

# Biomass Energy

## LESSON PLAN

### NEXT GENERATION SCIENCE STANDARDS

- 4-PS3-4 Energy Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.\*
- 4-ESS3-1 Earth and Human Activity Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
- 5-PS3-1 Energy Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

### OBJECTIVES

The student will be able to understand what source biomass energy comes from.

The student will be able to understand the pros and cons of biomass energy.

### ACTIVITIES

- Have a bonfire and s'mores end of the unit party (make the fire with wood, compost or waste to ensure that you are using biomass energy)
- Questions to ask the students during the bonfire:
  - what types of energy are present?
  - how do they think this can be used in a large scale to power a full community?
- Watch this video and discuss the similarities and differences between geothermal energy and biomass energy. [https://www.youtube.com/watch?v=nVl17JLn\\_u0](https://www.youtube.com/watch?v=nVl17JLn_u0)
  - draw student's attention to the spinning of a turbine and the conversion of one type of energy to mechanical energy and then electrical energy.

### OPPORTUNITIES FOR DIFFERENTIATION

#### YOUNGER STUDENTS

- Students can (with the help of a parent or teacher) create a pinwheel with foil or cardstock (thicker material)
- boil a pot of water and hold the pinwheel above and watch the steam turn the "turbine"

#### OLDER STUDENTS

- Students can research the pros and cons of Biomass energy.
- Students can then take part in a debate, with the class split between pro-biomass and con-biomass