

RENEWABLE ENERGIES

CHALLENGE KIT



This kit was created to assist you in completing the *Renewable Energies* program. Included are facts, stories, crafts, games, recipes and information.

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epc
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RENEWABLE ENERGIES

CHALLENGE KIT

This kit was created to assist you in completing the *Renewable Energies* patch challenge. Included are facts, stories, crafts, games, recipes and other information that can be copied and distributed to the participants working on this kit.

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CHALLENGE KIT

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Detailed Outline

5: PATCH REQUIREMENTS is the section of the booklet that details what needs to be accomplished in order to earn the patch.

6–17: TEACHING PAGES contain information that can be used to teach the subject being discussed. Subtopics include:

- What is Energy?
- Non-Renewable Energies
- Renewable Energies
- Energy Saving

18–23: CRAFT PAGES detail ideas for crafts that pertain to the subject matter. Includes:

- Build a Fire Out of Food
- Build a Spintop
- Build and Fly a Kite
- Build a Wind Sock

24–30: RECIPE IDEAS gives suggestions about what kind of food would go well with the theme. Some recipes included are:

- Solar S'Mores
- Local Fruit Pie
- Local Berry Jam
- Apple Maple Pancakes
- Lemon Cranberry Scones
- Pumpkin Apple Smoothie
- Savory Carrot Scones

31–40: GAMES AND ACTIVITIES provide entertainment and recreational ideas for both individuals and groups. Includes:

- Which Objects Need Electricity to Work?
- What people think about renewable energies?
- Colouring Board
- Spot the 10 Mistakes
- Transfer of Energy: Ride Your Bike
- Pictionary
- Flying Scarf
- Air, Water, Fire, Earth
- Light up a Bulb With Citrus
- Make a Solar Oven Out of a Pizza Box
- Visit a Wind Farm or a Hydroelectric Plant

41–47: PUZZLE PAGES contain cerebral challenges to reinforce the learning objectives of the Challenge Kit. Includes:

- Labyrinth: The Path to Renewable Energy and Energy Saving
- Jigsaw Puzzle: What is Energy?
- Crosswords
- Word Search

48-50: PRINTABLES

51-52: BIBLIOGRAPHY

53: CREDITS

54: FEEDBACK FORM

Patch Requirements

TO EARN THE PATCH

- Sparks (5-6 yrs) need to complete 2 requirements from the list.
- Brownies (7-8 yrs) need to complete 3 requirements from the list.
- Guides (9-11 yrs) need to complete 4 requirements from the list.
- Pathfinders (12-14 yrs) and Rangers (15-17 yrs) need to complete 6 requirements from the list.

RENEWABLE ENERGIES PATCH

1. Discover what non-renewable and renewable energies are.
2. Think which renewable energy resources are available in your area.
3. Take a group bike ride.
4. Visit a hydroelectric plant or a wind power farm.
5. Gather a group and put the jigsaw puzzle back together.
6. Prepare one of the recipes using as much tasty local food as you could find.
7. Make your own solar oven and use it to prepare Solar S'Mores.
8. Solve the maze, the crossword, or the word search.
9. Add some colours to the energies and energy saving colouring board.
10. Spot the 10 differences from a place using up all the fossil fuel and a place where people pay attention to energy saving and have encouraged the use of renewable energies.
11. Find out which object needs electricity to work.
12. Guess what people think about renewable energies.
13. Gather a group and play Pictionary, Flying Scarf or Air, Water, Fire, Earth.
14. Build a spintop, a kite, or a windsock and experience how energy is transferred from you to the spintop or from the wind to the kite and the sock.
15. Create your own battery using lemons!

Teaching Overview

WHAT IS ENERGY?

- Definition of energy with questions and examples
- Usage (like jumping around after having a snack)

NON-RENEWABLE ENERGIES

- Fossil energies
- Greenhouse effect/Global warming

RENEWABLE ENERGIES

- Biomass
- Geothermal
- Wind energy
- Solar energy
- Hydro energy
- Are renewable energies the solution?

ENERGY SAVING

- Turn off electric appliances
- Recycle and reuse
- Improve house insulation (or put on a sweater instead of turning up the heat)
- Carpool, public transportation, or bike
- Buy local

FUN FACT! | **GLOBAL WARMING**

What is it? How is it related to the energy we use? Burning fossil fuels produces an invisible gas carbon dioxide CO₂, which accumulates in the air (atmosphere) and acts like a green house. The CO₂ in the air traps the sun's heat (infrared light only) close to the Earth, warming up the air and oceans, which perturbs the weather, climates and ecosystems. Renewable energies are also called clean or green energies because they produce less CO₂.

Teachings

WHAT IS ENERGY?

Definition of Energy. What do you think it is? How do you materialize it? Where can you find it?

Energy is a transferable kind of work that can take multiple forms. We see energy as heat, light, and movement. Heat and sunlight are one type of energy: for example lizards take 'sunbaths' to keep their body warm; plants use sunlight to grow.

