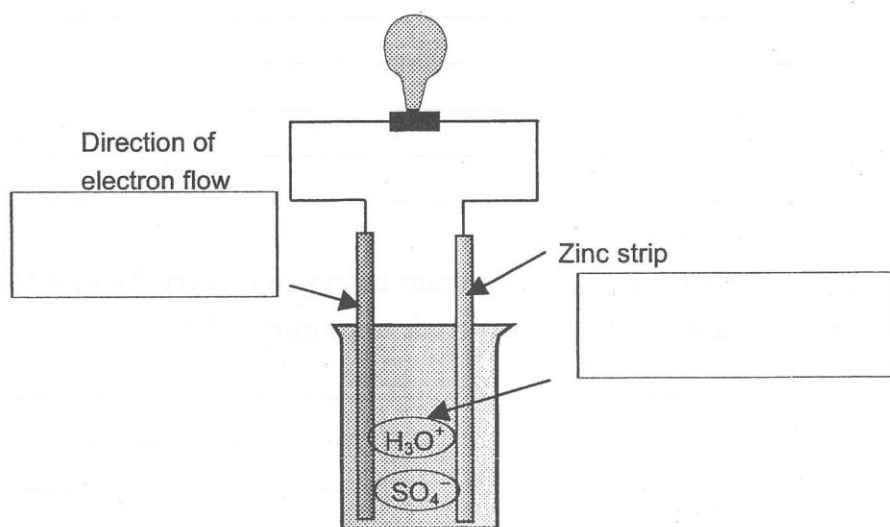




### Assignment

1. The diagram below shows a voltaic cell producing a current which is able to light a bulb. The diagram has been changed slightly from the one shown earlier. Use the diagram to answer the following questions.



- Place the remaining two labels on the diagram.
- Use an arrow to show the direction of flow of the electrons in the circuit.  
 \_\_\_\_\_  
 \_\_\_\_\_
- What kind of energy conversion is taking place?
  - Inside the cell \_\_\_\_\_
  - At the light bulb \_\_\_\_\_
- The zinc strip or electrode is part of the process of producing an electric current.
  - What is the charge on the zinc electrode?  
 \_\_\_\_\_
  - Do electrons travel toward or away from the zinc electrode?  
 \_\_\_\_\_
  - What happens to the sulphate ion at the zinc electrode.  
 \_\_\_\_\_

- e. In a few sentences, describe how the voltaic cell produces an electric current.

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2. Who discovered the connection between electricity and the moving of a conductor through a magnetic field?

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3. What happens to the current when a bar magnet is pushed into and pulled out of a coil of copper wire?

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4. Name at least one device that uses the piezoelectric effect to produce a weak electric current.

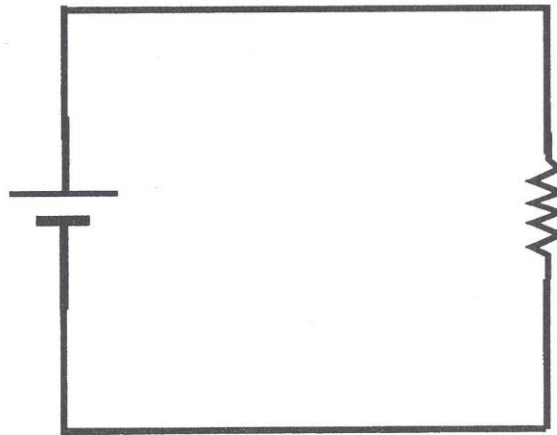
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5. Why is a thermocouple an important part of your car?

10. Use the diagram below to answer the following questions.



- a. Label the positive and negative electrodes on the cell above.
- b. What is this cell called?

c. If six joules of energy are needed to move four coulombs of charge, what is the potential difference across the electrodes in the cell?

d. If four coulombs of electric charge take eight seconds to travel through the resistor, what is the ammeter reading in the circuit?

11. Indicate whether you would connect cells in series or parallel to do the following:
- a. increase current \_\_\_\_\_
- b. increase voltage \_\_\_\_\_

12. a. What is a short circuit?

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b. Why is a short circuit considered dangerous?

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13. What are the components of a simple circuit?

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Check the answer key.



14. Use schematic symbols to show how you would measure potential across a resistor.