

Coal Drying Activity

Unit 4: Environmental Impacts & Stewardship



As it is mined, lignite is about one-third moisture. This makes it uneconomical to transport by rail. However, a coal drying project is now underway at Coal Creek Station that may make transporting lignite a more economical proposition. The coal drying project has its roots in a simple experiment that you can stimulate in the classroom.

Coal Drying Procedure

- Weigh about 100 grams of lignite on a paper plate.
- Place the coal onto a cookie sheet and place it in an oven set at its lowest temperature – 100 or 120° F. for four hours.
- Reweigh the coal to determine the weight loss due to moisture and calculate the percent moisture.

Alternate Drying Methods

- Dry the lignite using the “waste” heat from a light bulb. This method will model Coal Creek’s use of waste heat from its boiler.
- Simply place the lignite in a sunny window and let it dry. Weigh the sample each day until the weight is constant for two days.
- No matter which drying method is used, have students identify any physical changes, such as cracking. How would this property change affect dried lignite if it was transported by train?
- Cook Creek pulverizes the coal prior to drying; students can compare the rate of moisture loss and total amount of moisture lost between crushed and uncrushed coal.
- Pulverized coal has greater surface area and should dry faster than coal in larger pieces.