



[Nebraska Solar Schools](#) is a Nebraskans for Solar program that has its own website. The purpose of our Solar Energy Education & Development Program is to provide resources for K-12 teachers to facilitate integration of renewable energy education into their classrooms or after-school programs. Resources are also provided for those who want to install a photovoltaic (PV) system at their schools.

Free NEED Solar Energy Kits for Nebraska Educators

In April 2019 the [Nebraska Environmental Trust](#) (NET) awarded Nebraskans for Solar a grant to fund Nebraska Solar Schools' project of providing National Energy Education Development (NEED) Solar Energy Kits to K-12 Nebraska schools. During the 2019 to 2020 academic year, 64 kits were awarded to schools all across the state. Funds remain in the grant for about 40 kits. With statewide school closures this past spring, NET approved a one-year project extension. [News Release About The NET Grant.](#)

In March 2020 Nebraskans for Solar was awarded a **Facebook Community Action Grant** to support the Nebraska Solar Schools program. The grant specifically provides funds to award K-12 schools in Sarpy County with NEED Solar Energy Kits for enhancement of STEM program education. Read about all the 2020 Facebook Community Action Grant recipients [here.](#)

About the NEED Solar Energy Kits



The National Energy Education Development (NEED) Project partners with numerous local, state, and national energy outreach programs, including Nebraska Solar Schools and similar renewable energy education and development programs. NEED, which began in 1980, relies on an extensive nationwide Teacher Advisory Board to ensure that all curriculum materials are objective, up-to-date, scientifically accurate, and meet the requirements of national and state science standards.

Benefits of the NEED Solar Energy Kits

- NEED Solar Energy Kits' cross-discipline lesson plans, projects, and activities support Nebraska Science Standards.
- The four grade-level kits contain all the materials needed for completing each unit, providing an easier and less time-consuming way for teachers to integrate renewable energy education into their curriculum planning.
- Almost all the materials in the kits are reusable, making them cost-effective. Replacement kits with new student guides and consumables are a fraction of the cost of the main kits.
- Most NEED modules are inquiry-based, helping students to develop and access critical thinking and problem-solving skills. Activities that are not inquiry-based are engaging and interactive.
- NEED materials provide evaluation strategies, including pre- and post-assessments, rubrics, and project-based tasks, enabling teachers to track their students' knowledge gain

Brief Descriptions of the Kits

The Sun and Its Energy: Grades K-2

Primary students are introduced to solar energy with a read-aloud book and classroom-based activities. Students will learn that the sun's energy produces light, transforms to heat, powers the water cycle, produces wind, and that solar cells convert radiant energy into electricity. The kit includes an all-encompassing teacher and student guides and the materials necessary to conduct the activities. Activities include: UV Beads, Solar Oven & S'Mores, Sun Prints, Solar Balloon, Solar House, Solar Energy's Uses, Games & Puzzles.

Wonders of the Sun: Grades 3-5

Elementary students develop a basic understanding of solar energy through background reading and classroom activities. Hands-on activities demonstrate solar energy transformations into kinetic energy, thermal energy, chemical energy, and electricity. The kit includes a Teacher Guide, a class set of 30 Student Guides, and the materials necessary to conduct the activities. Activities Include Nature Prints, Solar Energy to Heat and Motion, Latitude and Sunlight Intensity, Radiometer, Cooking With Solar Energy, Transforming Solar Energy Into Electricity, PV Systems on Schools, Solar Energy Bingo, Solar House Kits, links to Games, Puzzles and More Activities.

Energy from the Sun: Grades 6-8

Intermediate students learn about solar energy through investigations that explore radiant energy transforming into thermal energy, kinetic energy, chemical energy, and electricity. The kit includes the following materials: Teacher Guide, class set of 30 Student Guides, and all the materials needed to conduct the activities. Activities include: Introduction to Solar Energy, Radiation Cans – Converting Radiant Energy to Heat, Solar Collection with a Solar Distiller, Photovoltaic Cells (PV Cells), Temperature and UV Beads, Solar Balloon, Solar Oven Challenge, Designing a Solar House, Photovoltaic Arrays on Schools, Solar Energy Bingo, Solar Energy in the Round Game, links to Awesome Extras.

Exploring Photovoltaics: Grades 9-12

Secondary students learn how solar energy is used to generate electricity. Students are introduced to photovoltaic systems, concentrated solar power, and developing solar technologies. Activities explore how photovoltaic cells work and what variables affect their electrical output. The kit includes a Teacher Guide, a class set of 30 Student Guides, and all the materials necessary to conduct the activities. Activities include: Introduction to Solar Energy, Investigating PV Cells (Parts 1-3), Solar Energy in the

Round Game, PV Ping Pong Simulation, Digital Multimeter, Series Circuits, Parallel Circuits, Calculation of Power, Basic Measurement Values in Electronics, Solar Array Wiring, Solar Space Heating, Solar Energy Bingo.