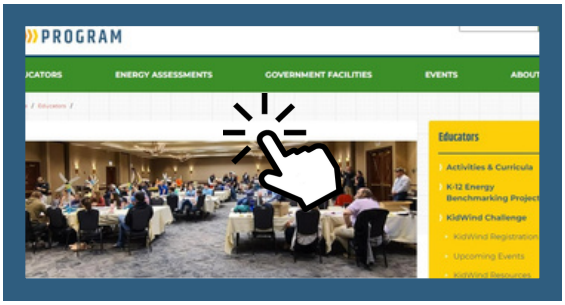
HOW TO GET STARTED: KIDWIND CHALLENGE

KANSAS KidWind Challenge

Welcome to the KidWind Challenge!

Where do I get started? Check out this video that shows you all of the free wind energy resources, equipment, activities & curricula that are located on our website - Kansasenergyprogram.org.



Knowledge Quiz Study Guides

The slideshows include information and resources to help students prepare for the KidWind Challenge, especially the Knowledge Quiz. Check out the notes section to find lessons and activities tied to each topic.

4-5 grade; 6-8 grade; 9-12 grade

Equipment

Our library is available to all Kansas K-12 educators for free of charge. We can coordinate a time to deliver or ship the item to you at no cost. You can filter our library by topic, age, or even 'KidWind Challenge.' The library includes auditing equipment, hands-on kits, fact sheets, and books.

KidWind Resources

On our KidWind Resources website page, you'll find all of our documents used to prepare for the Kansas KidWind Challenge. You'll also find a list of suggested equipment, our study guides, rules and logistics, and overview & eligibility documents. Check out the Tips for a Successful Challenge PDF when just getting started preparing for the KidWInd Challenge!

Prep Activities

The following pages in this guide provide multiple free lessons and activity links for different topics when teaching about wind energy. Each guide is designed and organized by grade levels. Based on your students' prior knowledge, choose a lesson or activity to help master that topic and prepare for the KidWind Challenge.

REGISTRATION

Now you're ready to register your team! Follow this link to reserve a place for your team(s) in the Kansas KidWind Challenge. The first year is all about learning for both the students and coach! In January, we'll reach out to gather team information and prior to the event you'll receive a schedule for your team(s). Reach out if you need a free wind turbine kit to get started and reserve your wind tunnel dates ahead of time. We look forward to seeing you soon!

Kansas Corporation Commission

ENERGY EDUCATION EVENT
from the Kansas Corporation Commission and K-State Engineering Extension.
Made possible by a grant from the U.S. Department of Energy.

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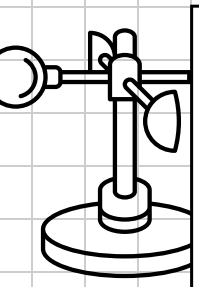
PREP ACTIVITIES
4-5TH GRADE DIVISON

KANSAS KidWind Challenge

Introductory Video & Book

This video, created by the Director and Founder of KidWind, walks you through classroom examples, teacher questions, and shares student-led experiments. Pair this unit with a book from the KidWind Project - Children's Book Bibliography. Below are multiple free lessons, choose the one that best fits your needs.



Anemometer

Where does the wind come from? How to measure wind?

Task: Build an Anemometer!

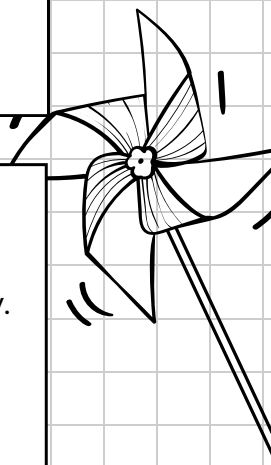
NEED Lesson: Wind is Energy Guide (K-2)
NEED Lesson: Wonders of Wind Guide (3-5)

Sail Cars

Using the wind to do work. How does it move objects?

Task: Build a sail car!

KEP Activity: Sail Cars (K-12)



Pinwheels and Windmills

Using wind to make things rotate. How does it move objects?

Task: Build a windmill!

KEP Activity: Mini Windmills (3-5)
NEED Lesson: Wind Can Do Work (K-12)
Engineering as Elementary: Designing Windmills (1-5)

Firefly

Convert wind energy into electricity. Make their own blades.

Task: Build a mini turbine!

KEP Activity: Firefly Wind Wheel - Blade Investigation Lesson (3-8)
KidWind Activity: Firefly (3-8)

Wind Turbine Assembly - Blade Assembly

We've learned that wind can do work, wind can move heavy objects, and wind can generate electricity - now let's design and test a turbine!

