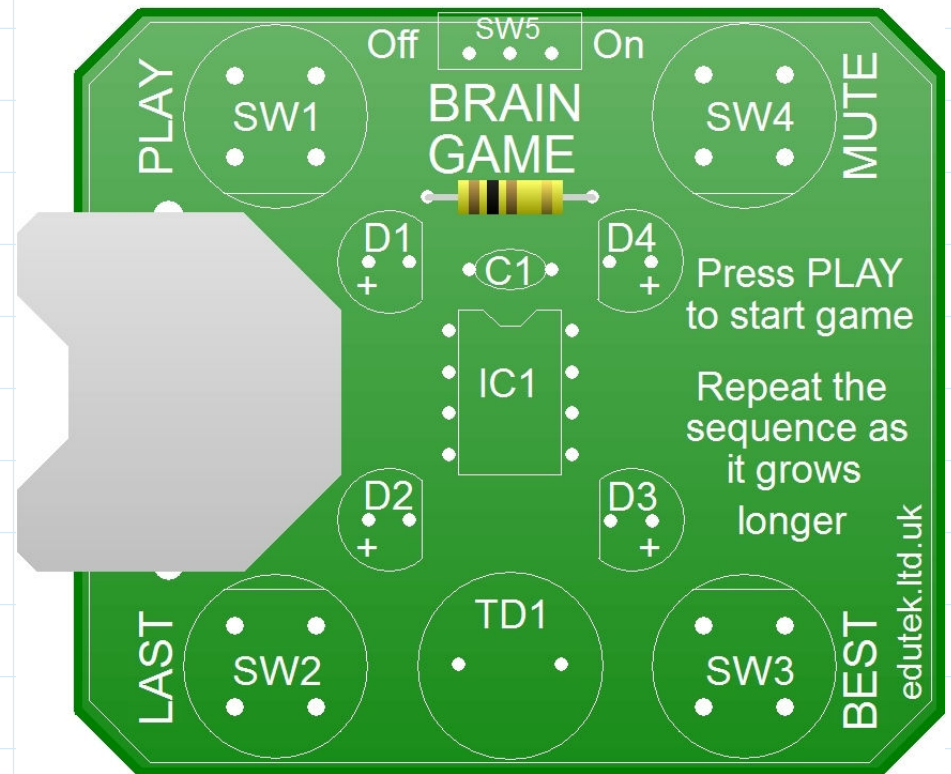


# COIN CELL HOLDER

The coin cell holder is for the 3v coin cell supply.



