

VEEP 2011 Summer Institute: Wind Works



Where: Rice Memorial High School, 99 Proctor Ave., South Burlington, VT

When: 9:00 am – 4:00 pm August 15 – 18, 2011

Instructors:

Fran Barhydt, *Director of Curriculum and Instruction* (fran.barhydt@veep.org)

Andy Shapiro, *Energy Scientist* (andy.shapiro@veep.org)

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Bring: *Your own lunch.* Morning snacks and beverages will be provided

Aug 15: Day 1

- **Introduction**
 - Overview of Wind Works Curriculum & Activity Kit
 - Overview of the week
 - Pre-test
- **ACTIVITY: Wind Works Activities 1-5**
 - Lesson 1: Introduce Wind Works
 - Lesson 2: A First Look at Wind Power
 - Lesson 3: What is Wind; What Causes It?
 - Lesson 4: How Can We Observe Hot Air Rising?
 - Lesson 5: How Can We Observe and Measure Wind Speed without Modern Meters?
- **GUEST SPEAKER: David Blittersdorf**
 - *David Blittersdorf is the President and CEO of All Earth Renewables and founder of NRG Systems. David is a major player in the field of renewable energy -- both locally and internationally. He has devoted his career to providing practical, economically sound on-site renewable energy solutions to homeowners and businesses. The Wind Works curriculum was developed by VEEP with funding from the Blittersdorf Foundation.*
- **Q&A / Journaling**

Aug 16: Day 2

- **ACTIVITY: Wind Works Activities 6-7**
 - Lesson 6: Observing Static Electricity with Charged-Up Balloons.
 - Lesson 7: Current Electricity Needs a Complete Path
- **VEEP PRESENTATION: Electricity and the Environment presentation**
- **ACTIVITY: Wind Works Activities 9-11**
 - Lesson 9: Generators, Motors, and Energy Efficiency
 - Lesson 10: Why Is Electricity Important To Us? Let Us Count the Ways
 - Lesson 11: Intended and Unintended Consequences of Electrical Energy Use
- **Renewable Energy Atlas tutorial**
 - Visit www.vtenegyatlas.com to do all 3 video tutorials

- *Do the worksheet before Day 3*
- **Q&A / Journaling**

Aug 17: Day 3

- **VEEP PRESENTATION: Renewables are Ready**
- **ACTIVITY: Wind Works Activities 12-17**
 - Lesson 13: More About Wind Turbines, How They Work, and Why We Should Learn About Their Potential
 - Lesson 14: Ins And Outs of A Wind Turbine
 - Lesson 15. How Can We Measure Wind Speed?
 - Lesson 16. Experiment with a Wind Turbine
 - Lesson 17. Measuring Wind Speed and Volts
- **Renewable Energy Atlas**
 - *hands-on instruction*
- **TOUR: NRG Systems LEEDS certified facility in Hinesburg**
- **Q&A / Journaling**

Aug 18: Day 4

- **ACTIVITY: Wind Works Activities 18-26**
 - Lesson 18: Calculate the Power Out Put of Your Wind Turbine
 - Lesson 19: Design an Experiment to Get More Power in Watts from the Wind Turbine
 - Lesson 20: Does a Small Difference in Wind Speed Make a Difference in the Electricity Produced?
 - Lesson 21: A Look at Wind Turbines at Searsburg, Vermont
 - Lesson 22: Wind Turbines, Our Environment, and Wildlife
 - Lesson 23: Wind Works Post-test
 - Lesson 24: How Big Is Your Backyard, Really?
 - Lesson 25: CMI Stabilization Wedges A Concept and Game
 - Lesson 26: Is Wind Power Right for Your Home or School?
- **GUEST SPEAKER: Dorothy Schnure, Green Mountain Power**
 - *Dorothy Schnure is the Manager of Corporate Communications at Green Mountain Power. She has been with GMP since 1982 and has a wealth of knowledge about the reality of siting large-scale, renewable energy installations in Vermont.*
- **Post-test/Wrap up**
- **Q&A / Journaling**

SUMMER INSTITUTE REQUIREMENTS

VEEP offers the Summer Institutes for professional development credit OR college credit.

- **24 hours professional development credit** - \$300.

Requirements:

Daily participation including journaling

- **2 hours college credit** - \$600.

College credit is offered through the College of St. Joseph in Rutland.

Requirements:

Daily participation including journaling

Implement the Wind Works curriculum in your class during the fall of 2011

Follow the written procedures provided by the instructor

Align the concepts taught with the Vermont Grade Expectations

Participate in two scheduled phone conferences

Send all assignments to the instructor by 12/5/2011

VEEP ACTIVITY KITS

VEEP offers teachers the option of purchasing or borrowing the Wind Works Activity Kits. The fee to borrow a kit is \$75, which covers the cost to ship and maintain the kits. To request the kits for a specific date, please complete the CONTACT form on the VEEP website: www.veep.org

VEEP IN-CLASS PRESENTATIONS

Teachers are welcome to request a 90-minute VEEP in-class presentation for students in grades 4-12 during the school year. We offer Electricity and the Environment, Renewables are Ready, Wind Works. VEEP also offers the Solar Challenge and Green Schools programs.

Presentations are offered at no charge (as funding allows). More information is on our website: www.veep.org. To request a presentation, simply complete the CONTACT form.