

Use of coal

Title: Uses of Coal

Level: Middle School

Time: 20 minutes

KERA Goals: 2.3

Objective:

Students will be aware of the products made possible by coal.

Materials: none

Background Information-- How is coal used?

Coal has four major markets: electric utilities, industrial/retail users, the steel industry and exports.

Electric utilities use more than 86 percent of the coal produced in the United States. Upon close examination, it is clear that price has been a major deciding factor in coal's increased use. More than 57 percent of the electricity generated in the United States comes from coal.

In an electric power plant, coal, like oil and natural gas, is burned to produce heat. The heat is used to change water into steam. The steam then turns the blades of a turbine, spinning the generator, producing electricity. Before the coal is burned it is crushed and pulverized to the consistency of face powder.

Coal's second largest market is industrial and retail users. Among the industries using coal, the largest consumers are chemical manufacturers, users of stone, clay and glass, paper mills, primary metal industries and the food industry. Industry uses coal as a chemical feedstock to make dyes, insecticides, fertilizers, explosives, synthetic fibers, food preservatives, ammonia, synthetic rubber, fingernail polish, medicines, etc.

The third largest market is the iron and steel industry, where coal is used to made into coke. Coke is derived from bituminous coal through heating in airtight ovens. The lack of air prevents the coal from burning and converts some of the solids to gases leaving coke.

The fourth market segment is exports. The top five foreign markets are Canada, Japan, Italy, Netherlands and Brazil. U.S. coal distributed to foreign countries in 1988 totaled 95 million short tons (76 million to overseas destinations and 19 million to Canada). Major reasons for the decline in United State's coal exports from the all-time high of 112.5 million tons in 1981 are stiff competition in the international marketplace and worldwide economic conditions.

Provided by National Energy Foundation.