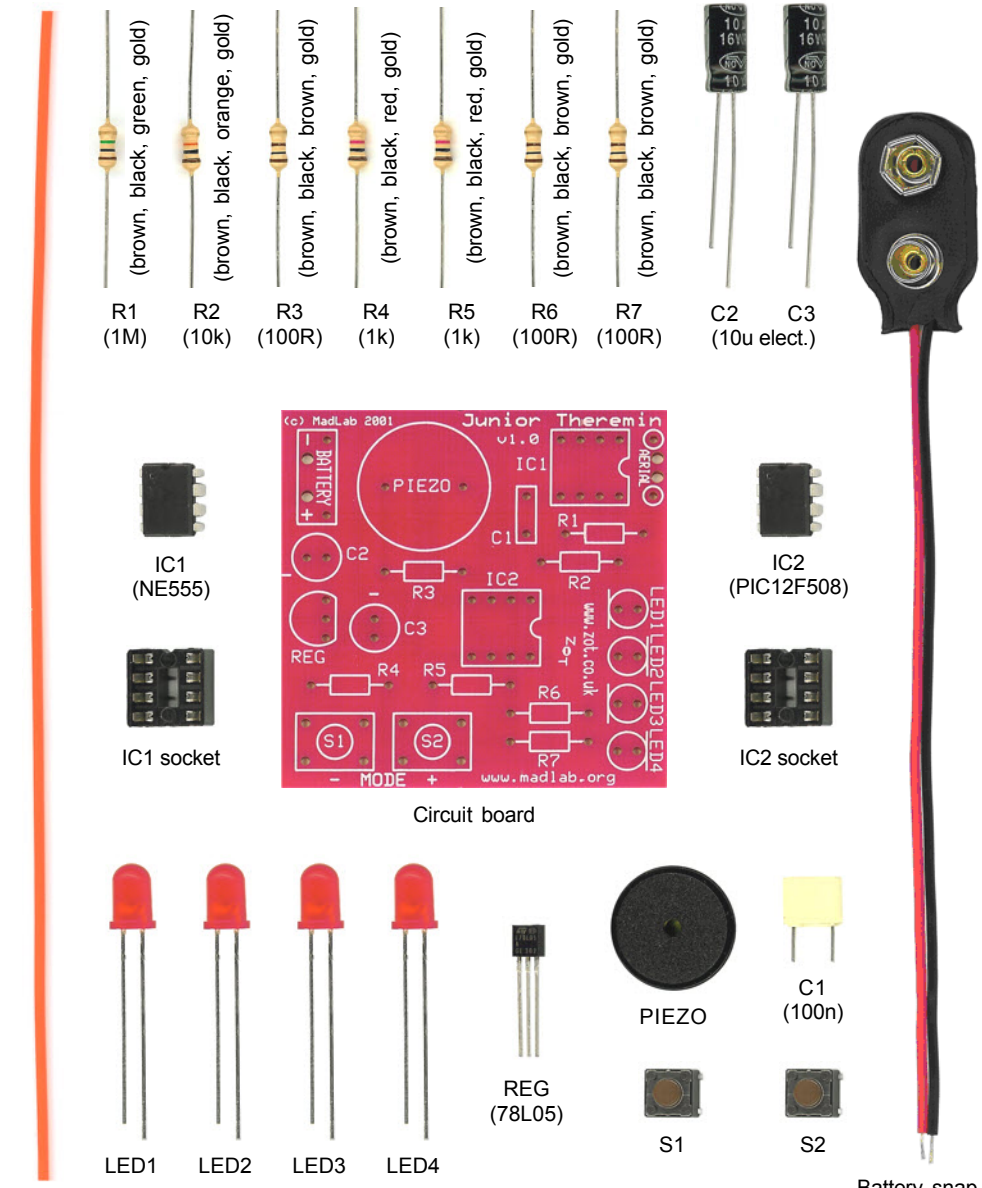
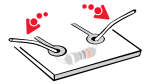
# Junior Theremin

a musical instrument you play without touching




1. Identify the different components using the spotter chart.

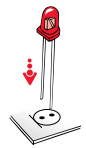
2. Fit and solder the resistors (R1 to R7) to the circuit board telling them apart by the coloured bands around their bodies. They can be fitted either way around.

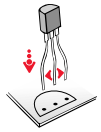


3. Fit and solder the electrolytic capacitors (C2 and C3) to the board putting the shorter leg into the hole with the – sign. The shorter leg also has a stripe on the side of the body. Fit and solder the other capacitor (C1) either way around.

4. Solder the chip sockets (IC1 and IC2) matching the notch in the socket to the notch on the board. **Do not solder the chips directly to the board.**

5. Solder the lights (LED1 to LED4) to the board putting the shorter leg into the hole with the line. The shorter leg also has a flattened edge on the rim. Note that the shorter legs alternate left and right.





6. Solder the regulator (REG) matching the half-circle shape of the regulator to the half-circle shape on the board.

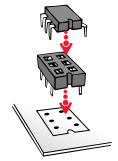
7. Solder the piezo (PIEZO) to the board either way around.

8. Solder the pushbuttons (S1 and S2) either way around.

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 metal 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. Push the coloured wire leads up through the larger holes in the board from the metal side and then solder them to the smaller holes marked AERIAL. Bend the wire around the edge of the board so that it points straight upwards.

11. Carefully bend the legs of the chips inwards a little with your fingers. Fit the chips into their sockets matching the small notch or circular recess in the chip to the notch in the socket. Make sure the right chip goes in the right socket.



12. Connect a battery **(9V PP3)** to the battery snap. If *Junior Theremin* is working properly all the lights should flash and it should beep twice.

# HOW TO USE JUNIOR THEREMIN

*Junior Theremin* is a version of the classic early electronic musical instrument. The wire aerial responds to the movement of your hand towards and away from it and changes the pitch of the note it plays, without actually being touched.

*Junior Theremin* works in two modes - continuous and discrete. When you first connect the battery *Junior Theremin* is in continuous mode. Pressing both pushbuttons together switches between continuous and discrete modes.

Discrete mode, as its name implies, plays individual or discrete notes rather than a continuously variable tone. Eight notes over a single octave are available.

In discrete mode the two pushbuttons change the octave of the notes. The left-hand pushbutton (marked –) lowers the octave, and the right-hand pushbutton (marked +) raises the octave. The pushbuttons only change the octave so long as they are pressed.

In continuous mode the pushbuttons have no effect.