

How Does a Windmill Work?

Objectives: As a result of this lesson, students will understand energy conversions/transfers and how a windmill converts moving air into usable mechanical energy. Students will know the fundamental parts of a windmill and be able to use the scientific method to isolate and adjust variables in a model windmill

Windmills are the ancient ancestors of modern wind turbines. To understand how wind turbines work, one must first understand a basic windmill. This lesson will help students understand how a windmill captures the energy of the wind and converts it into usable mechanical energy, which is the basis for understanding modern wind turbines. Students will use the engineering design process and the scientific method to design, build, test, and improve their models. This is approximately two class periods for 6-12 grade students. This lesson is from the WindWise curriculum.

This kit includes:

- (20) Metal Rods
- (20) PEX Tubing 1' Piece
- (300) 4 x 6 Index cards
- (200) 5 x 8 Index cards
- (2) Wooden Skewers Package
- (1) Roll of String
- (20) Plastic cups
- (20) Foam cylinders
- (30) Corks
- (200) T-Pins
- (120) Washers
- (20) Wood of Spools
- (1) Box of Straws
- (1) Tubing 10' section 1/8 ID
- (1) Lesson Plan, student handouts, and answer keys

Not Included:

- Small electric fan
- Scissors
- Scotch tape
- 12-ounce paper cups
- Staplers
- Hot glue guns
- Various simple tools



*Any materials that are lost or broken during classroom use must be replenished before being returned. Wind turbine parts can be purchased from Vernier.