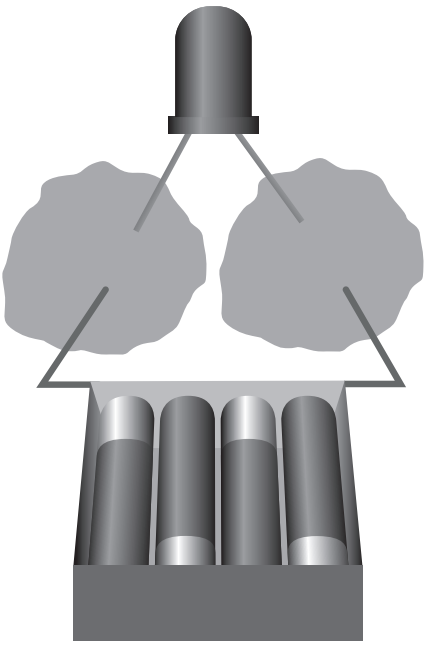
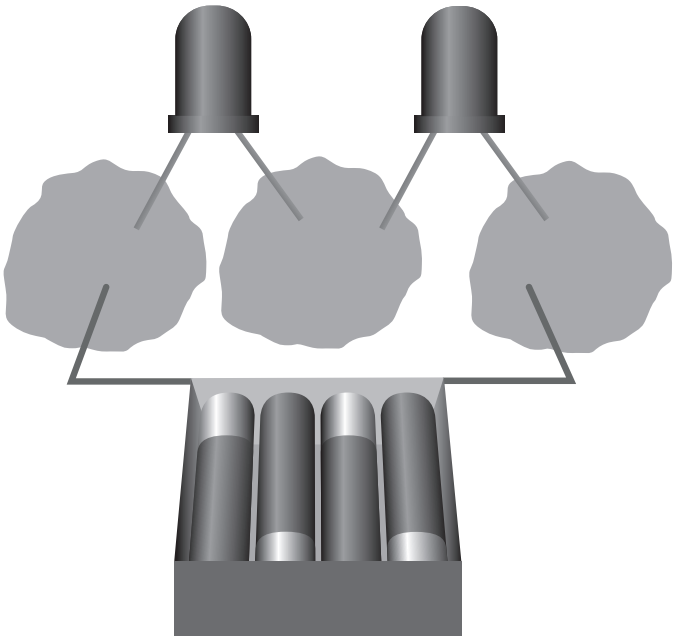
Play-dough circuits



Circuit 1.



Circuit 2.

Start by setting up a circuit with one LED (circuit 1). If the LED doesn't light up, check all the connections and make sure that the LED is the right way round.

1. Push the two lumps of dough together to form one lump. The LED goes out. Can you explain why?

Now make a **series** circuit with two LEDs (circuit 2).

2. Compared with circuit 1, are the LEDs in circuit 2 brighter, dimmer or the same? Can you explain why?

Now build a third circuit with two LEDs in **parallel**. You should decide on your own method on how to do this.

3. Compared with circuit 1, are the LEDs in your parallel circuit brighter, dimmer or the same? Can you explain why?

Equipment needed

- Conducting dough
- 6 V power supply
- Two LEDs

The LED will only work in one direction. Make sure that the longer terminal of the LED is attached to the dough with the positive (red) wire from the battery pack.

Teachers' notes

Typical responses might be: 1. Pushing the dough together creates a short circuit. The current will fl ow through the dough rather than the LED.
2. Dimmer. Putting the LEDs in series increases the total resistance of the circuit. The current through each LED is reduced.
3. Same. Although putting the components in parallel halves the total resistance of the circuit, the current splits in a parallel circuit and so the current through each LED will be (approximately) the same as in circuit 1.