

Data Integration Assignment

Data Source:

NASA Data from collected from <https://www.eodashboardhackathon.org/about/> a NASA resource.

Data- [Changes in CO2 during lockdown compared to previous years](#)
[Emissions Bounce Back](#)

Lesson Enhancement:

In this lesson, students will use data to either support or reject their hypothesis of how the Covid-19 Pandemic has affected the environment, specifically Carbon Dioxide levels. Students will begin by looking at various photographs of different large cities before and during the pandemic. Each group of students will get a different city and after doing a KWL, students will be asked to make a prediction about the connection between all of the photos. The students should see the timeline of each set of photos and also note that the later dated photographs result in cleaner appearance of air quality and less overall city business, ie, cars, people, factories. After students make their prediction of the connection between all of the photos, I give them the article from which they were pulled and a discussion follows about the reliability, trustworthiness and possible bias of this source. This is where the NASA data comes in. Students will use the data to determine the extent to which a lack of human activity during the pandemic actually affected the environment. I find the format of data presentation to be engaging and I believe my students would enjoy looking through the map and comparing the previous values to the 2020 carbon dioxide levels. I would have students use NASA data cubes to read the maps and drive a discussion between students about the data and whether it supports the message of the article that “nature is healing”. It changes the learning because instead of me simply explaining how carbon dioxide levels have been affected, students do the explaining.

Using Data in the Classroom:

Data in the classroom can empower students by enabling them to feel connected to the real world and make their time in the classroom valuable to their lives. When students conduct their own experiments/research the students use their own observations and measurements to form a conclusion. This inquiry based method gives students ownership of their learning and makes them understand how scientists reached their conclusions instead of accepting science as is, as a random conglomeration of facts to memorize. Data can also be used to connect a student to their community. Data to have any relevance needs to have a reason for why we study it, and for our students this is even more true. If students can see how that engineering task or how the technology recently developed directly affects their lives then we have helped a student discover the true potential of scientific discovery.

Student Resources:

[Student Interactive Map Data](#)

Students can use the NASA web application to toggle between the difference in CO2 values map and the mean of the CO2 levels.

Rationale/Interdisciplinary Context:

My rationale for using these data sources is that they are reliable sources of information as well as easy for students to decipher. The crosscutting concepts involved in this task are students identifying cause and effect relationships and patterns among maps.

This is a fantastic way to meld STEM and literacy because after all we are all responsible for teaching literacy, even scientific literacy. This task engages the learner by asking a driving question and by empowering them to question a source of information. Specifically, math and science are most obviously integrated here as students are having to interpret values to form a conclusion. If chosen to spend more time on the NASA satellite aspects of how this data was collected there would also be a full integration of STEM as technology and engineering could easily be included.