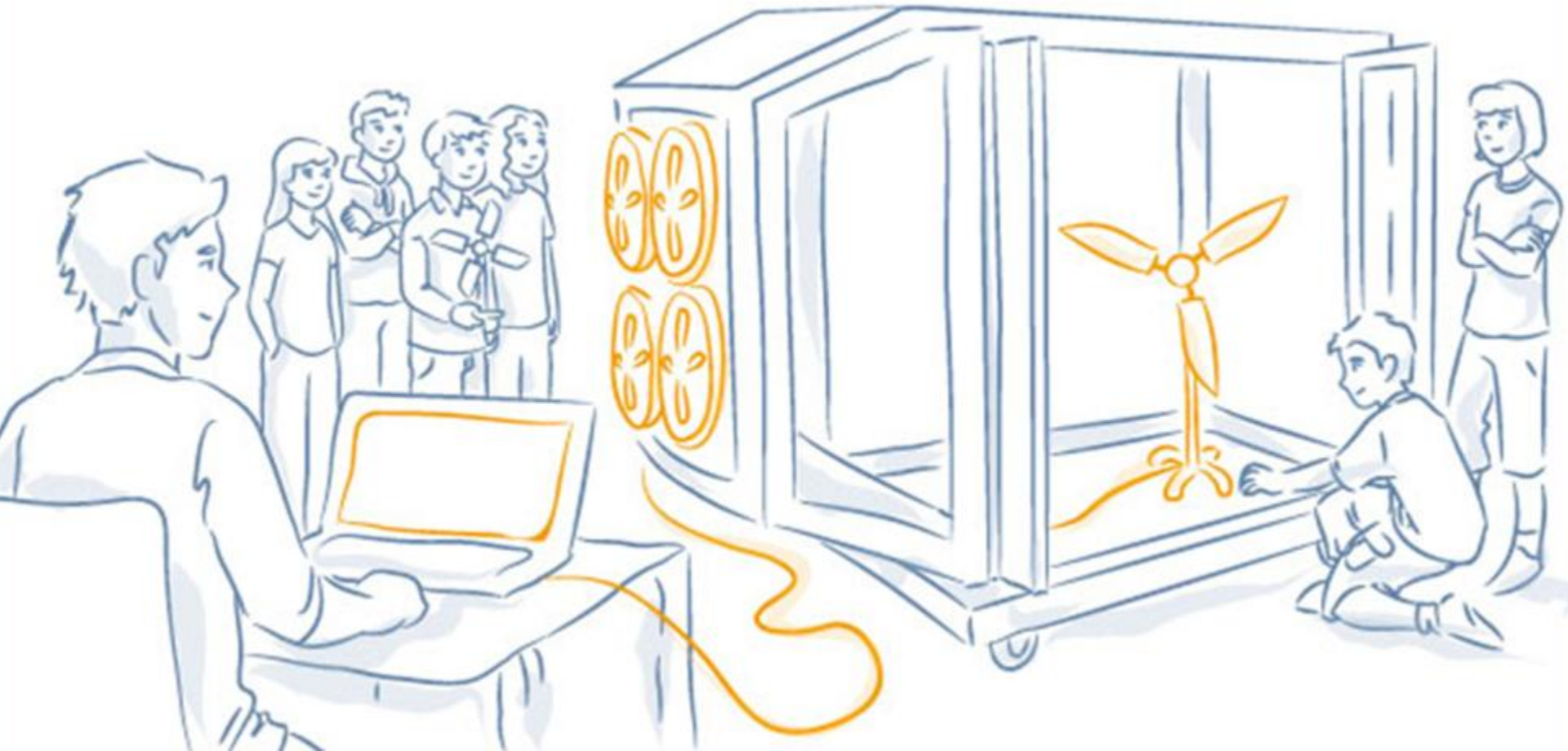


The KidWind Challenge



KidWind Project
www.kidwind.org

What is the KidWind Challenge?

The KidWind Challenge is a student-driven wind turbine design competition.

Students build turbines from scratch and compete to see whose turbine can produce the most power!



