

Physical Aspects of Climate Change Assessment Climate Zone Posters

Introduction:

This can be used as a possible assessment for this section of the climate unit. Students can do this in groups or individually. You can make a Performance Task or a Practice Activity. Students will be looking at various climate zones and analyzing how the atmosphere, ocean, and cryosphere interact to create the precipitation and temperature conditions in that climate zone.

Expected Outcomes of the Assessment:

Students will make the connections that climate is the result of systems interacting with each other. Students will understand that even if they have been assigned an arid or hot climate that the cryosphere plays a role in the climate regulation of the entire planet. Students will make connections on how future climate change will affect their assigned climate zone. At the end students can do a gallery walk of their posters so that other students can see and understand the effects of the atmosphere, ocean, and cryosphere on the climate zones.

If students are doing this as an essay test question students should format this in a way, such as a paragraph and drawings on maps that express they understand the connection between the atmosphere, hydrosphere, cryosphere and climate.

Materials

- A device where students can do research – iPad, chromebook, computer lab
- Posterboard if students are doing a physical poster
- A projector and computer for you to show the sample project
- Markers, colored pencils, rulers and various craft supplies for students to decorate their posters.

Instructions and/or Summary of Activity

If you are doing this as a summative assessment (Performance Task):

Have students pick a climate zone, outlined in the [Climate Introduction PowerPoint](#) or the [Physical Aspects of Climate Change Assessment PowerPoint](#). Go through the humid continental example provided so that students understand what you are expecting. In addition, look at the attached grading rubric. Have students work alone or in pairs to create a poster, physical or digital, that displays the information about their climate zone. Most of the information they will be able to research with a quick Google search. However, the section that asks them to explain how the atmosphere, ocean and cryosphere interact to create the climate zone will need to be their own thoughts. From what they have learned in these 4 lessons, students should be able to make connections and describe how the systems interact with each other. Some climate zones will be more obvious than others. For example, the arid climate zone, students may have trouble



Physical

connecting the cryosphere to this climate region, but guide them to understand how hot the planet would be without the cryosphere and how global air circulation enables cold air from the poles to circulate with warm air from the equator.

When students have finished their posters (this took my class about 45 minutes to do digitally, it will take longer if they are making a physical poster) have them share their posters with the class so that other students can learn about each climate zone. Make sure their posters have maps of ocean currents and atmospheric circulation.

Make sure to review student work before presenting to the class to ensure that students are not misinformed about the climate zones.

Summative Assessment (Free Response): This activity can also be assigned as a FRQ. Use the pre-assessment found in lesson 1. You can give students all the questions or just one.

If you are doing this as a class group activity:

Use the Physical Aspects of Climate Change Assessment PowerPoint on Google Drive. Share the link with students so that they can edit the PowerPoint. It would be important to make a copy of this PowerPoint for each class. Have students work in the google slides. Check student progress and suggest corrections if necessary. When every student is finished project the slides and have the students present about their climate zone.



Physical

Sample Rubric

Criteria for Success	0 – did not attempt	1 –Beginning put pencil to paper in a meaningful way	2 – Developing missing one key piece of understanding	3 – Meets expectations	4 – Exceeds expectations – makes real world connections
Precipitation, Temperature, and Plants	Did not attempt	Missed 2 of the components	Missed one of the 3 components	Did accurate research and found the correct precipitation and temperature conditions for their climate zone. Included some examples of plants	Completed everything in 3, but explained temperature and precipitation fluctuations due to seasons. Gave many examples of plants
Interactions between Atmosphere, Ocean and Cryosphere	Did not attempt	Missed 2 of the components OR gives very little explanation how each effect climate.	Missed one of the 3 components OR tries to explain how each component effect climate, but maybe misses key understanding.	Explained how each component contributes to the conditions of the climate zone. Uses key vocabulary such as air mass and ocean currents.	Explained how each component contributes to the conditions of the climate zone. Uses key vocabulary such as air mass and ocean currents. Makes the connections that if their zone is not directly affected by the cryosphere, the cryosphere still effects overall global temperatures.
Global Warming Impact on Climate Zone	Did not attempt	Tried, but really missed the mark. Has no concept of how Global warming might impact their climate zone.	Gave a very brief explanation of how climate change may affect the climate zone, for example, they may have said “it gets hotter and will rain more”	Explained how temperature and precipitation might change due to climate change. Explains how the seasons might be different.	Everything in 3 and in addition explains how the animals and plants of that climate zone might be affected by climate change