

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.

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

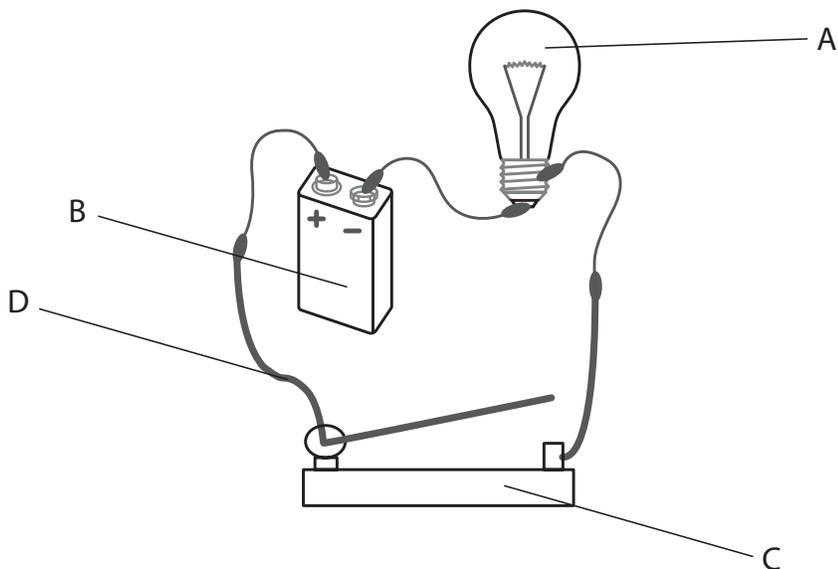
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- c. Which of the following materials **is not** a good conductor of electricity?
- Aluminum
 - Copper
 - Plastic

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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. _____

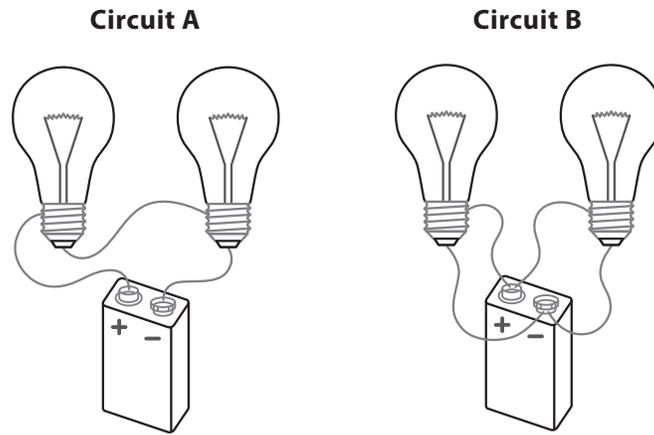
(_____): I supply power to the circuit.

(_____): 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