Name:

Date:

Energy Sources

Evaluation 1 – Answer Sheet End of Part 2

Before you continue the search for the dastardly Terawattus Energivorus, Inspector 00Watt has a challenge for you! Prove you've learned everything you need to know about energy by answering the following questions.

Q1. True or false

a. *Most of the electricity generated in Québec is produced by wind turbines.* ◯ True ⊗ False

F. ***Most of the electricity Québec generates is produced by hydroelectric generating stations.***

b. *An incandescent light bulb has a longer service life than an LED bulb.* ◯ True ⊗ False

F. ***An LED bulb lasts 15 times longer than an incandescent bulb.***

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

T. ***A stronger current produces more electricity.***

d. *In Québec, our power transmission and distribution lines stretch for over 152,491 km.* ⊗ True ◯ False

T. ***The lines are strung on towers or run underground.***

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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 ***head*** and the ***flow rate***.

b. The generator in a hydroelectric power station converts the water's ***mechanical*** energy into ***electrical*** energy, which can then be distributed to users.

c. The force of the moving water makes the ***turbine*** spin, which drives the ***generator*** and produces electricity.

d. ***Transformers*** are installed on utility poles and used to drop the voltage to a level appropriate for your home.

e. ***Reservoirs*** 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 generating station	A type of generating station that is powered directly by a river and doesn't have a reserve of water.
Rotor	The movement of electrons through a wire.
Electric current	The moving 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 generating station	A device that produces electric current in a generating station and has two parts, the stator and the rotor.

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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___
B. Reservoir	2. ___A___
C. Transmission lines	3. ___C___
D. Distribution lines	4. ___F___
E. Residential service loop	5. ___D___
F. Transformer substation	6. ___E___

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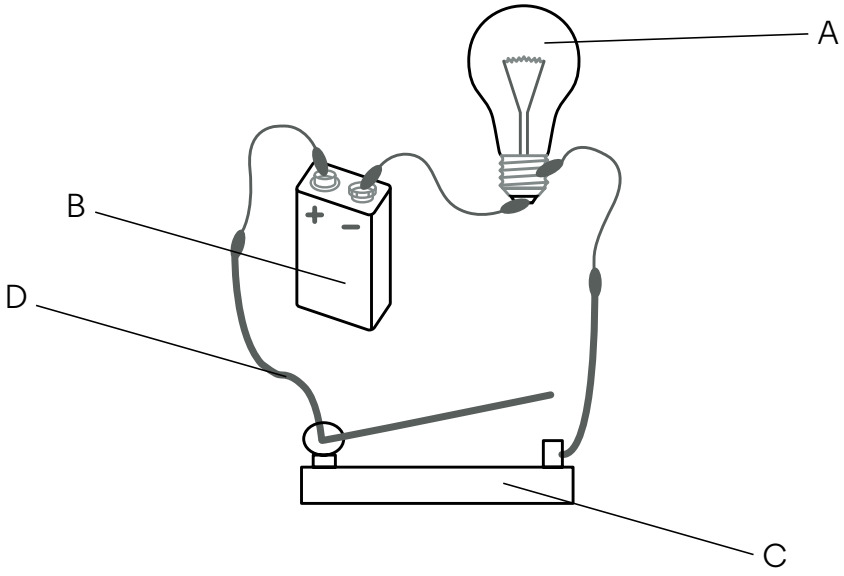
Q6. Here is a diagram of a simple electric circuit.

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



A. *Light bulb*

B. *Battery*

C. *Switch*

D. *Wire*

(*B*): I supply power to the circuit.

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

(*A*): When current passes through me, I produce light.

(*C*): My purpose is to open and close the circuit.

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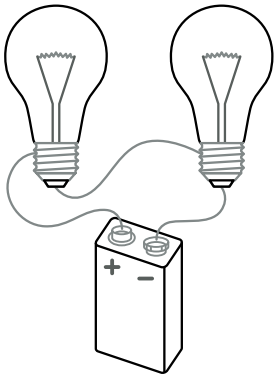
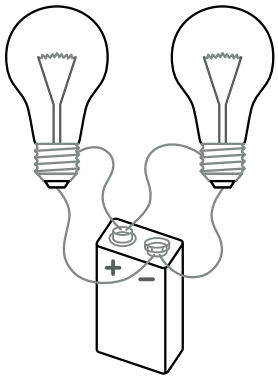
Q7. Here are two different light circuits.

Circuit A



Circuit B



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 light bulbs burns out, electric current will continue to flow to the other bulb and it will continue to light up.

◯ Circuit A

⊗ ***Circuit B***

◯ Neither

d. If one of the light bulbs burns out, the current will stop flowing and the remaining bulb will no longer light up.

⊗ ***Circuit A***

◯ Circuit B

◯ Neither

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