Name:

Windy Whirlers! (Teacher Version)

Wind Energy

Windmills are used to generate some of the electricity that we use everday!

Why do windmills spin? *Because the wind pushes the blades to make them turn.*

How do you get electricity from a windmill? *The turning energy is changed into electricity by large turbines.*

What are some good things about wind energy? *It is clean and renewable.*

Old-Fashioned Windmills

What do you think old-fashioned windmills used to do on farms?

Based on the two pictures below, can you guess how windmills were related to water and grinding?

Let's Build a Windmill!

Materials:

- Pencil with a flat eraser
- Ruler
- Square sheet of paper
- Scissors
- Pushpin

Instructions:

1. Draw a circle about 5cm in diameter at the centre of the paper square. Mark a dot at the centre.

2. Cut a straight line from one corner of the sheet of paper to the circle. **Do not cut inside the circle.** Repeat for all four corners of the sheet of paper.

3. Bend ever other point of the windmill to the centre of the circle without folding the paper. Hold the points and stick a pushpin through all of them as well as the centre of the circle.

4. Push the pushpin into the side of the pencil's eraser. Hold it in front of you and blow on it. What happens? Do you have to blow a certain way?

Source: Potter, Jane. Science in Seconds For Kids. New York: John Wiley & Sons, Inc., 1995. Print.

Name:

Talk About It!

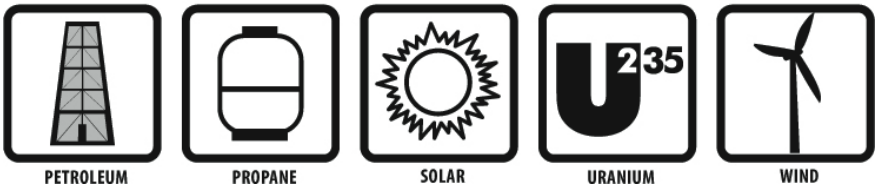
1. How does a windmill move? *It moves by the force of the wind, or by blowing on it in this case.*

2. How do real windmills do work? *They can be connected to a shaft that turns a system of gears which do different types of work.*

3. Why is it easier to jump off a chair than back on? *Gravity pulls you down when you jump off the chair, but you're working against gravity when you jump back up.*

Energy Sources

Can you match the pictures of energy sources to their symbol?



Source: Potter, Jane. Science in Seconds For Kids. New York: John Wiley & Sons, Inc., 1995. Print.

Name:

Image Sources:

Wind Energy:

1. Wikimedia: http://en.wikipedia.org/wiki/Post_mill

Old-Fashioned Windmills:

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Let's Build a Windmill!

1. Pencils 4 Ghana: http://pencils4ghana.org
2. 4Vector: http://4vector.com/free-vector/free-vector-vector-clip-art-ruler-clip-art-115827
3. Big Duck: http://www.bigducknyc.com/rebeccas-gift-2010-how-make-3d-paper-snowflake-10-easy-steps
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5. Icon Archive: http://www.iconarchive.com/show/vista-map-markers-icons-by-icons-land/Map-Marker-Push-Pin-1-Right-Pink-icon.html

Talk About It!

1. Amber Green Energy: http://www.ambergreenenergy.co.uk/wind-turbines-power-generation/

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1. What's The Deal With…: http://understandhistorynow.wordpress.com/2012/06/27/whats-the-deal-with-a-counter-evolution-against-gmos/
2. Commodity HQ: http://commodityhq.com/2012/how-well-does-ung-track-natural-gas/
3. Science Media Centre: http://www.sciencemediacentre.co.nz/2011/05/24/hotter-and-deeper-geothermal-energy-exploration/
4. The Telegraph: http://www.telegraph.co.uk/finance/newsbysector/industry/mining/9735823/UK-Coal-Britains-biggest-coal-miner-makes-final-bid-for-survival.html
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6. Energy Industry Photos: http://www.energyindustryphotos.com/Photos%20of%20Oil%20Rigs.htm

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8. Wisegeek: http://www.wisegeek.com/what-is-nuclear-energy.htm#didyouknowout
9. Wikipedia: http://en.wikipedia.org/wiki/Wind_farm
10. Wikipedia: http://en.wikipedia.org/wiki/Propane