Energy can be stored as food, fuel, or electricity.

Food is one type of energy: you can convert food in your body to stay warm or to keep moving.

Gas or fuel as well as electricity can allow a plane to fly or a bus to transport people.

Of course there are a lot of places where food is seriously lacking but in the case of energy shortage we'll be considering fuel and electricity as the two major forms of energy.



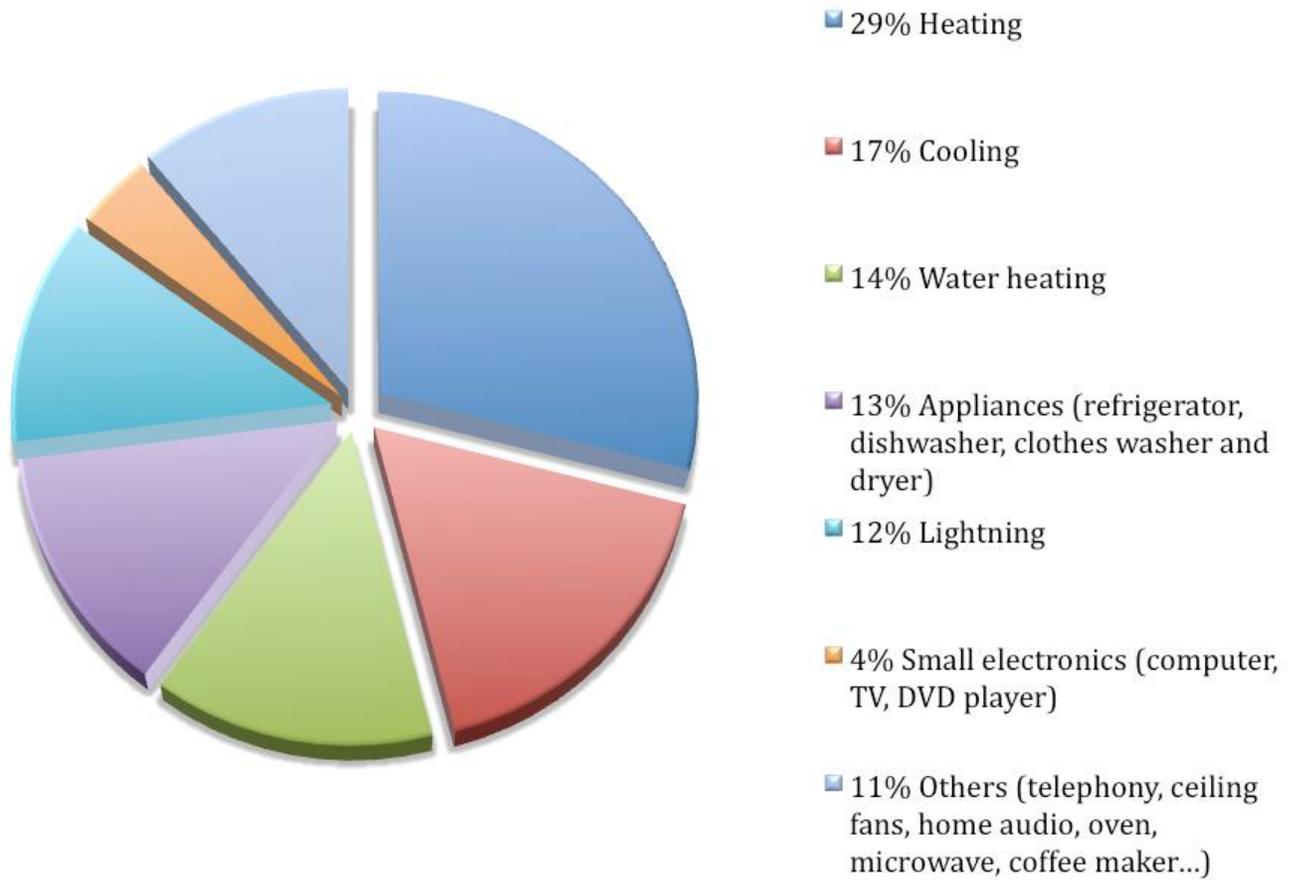
Energy usage: What do you think is the major consumption of energy? What have you done/ used today that requires electricity?

Daily, we use a lot of energy for entertainment, cooking, transportation, lightning, heating/cooling homes. Industries also use a lot of energy to produce and transport food. While you can easily picture electricity and fuel that you consume at home, it is more difficult to evaluate how much energy brought your pineapple to your plate or how much it took to produce your T-shirt.

FUN FACT!

Energy is everywhere and it is transferable. Everything that moves needs energy. We use energy for everything we do from jumping to baking cookies, to driving cars or sending astronauts to space.

How Canadians Use Electricity



Now where do you think this energy comes from? What produces electricity and what is fuel?