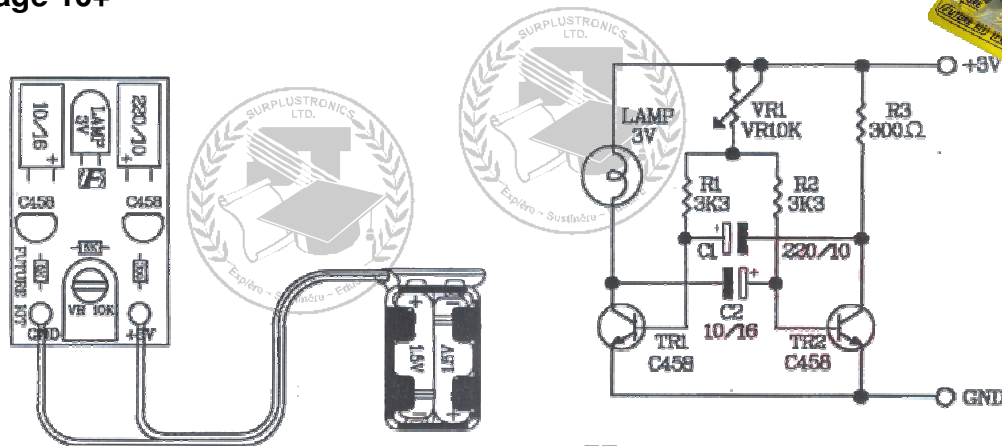
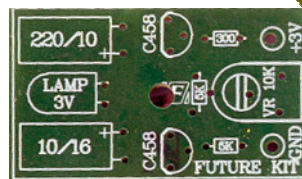


FK143 FIRE FLY

This educational kit is an Astable multi-vibrator configured as a frequency generator where the speed of the flashing is controlled by a variable resistor (trim pot) Only 9 components make this an ideal circuit for age 10+



BATTERY 3V. TR C458 = C828,C945,C1815

This circuit is basically a flip-flop or multi vibrator. In this application however there is only one bulb. Normally on this type of circuit LED's or bulbs would alternate. VR1 controls the flash rate of the lamp by increasing / decreasing the charging voltage of the Capacitors, C1 and C2.

It all starts off like this. Component variances and tolerances cause either one of the Capacitors to start charging first. (Say for example C1) When it is charged, the current is dumped onto the base of TR1, causing its C and E terminals to close, turning on the lamp. Once the load has used all of the charge from C1 the transistor opens and the current is diverted to nudge C2 to empty its charge onto the base of TR2, on the C-E circuit of TR2 there is no bulb to flash.

While TR1 was activated earlier C2 was able to charge. This cycle repeats as long as there is voltage supplied.

In the assembly of this kit, like most others in the "Future Kit" range, it is best to start by first checking that you have all the components. The attaching them in order of their height from the board. I.e. resistors first and so on. The last items that should be attached however should always be any semiconductors including transistors. This avoids unnecessary heat on sensitive components.

The PCB or 'printed circuit board' will be marked already for the components. If polarity is essential then this is marked also. Values of components marked are brief and because of the translation are sometimes incorrect, therefore it is best to double check before placing.

Component list:

R1	3K3 ohm (3,300 ohms)
R2	3K3 ohm (3,300 ohms)
R3	300 ohm
VR1	10K
C1	10v 220µF electrolytic
C2	10v 220µF electrolytic
TR1	C945 (marked 458)
TR2	C945 (marked 458)
Bulb	5mm Grain of Wheat or Straw light (frosted)

Suits age 10+