

Your Energy Partner[®]



Omaha Public Power District

ENERGY EDUCATION PROGRAM

Teacher Professional Development | Classroom Presentation

“The program has been such an amazing resource for teaching energy to our students.”

WEBSITE

OPPD.COM/ENERGYED

QUESTIONS?

EJBENSALAH@OPPD.COM



Teacher Workshops

AGENDA

SCIENCE OF ENERGY

Learn more about the forms of energy while experimenting with the NEED Project's Science of Energy kit.

ELECTRIC CONNECTIONS

After learning about the forms of energy, discover how the different energy sources contribute to the generation of electricity locally.

ENERGY EFFICIENCY & CONSERVATION

How do you use energy in your daily life at school? Learn how energy is consumed and easy steps you and your students can take to reduce energy use at home and at school.

CAREERS IN ENERGY

Learn about careers in energy and how to incorporate career activities into your classroom.

BASELOAD BALANCE

Explore how the electric grid operates and electrical load is balanced with generation throughout the day in this simulation activity.

THE ENERGY EDUCATION PROGRAM IS A STEM, PROJECT-BASED PROGRAM THAT COMBINES ENERGY WORKSHOPS, HANDS-ON ACTIVITIES IN THE CLASSROOM AND CURRICULUM ALIGNED WITH THE NEBRASKA STATE STANDARDS FOR SCIENCE.

March 28, 2023

8:30 am - 3:15 pm

Metropolitan Community
College Fort Omaha Campus

[Register Today](#)

Attendees Receive

- Classroom Energy Kit
- Professional Development Certificate
- Breakfast and Lunch
- Substitute Reimbursement provided to school

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Elementary

Classroom Visits

Request a visiting hands-on lesson from OPPD. We'll work with you to coordinate the date and time. Materials for the visit will be provided along with lessons and information to continue teaching about energy in your classroom.

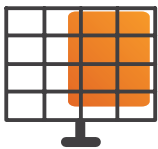
Windy Wonders



Where does wind come from and how do we harness it to do work? Students will learn the basics of wind energy and create their own weightlifter turbine to see how to harness the power of moving air.

- 60 minutes

So Into Solar



Solar energy is our most abundant energy source. Students will learn how we use energy from the sun to do work and create their own solar oven.

- 60 minutes

Energy Source Exploration



Energy comes from a variety of sources. Students will create displays (physical or digital) on energy sources and present the information they've learned to their classmates and OPPD staff.

- Two 30 minute sessions

Energy Efficiency & Conservation



Saving energy in our homes and schools is something all of us can do. Students will learn about energy efficiency and conservation while creating their own Energy House.

- 60 minutes

NGSS STANDARDS

3-ESS2-1; 4-PS3-2,4; PS3.A-B,D; ETS1.A-C

4-PS3-2,4; PS3.A-B,D; ETS1.A-C

4-PS3-2; PS3.A-B,D; ETS1.A

4-PS3-2,4; PS3.A-B,D; ETS1.A



About the Program

This program is designed to get students excited about energy by equipping educators with specific training and free hands-on learning opportunities around the science of energy. Educators are invited to participate in energy education workshops to receive a hands-on, STEM kit for their classroom. This kit will get students learning about the Science of Energy and Energy Efficiency, working with their peers and learning how energy and OPPD are a part of their everyday lives.



WHAT PAST PARTICIPANTS HAVE SAID

“I LOVED WHEN WE MADE THE WINDMILL. IT WAS AMAZING FUN, AND I THINK THAT I SHOULD DO IT AT HOME TOO.” - 5TH GRADE STUDENT

“ENERGY SOURCE EXPO GAVE THEM THE OPPORTUNITY TO PRESENT ON A TOPIC THEY WERE NOT SUPER CONFIDENT IN BEFORE THE PROGRAM. THIS ALSO HELPED THEM PREPARE FOR THEIR TEST. THIS GAVE THEM LEADERSHIP OPPORTUNITIES AND PRESENTATION SKILLS THAT THEY WILL USE IN THE FUTURE.” - ELEMENTARY EDUCATOR





About The NEED Project

The National Energy Education Development Project promotes an energy conscious and educated society by creating effective networks of students, educators, business, government and community leaders to design and deliver objective, multi-sided energy education programs. NEED works with energy companies, agencies and organizations to bring balanced energy programs to the nation's schools with a focus on strong teacher professional development, timely and balanced curriculum materials, signature program capabilities and turn-key program management.