Turbine Rules

- Power must be generated solely by wind from the wind tunnel
- Turbines can be vertical or horizontal axis
- Gears are allowed, but NO pre-packaged gear-boxes
- Blades must be made by team (no pre-manufactured blades)
- Turbines must use KidWind Competition Generators
- Turbine must fit inside 48" x 48" wind tunnel
- Local judges determine turbine safety. Unsafe turbines will be disqualified (No metal blades, etc.)

Turbine Rules, cont.

New for 2013: OPEN DIVISION!

If it fits in the tunnel, and you built it, and the judges think it is safe, we will run it! Run what you brung!

- Can use any generator – stock or home-built
- Can use pre-made gearboxes
- Can NOT use pre-made blades
- Local judges determine safety. Unsafe turbines will be disqualified (no metal blades!)

Judging Rubric

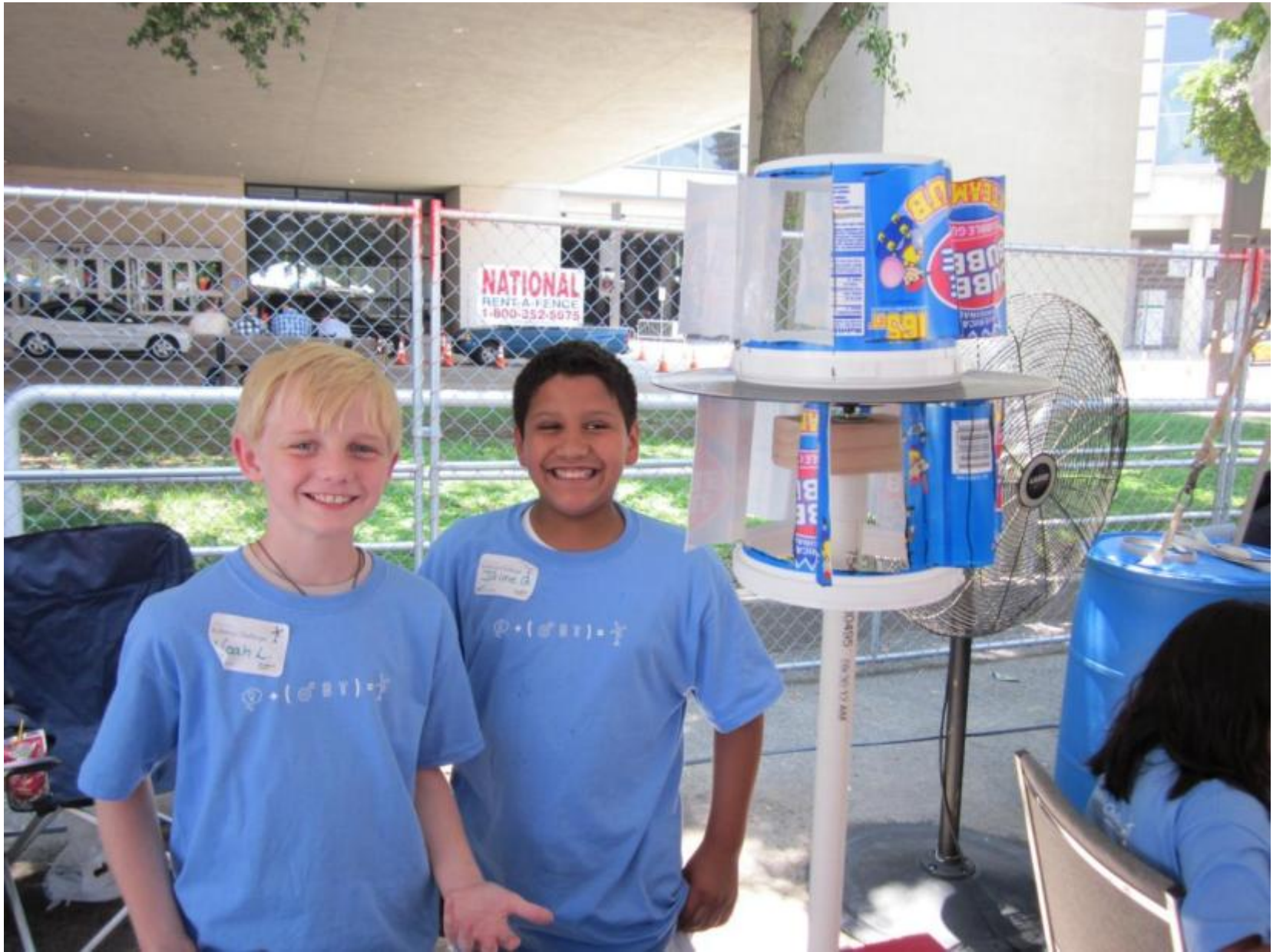
- 40% Energy produced in wind tunnel
- 25% Turbine Design
 - 10% blades
 - 10% drivetrain
 - 5% tower
- 20% Report/Engineer's notebook (documentation)
- 15% Knowledge of wind energy subject matter

