My NASA Data - Lesson Plans

Particulates & Population: Zoom In Inquiry

Grade Band

- 9-12

Time

- 30 minutes

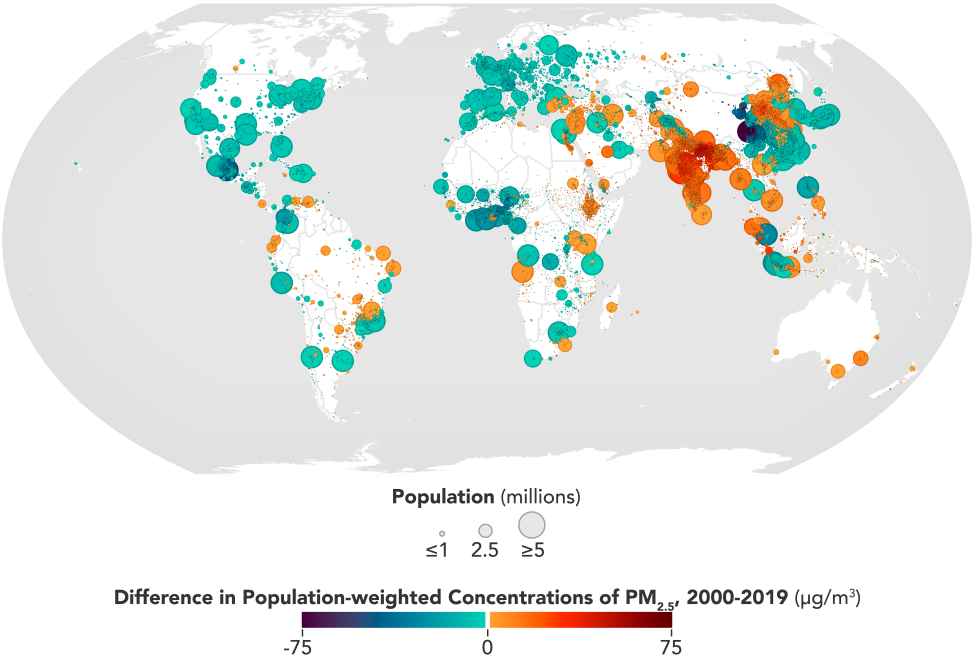
Overview

Students will engage in a “Zoom In Inquiry” learning routine to understand the symbols on a world map that shows population-weighted concentrations of $PM_{2.5.}$ 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

- Particulates & Population: Zoom In Inquiry Student Sheet
- Particulates & Population: 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. (n.d.). *Durable Learning Routines_booklet*. ALL-ED. Retrieved August 12, 2022, from http://www.alled.org/wp-content/uploads/2016/11/Durable-Learning-Routin…
2. *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…
3. *NASA Astrobiology Unveils New Research Coordination Network at AbSciCon 2022*. (2022, May 16). NASA. Retrieved August 12, 2022, from https://www.nasa.gov/feature/nasa-astrobiology-unveils-new-research-coo…
4. *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…
5. 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…

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

Particulates & Population: Zoom In Inquiry Slides