My NASA Data - Mini Lesson/Activity

Clouds and Climate Impacts

Grade Band

- 6-8
- 9-12

Time

- 30 minutes

Overview

Students watch a NOVA PBS video about the different effects of clouds on climate and Earth's energy budget. Then they answer questions and brainstorm to complete a flow chart of events that might occur if the percentage of absorbing clouds increases.

Student Directions

Review the NOVA PBS video - *The Climate Wild Card* about the different effects of clouds on climate and Earth's energy budget. Then answer questions and brainstorm to complete a flow chart of events that might occur if the percentage of absorbing clouds increases.

Video: The Climate Wild Card

The Climate Wild Card | https://www.youtube.com/watch?v=Py1dEFKuJJU | Source: NOVA PBS

Steps:

1. Check with your instructor on how to submit your answers
2. How will clouds respond as the planet warms?
3. Could we see an increase in reflecting clouds, which would help to slow the global warming trend?
4. Or will there be an increase in absorbing clouds, which could dramatically speed up the warming?
5. How would this warming affect the polar regions and in turn affect coastal areas?

As a class, brainstorm how the polar regions and coastal areas might be affected if there is an increase in absorbing clouds. Fill in the chain of events in the flow chart that might occur if the percentage of absorbing clouds increases.

Source:

1. The Climate Wild Card. (2013, July 19). YouTube. Retrieved October 13, 2022, from https://www.youtube.com/watch?v=Py1dEFKuJJU
2. Nova Labs: "The Cloud Labs". (2014, 1 1). The Climate Wild Card. PBS Learning Media. Retrieved 10 13, 2022, from https://virginia.pbslearningmedia.org/resource/nvcl.sci.earth.wild/the-…

Teacher Note

Teachers, these mini lessons/student activities are perfect "warm up" tasks that can be used as a hook, bell ringer, exit slip, etc. They take less than a class period to complete. Learn more on the "My NASA Data What are Mini Lessons?" page.

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.

Students may work individually or in groups and can share the results with the class. The student worksheet is provided to brainstorm the effects of an increase in the percentage of absorbing clouds.

What NASA Career Uses These Data?

Atmospheric Scientist - Atmospheric scientists study the weather and climate and examine how those conditions affect human activity and the earth in general. Most atmospheric scientists work indoors in weather stations, offices, or laboratories. Occasionally, they do fieldwork, which means working outdoors to examine the weather. Some atmospheric scientists may have to work extended hours during weather emergencies.

NGSS Three Dimensional Learning

NGSS Disciplinary Core Ideas

- PS4B: Electromagnetic Radiation
- ESS2D: Weather and Climate

Crosscutting Concepts

- Cause and Effect
- Systems and System Models

Science and Engineering Practices

- Developing and Using Models

Document Resources

- Clouds and Climate Impacts Questions