

The Light Bulb Puzzle

Answer: 7

This can be a really frustrating puzzle if approached without a method. One way of looking at the puzzle is:

- When a light bulb has been changed an odd number of times then it will be on.
- When a light bulb has been changed an even number of times then it will be off.

As every light bulb needs to be changed an odd number of times the quickest method would be if they could all be changed once. Unfortunately, this is not possible, nor is it possible for some light bulbs to be changed once and some to be changed 3 times.

However, it is possible to change each light bulb 3 times. This can be done by switching every switch once. It doesn't matter what order you switch them in. The example on the right is just one of the 5040 possible methods which involve **7** switches.

Taking it further...

- Is 8 the minimum number of switches needed to turn 8 light bulbs on? (or 9, 9?)
- This is a nice system to create using some coding. Could you use a programming language such as [Scratch](https://scratch.mit.edu/) and these sprites for the ['on light bulb'](#) and the ['off light bulb'](#) to create a working version of this puzzle? If you do, please share it with me!