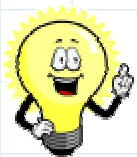
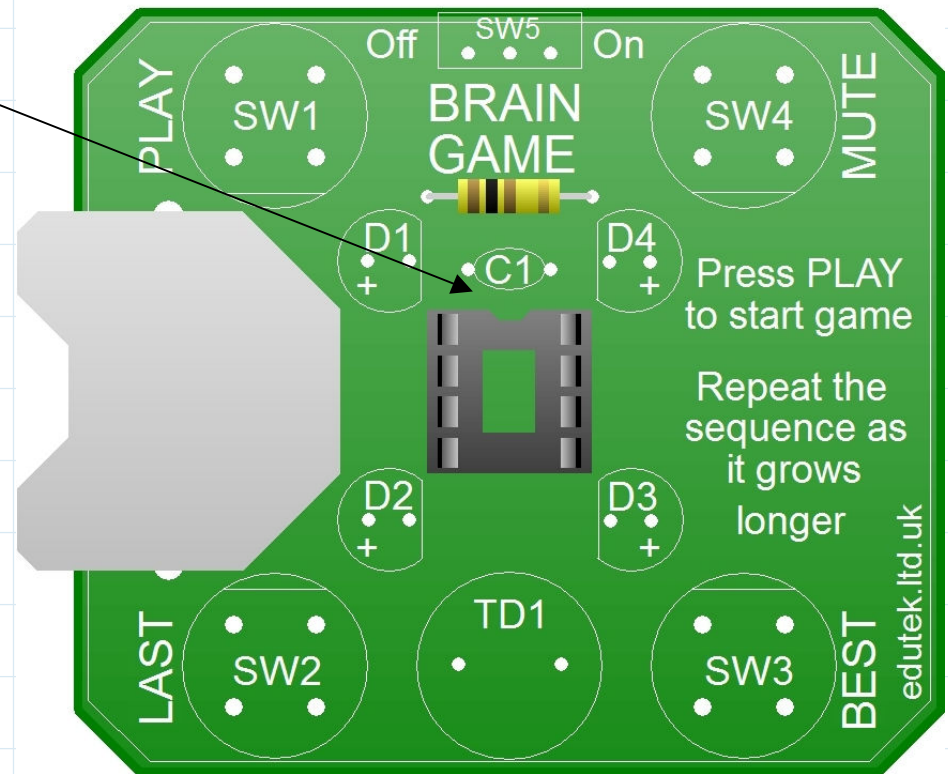
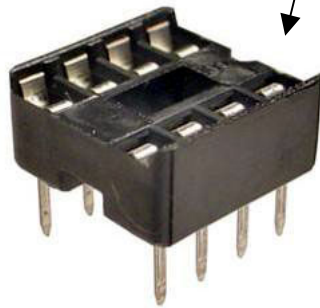
Solder the lugs to the pads on the underside. The holes are large so you will need more solder than usual.



If the lugs are a little tight, then turn the holder at 90 degrees to the board and gently twist each lug in their holes separately.

# IC HOLDER

The IC holder is inserted into the IC1 holes. It has a notch at one end, this is the top.



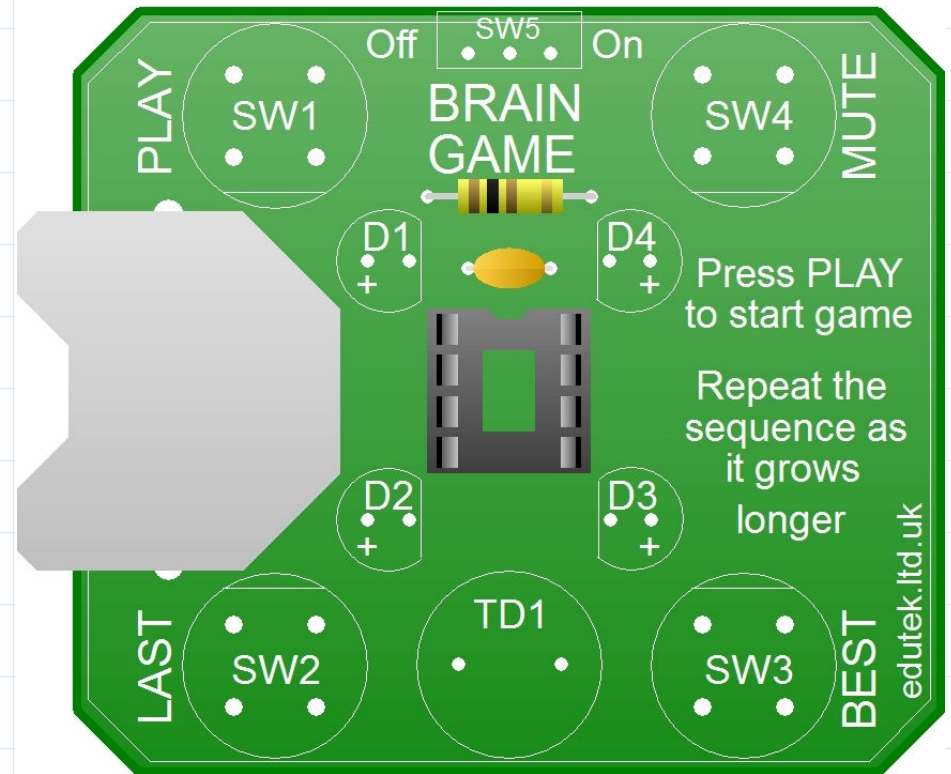
Insert the holder into the board, then bend two opposite pins to keep the holder from falling out while you are soldering.

