

GRADE 6 LEARNING EXPERIENCE

A Recipe for Electricity: How Natural Resources can Power your House

Summary

Through engaging hands-on activities, students will learn how electricity is made from renewable and non-renewable sources. Students will draw, act, create models, write poems, or write stories to explain how electricity can be generated from organic material.

Objective

Students will understand how electricity can be generated from natural resources, including organic waste.

Pre-Activity

WHERE DOES ELECTRICITY COME FROM?

DIRECTIONS

MAGNETIC FORCE

Give students magnets and paper clips. Ask them to move paper clips around their desks without letting the magnets touch the paper clips. Ask students if they know how magnets are related to the generation of electricity.

Explain that just as magnets can move paper clips without touching them, spinning magnets can move particles (electrons) in wires—which generates electricity.

VIDEO

Students watch the video **Energy 101** to learn about how electricity can be generated from natural resources.

LINK TO VIDEO: www.youtube.com/watch?v=20Vb6hLLQ5g
(05:00 / Source: energynownews, YouTube)

MATERIALS
Magnets and paper clips

DURATION
5 min

MATERIALS
Internet and projector or other viewing devices

Energy 101
video (5 min)

DURATION
5 min

MAIN LEARNING OUTCOME

GRADE: 

SUBJECT:

Science 

Outcome 2

Students will explain how renewable and non-renewable electricity is generated and its local and global environmental impacts.

Indicator

Explore different sources of renewable energy that can be transferred to produce electrical energy.

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#NothingWasted



WHERE DOES ELECTRICITY COME FROM? (cont'd)

DIRECTIONS

GROUP DISCUSSIONS

DURATION
10 min

Discuss the section of the video that described how coal, natural gas, and biomass can be burned to heat water, create steam, spin a magnet, and create electricity.

Break the students into small groups and ask them to write down examples of fuel sources that can be combusted to make electricity. Where are they from? What impacts are there on the earth when we collect these natural resources?

Review biomass fuel sources, and note that wood pellets are made from wood scraps from the lumber industry.

Discuss what natural gas is and where it comes from.

Explain how food waste and animal waste can produce another gas—methane, which can be combusted to make electricity. Explain that when these organic materials decompose in places without oxygen (i.e. landfills) methane is created.

Activity

CREATIVE DEPICTIONS OF ELECTRICITY GENERATION

DIRECTIONS

COMPOSITION

Divide students into small groups and provide each group with a **natural resource card (Appendix 1)**.

Each group is asked to develop a creative story (or poem, model, etc.) explaining how their assigned natural resource is collected and turned into electricity, and how the electricity travels to their house. Use **Electricity's Journey to My House sheet (Appendix 2)** as a resource.

To help develop stories, students will research (using the internet) how the natural resources are collected.

STORY SHARING

Ask each group to share their story with the class. If time is limited, ask groups to volunteer to share their stories with the class or have them share their stories with another group.

MATERIALS

Appendix 1
Natural Resource cards

Appendix 2
Electricity's Journey to My House sheet

Internet access

DURATION
30 min

DURATION
30 min

Post-Activity

GROUP DISCUSSION

DIRECTIONS

As a class, discuss the following questions:

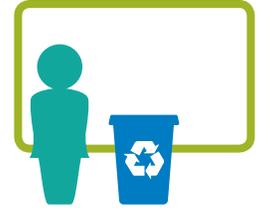
- Which of the fuels we discussed today (coal, natural gas, biomass, methane) are renewable resources? Which are non-renewable?
- Ask the students which resources have the greatest impact on the earth when they are collected to make electricity.
- Which resources have the smallest impact?
- Do you think it is better to use renewable resources to generate electricity or non-renewable resources?
- What waste materials often end up in the landfills that we could use to generate electricity? Food waste (methane), wood (biomass).

MATERIALS

n/a

DURATION

20 min



WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province.

Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

Assessment

FORMATIVE Evaluate student learning over the course of the class discussion.

SUMMATIVE (OPTIONAL) Option to evaluate the “Electricity’s Journey to My House” story



ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week October (3rd week)

Earth Day April 22

Compost Awareness Week May (1st full week)

Environment Week June (1st full week)

ABOUT DIVERT NS

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 20 years we’ve helped build a culture of recycling through environmental stewardship, education, and innovation. Divert NS operates the **Beverage Container Deposit–Refund Program** and the **Used Tire Management Program**. In addition, we work in collaboration with government,

industry, and academia to divert waste-resources from landfill. Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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Natural Resource Cards



Methane Gas

Methane Gas

Wood Pellets

Wood Pellets

Natural Gas

Natural Gas

Coal

Coal

APPENDIX 2:
A RECIPE FOR ELECTRICITY

Electricity's Journey to My House

The recipe below explains how organic material can be converted into electricity for your house.

Turn the recipe into a creative story explaining how your natural resource is collected, how it is turned into electricity, and how the electricity travels to your house.

Spend some time researching how your natural resource is collected, and include this information in your story.

Storytelling options include:

Act, draw, write a poem, write a story, create a model... you decide!

Be creative!

A Recipe for Electricity

1. A natural resource is collected.
2. The natural resource is brought to a power plant.
3. The natural resource is combusted (burned).
4. The heat from combusting the natural resource warms water and creates steam.
5. The steam turns propeller-like blades inside a turbine.
6. The propeller-like blades spin a rotor, which makes a magnet spin.
7. The spinning magnet generates electricity.
8. The electricity travels through wires to my house.

