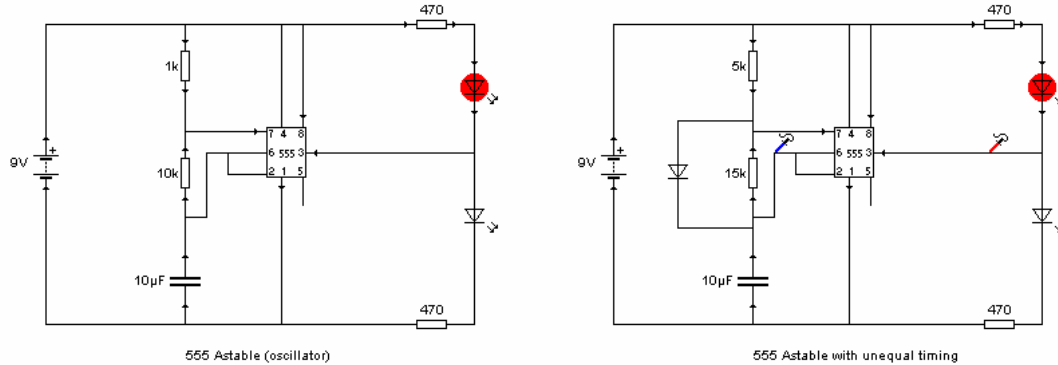


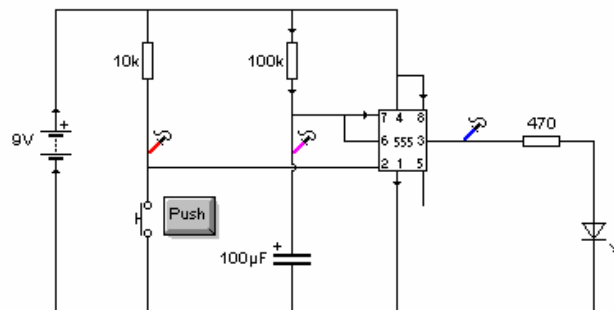
# The 555 Timer chip

**555 Astable** This circuit uses the 555 timer chip as an astable or oscillator. The rate of switching is the frequency of the astable and is given by the formula  $F=1.44/(R_{top}+2R_{middle})\times C$ .



The left-hand circuit shows the basic astable and the right-hand one an astable with short and long pulses. The on/off times are given by the rate at which the capacitor charges and discharges. It charges through the 5k resistor and discharges through the 15k resistor.

**555 Monostable** A monostable switches on for the time given by the resistor and capacitor.



Here is the waveform. There is a drop to zero as the switch is pressed. This triggers the monostable and the output goes high - the LED turns on. After a short time the monostable turns off again. The time period is given by the formula  $T=1.1\times R\times C$ . Use resistance in megaohms and capacitance in uF. Here we have a 100k resistor and a 100uF so  $T=1.1\times 0.1M\times 100uF$ .

