

2. **Describe** how the *natural* process of the Greenhouse Effect works. Include types of electromagnetic radiation.

3. What are the major **anthropogenic greenhouse gases** being emitted by industrial societies today? What are their major **sources**?

4. What are some viable **alternatives** to these emitters of greenhouse gases? Briefly **describe** how these alternatives can reduce global emissions. _____

PART II

5. The Fourth National Climate Assessment assesses the science of climate change and variability and its impacts across the United States, now and throughout this century. Read the **Introduction** to the Overview of Chapter 1. <https://nca2018.globalchange.gov/chapter/1/>

Using **Fig. 1.1**, what are **three** regions of our country currently doing to combat climate change?

1. _____

2. _____

3. _____

6. **Fig. 1.2** examines **Indicators of Change**. What is an indicator and how is it used?

Choose **three** indicators and examine the associated graphs. What do the trends of each graph show?

1. _____

2. _____

3. _____

7. The **Current and Future Risks** to the United States are many and varied. As you read through the Overview, describe some of the major **impacts** that climate change will have on the U.S. and how they **interconnect** with other parts of our society. _____

8. What is the **difference/connection** between **Mitigation** and **Adaptation**? What are some ways that we can **mitigate** the effects of climate change? What are some ways that we will have to **adapt** to climate change?

9. Navigate to Chapter 2 <https://nca2018.globalchange.gov/chapter/2/> - Here you will find **10 Key Messages** about Climate Change. Pick **three** of these, and explain both their **importance** and the **threats** that they face.
1. _____

2. _____

3. _____

PART III

10. What is the mission of the **Environmental Protection Agency (EPA)**? Who is the current head of the EPA?

What was their job before they ran the EPA? _____

11. What is the environmental mission of the **Department of Energy**? Who is the current head of the DOE?

What was their job before they ran the DOE? _____

12. What is the environmental mission of the **Department of the Interior**? Who is the current head of the DOI?

What was their job before they ran the DOI? _____

13. Find a website that **challenges** the prevailing scientific consensus on climate change. **Summarize**

the main points of these skeptics: _____

Source: _____

Fourth National Climate Assessment (NCA4), Volume I

CHAPTER 1, Overview, Introduction

<https://nca2018.globalchange.gov/chapter/1/>

Earth's climate is now changing faster than at any point in the history of modern civilization, primarily as a result of human activities. The impacts of global climate change are already being felt in the United States and are projected to intensify in the future—but the severity of future impacts will depend largely on actions taken to reduce greenhouse gas emissions and to adapt to the changes that will occur. Americans increasingly recognize the risks climate change poses to their everyday lives and livelihoods and are beginning to respond. Water managers in the Colorado River Basin have mobilized users to conserve water in response to ongoing drought intensified by higher temperatures, and an extension program in Nebraska is helping ranchers reduce drought and heat risks to their operations. The state of Hawai'i is developing management options to promote coral reef recovery from widespread bleaching events caused by warmer waters that threaten tourism, fisheries, and coastal protection from wind and waves. To address higher risks of flooding from heavy rainfall, local governments in southern Louisiana are pooling hazard reduction funds, and cities and states in the Northeast are investing in more resilient water, energy, and transportation infrastructure. In Alaska, a tribal health organization is developing adaptation strategies to address physical and mental health challenges driven by climate change and other environmental changes. As Midwestern farmers adopt new management strategies to reduce erosion and nutrient losses caused by heavier rains, forest managers in the Northwest are developing adaptation strategies in response to wildfire increases that affect human health, water resources, timber production, fish and wildlife, and recreation. After extensive hurricane damage fueled in part by a warmer atmosphere and warmer, higher seas, communities in Texas are considering ways to rebuild more resilient infrastructure. In the U.S. Caribbean, governments are developing new frameworks for storm recovery based on lessons learned from the 2017 hurricane season.

Climate-related risks will continue to grow without additional action. Decisions made today determine risk exposure for current and future generations and will either broaden or limit options to reduce the negative consequences of climate change. While Americans are responding

in ways that can bolster resilience and improve livelihoods, neither global efforts to mitigate the causes of climate change nor regional efforts to adapt to the impacts currently approach the scales needed to avoid substantial damages to the U.S. economy, environment, and human health and well-being over the coming decades.