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Authentic Data Integration

Monthly Vegetation Index for Earth and Seasonal Patterns
https://neo.sci.gsfc.nasa.gov/view.php?datasetId=MOD_NDVI_M&year=2000
Specifically this filtered data: https://neo.sci.gsfc.nasa.gov/analysis/index.php (zoom in on USA close to PA/NJ)

5-ESS1B.1: The orbits of Earth around the Sun and of the Moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the Sun, Moon, and stars at different times of the day, month, and year. (5-ESS1-2)
5-PS3D.1: The energy released [from] food was once energy from the Sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)

Analyzing this data could be used to help students make sense of the seasonal patterns of the sun and how it correlates with plant growth and other patterns. During a science lesson this year students investigated this phenomenon:

When driving from Easton, PA to New Jersey on Interstate 78 in February of 2020 only one side of the mountain had ice on it.

I think this phenomena has so much to it but really needed to find more meaningful data to help students make sense of it. This phenomena was difficult for students to investigate because they struggled with their place on the earth in relation to the earth's place in the solar system in regards to the sun. Connecting it with the data linked above could help them see how the environment changes (vegetation) from January to May of 2020 which in turn helps them recognize that the earth's tilt (earth’s axis) away from the sun in the winter months causes winter in the northern hemisphere and then see that plant growth increases when we tilt closer to the

sun (reinforces plants need water and light to grow). In the same lesson they learn that the mountain without ice on it is the south facing side.

I love using data when teaching. Relevant data is so important to place into all subjects. I feel students need more opportunities to analyze and interpret data. I like to give students data to look at and then have them make a T chart and on one side write statements about what they see and on the other side what it means. A picture is worth a thousand words, so many think data needs to be all quantitative but I think qualitative data is just as important.

Data could be used in ALL subjects. Math seems to always be the route everyone uses because they think of data as quantitative, but just making observations of qualitative data ties in so many other disciplines. This data could be used in social studies when talking about climate change and writing persuasive essays on how to make a positive change. Data, in general, can be impactful with Language Arts and would support the students who are more math minded to bridge over the connection and vice versa. In fourth and fifth grade students are asked to write persuasive and expository essays on a current event. This data can be filtered to show changes in the environment over time. There is so much learning to be done when looking at filtering data in different ways to prove a point. I filtered this data specifically to show seasonal patterns, but they could easily do the same to see how the vegetation has shifted over time and connect it to global warming and climate change.