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| Topic | Energy |
| Phenomenon | Current flows around a circuit |
| Experiment | Switches |
| Material to be provided | 1 strip of aluminum foil (alternatively, additional paper clips can be used) 3 batteries (1.5 V) 1 battery holder (for 3 x 1.5 V batteries) 3 cables with alligator clips 1 incandescent lamp with a socket 2 paper clips |
| Additional Material | 1 strip of paper (approximately 10 cm long and 5 cm wide) |
| Preparation for experiment | The children should have already had experience with a simple electric circuit and different types of conductors and non-conductors. It is useful to prepare a switch to demonstrate before the lesson. For this you will need two paper clips clipped side by side on a strip of paper, and a strip of aluminum foil that is held in place under one of the paper clips (see diagram). |

Researcher question

How does a switch work?

Description of experiment

Discuss with the children how they turn lights on and off in their everyday life. The term “switch” is bound to come up. Suggest building a switch together.

Give each of the children a battery holder with batteries, an incandescent lamp with socket, and three cables. Show the children the switch that you have prepared. Insert it into a circuit so that the incandescent lamp lights up. Discuss with the children what aspect of the switch has to be changed so that the incandescent lamp goes off. What do the children think will happen when one of them takes away the aluminum foil under the paper clip?

Enable each child to build a switch. Consider different ideas, for example, replacing the paper clips with aluminum foil or a screw.

Explanation

The circuit has to be closed in order to make the incandescent lamp light up. If the aluminum foil touches the paper clip, the circuit is closed and the incandescent lamp lights up. If the foil is folded away from the paper clip, the circuit is interrupted and the incandescent lamp no longer lights up. Switches function according to this principle.