# CAPACITOR

There is one capacitor, C1.  
It is a ceramic type.



It can be inserted either way round.

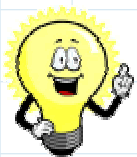
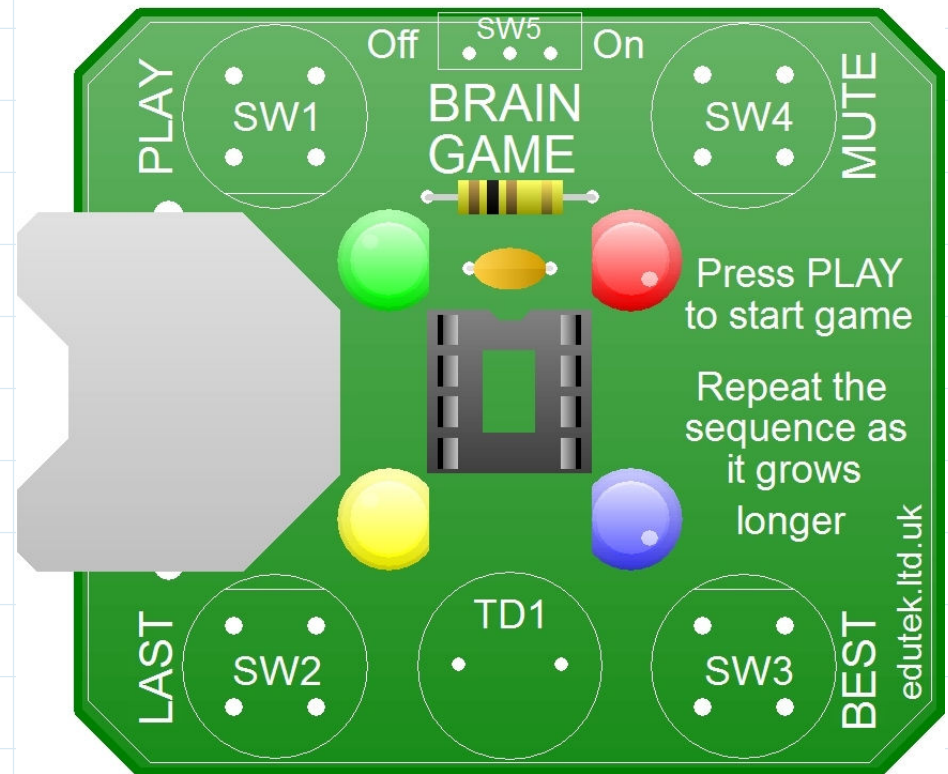
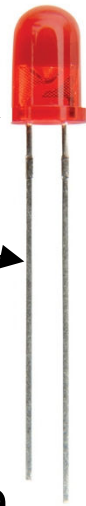


# LEDS

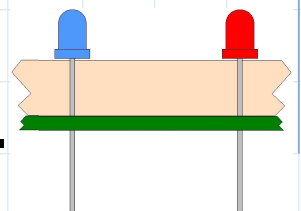
There are 4 LEDs of different colours, D1-4. Insert them as shown.

Each LED has a flat section on the rim. This is the negative connection. The long wire is the + connection.

If you want to put the game in a case, the base of the LEDs must be at least 7mm from the board.



Cut a 7mm wide strip of 1mm card and slide it under the LED between the wires while soldering to act as a spacer.

