

Light the Lights



Trend task

Approach: Station

Level: Year 8

Focus: Connecting electrical circuits.

Resources: Board with two switches, battery and bulb; 6 wires with alligator clips.

Questions/instructions:

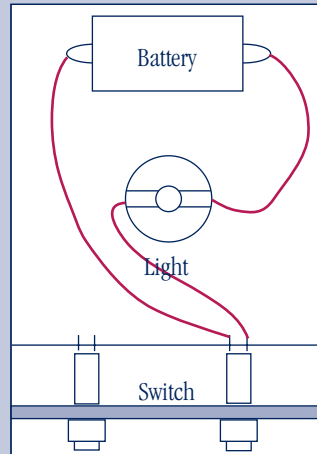
Read all the instructions before you start doing this task.

In this activity you are to make a switch board work so that the switches light up a light bulb in three different ways. Imagine you are making a switch board to be used for a competition. Each switch is for a different person.

1. Use the wires to join **one** switch to the battery and the light to make the light glow.

The light should only glow when you hold down that one switch.

2. Draw on the diagram where the wires go. You don't need to draw the clips. If you have trouble with the drawing, ask the teacher to help.

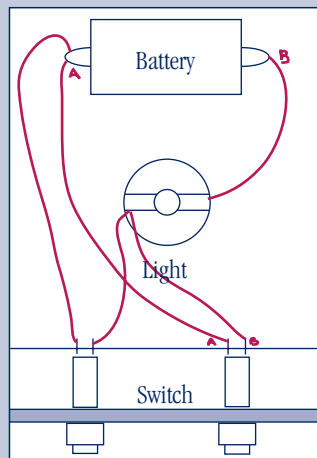


wired correctly
battery, light and
one switch in service

3. In the competition, two people are going to help each other. You need to join the switches to the light so it lights up when one **or** the other switch is pressed.

Test your switch board by pressing one switch at a time. The light should light up when you press each switch.

4. Draw on the diagram where the wires go. You don't need to draw the clips. If you have trouble with the drawing, ask the teacher to help.



wired correctly
two switches in parallel,
together in series with
battery and bulb

5. In the competition, two people have to work together. Join the switches to the light so it lights up only when **both** of the switches are pressed at the same time.

Test your switch board by pressing both switches at the same time. The light should light up only when you press both switches.

6. Draw on the diagram where the wires go. You don't need to draw the clips. If you have trouble with the drawing, ask the teacher to help.

wired correctly
all components in series

% responses

2000 ('96)

year 8

47 (48)

16 (8)

- (38)

Commentary:

Unfortunately, the third section (instructions 5 and 6) was accidentally omitted for 2000. On the other two components, the 2000 performed similarly to the 1996 students on the first component, but better on the second.