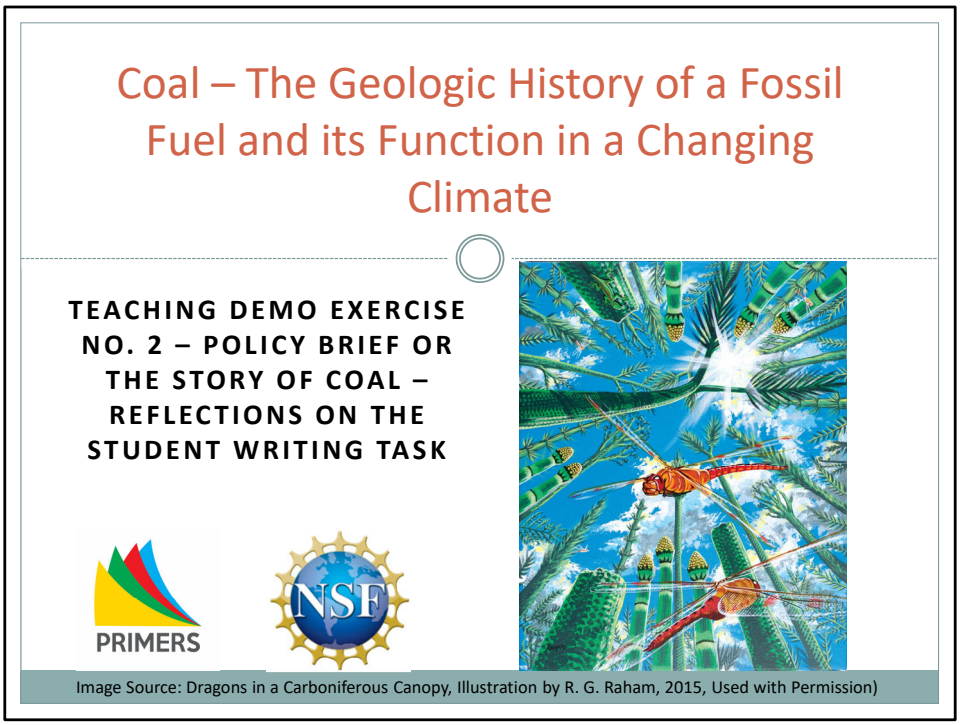

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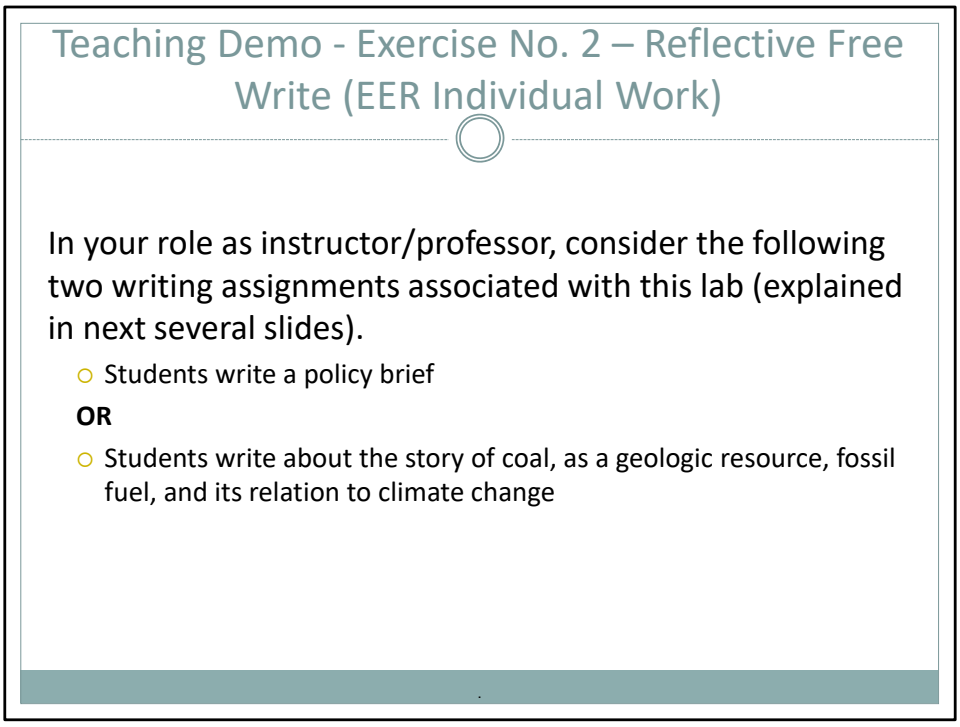
Contact Information: Elisabeth Ervin-Blankenheim, Doctoral Candidate, St. Francis Xavier University, N.S., and Geology Instructor, Front Range Community College, Elisabeth.Ervin@frontrange.edu
This presentation is a teaching demo on an experiential lab comprised of an introduction to coal and its story. 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.



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?

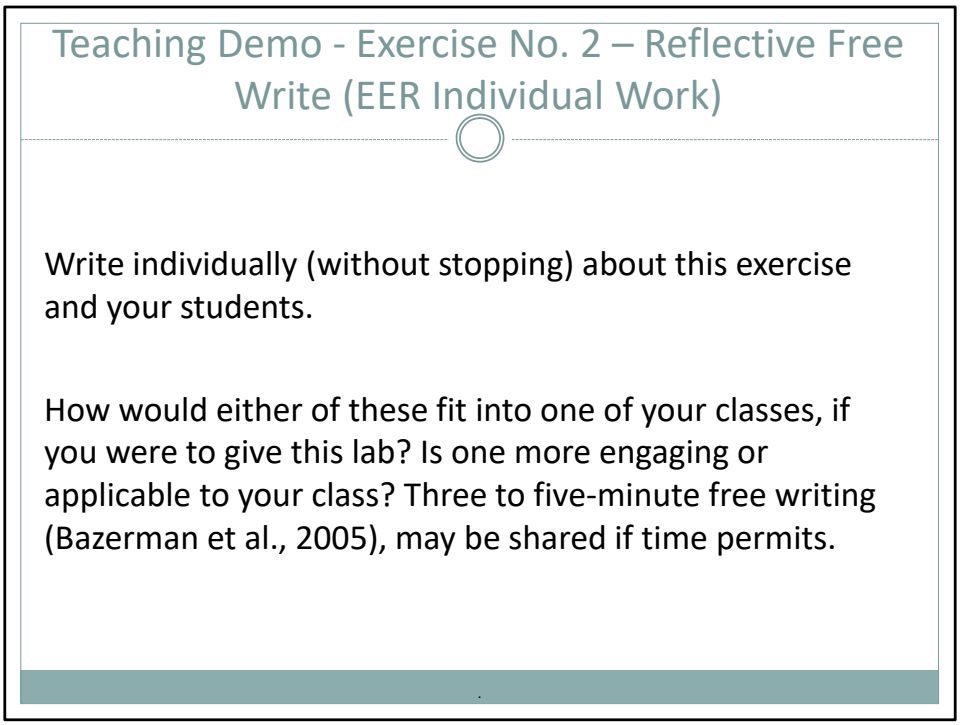
* A policy brief is a concise summary of a certain issue with a recommendation. See suggested references and links for information and examples on policy briefs.

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?



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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