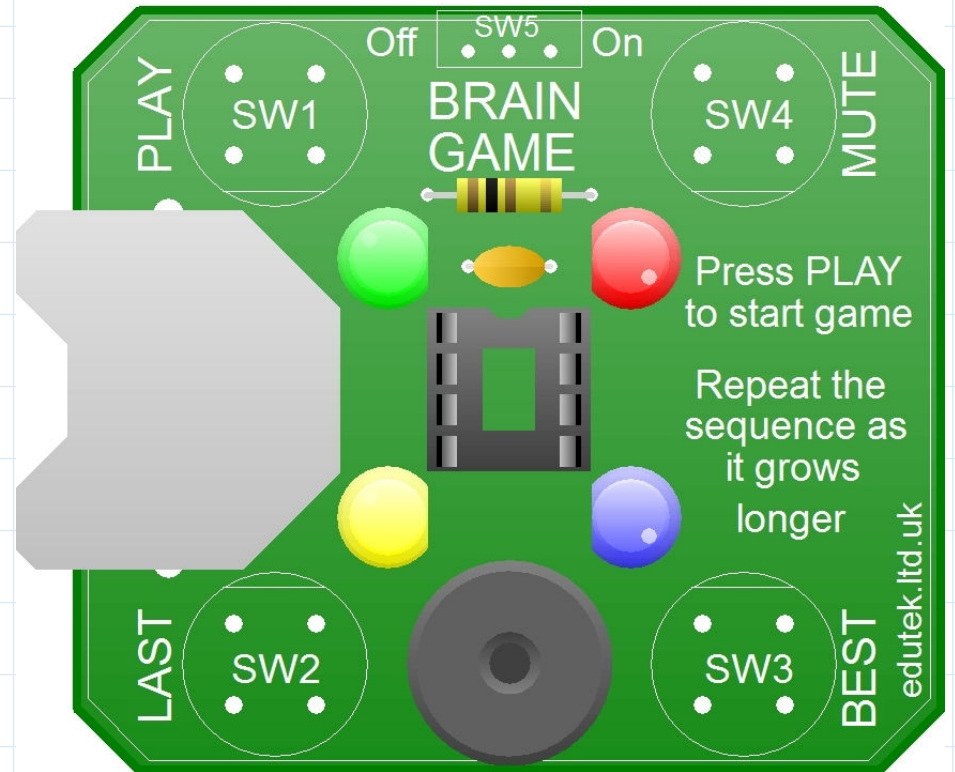


# TRANSDUCER

The Transducer TD1, is the component that produces the sound.

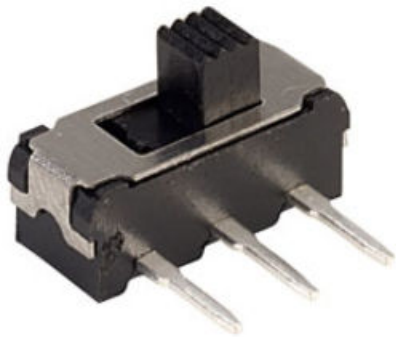


The Transducer can be inserted either way round.

