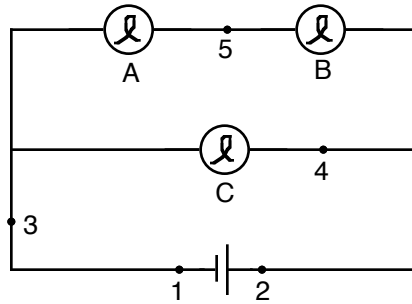


Circuit Concept Sheet

In your lab groups, discuss each of the questions below. When your group has reached consensus, write down your groups answer, including explanations. When you have finished, pass in a copy of your answers and go in the lab and see if you were correct. If you wish to change any answers after being in the lab, write them down and hand those in.

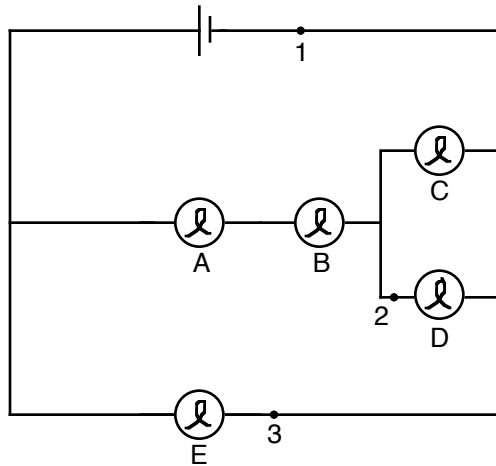
1. The diagram below shows a battery connected to three identical light bulbs. The battery always provides the same constant potential difference.



- a. How does the brightness of each bulb compare to the other bulbs?
- b. What happens to each bulb if you unscrew bulb C? What happens to the current at points 3, 4, and 5 when you do this?
- c. What happens to each bulb if you unscrew bulb B instead? What happens to the current at points 3, 4, and 5 when you do this?
- d. Instead of removing a bulb, what would happen to each bulb if you connected a wire from point 1 to point 5? What happens to the current at point 3 when you do this? What happens to the potential difference across bulbs A and B? What happens to the potential difference between points 1 and 4?
- e. What happens to each bulb if instead you connect a wire from point 2 to point 4?
- f. What happens to each bulb if you connect a fourth bulb in parallel to bulb A? What happens to the current at point 3 when you do this? What happens to the potential difference between points 3 and 5 and the potential difference between points 5 and 2?

Circuit Concept Sheet

2. The diagram below shows a battery connected to five identical light bulbs. The battery always provides the same constant potential difference.

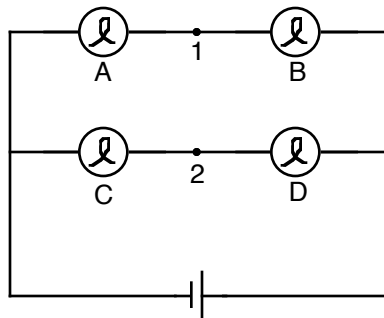


- a. Compare the brightness of each bulb in the circuit to each other.

- b. What will happen to each bulb if you unscrew and remove bulb C? What will happen to the current at point 1?

- c. Instead of removing a bulb, what would happen to each bulb if you connected points 2 and 3 with a wire? What happens to the current at point 1? What happens to the potential difference across bulbs C and D?

3. The diagram below shows a battery connected to four identical light bulbs. The battery always provides the same constant potential difference.



- a. How does the brightness of each bulb compare to the other bulbs?

- b. Suppose you connected points 1 and 2 with a wire. What would happen to the brightness of each bulb? What would happen to the current drawn from the battery? What happens to the potential difference across each bulb? What happens to the wire itself?