



ACTIVITY

Night light

Build a milk bottle beacon using simple electronics and some household items

SUITABLE FOR CUBS, SCOUTS, EXPLORERS, NETWORK

YOU WILL NEED

- Thin card
- PP3 battery clip
- A single hole punch or craft knife
- Wire strippers
- Bare Conductive paint – either pots with brushes or paint pens
- Ultra bright LEDs x 2
- Light dependent resistor (LDR) x 1 (resistance: light 5K, dark 20M)
- A transistor (number BC547)
- 100K resistor
- 9V battery
- A clean, dry 1 pint milk bottle with lid

1 Download the template for the night light circuit board from scouts.org.uk/IET and print on card.

2 Cut out the shape of your circuit. Punch holes in the circuit where the two LEDs and the LDR will go.

3 Strip off 1cm of the insulation from each of the battery clip wires then bend out the wires on the components to make them sit flat.

4 Create the circuit by painting over the lines with the Bare Conductive paint.

5 Put the components in place. The LDR must have its sensor facing down through the hole. Push the LEDs through their holes so the wires lie along the Bare Conductive Paint. The negative wire on the LED is shorter and should be on the side of the hole marked ‘-’.

6 Fix the components in place with small blobs of paint and then paint over the wires. Allow to dry. Roll the card, insert it into the milk bottle and screw the lid back on.

TIME NEEDED

30–40 minutes

BADGE



The Institution of Engineering and Technology (IET) partners the Scout Electronics Activity Badge.

PARTNER



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OUTCOMES

This activity is an introduction to electronic engineering, helping Scouts to recognise common components and the functions they perform in electronic circuits.

MORE INFORMATION

Equipment for this activity can be purchased cheaply from suppliers such as kitronik.co.uk, rapidonline.com or maplin.co.uk. Visit scouts.org.uk/IET for more information and activities.

