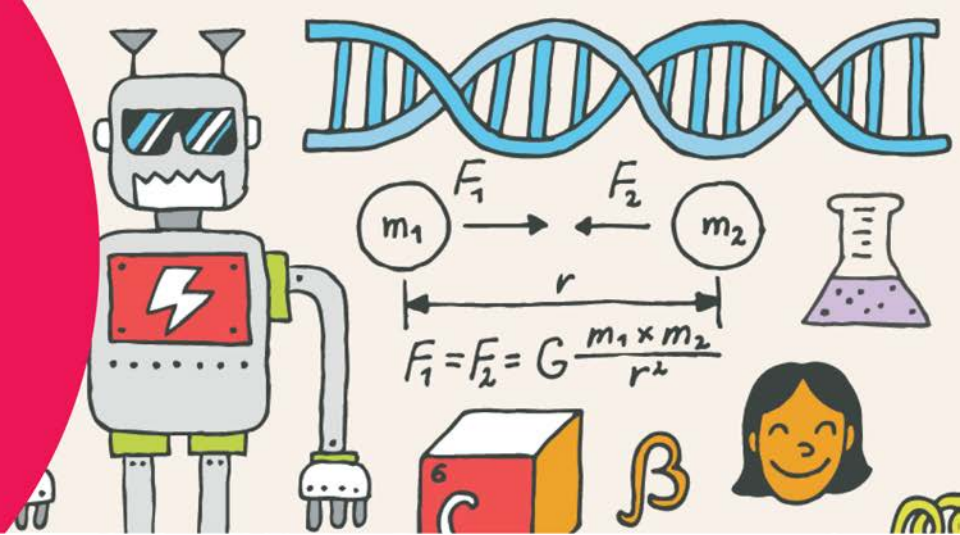


Electri-city

Museum Mission Answer Key



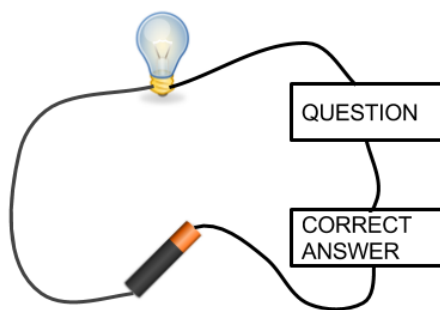
Electricity Games (p. 3)

Exhibit – Artifact Alley – Smartphone (Very back of the alley around the corner of the last case)

Find the Electriquiz game; it uses circuits to function. What do you **think** is used as the power source?

It uses AA batteries.

In this game you touch the contacts to the correct question and answer and the light will flash! How do you **think** the circuits in this game are connected? Using lines complete the circuit below:



Energy Consumption (p. 4)

Exhibit - From Earth to Us – Barbie House

Find as many items as you can in the Barbie house that use electricity and list them below.

Chandelier

Oven

Refrigerator

Blow dryer

Curling iron

Hot plate

Satellite dish

Plane

Tractor

Scooter

Star Wars TIE fighter

Boom box

Energy Sources (p. 5)

Exhibit - From Earth to Us

Find an energy source and list a benefit you think it has.

Hydro: renewable, clean, and abundant

Nuclear: clean, low-cost

Oil: abundant, easy to transport and use, no new technology required, high heating value.

Solar: renewable, clean

Wind: renewable, no emissions

Can you build a dam at the hydro interactive? **Think:** What is one way dams affect the surrounding environment when they are built?

Can displace residents, loss of forests and farmland, blocks fish migrations, traps sediments, changes river ecosystem to reservoir ecosystem, etc.

Energy Consumption (p. 6)

Exhibit - From Earth to Us – Energy Street

Find Ottawa on the energy map interactive. What is one way electricity is generated near us?

Hydro, natural gas, oil, fossil fuel

Is it the same as those found near Iqaluit?

There are only fossil fuels near Iqaluit

Think: Across Canada what do you notice about the locations where wind power is popular?

Wind energy is abundant in areas near bodies of water.

