

Soil Inquiry Journal

Anchoring Phenomenon: How does climate change affect the populations of species with temperature-dependent sex determination?

Name: _____

Date: _____

Class period: _____

Climate Change Research

Directions: Using reliable resources, investigate the greenhouse effect. Write a summary of how the greenhouse effect works. In your summary make sure to give some examples of greenhouse gasses.

After researching how the greenhouse effect works, we will investigate the impact that policy decisions have on the greenhouse gas net emissions. Go to the following website: <https://en-roads.climateinteractive.org/scenario.html?v=22.5.1&p1=2&p7=1&p10=0.2&p57=0.1&p63=10.8> . After exploring the simulator, write about what trends you noticed. What surprised you the most or you found the most interesting?

Soil Inquiry Research

Directions: After learning about climate change, we will investigate how this affects the populations of Blanding's turtle. Blanding's turtles like other reptiles and turtles determine their sex through a non-genetic process. This process is called temperature dependent sex determination. This means that the temperature of the egg nest determines whether the offspring are female or male. In this experiment, you will be taking the temperature of 5 different soil samples and determining whether the offspring will be mostly male or female. Fill out your results in the table below.

Sample #	Recorded temperature (°C)	Mostly Male or Female?
Sample 1		
Sample 2		
Sample 3		
Sample 4		
Sample 5		

Male producing temperature range	Female producing temperature range
26.5°C to 28°C	30°C to 34°C

Lower than 22°C most Blanding's turtles are unable to survive. Higher than 34°C Blanding's turtles have a higher mortality rate among turtle embryos.

What did your data show? Were there more female or male producing nests?

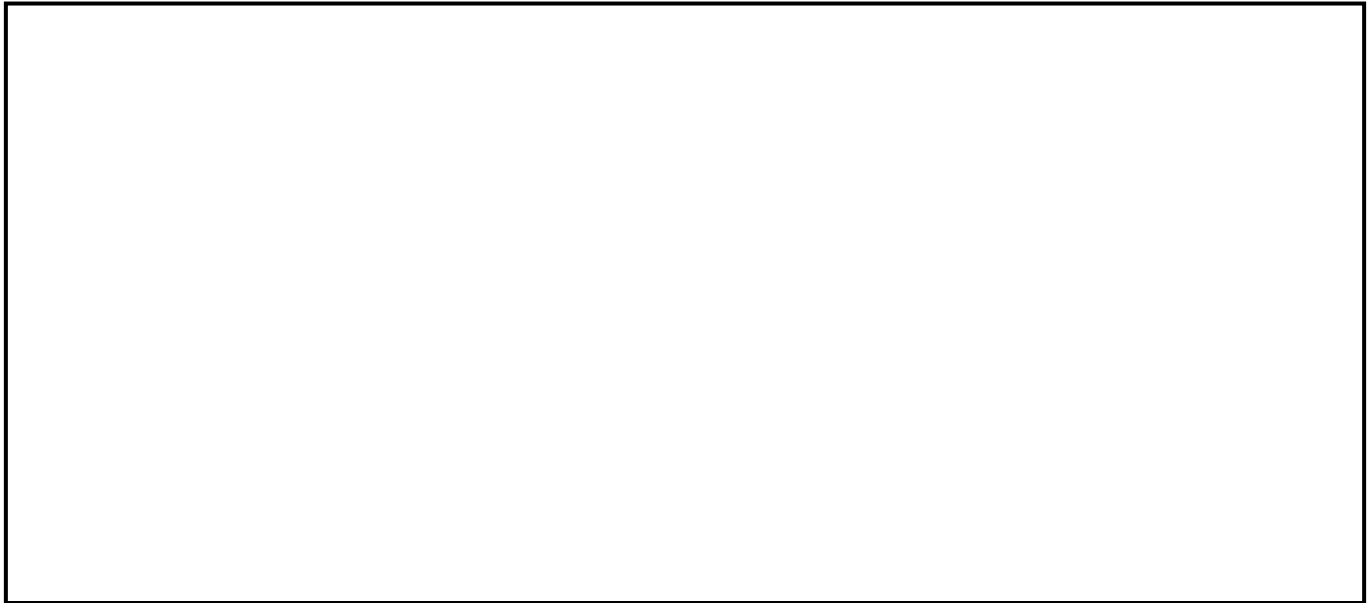
How can you relate this data back to the research that we did on the greenhouse effect and climate change?

What can you infer about the affects of climate change on the population of Blanding's turtles?

What are some things that people can do to help reduce their carbon emissions? How will this help preserve species like the Blanding's turtles?

Sharing your data

Directions: After collecting all your data, you will create a poster that communicates your research about the greenhouse effect and the data you collected from the soil samples. This page is a place you can plan the design of your poster.



Write feedback on one other person's poster. Include 3 items they did well, 2 they could improve on and 1 thing you found interesting.

Soil Inquiry Rubrics

Journal Rubric

Criteria	Full points	Partial points	No points	Total points
Climate change 5 points	Gave a complete summary on greenhouse effect and reflected on the simulation	Did not complete one of the activities in this section	Did not complete this section	
Soil inquiry 10 points	Filled out the table with data and fully answered all questions.	Filled out most of the table with data and answered most of the questions	Did not complete this section	
Sharing your data 5 points	Used the planning section and gave feedback using the 3-2-1 method.	Did not use the planning section or did not give complete feedback	Did not complete this section	

Total points: _____

Teacher Feedback:

Soil Inquiry Rubrics

Poster Rubric

Criteria	Full points	Partial points	No points	Total points
Introduction and Background	Give introduction to the experiment and any necessary background	Partially completed introduction and no background information	Was not present on poster board	
Methods	Fully describe the methods used for the data collection	Partially describe the methods used for data collection	Was not present on poster board	
Results	Fully communicate results of research	Partially communicate results of research	Was not present on poster board	
Conclusion	Fully summarize the experiment and results	Partially summarize the experiment and results	Was not present on poster board	
Impact and Future Direction	Fully discuss the impact their research has on the environment and a future direction for further research	Partially discuss the impact their research has on the environment and a future direction for further research	Was not present on poster board	

Total points: _____

Teacher Feedback:
