



Renewable Energy

Wind and solar are two of the fastest growing sources of energy in the United States, and renewable energy in general has incredible potential to power homes, businesses, schools, and even vehicles across the country. Nebraska has some of the greatest opportunity for wind energy in the U.S., making renewable energy an immensely important topic for students diving into sustainability. This month is also about introducing students to lesser known sources of renewable energy, including hydropower and geothermal.

During the summer of 2018, the Nebraska State Capitol building in Lincoln began building a geothermal system to supply all of the cool air and some of the heat for the entire building. In this eco-friendly and economical system, a liquid solution runs through a series of pipes buried deep underground and connected to the building. When underground, the solution takes on the temperature of the earth – about 55 degrees. When the solution flows to the building, it then either cools the air (in summer), or warms the air (in winter), depending on the outside temperature. In winter, the building's heating system then only needs to warm from 55 to 70 degrees or so, instead of from, say, 15 to 70 degrees. This results in a huge financial savings over time. The system involves more than 25 miles of tunnels to carry the solution. This is an example of innovative renewable energy in the capital of our own state. This month's activities shed light on the possibilities for alternative, sustainable sources of energy. They are organized by grade level but may be applicable across ages.

Activity Ideas

Pre-School + Kindergarten

1. **Try one of these activities to introduce preschoolers to solar power.** [This website](#) provides five great options for introducing young students to solar in ways that will excite and engage them.
2. **Make a pinwheel.** Use [this guide](#) to have students make their own pinwheel and explore how wind turbines work.
3. **Watch a video.** [This video](#) introduces students to the basics of energy, including where it comes from and what it's used for.

Grades 1-3

1. **Use the resources on the NASA Climate Kids page.** [This website](#) has tons of fun facts, online games, class activities, videos, and more for students to explore all things energy.
2. **Complete a renewable energy activity book.** [This activity book](#) includes fill-in-the-blanks, matching, word search, crossword activities and more, all alongside important information about renewable energy.
3. **Watch a video.** For a quick infusion of energy into your classroom, watch this [short video](#) on how wind turbines work and [this video](#) on how solar panels work.

Grades 4-6

1. **Complete a word search or crossword.** Compete to see who can finish this [word search](#) or [crossword](#) on renewable energy first.
2. **Choose from a list of pre-made activities.** [This document](#) has a whole bunch of energy-related activities, lesson plans, and related resources to choose from.
3. **Create an anemometer to measure wind speed.** [Use this as a guide](#) to allow students to explore the engineering behind wind energy.

Grades 7-12

1. **Learn about electricity and power grids.** Consider using this [lesson plan](#), which incorporates circuitry, building batteries, and the effect of a distributed renewables system on power grids. Students will have the opportunity to learn using hands-on approaches and critically think about how electricity is created and distributed.
2. **Choose from a list of pre-made activities.** Try [these activities](#) with your students to learn about energy and solar power through hands-on learning.
3. **Watch a video.** [This TED Talk](#) discusses how developing countries can lead the way in renewable energy. In [this one](#), a solar designer talks about how to make solar power more accessible.

Everyone

1. **Take your class on a field trip to a local wind farm or solar array.** Kearney has both kinds of facilities nearby. SoCore runs the state's largest solar array just outside of Kearney near the intersection of 56th St. and Antelope Ave. Although the nearest wind farm is a bit farther away, there is a project located at the Central Community College in Hastings.

Let Us Know What You Did!

Report your progress and earn recognition for your school. Fill out your school's row on the [GSC Tracking Document](#) to let us know which activity you did for this month!

Questions?

We're here to answer any questions you may have, talk through ideas or provide further resources. Just email gogreen@kearneycats.com.

RECOGNITION LEVELS

All KPS schools have the opportunity to earn recognition for their participation in the Green Schools Initiative each year. The more activities you complete, the more recognition you receive! For 2019-2020, the following three levels of recognition are available:

- **Level 1 (Green Performance)** - Participation in 5 activities during the year. Schools receive a framed certificate of recognition, \$50 for Green Team Activities next year, and \$100 for the Principal's budget.
- **Level 2 (Green Achievement)** - Participation in 6 - 9 activities during the year. Schools receive \$150 for Green Team activities next year, an award banner, and \$200 for the Principal's budget
- **Level 3 (Green Excellence)** - Participation in 10 or more activities during the year. Schools receive \$300 for Green Team activities next year, a large award banner, and \$400 for the Principal's budget. In addition, all schools that achieve Level 3 participation are placed into a raffle; the selected school receives \$450 to spend on district-approved items. Approved items could entail smart power strips, vending machine energy misers, native landscaping/trees, rain barrels, native plants for classrooms, and indoor/outdoor recycling containers. All items must be approved by the district office prior to purchase.