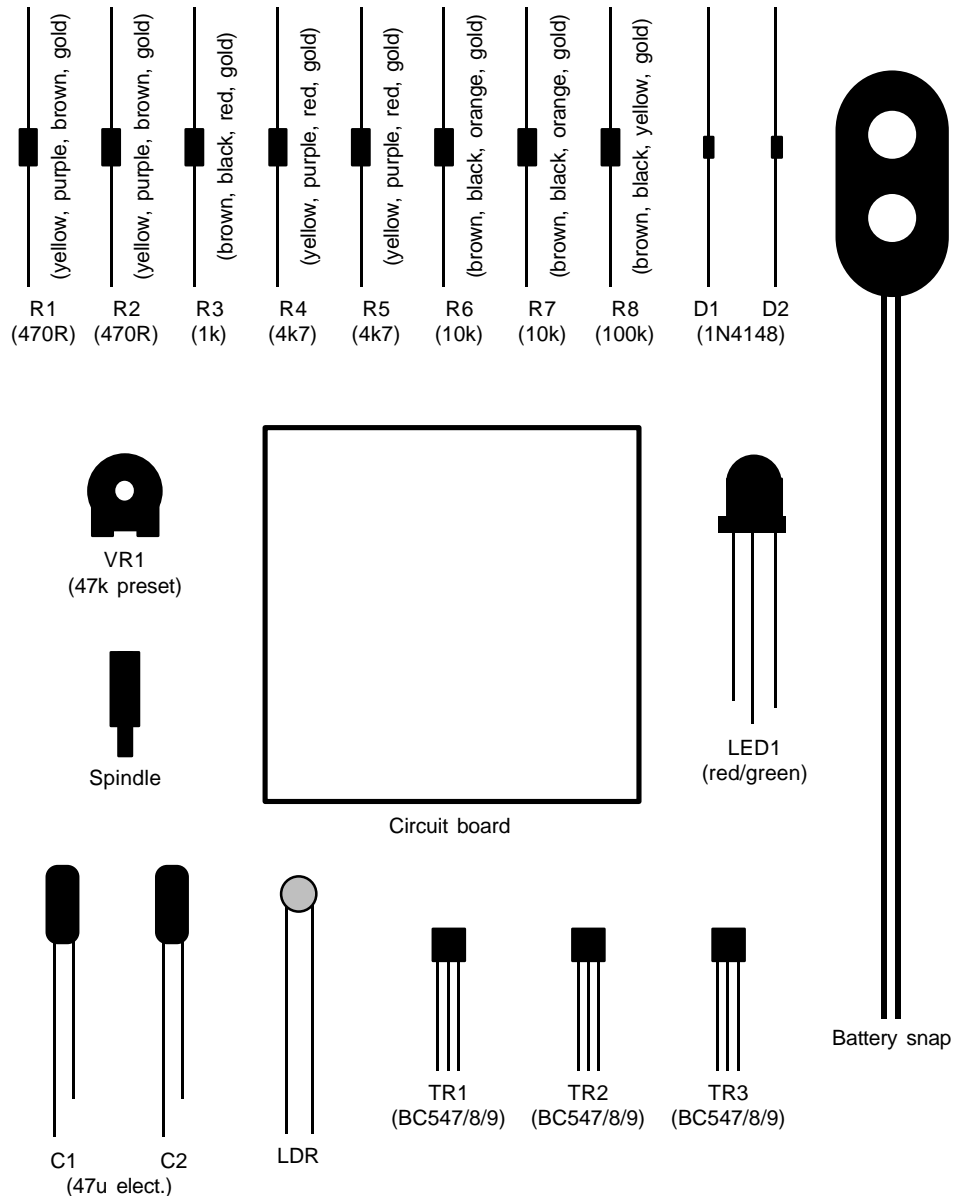


# MADLABRACADABRA



## CONSTRUCTION

1. Identify the different components using the spotter chart.
2. Find the resistors (R1, R2, R3, ... to R8) telling them apart by the coloured bands around their bodies. Fit the resistors flat onto the picture side of the circuit board either way around. Solder the legs of the resistors to the metal side of the board then clip the legs close to each solder joint.
3. Fit and solder the capacitors (C1 and C2) to the board putting the shorter leg (the leg by the stripe on the body) into the hole with the – sign.
4. Solder the variable resistor (VR1) to the board.
5. Open the legs of the transistors (TR1, TR2 and TR3) a little and fit them to the board matching the half-circle shape of the transistor to the half-circle shape on the board (flat side against flat side). Push the transistors half way down then solder and clip their legs.
6. Solder the diodes (D1 and D2) matching the black stripe to the + sign.
7. Solder the light (LED1) to the board either way around.
8. Solder the light sensor (LDR) to the board either way around. Be careful when soldering as excessive heat may melt the plastic.
9. Push the battery snap leads up through the larger holes in the board from the metal side of the board. Fit the metal tip of the red lead into the BATTERY + hole, and the tip of the black lead into the BATTERY – hole. Solder the metal tips to the tracks on the board then pull the wire loops back.
10. Firmly push the spindle into the small hole in the top of VR1. This sets the trigger threshold.
11. Connect a battery (9V PP3) to the battery snap.
12. The light should be either red or green. Covering the sensor (LDR) should change the colour of the light.

## HOW TO USE

*Madlabracadabra* enables you to perform a simple magic trick. Cover the board with an opaque pot or other container, say the magic word, then remove the container to see that the light has changed colour.

With a pair of kits you can perform a more elaborate trick. Set the two boards to be different colours, then cover them both. Shuffle the containers, then remove them to see that the two boards appear to have swapped over.