

Module 2 Energy

Lessons 10-16

Anchor Phenomenon: Windmills at Work

Essential Question: How do windmills change wind to light?

Focus Question: How does energy transform?

Energy changes form whenever it is used to do work. When energy **changes form**, it is called **energy transformation**.

Energy transformations occur when we observe one energy indicator changing into any other indicator(s).

Examples: (see logbook p. 29-31 for additional examples)

- A radiometer turns light energy into motion energy by heating up the gas inside to spin the flag.
- Speakers can use sound energy to make rice move.
- A solar panel can transform light energy to sound energy to make a horn beep.
- A hairdryer transforms electrical energy into heat energy.
- A blender transforms electrical energy into motion energy.
- Clapping your hands transforms motion energy into sound energy.
- A windmill transforms motion energy into electricity.

A **generator** is used to transform motion energy into electricity. Magnets spinning around metal wire can create an electric current. A windmill can light a lightbulb by using a generator to transform the motion of wind to electricity, which transforms into light when it passes through the filament of the lightbulb.

***Students should be able to identify and explain energy transformations in various situations and devices.