

# Energy Lessons and Activities for the Outdoors

According to the Children and Nature Network, there are numerous reasons teachers should take their students outside: Nature enhances academic achievement, improves student behavior, motivates the students to learn, promotes communication, improves cooperation, helps students focus, and of course makes them healthier and happier! You know the benefits of teaching outdoors - but actually doing it can be daunting. That's why KEEP has compiled this comprehensive list of energy lessons that can effectively be taught outside.

## Grades K-4:

- Taking Temperatures: Students use a thermometer to investigate how shading, coloring, and other factors affect temperature.
- Solar Explorations (5-8): Students will learn how and why the sun heats from different angles.
- What Renewable Energy Does for Me (5-8): Students analyze how the sun, wind, and water contribute to their daily lives.
- Let It Flow: Students make model dams out of quart milk cartons, experimenting with water heights and flow openings to explore kinetic energy of water.
- Schoolyard Breezes: Students build and use simple wind measurement instruments to record air movements in their schoolyard.
- Don't Waste Waste: Students "harvest" celery to demonstrate waste accumulation from timber practices and brainstorm uses for the waste products.

## Grades 9-12:

- The Miracle of Solar Cells (5-8): Through a whole body demonstration, students illustrate how solar cells produce electricity.
- Placement Matters [Doable Renewable guide] (5-8): Through a series of experiments, students investigate how placement and orientation of a solar cell affects electricity production.

## Grades 5-8:

- Energy Use in an Ecosystem: Students survey different environments and investigate how sunlight, soil moisture, temperature, and wind affect living elements-plants and animals-in an ecosystem.
- Food Chain Game (K-4): By playing an outdoor tag game, students simulate the transfer of energy between organisms in a food chain.
- Diminishing Returns: Students illustrate the concept of energy efficiency through a relay race.
- Harnessing Nuclear Energy (9-12): Students simulate a nuclear reaction and read about how a nuclear reactor works.
- Shoobox Solar Cooker (K-4): Students build and use a simple solar cooker and experiment using the sun to heat food.
- Where the Wind Blows [Doable Renewable guide]: Students use their senses and observational skills to assess wind speed.
- Insulation Creations: Students test various materials while trying to prevent a liquid from cooling.
- Solar Transmissions (9-12): By learning about transmissions, students begin to explore the many aspects of building a solar car.

[keepprogram.org](http://keepprogram.org)



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