

Name: \_\_\_\_\_

Date: \_\_\_\_\_

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## ***Energy Sources***

*Evaluation 1  
Student's Copy*

Before continuing the search for the dastardly Terawattus Energivorus, Inspector 00Watt would like to issue you a challenge. To prove that you have learned everything you need to know about energy, answer the following questions.

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### **Q1. True or false**

- a. *Most of the electricity generated in Québec is produced by wind turbines.*  True  False
- b. *An incandescent light bulb has a longer service life than an LED bulb.*  True  False
- c. *The more it rains, the stronger a river's current is and the more electricity a run-of-river generating station can produce.*  True  False
- d. *In Québec, our power transmission and distribution lines stretch for over 115,583 km.*  True  False

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**Q2. Fill in the sentences below with the following words.**

(Be careful! You may not need all these words!)

mechanical / reservoirs / flow rate / turbine / transformers / electrical  
head / generator / chemical / penstock / thermal

- a. The water's force depends on the \_\_\_\_\_ and the \_\_\_\_\_.
- b. The generator in a hydroelectric power station converts the water's \_\_\_\_\_ energy into \_\_\_\_\_ energy, which can then be distributed to users.
- c. The force of the moving water makes the \_\_\_\_\_ spin, which drives the \_\_\_\_\_ and produces electricity.
- d. \_\_\_\_\_ are installed on utility poles and used to drop the voltage to a level appropriate for your home.
- e. \_\_\_\_\_ are large basins built to store water so that it is available at any time.

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**Q3. In the movie *Energy is neither created or destroyed*, you learned about hydroelectric generating stations and their components.**

**Match each term with the right definition.**

- |                    |  |
|--------------------|--|
| Stator •           | • The stationary part of a generator, made up of a winding of copper bars.                                     |
| Reservoir •        | • A type of generating station that is powered directly by a river and doesn't have a reserve of water.        |
| generating station |  |
| Rotor •            | • The movement of electrons through a wire.  |
| Electric current • | • The mobile part of a generator, to which electromagnets are attached.  |
| Generator •        | • A type of generating station powered by the flow from an artificial lake created by a dam.                   |
| Run-of-river •     | • A device that produces electric current in a generating station and has two parts, the stator and the rotor. |
| generating station |  |

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**Q4. Put the following hydropower system components in the right order (1 to 6).**

- A. Dam and hydroelectric generating station 1. \_\_\_\_\_
- B. Reservoir 2. \_\_\_\_\_
- C. Transmission lines 3. \_\_\_\_\_
- D. Distribution lines 4. \_\_\_\_\_
- E. Residential service loop 5. \_\_\_\_\_
- F. Transformer substation 6. \_\_\_\_\_

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**Q5. Answer the following questions.**

- a. A battery supplies energy to a circuit by converting energy. Check the right answer.
- A battery converts **nuclear** energy into **electrical** energy.
  - A battery converts **chemical** energy into **electrical** energy.
  - A battery converts **electrical** energy into **chemical** energy.

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- b. A battery has two poles (or terminals). What are they called?
- North and south
  - Black and white
  - Positive and negative

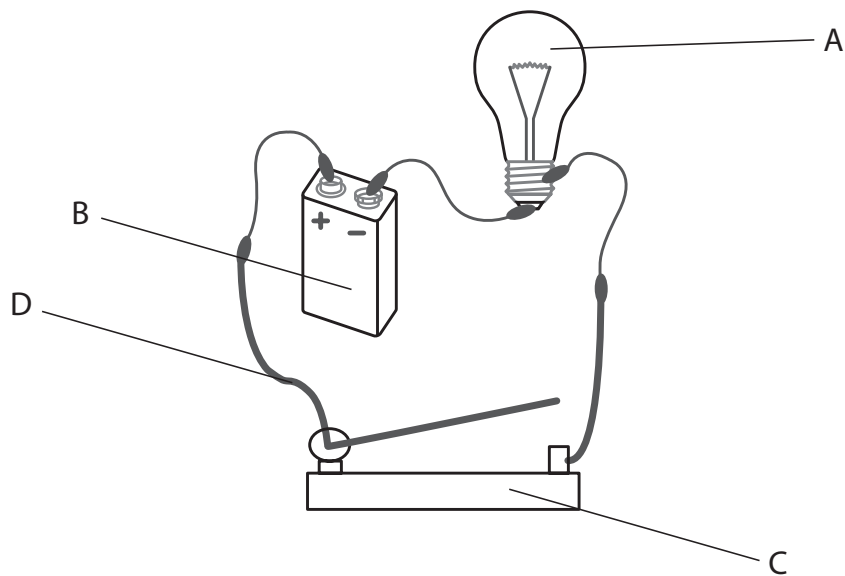
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- c. Which of the following materials **is not** a good conductor of electricity?
- Aluminum
  - Copper
  - Plastic

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**Q6.** Here is a diagram of a simple electric circuit.

**Identify the circuit components and then match each on with its definition.**



- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

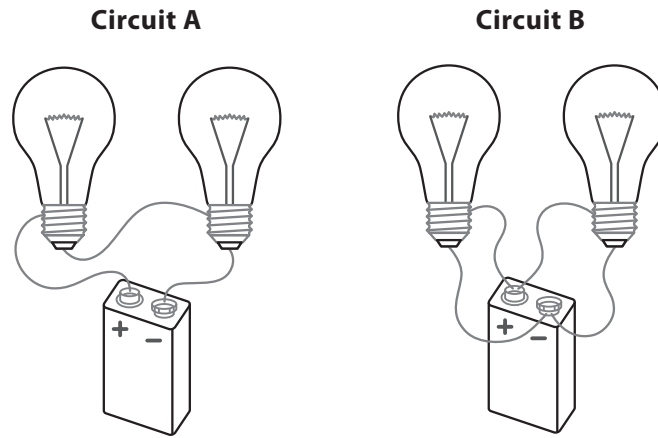
( \_\_\_\_\_ ): I supply power to the circuit.

( \_\_\_\_\_ ): Composed of a metal conductor in an insulating sheath, I provide an efficient way for electric current to travel.

( \_\_\_\_\_ ): When current passes through me, I produce light.

( \_\_\_\_\_ ): My purpose is to open and close the circuit.

**Q7.** Here are two different light circuits.



**Choose the right circuit:**

- a. I am a series circuit.
  - Circuit A
  - Circuit B
  - Neither
  
- b. I am a parallel circuit.
  - Circuit A
  - Circuit B
  - Neither
  
- c. If one of the three light bulbs burns out, electric current will continue to flow to the two other bulbs and they will continue to shine.
  - Circuit A
  - Circuit B
  - Neither
  
- d. If one of the three light bulbs burns out, the current will stop flowing and the two remaining bulbs will no longer light up.
  - Circuit A
  - Circuit B
  - Neither