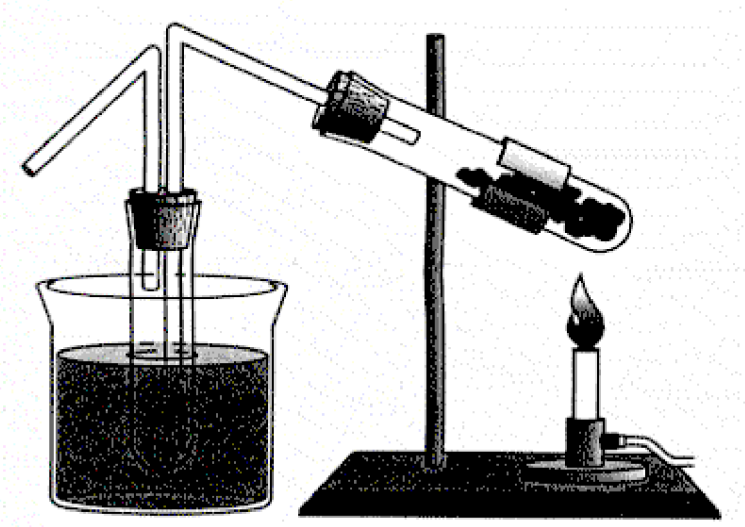
Title: Coal Gas
Level: Secondary
Day/Time: As a teacher Demo., 30-40 min.
KERA Goals: 1.3, 2.1, 2.3
Objective: Coal is often used to produce heat energy, but can also be used to provide a wide range of products. In this activity you will conduct an experiment to identify some of the products from coal.

Materials:

Safety glasses, 2 large test tubes, beaker, double-hole stopper, single-hole stopper, matches, Bunsen burner, ring stand and clamp, 2 pieces of glass tubing-- 45 angle.

Activity:

1. Fill a large test tube half full of ground coal and assemble apparatus as illustrated.



2. Heat the coal in the test tube with the Bunsen burner for several minutes to drive out the air. Every minute or so, place a lit match at the tip of the outlet tube, observe what happens. When the coal appears all burned, allow it to cool, and observe the test tube and the characteristics of the coal. Record your observations.

Questions:

1. Was a gas produced from the coal? Explain.

2. What appeared to form on the horizontal test tube? On the vertical test tube?

3. Could coal be used to produce synthetic natural gas? Oil? Explain.

coal gas

Answers:

1. Yes. The emerging gas is known as coal gas. It consists of a number of burnable gases.

2. The heating of coal in the absence of air produces coke (what remained in the horizontal tube), and coal tar (what remained in the upright tube), and ammonia.

3. Yes. Through heating, coal can be converted into gas and oil as demonstrated in this activity.

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