Are you interested in wind turbines? How to save energy? How to power a cell phone with your own energy of motion? The Power of the Wind is designed for middle school-aged youth. It involves them in the engineering design process to learn about the wind and its uses. Members will design, create, build and test wind-powered devices and explore wind as a potential energy source in their community.

Here’s what you can do all year!

<table>
<thead>
<tr>
<th>Challenge Activities</th>
<th>Exploration Activities</th>
<th>Investigation Activities</th>
<th>Leadership</th>
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<tr>
<td>• Design and engineer a paper sailboat.</td>
<td>• Create a tetraflexagon for gauging wind speed.</td>
<td>• Investigate how wind energy is transferred to a pinwheel.</td>
<td>• Teach the “Wired for Wind” national science experiment.</td>
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<tr>
<td>• Design and build a wind turbine that lifts a load.</td>
<td>• Observe and measure wind speed.</td>
<td>• Redesign pinwheels to observe changes in performance.</td>
<td>• Conduct a wind fair with other members in your club to showcase your wind projects.</td>
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<tr>
<td>• Design and build two wind turbines, one with high solidity and one with low solidity.</td>
<td>• Read and interpret wind maps and charts.</td>
<td>• Investigate how motors and generators work.</td>
<td>• Teach one of the Power of Wind lessons.</td>
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<tr>
<td>• Design and build a wind turbine that uses wind power to create electricity.</td>
<td>• Research wind farm facts.</td>
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<tr>
<td>• Design and engineer a wind-powered machine, vehicle or sculpture.</td>
<td>• Evaluate successful school wind projects.</td>
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<td></td>
<td>• Communicate the influences of wind and wind machines on daily life using art and literature.</td>
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<tr>
<td></td>
<td></td>
<td>• Investigate how motors and generators work.</td>
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</tbody>
</table>

Pass it on! Now that you know how, share it with others. Here are ideas to get you started.

**Communication**
- Organize a debate on the pros and cons of a wind energy issue.
- Demonstrate your wind energy creation.
- Present a speech and/or illustrated talk about a wind energy topic.
- Write a children’s book for your CloverBud group to explain the work of one of the early electrical pioneers.

**Citizenship**
- Compose a news article for your local paper that would help community members learn about wind power.
- Explore how wind energy has affected rural communities.

**Leadership**
- Teach the “Wired for Wind” national science experiment.
- Conduc a wind fair with other members in your club to showcase your wind projects.
- Teach one of the Power of Wind lessons.

**Entrepreneurship**
- Create a career guide for alternative-energy careers.
- Job shadow a wind-energy professional in your community.

Learn more at www.ndsu.edu/4h or contact your county NDSU Extension office.
Here are other power of the wind opportunities to explore:

- Tour the Lake Region State College wind technology program.
- Visit with a meteorologist to learn more about wind.
- Tour LM Wind Power (a wind turbine blade manufacturer) in Grand Forks.
- Tour a wind turbine site.

### Exhibit Ideas

Create a poster, notebook or display of a Power of the Wind project. Some specific ideas are:

- Make a brochure of different careers required to build a wind farm. Include descriptions of careers, technologies they used, educational requirements and other interesting facts you think are important.
- Demonstrate a wind-powered vehicle, machine or sculpture or other item you’ve designed, built and tested.
- Create a wind-powered piece of art work (something that might move or change in the breeze.)
- Create a scale model of a wind farm.
- Create a wind poster that exemplifies one of the lessons learned in the Power of Wind project.
- Develop a pinwheel display that demonstrates the working power of the wind. (Follow guidelines on Pages 18 and 19 of the manual.) The display should include a notebook description of the effectiveness of at least three different designs or materials with and without rotational symmetry.
- Create a wind as energy display. This should be the 4-H’er’s original design. Include a notebook of why the item was designed and how it harnesses the power of the wind.
- Create a photo journal of wind turbines and wind-related projects in your state and/or surrounding states.

### 4-H Resources

- National 4-H Curriculum: Power of the Wind youth and facilitator guides
- Online Resource Supplement [www.4-h.org/curriculum/wind/](http://www.4-h.org/curriculum/wind/)
- 2011 4-H National Youth Science Day Experiment
- National 4-H Power of the Wind – Grab and Go Lesson Downloads
- Educational Trunk:
  - Power of the Wind (Reserve through your county Extension office)

### Other Resources

- Kidwind [http://learn.kidwind.org](http://learn.kidwind.org)
- NDSU Energy [www.ndsu.edu/energy](http://www.ndsu.edu/energy)
- American Wind Energy Association [www.awea.org](http://www.awea.org)

### Recordkeeping

- 4-H Project Plan
- Planning for My Project Adventure (Ages 8-10)
- 4-H Plan of Action (Ages 11-18)
- ND 4-H Participation Summary for 11 to 19 year olds

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