

Coal – The Geologic History of a Fossil Fuel and its Function in a Changing Climate

**TEACHING DEMO EXERCISE
NO. 2 – POLICY BRIEF OR
THE STORY OF COAL –
REFLECTIONS ON THE
STUDENT WRITING TASK**



Image Source: Dragons in a Carboniferous Canopy, Illustration by R. G. Raham, 2015, Used with Permission)

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This presentation is a teaching demo on an experiential lab comprised of an introduction to coal and its story. It includes an overview of just what coal is, a virtual field trip to a Carboniferous coal forest trapped in the rocks, a rare view into how coal is formed, a look at the timescale of the Earth, and how coal fits into geologic time. The virtual field trip to the UNESCO World Heritage site, Joggins Fossil Forest, Nova Scotia, helps provide context for the story of coal and its origins. The lab continues with several activities including working with fossil plant data to reconstruct Pangea, and a discussion on the Nature of Science, followed by one of two writing assignments for the students.

Teaching Demo - Exercise No. 2 – Reflective Free Write (EER Individual Work)



In your role as instructor/professor, consider the following two writing assignments associated with this lab (explained in next several slides).

- Students write a policy brief

OR

- Students write about the story of coal, as a geologic resource, fossil fuel, and its relation to climate change

Reflective free-writing is part of the Writing Across the Curriculum toolbox (Bazerman et al., 2005).

Exercise No. 2 (Students) – Policy Brief Coal and Climate



Scenario

You are a professional geoscientist working in science policy and have been asked to write a **Policy Brief*** (for an **example, see next slide**) on the role of coal in global warming for a U.S. Congressional Representative. They were just appointed to the House Select Committee on Climate Crisis and need to be informed about the topic.

Central Idea/Question

What is coal and why has burning this fossil fuel had such an impact on climate change?

* A policy brief is a concise summary of a certain issue with a recommendation. See suggested references and links for information and examples on policy briefs.



<https://publications.iom.int/books/migration-environment-and-climate-change-policy-brief-series-issue-1-vol-6-january-2021>

Exercise No. 2 (Students)

Story of Coal and Climate

Guiding questions

- Discuss briefly how coal is formed (covered in the lab)
- Give a context for coal, its general age, and how long it takes to form, referring to the geologic time scale (covered in the lab)
- Briefly explain the carbon cycle
- State why coal is a repository (a sink) for carbon
- Discuss how carbon dioxide acts as a greenhouse gas
- Review the history of using coal (see historical sources provided)
- What recommendations do you have for the use of coal?

Teaching Demo - Exercise No. 2 – Reflective Free Write (EER Individual Work)



Write individually (without stopping) about this exercise and your students.

How would either of these fit into one of your classes, if you were to give this lab? Is one more engaging or applicable to your class? Three to five-minute free writing (Bazerman et al., 2005), may be shared if time permits.

Reflective free-writing is part of the Writing Across the Curriculum toolbox (Bazerman et al., 2005).

Sources for Student Research on Coal



Information on writing a policy brief: International Development Research Center, <https://www.idrc.ca/en/how-write-policy-brief>
United Nations Food and Agriculture Organization,
<https://www.fao.org/3/i2195e/i2195e03.pdf>

Articles on Coal

- Feulner, G. (2017). Formation of most of our coal brought Earth close to global glaciation. *PNAS*, 114 (43), October 9, 2017
<https://www.pnas.org/doi/10.1073/pnas.1712062114>
- Lumen Geology (n.d.). Reading: coal, *Module 12, Geological Resources*.
<https://courses.lumenlearning.com/geo/chapter/reading-coal-2/>
- Schweinfurth, S.P. (2003). *Coal-A complex natural resource: An overview of factors affecting coal quality and use in the United States*. U.S. Geological Survey Circular 1143, 39 p.
<https://pubs.usgs.gov/circ/c1143/html/text.html>