

TYPES OF COAL AND THE RESERVES

<input type="checkbox"/> Grade Level: Middle/High School	<input type="checkbox"/> Subject Areas: Environment, History, Design, Art	<input type="checkbox"/> Setting: Classroom/Library
<input type="checkbox"/> Duration: 3-4 hours	<input type="checkbox"/> PA Academic Standards: 1.6.5C,F; 1.8.5B,C; 1.6.8C,F; 1.8.8B,C; 1.6.11C,F; 1.8.11B,C; 3.5.10A,B; 3.5.12A,B; 4.2.7A,B,C; 4.8.7A,B; 4.2.10A,C; 4.8.10 A,B,D; 8.2.12C	<input type="checkbox"/> Keywords: Coal, research, presentation, newspaper, media, renewable/nonrenewable resources

SUMMARY

Students will examine the types of coal, what the uses of each are and where they are found all over the world. Newspaper ads will be designed focusing on a particular type of coal, where it is found and why you should but it or help support a campaign to stop the harvesting.

OBJECTIVES

- Given the necessary research time, the student will list the types of coal.
- Given the necessary research time, the student will illustrate the locations of the remaining coal reserves are around the world.
- Given the necessary research time, the student will describe at least 3 uses for each type of coal.
- Given the necessary research time, the student will identify alternative fuels for use as primary sources for energy.
- After collecting the information through research, the student will design a full-page newspaper ad.
- After completion of the newspaper ad, the student will present the ad to the “board” for approval.

MATERIALS

- A. Student Handouts
 1. Letters
 2. Research Information Sheet
- B. Paper/Poster board for the Display Ad Design
- C. Miscellaneous supplies to design the Ad
- D. Power Point Slide Show for presentation if necessary
- E. Library/Internet Access for Research Purposes

BACKGROUND

Coal is the most plentiful fuel in the fossil family and it has the longest and perhaps the most varied history. Coal has been used for heating since the cave man. Archeologists have also found evidence that the Romans in England used it in the second and third centuries (100-200 AD). Coal is second only to oil as an energy source in the world. America has more coal than any other fossil fuel resource; ¼ of all the known coal in the world is in the United States.

There are enough minable coal reserves in the world to last over 200 years at the current rate of consumption. Whereas, there are 45 years of oil and 70 years of natural gas, which also tend to be concentrated in specific regions unlike coal. The United States generates 50% of its electricity from coal.

Coal formation is dependent upon many things: material, pressure, heat and time. The type of coal formed depends upon the mix of the requirements. The four types of coal are: Lignite, Sub-bituminous, Bituminous, and Anthracite.

PROCEDURE

WARM UP

Show the students the 4 types of coal and a map of the world.
Ask them where each type of coal comes from.
Is coal only found in America or is it all over?

THE ACTIVITY – RESEARCH AND DEVELOP A FULL PAGE AD FOR A NATIONAL NEWSPAPER

1. Inform the students that they have been hired as an advertising agent for a national newspaper. It is their first day on the job and a coal company that wants to promote coal use has approached some, while an advocate group that wants to stop the mining of the coal resources has approached some.
2. It is the student's job as the advertising designer to research the information the client wants in their ad and providing a full-page mock up to the board and justification of why the ad will promote their cause. An accepted ad will provide a significant increase in salary.
3. The hand out at the end includes all the information.

WRAP UP

After the students have researched and produced their mockup ad, they are to present it to the board for final approval. The board shall consist of the entire class and any free teachers willing to participate.

ASSESSMENT

The presentation as well as the ad should be evaluated using the rubric provided.

- Teacher will collect the informational sheet completed by the student. **(Objective 1,2,3,4)**
- Teacher will evaluate the full-page newspaper ad using the rubric provided. **(Objective 5)**
- Teacher will evaluate the presentation of the ad to the "board" for approval. **(Objective 6)**

EXTENSIONS

A debate between coal companies and environmental organizations could be used to further discuss the availability and ramifications of coal.

RESOURCES



*Coal Will Keep Us Warm
125 Coal Mine Road
Mineville PA, 10034*

To Whom It May Concern:

It is the mission of our organization to promote the use of coal as the primary source of energy in our country. We are currently running a national campaign to support this cause and request that you provide a full-page mock up ad for a national newspaper to be run at the earliest convenience.

The following items should be included in the ad and your presentation should provide justifications for their inclusion:

- ① The types of coal
- ① The uses of each type
- ① The available and minable resources, in this country and abroad.
- ① Reasons for coal to be the primary source of energy

The ad should be catchy, fun and accurate. Following completion of the mock up, a presentation shall be made to the board of directors for final approval. The presentation will be held in a professional setting where it is important to be fully informed of the wants and needs of the client and the reasons for the ad design you created. As this is a National Campaign, all information must be thoroughly researched and accurate.

Please direct any questions or comments to me at the above address.

Thank You,

Mr. Kohl M. Einer

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Environment for the Future
207 Sunshine Lane
Save, PA 10054

To Whom It May Concern:

It is the mission of our organization to stop the use of coal as the primary source of energy in our country. We are currently running a national campaign to support this cause and request that you provide a full-page mock up ad for a national newspaper to be run at the earliest convenience.

The following items should be included in the ad and your presentation should provide justifications for their inclusion:

- ① The percentages of available resources, in this country and abroad.
- ② Reasons for coal to not be the primary source of energy.
- ③ Alternative fuels and their expected length of availability
- ④ Environmental concerns

The ad should be catchy, fun and accurate. Following completion of the mock up, a presentation shall be made to the board of directors for final approval. The presentation will be held in a professional setting where it is important to be fully informed of the wants and needs of the client and the reasons for the ad design you created. As this is a National Campaign, all information must be thoroughly researched and accurate.

Please direct any questions or comments to me at the above address.

Thank You,

Ms. Theresa Hugger

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TYPES OF COAL AND THE RESERVES

Scoring Rubric

Topic	5	4	3	2	1
Display Ad	Completed and Professional looking	Completed with effort, but not professional looking	Completed with very little effort	Started but not completed	Not Started
Research Completed (Check the Research informational sheet)	Sheet thoroughly completed and extra information collected	Sheet thoroughly completed	Sheet completed with minimum information	Sheet partially completed	Sheet not started
Preparedness	Presentation is completed and prepared to present to the Board	Presentation is completed but not prepared to present to the Board	Presentation is started, but not prepared to present to the Board	Presentation is not started, and has not been prepared to present to the Board	Presentation is not started and student refuses prepare to present to the Board
Presentation	Presentation was excellent and professionally presented	Presentation was satisfactory	Presentation was completed with minimum requirements	Presentation was completed, but minimum requirements were not met	Presentation was not completed and no effort was made
Accuracy	Information was 100% accurate	Information was 75% accurate	Information was 50% accurate	Information was 25% accurate	Information was completely inaccurate

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TYPES OF COAL AND THE RESERVES INFORMATIONAL SHEET

Use this informational sheet to complete the research necessary to produce the Newspaper Ad for your client.

Types of Coal	Uses of Each Type

The available coal resources, in this country and abroad. (MAP)
Also provide percentages and states will reserves/resources that are minable.

Why should coal be used as the primary source of energy.

List Alternative Fuels and why they should or should not be considered as a primary source of energy.

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