Wind Turbine Introductory WebQuest

Delta College STEM Explorer MS Engineering Project: Wind Turbine Blade Design

Time Needed: 1-2 class periods

Learning Objective: Students will learn about the history of wind energy and how modern wind turbines compare with ancient turbines in both structure and function. Finally, students will discover some important factors in efficient wind turbine blade design (1 class period)

Performance Objective: Students will create an infographic to represent what they have learned about the history of wind turbines and important aspect of blade design (1 class period)

Suggested Resources:

Wind Power Introductory Video from LiveScience:
https://www.youtube.com/watch?v=ImRKK7Wh1kQ

History of Wind Turbines w/timeline
https://www.energy.gov/eere/wind/history-us-wind-energy

Basics of Wind Energy (from a for-profit wind energy consortium, the American Wind Energy Association):
https://www.awea.org/wind-101/basics-of-wind-energy

Basics of Wind Energy (from National Geographic)
https://www.nationalgeographic.org/encyclopedia/wind-energy/

Article about Charles F. Brush's windmill- first to generate electricity:
https://www.cleveland.com/metro/2011/08/charles_brush_used_wind_power.html

Wind Power Introductory Video from LiveScience:
https://www.youtube.com/watch?v=ImRKK7Wh1kQ

Task:
Use the above resources or others that you find online to gather information on the questions below. Use Piktochart, Canva, or another free infographic website to create an informative poster (see suggested links below). Be sure your poster includes all of the information needed to answer the questions. It will likely take one class period to research and one class period to design the graphic.

1. How did the purpose of wind power in ancient times compare to the purpose of wind power in modern times?

2. What do the wind turbines of ancient times have in common with those of modern times? What are their main differences?

3. How does a modern wind turbine generate electricity?

4. What are some important things to keep in mind when designing a wind turbine blade? (No resource suggestions listed. Students look up their own resources for this one.)

Infographic Resources:
http://www.piktochart.com
http://www.canva.com
http://www.visme.co
http://www.venngage.com

Important: When you have completed your infographic, be sure to share it with your teacher via email. The STEM Explorer team would also love to see your graphics. Our email is deltastemexplorer@gmail.com.