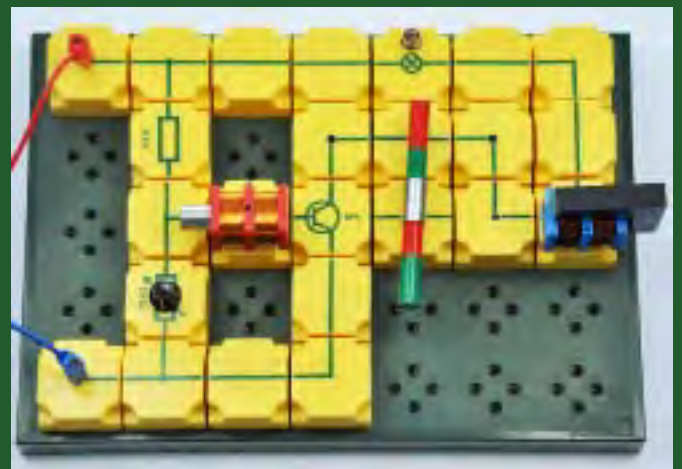
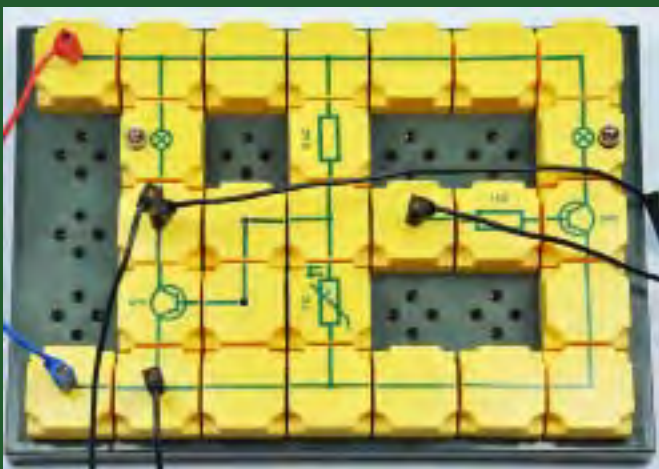


Student Experiments

Manual

ELECTRONICS

P9160-4F



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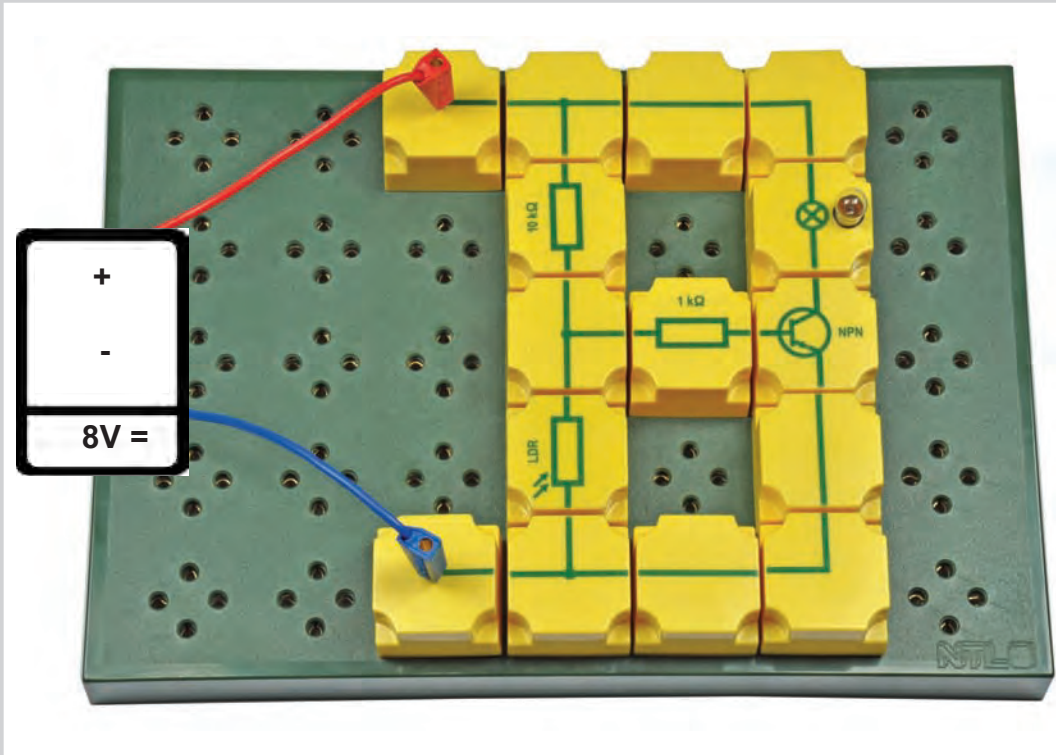
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Required Kit:

P9901-4D Electricity 1

P9901-4F Electronics supplement



Material:

- 1x Plug-in panel
- 1x Connecting lead, red
- 1x Connecting lead, blue
- 2x PIB connector
- 3x PIB wire, straight
- 3x PIB wire, T-shaped
- 2x PIB wire, angled
- 1x PIB resistor 1 kOhm
- 1x PIB lamp socket E10
- 1x Light bulb 10V/50mA
- 1x PIB resistor 10 kOhm
- 1x PIB photo resistor (LDR)
- 1x PIB transistor PNP, base left

Additionally required:

- 1x Voltage supply

AUTOMATIC LIGHTING

EOS 3.7

The base current of a transistor is controlled by means of a LDR. Thus the transistor is switched through in dependence on the illumination.

Wiring:

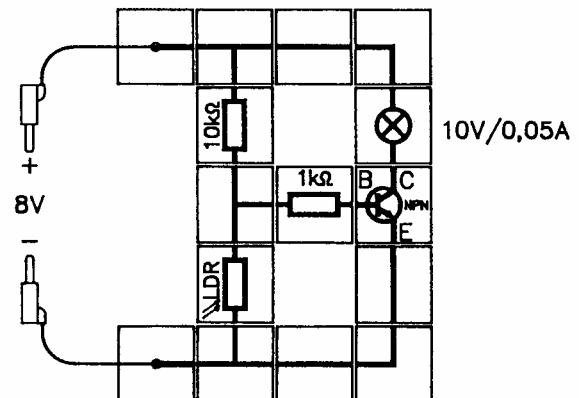
Arrange the wiring according to the illustration.

The voltage divider consists of a resistor $10\text{ k}\Omega$ and the LDR.

The amount of resistance of the LDR is high at darkness.

The major part of the voltage lies at the LDR.

Thus base current flows and the lamp glows.



Experiment:



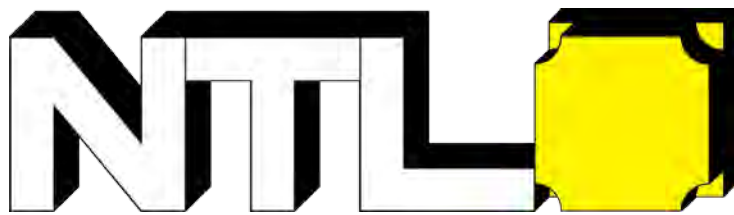
The amount of resistance of the LDR is darkened and illumined alternately.

The lamp should glow at darkening, the lamp does not glow when the LDR is illumined.



Conclusion:

The wiring (by means of an LDR which serves as a resistor at the emitter) is such that the light is automatically switched on at darkness and switched off at daylight.



Student Experiments

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