
My NASA Data - Lesson Plans

PM 2.5 & Mortality: Zoom In Inquiry

Grade Band

- 9-12

Time

- 30 minutes

Overview

Students will engage in a “Zoom In Inquiry” learning routine to understand a world map that shows changes in PM_{2.5}-attributable mortality per 100,000 population (Bondie, 2013). They will make initial observations and inferences of small sections of the map. Then, they will be intellectually careful as they interpret the map key and color scale. Lastly, they will reflect on how their perception of the image changed as they saw more of the image.

Materials Required

- [Zoom In Inquiry Student Sheet](#)
- [PM2.5 and Mortality: Zoom In Inquiry Slides](#)

Procedure

Instructions: Display images for the class to observe. With each image, there will be a question. As students observe the images, have them follow the steps below:

1. **Think:** On your “Zoom In Inquiry Student Sheet,” jot down a response to the question that is posted on each slide. (1 min)
2. **Pair:** Talk with a partner about your response to the question that is posted. (1 min.)
 - Respond with follow-up questions:
 - What makes you say that?
3. **Share:** Call on 2-3 students to share out. (1 min.)

Answers:

Teachers who are interested in receiving the answer key, please complete the [Teacher Key Request and Verification Form](#). We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.

Sources:

1. Bondie, R. (2013, October 5). *Durable Learning Routines_booklet*. ALL-ED. Retrieved August 12, 2022, from <http://www.alled.org/wp-content/uploads/2016/11/Durable-Learning-Routin...>
2. *Countries by Continent :: African Countries*. (n.d.). Nations Online Project. Retrieved August 12, 2022, from <https://www.nationsonline.org/oneworld/africa.htm>
3. *Health and Air Quality Data Pathfinder | Earthdata*. (2022, July 20). Earthdata. Retrieved August 12, 2022, from <https://www.earthdata.nasa.gov/learn/pathfinders/health-and-air-quality...>
4. *Mae Jemison, First African American Woman in Space*. (2019, March 1). NASA. Retrieved August 12, 2022, from <https://www.nasa.gov/image-feature/mae-jemison-first-african-american-w...>
5. *NASA Astrobiology Unveils New Research Coordination Network at AbSciCon 2022*.
6. (2022, May 16). NASA. Retrieved August 12, 2022, from <https://www.nasa.gov/feature/nasa-astrobiology-unveils-new-research-coo...>
7. *NASA Expands Research Participation to Scientists Across the U.S.* (2020, July 15). NASA. Retrieved August 12, 2022, from <https://www.nasa.gov/feature/nasa-program-expands-research-participatio...>
8. Pratt, S. E. (2022, March 14). *No Breathing Easy for City Dwellers: Particulates*. NASA Earth Observatory. Retrieved August 12, 2022, from <https://earthobservatory.nasa.gov/images/149580/no-breathing-easy-for-c...>
9. *World War I Timeline Experience*. (n.d.). American Battle Monuments Commission. Retrieved August 12, 2022, from https://www.abmc.gov/sites/default/files/interactive/interactive_files/...

NGSS Three Dimensional Learning

NGSS Disciplinary Core Ideas

- ESS3D: Global Climate Change

NGSS Crosscutting Concepts

- Scale, Proportion, and Quantity

NGSS Science and Engineering Practices

- Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking

Teacher Background Information

NASA Earth Observatory article titled, [No Breathing Easy for City Dwellers: Particulates](#) for teachers to use as a reference

Student Resources

- [Zoom In Inquiry Student Sheet](#)

Google Slide interactive Files

[PM2.5 and Mortality: Zoom In Inquiry Slides](#)