



Wind Energy Badge

Description: The Wind Energy badge was developed in collaboration with [Michigan Department of Education](#). Youth Explore how Michigan's abundant natural resources, growing agriculture industry and emerging technologies are changing the face of energy and what it means to your family, Michigan and the world! Youth conduct experiments, research new ideas and explore cutting edge opportunities in the exciting fields of renewable energy.

Youth in the wind track learn about evaluating wind turbine efficiency by exploring and investigating physical, environmental, social and economic factors that need to be considered when choosing to use wind power as renewable energy source. Using the engineering design process youth gain team work, critical thinking, problem solving and decision making skills by designing, building and testing their own wind turbine models in small groups.

Criteria: (Recipient has done these specific things that demonstrate or as proof of the description)

Youth receiving this badge learned and practiced the following:

- Youth visit a wind anemometer, measure and evaluate data for wind speeds at various heights, wind frequency, direction, and barometric pressure. They learn factors that influence wind turbine efficiency and that determine the choice of wind turbine location and size.
- Youth visit with wind energy experts; learn career paths, and career choices in the field of wind energy.
- Youth travel to a wind turbine construction site and to a wind turbine farm. They learn on site, from professionals, the energy process from wind through the turbine to the grid and to your home.
- Using the engineering design process in small teams, youth design, built, test and re-build a model wind turbine that lifts a load (cup filled with pennies). Through this inquiry-based activity, youth gain teamwork skills, as well as critical thinking, problem solving and decision-making skills.
- In small groups, youth research wind energy on their own. Utilizing the wind energy information they gained during their research and through-out the track, youth prepare and present a report on wind energy and demonstrate their wind turbine model to the entire group. Doing this youth learn researching, preparing a research presentation, citing sources and presentation skills.

C5.r1b Explain how the rate of a reaction will depend on concentration, temperature, pressure, and nature of reactant. (recommended)

P3.2A Identify the magnitude and direction of everyday forces (e.g., wind, tension in ropes, pushes and pulls, weight).

P3.2C Calculate the net force acting on an object.