Portable Wind Tunnel











The Terminators

How we made our Windmill.

1. Came up with our design for the team.
2. Built our legs around the following our design.
3. Draw out and printed the base and wings.
4. Made the base.
5. Made wood changes.
6. Did our blades.
7. Tested the windmill with blades on it.

Journal

April 27th started making the base of the base, and thought of ideas.

April 27th started the base, continued building the wood.

April 27th finished the wood, finished the base, cut out blades.

April 28th worked blades, and built more blades.

April 28th started to cut wood and tested it.

April 28th printed our windmill.

April 28th tested our windmill, worked on our base.

April 28th tested our windmill again, and worked on the base.

April 28th made our stems.

May 1st finished stems, and tested.

May 1st checked up any left materials things and test.



Why windmills are good..

Windmills have blades, can use the electricity for the amount of energy available to generate wind. The turbines do not use any electricity to generate wind. Windmills are good because they are a renewable and non-polluting source of electricity. Windmills can be placed anywhere, use of land, and they don't use electricity.

How we can recycle our project..

To recycle our project we can take it apart and reuse the wood and the PVC pipe from our stand for another project. To reuse our blades and wind energy we can use it for any other project we do this. We can use the parts or give it to the art teacher.

Data

Day	Wind Speed	Power Output
1st	10	100
2nd	15	225
3rd	20	400
4th	25	625
5th	30	900
6th	35	1225
7th	40	1600
8th	45	2025
9th	50	2500
10th	55	3025
11th	60	3600
12th	65	4225
13th	70	4900
14th	75	5625
15th	80	6400
16th	85	7225
17th	90	8100
18th	95	9025
19th	100	10000
20th	105	11025
21st	110	12100
22nd	115	13225
23rd	120	14400
24th	125	15625
25th	130	16900
26th	135	18225
27th	140	19600
28th	145	21025
29th	150	22500
30th	155	24025
31st	160	25600

Materials

Material	Quantity	Cost
Wood	10	10.00
Blades	20	20.00
Stems	10	10.00
Base	10	10.00
Total		50.00

Issues with windpower..

Some issues with windpower are things like some people don't like windmills are very attractive so they don't want them in their community. Another issue is windmills are very expensive so some people can't afford to have them. If they do want them, windmills do all types of things and they can be helpful to some people and the planet.

