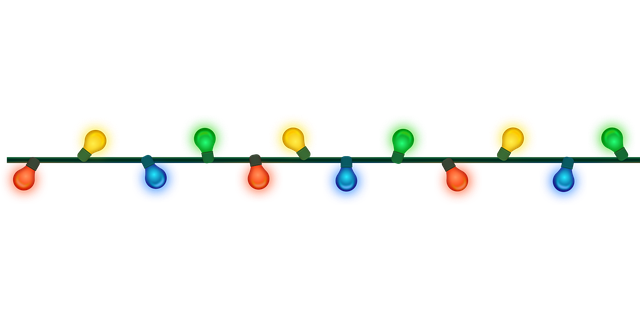
Garden Light Experiment - sample answers



Fill in the missing boxes:

| Test | Question | Answer |
| --- | --- | --- |
| 1 | How long do you need to shine light onto the solar panel before the Bulb starts to glow dimly? | 5 minutes |
| 2 | How long do you need to shine light onto the solar panel before the Bulb starts to glow brightly? | 10 minutes |
| 3 | Once the Bulb is shining brightly, if you disconnect the Solar Panel from the Solar  Store, how long is it before the Bulb goes out? | It depends how long it has been connected prior to disconnecting it. Ours didn’t go out. |
| 4 | Try your experiments with different light sources such as the sun or different  brightness indoor lighting to see how it affects the timings. | Bright sunlight seems to be more effective than even a bright lamp. |

**Challenge questions:**

1. The Solar Panel uses photo-voltaic cells. What do you think photo-voltaic cells do?

Answer: They convert light (sunlight or artificial light) into an electric current.

1. Do the same experiment with the fan. Are the times shorter or longer?

Answer: Much shorter.

1. By looking at the garden light circuit do you know how long the bulb will stay lit when you either unplug the solar panels or if it goes dark?

Answer: No, you can’t reliably predict that.

1. In the next lesson you will be attaching a micro:bit to the circuit. Can you work out what type of things the micro:bit might be able to control or measure?

I think that we will be able to program the micro:bit to control the inputs and outputs of the solar store so that the fan or bulb will be able to be switched off using the buttons or at certain temperatures. Also the micro:bit will be able to display how much charge is available in the solar store.