Energy Consumption (p. 7)

Exhibit - From Earth to Us – Energy Street

Find the electrical device that uses the most electricity and list it below.

1. *Dryer*

Think: What are two things you could do in your home to try and conserve energy?

Insulate your house; turn off things that aren't being used; unplug chargers etc. when they aren't being used; use a clothes line to dry clothing; plan meals ahead so you don't have to use energy to defrost food, etc.

Energy Conservation (p. 8)

Exhibit – Technology in Our Lives – Tiny House

Find two things that would help with energy conservation in the tiny house and list them below.

Small space requires less energy to heat; insulation; propane heater is efficient; compost toilet

Think: Would you like living in a tiny house? Why or why not?

Good for the environment; small space hard to share; less costly in day to day expenses; less area to accumulate clutter; less storage space to keep out of season things, expensive to buy for what you get compared to a 'regular' sized house

Energy Consumption (p. 9)

Exhibit – Technology in Our Lives – Modern Moves

Find the Smart Home interactive. Pick the type of house you would like to live in. Write down 2 examples of things in your home that would help you conserve energy if they took advantage of smart home technology.

Hot water heater, lights, blinds, smart shower, multi-purpose sensor, smart fridge, thermostat.

Can you **think** of a negative effect of having your home connected to smart home technology?

Privacy; hacking, reliant on connection to internet, can be expensive to get the technologies, big learning curve to learn to use, etc.

Household Appliances (p. 10)

Exhibit – Technology in Our Lives

Think: Why are refrigerators among the appliances in our homes that use the most energy?

They get opened and closed often.

They are always on.

Heating and cooling requires a lot of electricity.

Listen to the conversation between the old and new washing machines. Which do you think gets clothes cleaner? Which uses more energy?

New one gets clothes cleaner.

New one uses more electrical energy but less muscular energy.

Curriculum Connections

Ontario: Grade 5 – Science and Technology

Understanding Earth and Space Systems: Conservation of Energy and Resources

- 1. analyse the immediate and long-term effects of energy and resource use on society and the environment, and evaluate options for conserving energy and resources;**
 - 1.1 analyse the long-term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts
 - 1.2 evaluate the effects of various technologies on energy consumption and propose ways in which individuals can improve energy conservation

- 3. demonstrate an understanding of the various forms and sources of energy and the ways in which energy can be transformed and conserved.**
 - 3.2 identify renewable and non-renewable sources of energy

Ontario: Grade 6 – Science and Technology

Understanding Matter and Energy – Electricity and Electrical Devices

- 1. evaluate the impact of the use of electricity on both the way we live and the environment;**
 - 1.1 assess the short- and long-term environmental effects of the different ways in which electricity is generated in Canada (e.g., hydro, thermal, nuclear, wind, solar), including the effect of each method on natural resources and living things in the environment
 - 1.2 assess opportunities for reducing electricity consumption at home or at school that could affect the use of non-renewable resources in a positive way or reduce the impact of electricity generation on the environment

- 3. demonstrate an understanding of the principles of electrical energy and its transformation into and from other forms of energy**
 - 3.8 describe ways in which the use of electricity by society, including the amount of electrical energy used, has changed over time

Ontario: Grade 9, Academic – Science

E. Physics: The Characteristics of Electricity

E1.2 assess some of the social, economic, and environmental implications of the production of electrical energy in Canada from renewable and non-renewable sources

Ontario: Grade 9, Applied – Science

E. Physics: Electrical Applications

E1.1 assess social, economic, and environmental costs and benefits of using a renewable and a non-renewable source of electrical energy (e.g., solar, wind, hydro, nuclear, coal, oil, natural gas), taking the issue of sustainability into account

Quebec: Primary Cycle 3 – Science and Technology

Material World

B. Energy

3. Transformation of Energy

- a. Describes situations in which human beings consume energy

D. Systems and Interactions

7. Electron Technology

- a. Recognizes the influence and the impact of electric appliances on people's way of life and surroundings