

SALESIAN HIGH SCHOOL

Science/Math Department: Sophomores

School Year: 2020/2021

Assignment:

1. Student must access and read the following article: [Climate Change is Decimating the Chinstrap Penguins of Antarctica](#)
2. Based on the information in the article, your knowledge and understanding, please respond to the following questions for each of the listed content area. In the case of the science question, students enrolled in Earth Science only need to answer the Non-honors science question; all others must answer the Honors science question. **Answers written must be a minimum of one (1) paragraph (8 – 10 sentences). Students are able to write answers of longer length, if necessary.**

Science

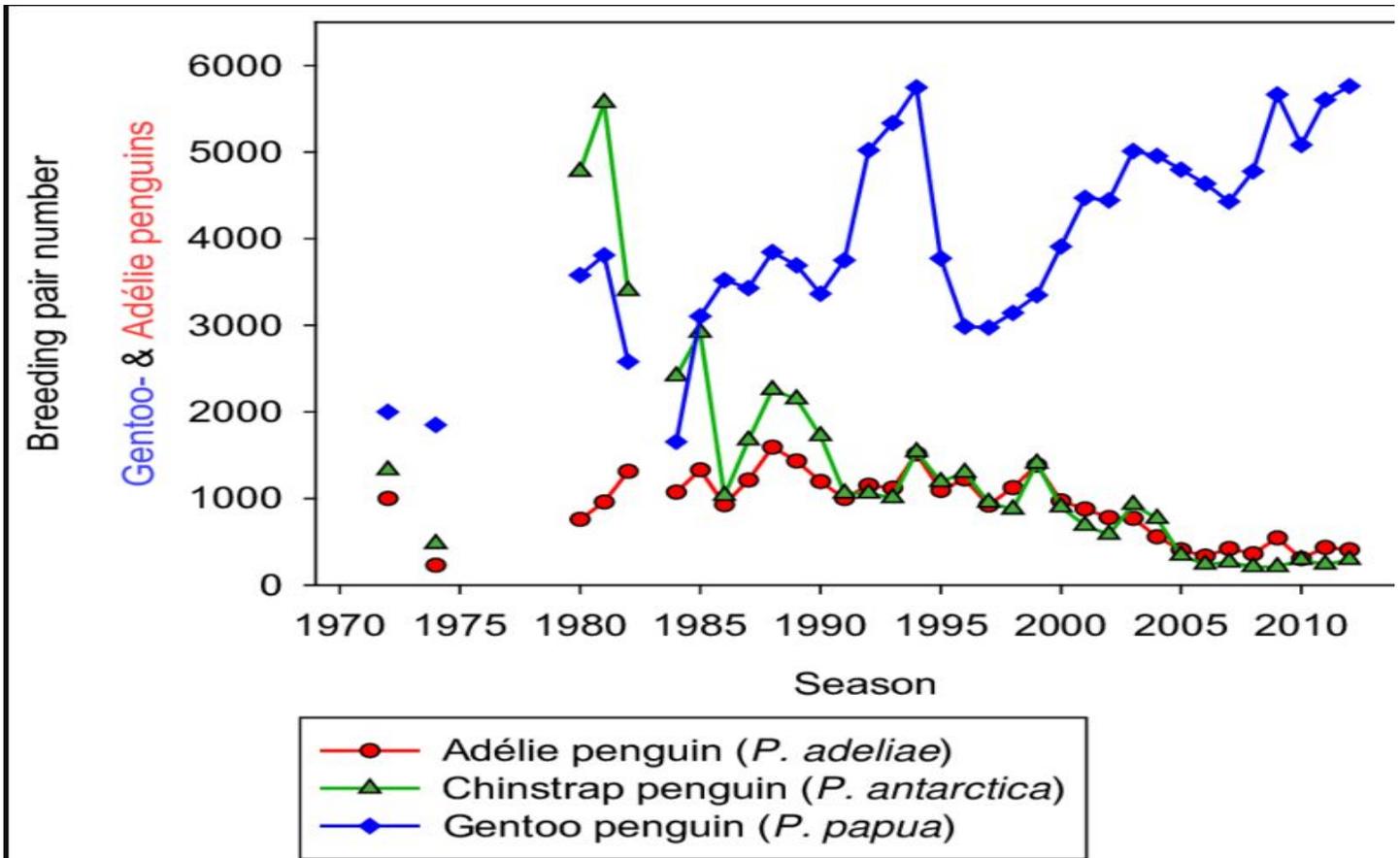
- **(Non-Honors)** The molecule, Carbon Dioxide, is of special interest to all nations of the world. It's presence in large amounts adversely affects the atmosphere's ability to protect the planet's equilibrium. What does the term, equilibrium, mean in the context of climate change? What is a greenhouse? How does the atmosphere act like a "greenhouse"?
- **(Honors)** The levels of CO₂ produced yearly typically coincides with nations that have economies that are largely dependent on the manufacturing of goods, such as China, the U.S. and India who represent the top three nations in this category. Over the last 30 years, the economies of China and India have grown tremendously due to increased industrialization, which allowed them to attain stronger presence on the global stage. In the efforts to reduce CO₂, much of this financial success may not be possible for such large nations.

Do you think nations should implement costly changes to reduce the production of carbon dioxide, or should the view be that each nation is entitled to act in its own interests to the benefit of its own people? Provide reasoning for your answer

Math

- Which previously learned topics in math do you think researchers would need to know to be able to estimate the population of the Chinstrap Penguins of Antarctica? Provide at least two (2) concrete examples with reasoning for your answer.
- Which of the following graphs (**Graph A and Graph B**) gives a better representation of the information presented and why?
- Do either of the graphs contain any confusing elements (legend, axes, etc.) and what could be done to make the display clearer?

GRAPH A



GRAPH B

SHRINKING POPULATIONS OF ADÉLIE AND CHINSTRAP PENGUINS

Number of breeding pairs at study sites

- KEY
- Chinstrap penguins, Admiralty Bay of King George Island
 - Adélie penguins, Admiralty Bay
 - Chinstrap penguins, Cape Shirreff of Livingston Island