Jamie Thompson

Mikki Frost



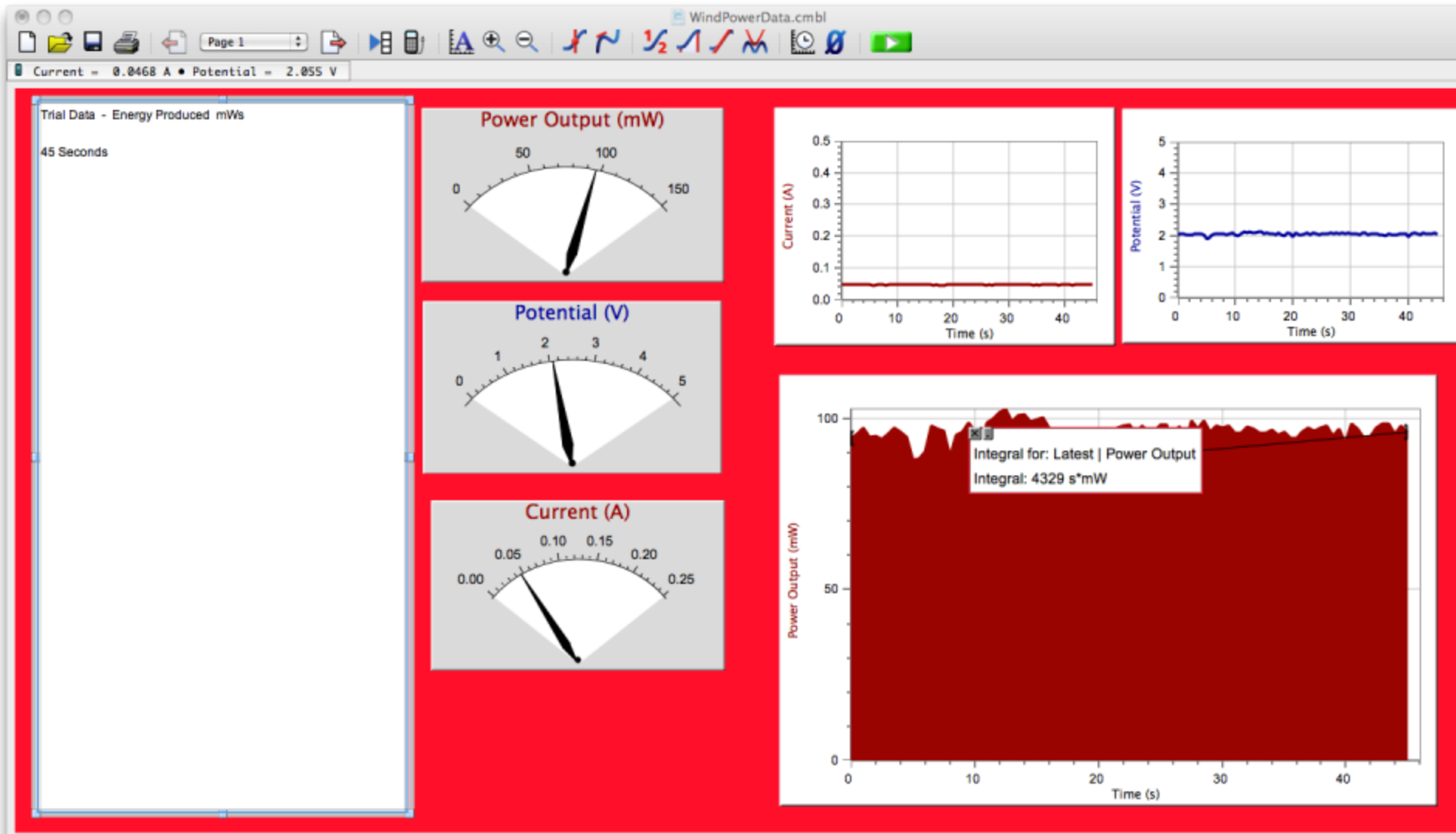
Data Collection

$$\text{Volts} \times \text{Amps} = \text{Watts}$$



Students compete to produce the most milliwatt-seconds (mWs) over a 60 second trial

Vernier Data Logging System







Winners and Prizes!





	PUGET SOUND ENERGY	DATE <u>MAY 12, 2012</u>
PAYEE	<u>THE BRAINS!!</u>	\$ <u>500⁰⁰</u>
	<u>FIVE HUNDRED ⁰⁰/₁₀₀</u>	/00 DOLLARS
FOR:	<u>FIRST PLACE!</u>	<u>Puget Sound Energy</u> 
⑈4273 ⑈1 2345⑈1 23⑈ 1 23456⑈1 23⑈		



Yikes!





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