

4

**RENEWABLE &  
ALTERNATIVE  
ENERGY**



**ENERGY  
EDUCATION**

**TOOL KIT**

**BY INSIDE EDUCATION**



# RENEWABLE & ALTERNATIVE ENERGY

## GUIDING QUESTIONS

- What is the difference between renewable and alternative energy?
- What are some different types of renewable and alternative energy?
- Why is renewable and alternative energy on the rise in Alberta?



## RENEWABLE ENERGY

Renewable energy is energy that comes from natural resources that we have an unlimited supply of. Renewable energy sources include wind, solar, biomass, water and geothermal.



## ALTERNATIVE ENERGY

Alternative energy is generated in a way that emits less greenhouse gases than traditional energy production, but doesn't necessarily come from renewable resources. Alternative energy sources include fuel cells and natural gas co-generation.

## MATERIALS FROM KIT

- Wind turbine model
- Solar panel (1.5V)
- Mini light bulb (*light output indicator*)
- MudWatt Microbial Fuel Cell
- Multimeter
- Renewable & Alternative Energy Sources (*poster*)

## MATERIAL FROM CLASSROOM

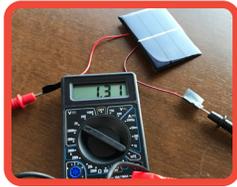
- Fan

## TRY THESE ACTIVITIES



### WIND

- Build a wind turbine
- Experiment with blade design (*angle & material*) to generate the highest electricity output



### SOLAR

- Test which angle of the solar panel creates the most power
- Build a solar car model - *Take the battery-powered car from Topic 7 (Energy Storage) and swap the battery for the solar panel*



### MICROBIAL FUEL CELL

- Experiment with making electricity from soil, mud, or compost

## CONSIDER ...

Renewable and alternative energy are on the rise in Alberta and there are more and more jobs available in research, technology development, and maintenance. Would you consider a career in renewable/alternative energy?

## CONNECT ...

There are an increasing number of subsidies available for people who want to install solar panels on their house, making them more affordable. Look around your community. Do you or any of your neighbours have solar panels?

## LEARN MORE ...

Explore the Future Energy Systems Renewable Energy Project Map to learn about more renewable energy projects happening in Alberta and across Canada.

> <https://www.futureenergysystems.ca/resources/renewable-energy-projects-canada>

