Coal Identification

OBJECTIVE:
The student should be able to rank, identify, and compare the types of coal.

CONCEPTS:
There are four basic varieties of coal, which are the result of geologic forces having altered plant material in different ways.

SKILL REINFORCEMENT:
Comparison and contrast
Critical thinking

GRADE LEVEL:
6–12

TIME NEEDED:
One class period

MATERIALS:
- coal specimens
- worksheet
- hardness kit (optional)
- Bunsen burner or alcohol lamp
- safety glasses
- tongs

PROCEDURE:
1. Place coal specimens out for students to use.
2. Have students carefully examine the coal specimens and complete the identification chart and accompanying worksheet.
3. Using tongs, hold a piece of each type of coal in a flame for the class to see.
4. Ask the class to note its speed of ignition, remove from flame and observe how it burns. Have class complete second chart on coal identification worksheet.
5. Does burning show that peat is the lowest rank of coal?
6. Does the manner of burning of bituminous coal show that it still has volatile material (gas) in it?

ACTIVITY DEVELOPED BY:
Kathleen Berry, Pennsylvania Teacher
Coal Identification Worksheet

Examine the coal samples and fill in the chart below:

<table>
<thead>
<tr>
<th>Evidence of</th>
<th>Plant Origin</th>
<th>Hardness</th>
<th>Luster</th>
<th>Cleavage</th>
<th>Other Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample #</td>
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<tr>
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</tr>
</tbody>
</table>

Why is peat the youngest form of coal? What evidence supports this?

Is anthracite the highest rank of coal? Why?

Record your observations of the four types of coal burning below:

<table>
<thead>
<tr>
<th>How Different Types of Coal Burn</th>
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</thead>
<tbody>
<tr>
<td>Speed of Ignition</td>
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<tr>
<td>Peat</td>
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<tr>
<td>Lignite</td>
</tr>
<tr>
<td>Bituminous</td>
</tr>
<tr>
<td>Anthracite</td>
</tr>
</tbody>
</table>