

Name:

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Date:

Climate Change – Atmosphere Changes

1) a) Define the term “Climate Change”.

b) The world’s climate has always undergone change. This can easily be seen in the numerous ice ages on Earth and other time periods that pre-date humanity. Why do we think humans are specifically causing the current climate change?

c) Since the late 1800’s, how much has the average temperature of Earth has risen by? This seems small, why is this really bad?

2) a) Describe the main greenhouse gases involved in global warming.

b) How do greenhouse gases work to warm the Earth **and** which gases have the highest impact?

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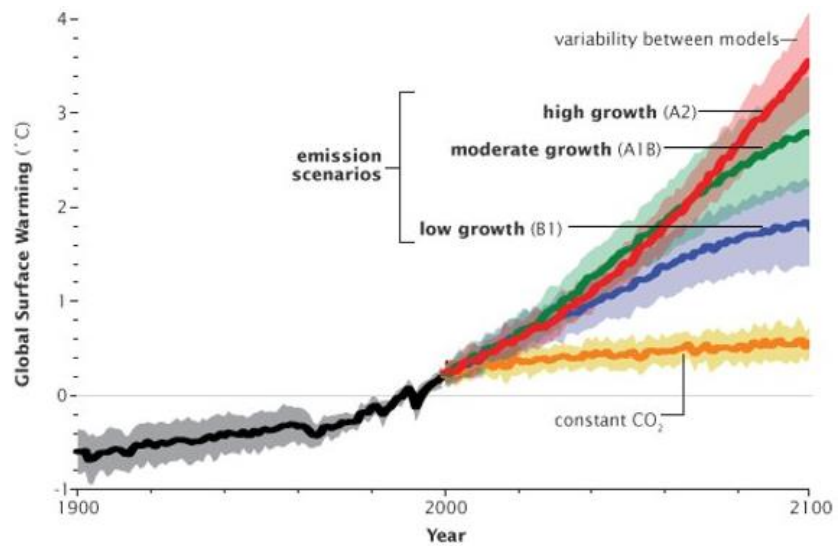
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c) CO₂ is usually the main chemical that is said to be responsible for climate change. Yet, of the main greenhouse gases, it has the lowest global warming effect per molecule. Why is carbon dioxide so impactful?

d) Besides the main greenhouse gases, there are other trace chemicals or unnatural chemicals that could impact climate change. If a new chemical factory type started to produce Sulfur Hexafluoride, what would happen?

e) Using your scientific data interpretation, explain what the graph tells us about the future? **Include detail!**



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3) a) What is O₃ and where is it found?

b) O₃ is still a greenhouse gas, yet it is usually mentioned as a chemical that helps prevent climate change. How does O₃ lower the temperature of Earth?

4) a) What does the term CFC (or HCFC) represent?

b) Where and when have CFC/HCFCs been used in human history?



c) In 1987, the Montreal Protocol agreement required developed countries to ban the use and production of CFC/HCFCs to reverse alarming effects it has on the environment. How do these compounds damage the environment **and** where have they caused the most damage on Earth?

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5) a) A **feedback loop** occurs when the results of an event further contribute to keeping the event going. In climate change, the melting of frozen regions of the world is said to be a feedback loop. Why does the melting of frozen regions of the world contribute to even more melting?

b) Why else is the melting of ice caps alarming to humans and ecosystems?

6) Describe 3 more effects of climate change not already mentioned.

Extend: Canada and the United States have the great lakes in their borders, as well as many other lakes and freshwater systems. The great lakes alone contain 20% of the world's freshwater supply. Additionally, British Columbia and many other parts of North America are still dense in resources, such as lumber. Other regions of the world do not have these resources or have had resources. Provide a detailed response about how this affects the interactions between countries and why it is often seen as difficult to slow down the use of our natural resources.