

10.2

CHECK YOUR Understanding

- What is electric current? State the symbol and SI unit that are used for electric current.
- What kind of electric charges move through metals to form an electric current?
- Define “conventional current” and “electron flow” in your own words.
- Does a car battery produce alternating current or direct current?
- Draw a circuit diagram for each of the following situations.
 - A lamp is added in series with the lamp shown in Figure 8. Label your diagram.
 - A lamp is added in parallel with the lamp shown in Figure 8. Label your diagram.
- Convert the following values from mA to A. (Refer to page 522 in the Skills Handbook for information about converting units.)
 - 489 mA
 - 8.5 mA
 - 2300 mA
- Convert the following values from A to mA. (Refer to page 522 in the Skills Handbook for information about converting units.)
 - 0.055 A
 - 2.2 A
 - 0.625 A
- Determine the value of current indicated by the ammeter in Figure 10.

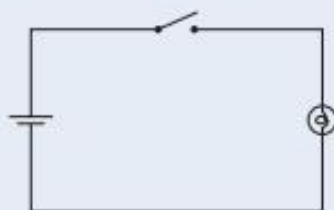


Figure 8

- How is an ammeter connected in a circuit to measure the current? Draw a circuit diagram to help you explain your answer.
- Figure 9 shows five ammeters connected to an electric circuit. Which ammeter(s) would measure the current going through the light bulb?

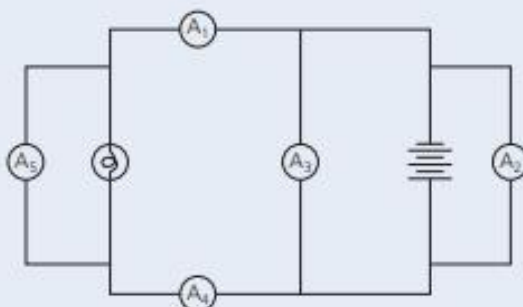


Figure 9



Figure 10

- A current of 140 mA enters a light bulb. What is the current leaving the light bulb? Explain your answer.
- A light bulb has 1100 C of electric charge flow through it in 8 min. What is the electric current, in amperes, flowing through the light bulb?
- A current of 350 mA flows through an electric motor. How long will 185 C of electric charge take to pass through the motor?
- A balloon is given a static electric charge of $-89 \mu\text{C}$ ($8.9 \times 10^{-5} \text{ C}$). How many electrons does this represent?
- A current of 120 mA flows past a point in a circuit for 25 s.
 - How much charge passes the point in this time?
 - How many electrons pass the point in this time?