"I LOVED THE LESSON AND MR. E IS SO MUCH FUN."

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Middle School



Exploring Wind Energy

Learn the mechanics of harnessing the wind. In this engineering and design challenge students will construct a weightlifter windmill, test, and redesign to maximize power.

- One class period

NGSS Standards: ETS1.A-C,



Solar Thermal Energy

Have fun while learning about how the sun's energy is converted into heat. Students use their engineering skills to build a solar oven and cook a tasty snack.

- One class period (construction)

NGSS Standards: PS1.A, PS3.A-B



Energy Efficiency

Explore the energy we use in our homes and schools. Learn how to keep the heat in and the cold out by building and insulating a model home.

- One class period (construction)

NGSS Standards: MS-PS3.2, PS3.A-B



Careers in Energy

The energy industry offers a wide variety of career options, from line workers to customer service reps to accountants. Invite an Energy Professional to your classroom to speak about their career.

- One class period

High School



Request a visit from OPPD staff to work with your students on an energy topic for a class period. Topics include hands-on STEm lessons and career discussions.

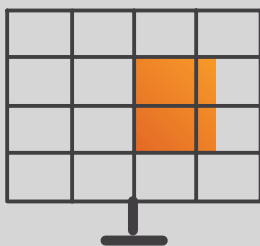


NGSS Standards: HS-PS2.5, HS-PS3.3, PS3.A-B, D

WIND ENERGY GENERATION

Wind energy is one of the nation's fastest growing sources of electricity. Construct your own turbine and learn how your design affects your power output. Then use what you've learned to reiterate and increase output.

- One class period (initial design)

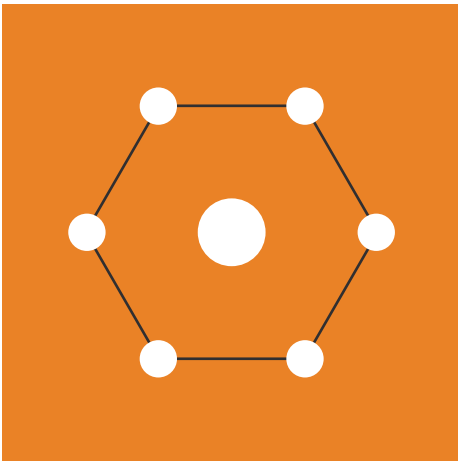


NGSS Standards: HS-PS3.3; HS-PS4-4; HS-ESS2-4; HS-ETS1-2; PS3A-B,D

SOLAR PHOTOVOLTAIC INVESTIGATION

Photovoltaic cells turn sunlight into electricity. Learn how this process takes place and use desktop solar panels to explore how variables affect output.

- One class period



ENERGY EFFICIENCY & CONSERVATION AT SCHOOL

Explore your school building as a system, looking at the HVAC systems, lighting, plug loads, and building envelope through the eyes of an energy manager. Learn how your school uses energy. Construct an efficiency and conservation plan for your school with the data you collect.

- One to two class periods



NGSS Standards: HS-LS2-7;
PS3.A-B, D; ESS3.A,C-D; ETS1.B-C

CAREERS IN ENERGY

The energy industry offers a wide variety of career options, from line workers to customer service reps to accountants. Invite an Energy Professional to your classroom to speak about their career. Students will learn what a day in the life of an energy professional looks like and the training and education undertaken to reach their position.

- One class period

