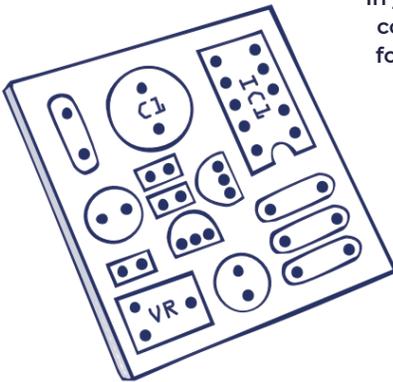


PRETTY TECH

TINKER KITS

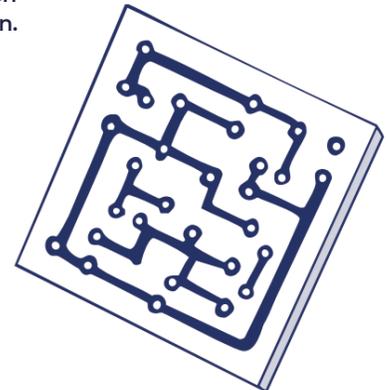
CONSTRUCTION MANUAL

In your kit you will find a printed circuit board and some components. Identify the individual components then follow these instructions for trouble-free construction.



CIRCUIT BOARDS

A printed circuit board has metal tracks on one side and pictures and lettering on the other. Components are fitted to the picture side of the board, and then soldered to the metal side. Soldering secures the component to the board and makes the electrical connection.



RESISTORS

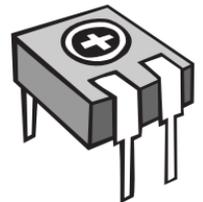


- Resistors have colored bands around their bodies to indicate their values. The component sheet for a kit gives the colors for each resistor.
- Bend the wire 'legs' on a resistor into a U-shape, then push the legs through the two holes in the board.
- Resistors can be fitted either way around, and should be fitted flat on the board.

VARIABLE RESISTORS



Variable resistors have three legs and can only be fitted in one way.



DIODES

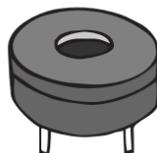


- The positive leg of a diode is marked by a stripe around the body.
- Bend the legs into a U-shape and fit the diode flat on the board, with the positive leg in the hole marked by a plus sign (+).

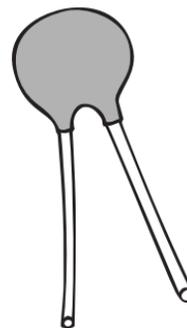
PIEZOS



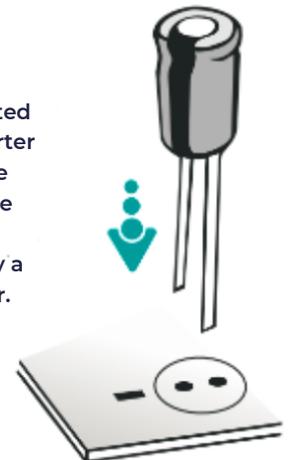
Piezos can be fitted either way around.

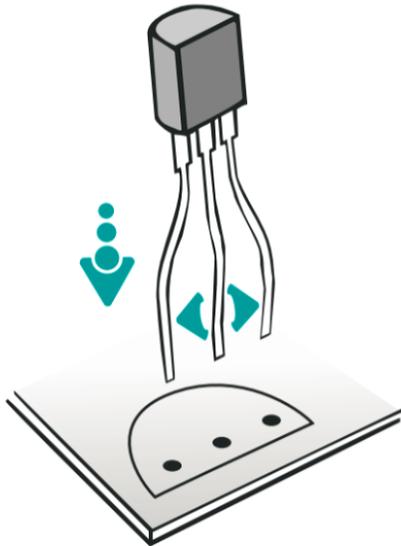


CAPACITORS



- Capacitors come in two types, electrolytic and non-electrolytic.
- Non-electrolytic capacitors can be fitted either way around.
- Electrolytic capacitors must be fitted the right way around. Put the shorter leg of an electrolytic capacitor (the negative leg) into the hole with the minus sign (-).
- The negative leg is also marked by a stripe on the body of the capacitor.





TRANSISTORS



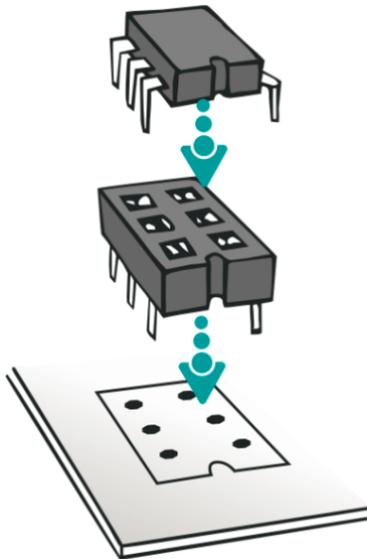
- Open the legs of a transistor apart enough to fit one leg through each of the three holes in the board.
- Look at the transistor from above. Notice how the transistor is shaped like a half circle.
- Match the half-circle shape of the transistor to the half-circle shape on the board. In other words the flat side of the transistor should be facing towards the flat side of its picture.
- Don't force the transistor all the way down.
- Be careful not to get the legs twisted or crossed over.



LEDS



- An LED light has one leg slightly shorter than the other. Put the shorter leg into the hole with the line.
- LEDs also have a slightly flattened edge on the rim on the same side as the shorter leg



INTEGRATED CIRCUITS



- Integrated circuits ('chips') are very delicate so they are not soldered directly to the board. Instead you solder a socket to the board, and then fit the chip into the socket.
- Match the notch in one end of the chip socket to the notch in the picture on the board. Make sure that all the legs go through the holes in the board and that none of the legs are bent underneath the socket. Bend the legs a little outwards to keep the socket in place.
- Take care when soldering as the legs are close together and it is easy for solder bridges to occur. (A solder bridge is where the solder runs over the gap between two tracks.)
- Don't put a chip into its socket until the board has been finished and checked.
- To fit the chip into its socket you will need to bend its legs a little inwards. Do this carefully with your fingers. Match the notch in one end to the notch in the socket. Make sure that a leg goes into each hole, then push the chip gently but firmly into place.
- Never insert or remove a chip while the battery is connected.

BATTERIES



- To make the battery connection stronger, the battery snap leads are threaded through support holes in the board before being soldered.
- 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 metal tip of the black lead into the BATTERY - hole.
- Solder the metal tips to the tracks on the board, then pull the loops back.

