

# Harnessing the Wind's Energy

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Per: \_\_\_\_\_ EN: \_\_\_\_\_

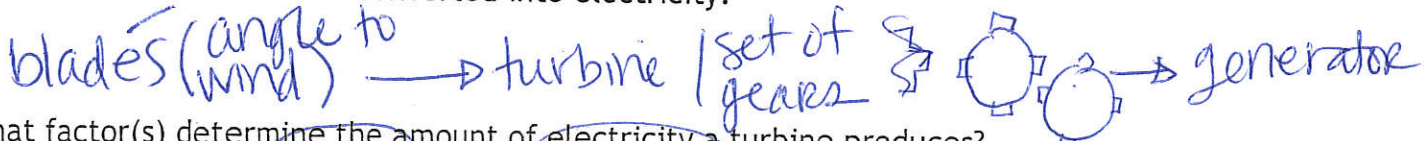
1. What brought about the downfall of the windmill?

power plants that use fossil fuels - cheap - accessible

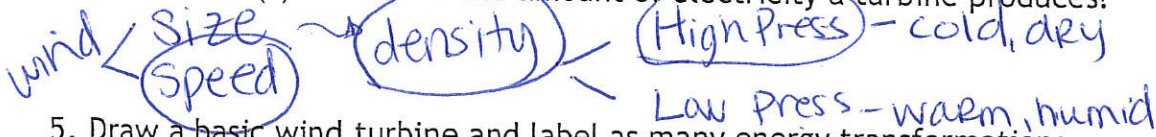
2. Why is wind one of the fastest growing sources of electricity in the world?

↑ efficient "cheap" renewable clean

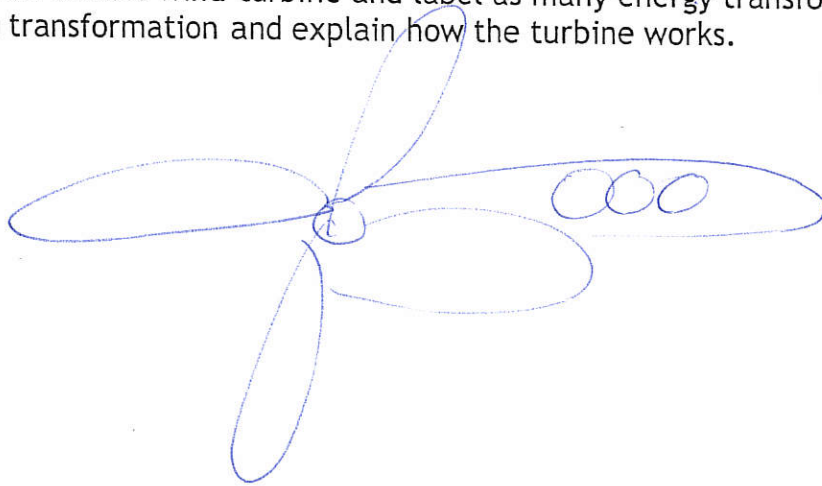
3. How is wind harnessed and converted into electricity?



4. What factor(s) determine the amount of electricity a turbine produces?



5. Draw a basic wind turbine and label as many energy transformations as you can. List or number each transformation and explain how the turbine works.



- ① Potential energy  
↓ wind
- ② Kinetic energy (mechanical)  
↓ "gears"  
lose heat (friction)
- ③ Generator → lose heat (electrical)

6. What makes wind turbines most efficient?

- ① steady winds  $\geq 13$  mph
- ② location - mtn range, prairie, coast } less obstacles in wind path

7. Contrast Purpose

Small Turbines	Large Turbines
home appliances	facilities / factories

8. What is the main type of turbine in the US? How are they used?

wind farms = 1-3 megawatts = 360-900 homes per turbine