Task: Build a wind turbine and design blades!
KEP: Student Datasheet (K-12)
NEED Lesson: Turbine Assembly Activity in Wind is Energy Guide (K-2) and Wonders of Wind Guide (4-5)

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PREP ACTIVITIES
6-8TH GRADE DIVISON

KANSAS KidWind Challenge

Introductory Video & Book

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Energy Forms & Sources

Learn about energy & terminology.

Task: Background Knowledge!

KEP Activity: Energy Stations
KidWind Activity: Understanding Forms & Sources of Energy (6-12)
NEED Lesson: Student Guide Energy from the Wind (6-8)

Wind Siting

Where to put a wind turbine? How to measure the wind speed?

Task: Site a Wind Farm!

KEP Activity: Wind Siting (3-12)
KidWind Activity: What Causes the Wind?(6-8)
KidWind Activity: Where is it windy? (6-12)

MacGyver Windmills

Using the wind to do work. How to convert wind into mechanical energy?

Task: Build a windmill!

KEP Activity: MacGyver Windmills (3-8)
KidWind Activity: How does a Windmill Work? (6-12)

Generating Electricity

What is a generator and the parts of a generator?

Task: Build a generator

NEED Genecon Activities in the Energy from the Wind Guide (6-8)

Wind Turbine Assembly - Blade Assembly

We've learned that wind can do work, wind can move heavy objects and wind can generate electricity - now let's design and test a turbine!

Task: Build a wind turbine and design & test blades!
KEP: Student Datasheet (K-12)
NEED Lesson: Blade Aerodynamics in the Energy from the Wind Guide (6-8)
KidWind Activity: Which Blades are Best? (6-12)
KidWind Activity: How Can I Design Better Blades? (6-12)

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PREP ACTIVITIES
9-12TH GRADE DIVISON

KANSAS KidWind Challenge

Introductory Video & Book

Where do I start? This video, created by the Director and Founder of KidWind, walks you through classroom examples, teacher questions, and shares student-led experiments. Below are multiple free lessons, choose the one that best fits your needs.

Energy Forms & Sources

Learn about energy & terminology.

Task: Background Knowledge!

KidWind Activity: Understanding Forms & Sources of Energy (6-12)
NEED Lesson: Student Guide Exploring Wind Energy Guide (9-12)

Wind Siting

Where to put a wind turbine? How to measure the wind speed?

Task: Site a Wind Farm!

KEP Activity: Wind Siting (3-12)
NEED Lesson: Siting and Permitting a Wind Farm (9-12)
NEED Lesson: Siting an Offshore Wind Farm (9-12)

Environmental Impacts

What are the impacts on wildlife?

Task: Research and analyze wildlife impact!

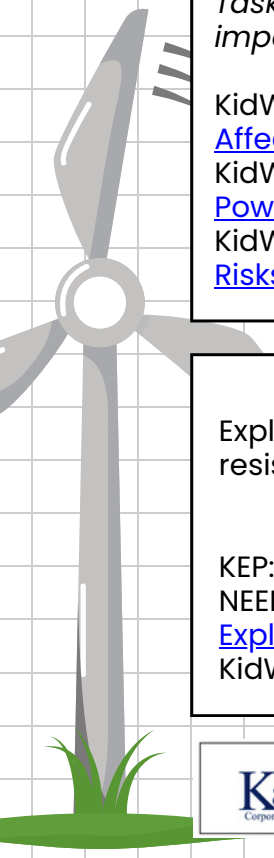
KidWind Activity: How does Energy Affect Wildlife? (9-12)
KidWind Activity: What is Wind Power's Risk to Birds? (6-12)
KidWInd Activity: Can we Reduce Risks to Bats? (6-12)

Understanding Electricity

How much energy would our wind turbine need to power our classroom? What is power generation?

Task: Complete an energy audit!

KidWind Activity: Can Wind Power your Classroom? (6-12)
KidWind Activity: Understanding Electric Power Generation (6-12)



Wind Turbine Assembly & Calculating Wind Power

Explore topics like aerodynamics, lift, drag, forces, power output, loads, resistance, airfoil shapes, and more!

Task: Design, test, and calculate wind power on a wind turbine!
KEP: Student Datasheet (K-12)
NEED Lesson: Turbine Assembly & Calculating Wind Power activities in the Exploring Wind Energy Guide (9-12)
KidWind Resource: Performance Calculator Guide

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