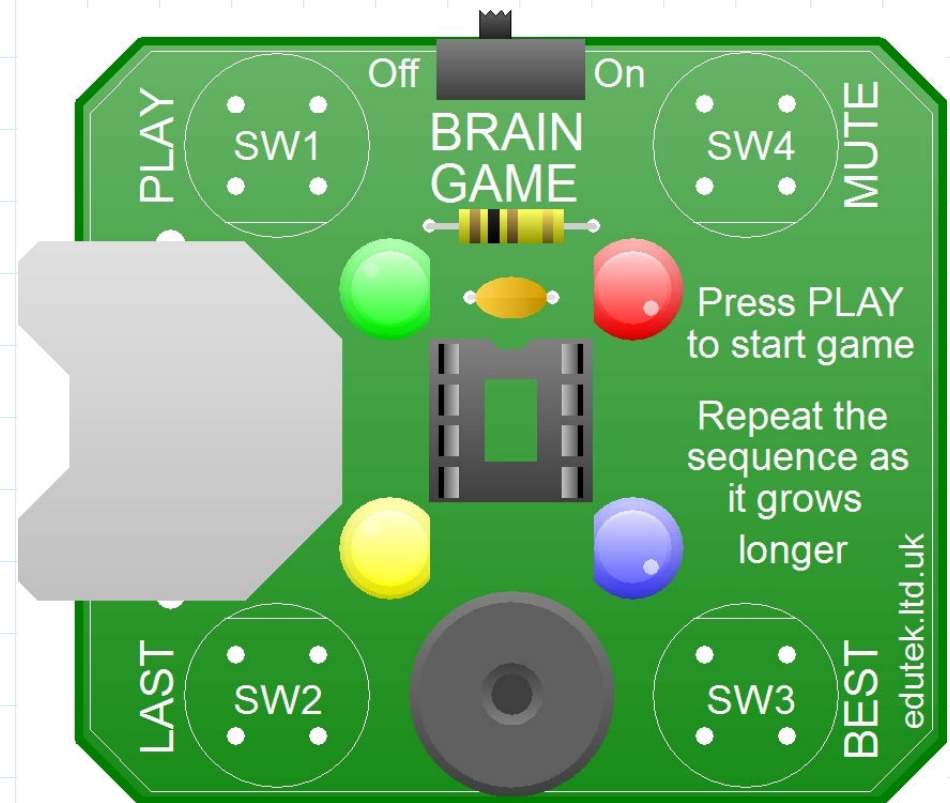


# POWER SWITCH

The power switch, SW5, is a right-angled PCB type.



Insert the switch fully into the board, with the slide part facing outwards, then solder.

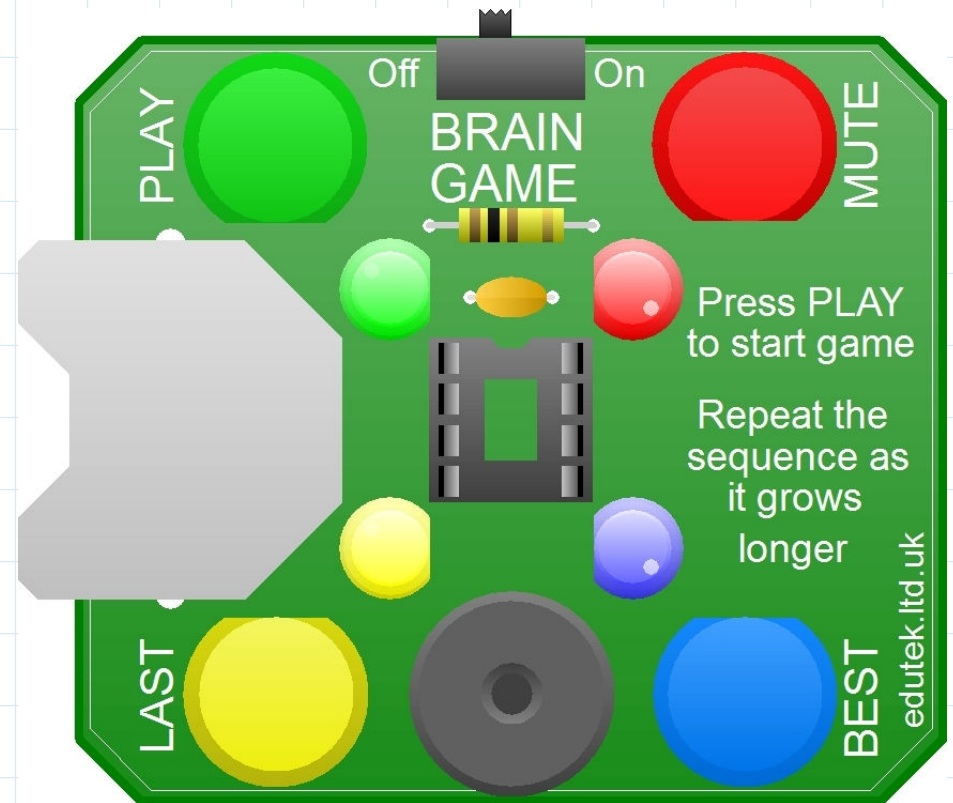


Note: On some boards this may be labelled as SW1 by mistake

# PUSH SWITCHES

There are 4 push switches, SW1-4, the same colours as the LEDs. Place them so the colours match the LEDs.

