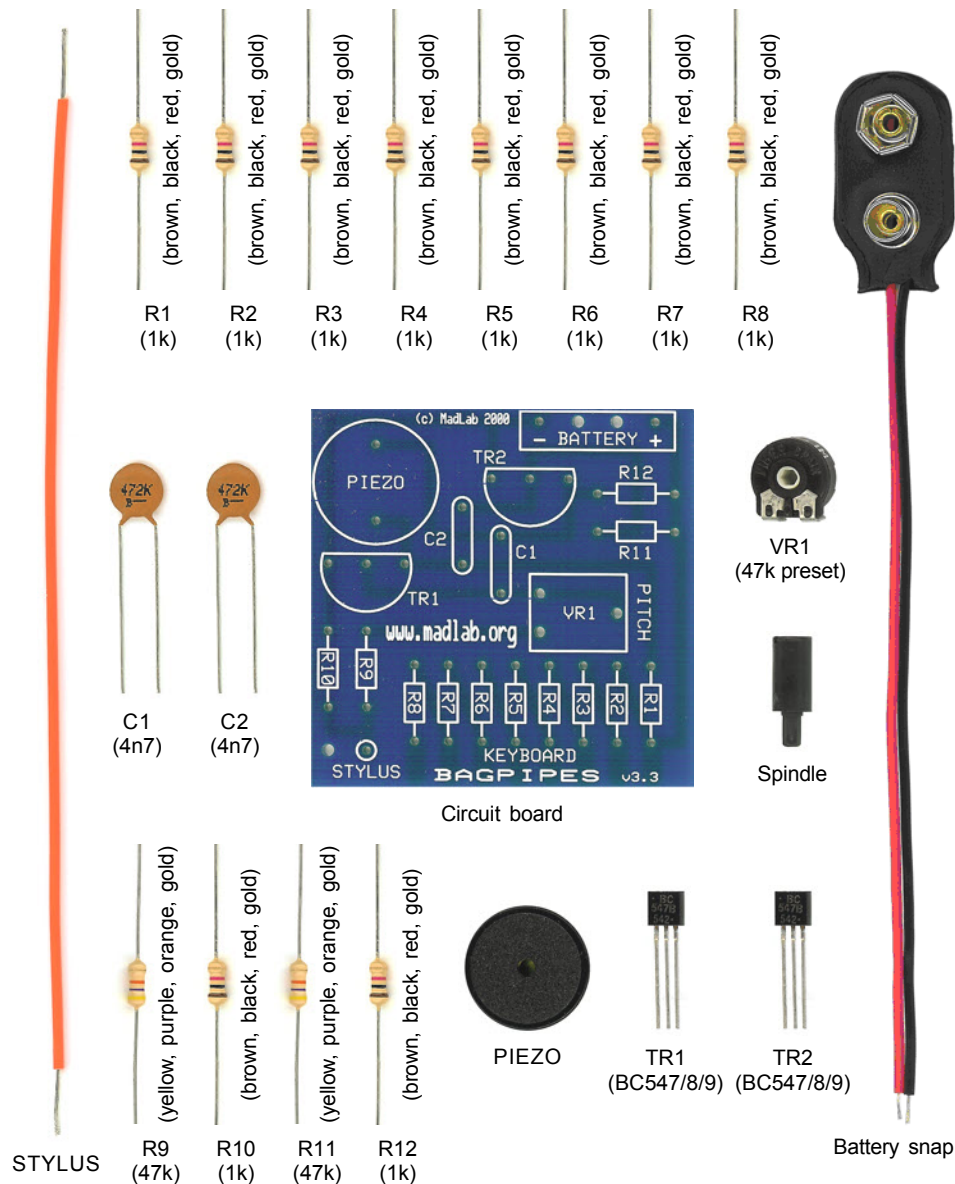
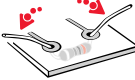
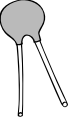

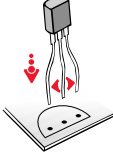
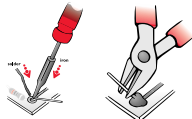




BAGPIPES

an electronic version of the traditional Scottish instrument



- 1 Identify the different components using the spotter chart.
- 2 Find the resistors (R1, R2, R3, ... to R12) telling them apart by the coloured bands around their bodies. Bend the legs into a U-shape then fit them flat onto the picture side of the circuit board. Bend the legs outwards into a V-shape to hold them in place. They can be fitted either way around. 
- 3 Fit the capacitors (C1 and C2) to the board either way around. Bend the legs outwards to hold them in place. 
- 4 Fit the variable resistor (VR1) to the board and bend the legs a little to hold it in place. 
- 5 Open the legs of the transistors (TR1 and TR2) a little and fit them to the board matching the half-circle shape of the transistor to the half-circle shape on the board. Push the transistors half way down and bend their legs. 
- 6 Solder the legs of all the components to the metal side of the board then clip the legs close to each solder joint. 
- 7 Solder the speaker (PIEZO) to the board either way around and clip its legs. 
- 8 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. 
- 9 Solder one end of the flexible wire to the hole marked STYLUS. (The metal strands may need twisting together.) The other end is left free.
- 10 Firmly push the spindle into the small hole in the top of VR1.
- 11 Connect a battery **(9V PP3)** to the battery snap. Touch the end of the stylus against the metal pads on the back of the board and eight notes should sound. You can tune your *Bagpipes* by turning the spindle.