There is a flat section on each switch. These should face inwards, but it is not essential.

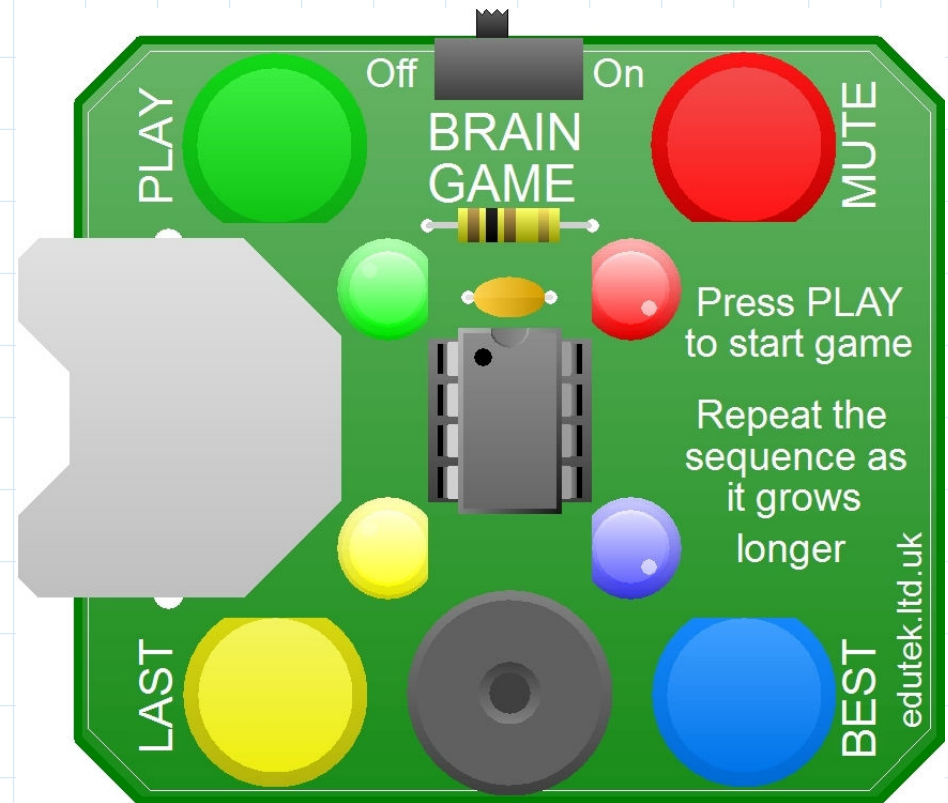


# INTEGRATED CIRCUIT

The Integrated Circuit, IC1 can now be inserted into the IC socket.



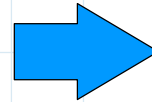
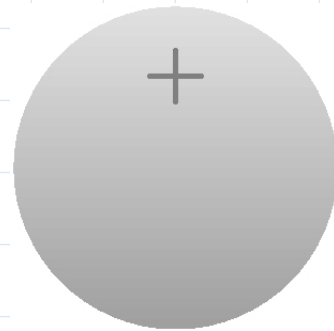
It is important that the notch on the top of the IC is facing upwards, to match the notch on the IC holder.



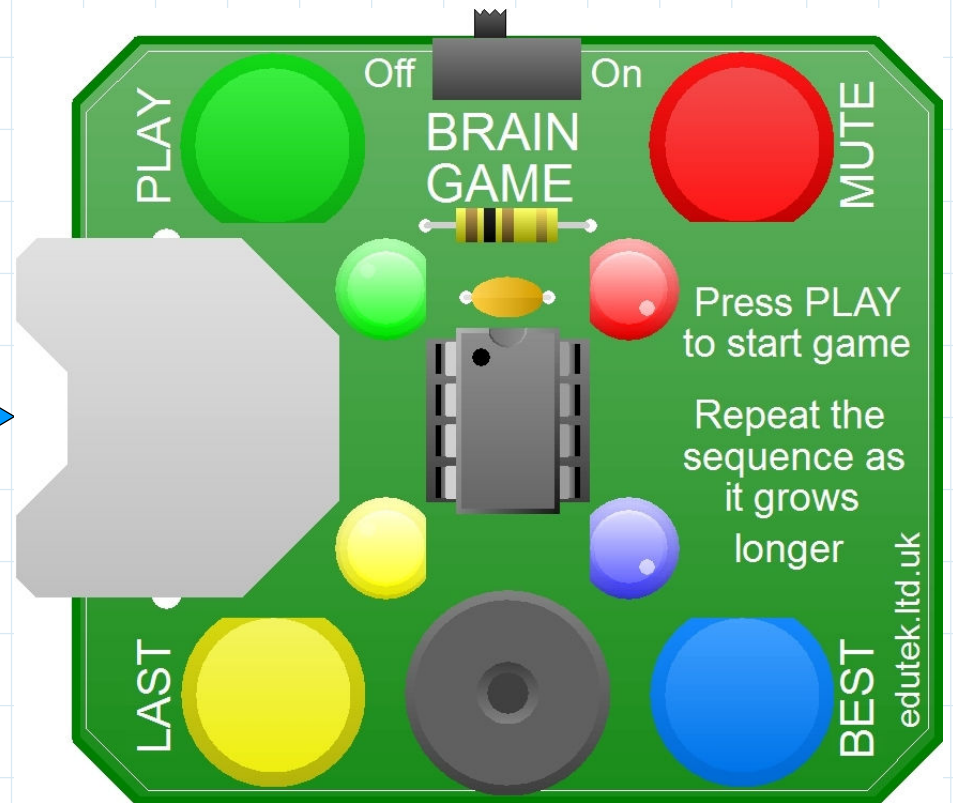
The pins can be difficult to insert. Try putting in one row first, pushing to the side slightly, and then the other row.

# COIN CELL POWER SUPPLY

The coin cell is a 3 volt type.



It is important it is inserted into the coin cell holder with the flat side up and the button side facing downwards toward the board.



# PLAY THE GAME

Turn on the power switch, SW5.  
Press the Green button to start a game.

The game will play an increasing sequence of notes and LEDs. After each turn you must repeat the sequence. The game starts with just one note.

If you press a wrong note in the sequence, the game will buzz, show you the correct note and the game is over.

If you get the longest sequence in a game, you will hear a reward sound and the LEDs will flash.

Press:  
Yellow to repeat the last sequence,  
Blue to show the longest sequence,  
Red to toggle mute on and off.

The longest sequence will be stored even when the power is turned off.

To reset, press MUTE, press UNMUTE then immediately press and hold MUTE again for 5 seconds.

# FAULT FINDING

## 1 - Nothing is functioning, check...

- the coin cell is inserted correctly
- IC1 is inserted correctly with all pins inserted
- switch SW5 is turned on
- there are no short circuits between solder pads

## 2 - Some or all of the LEDs do not light, check...

- the LEDs are inserted the correct way round
- there are no short circuits between solder pads

## 3 - There is no sound, check...

- all the pins of IC1 are in place and not bent
- IC1 is inserted correctly with all pins inserted
- there are no short circuits between solder pads