

## “Losing Earth” Comprehension Questions

### Prologue

1. How much has the world warmed in the last century? What will be the consequences if it continues to warm?
2. Why did Nathaniel Rich choose to write about 1979-1989 instead of some other time period in the climate change saga?

### Part One: 1979 - 1982

#### 1.1: ‘This Is the Whole Banana’ (Spring 1979)

1. Who is Rafe Pomerance and why did he care about the global atmosphere?
2. How did Pomerance learn about the greenhouse effect?
3. Who is Gordon MacDonald and why did Pomerance want to speak with him?
4. The initial report on the greenhouse effect did not generate a response in the government. What did Pomerance and MacDonald do to get the message to government officials?
5. How did the Carter administration respond to the information presented to them by Pomerance and MacDonald?

#### 1.2: The Whimsies of the Invisible World (Spring 1979)

1. Who is James Hansen and what does he study?
2. What can the climates of other planets tell us about Earth’s climate?

#### 1.3: Between Catastrophe and Chaos (July 1979)

1. Who was Jule Charney and why did he gather a group of scientists together at Woods Hole, MA in July 1979?
2. Who was included in the group and who was not? Why were these people included while others were excluded?
3. What is the “Mirror Worlds” computer program and how was it used by the Charney group?
4. What are the conclusions of the Charney report? How did the group come to this conclusion?
5. What was the response to the Charney report? How did government officials, scientists, and fossil fuel industry members view it?

#### 1.4: ‘A Very Aggressive Defensive Program’ (Summer 1979-Summer 1980)

1. Why did Exxon create a carbon dioxide research program?
2. When did Exxon start studying the carbon dioxide problem and what did they already know?

3. What other companies or industry groups were already involved in carbon dioxide research before the publication of the Charney report?
4. Why didn't the oil and gas industry act on their research findings?

#### **1.5: 'We Are Flying Blind' (October 1980)**

1. What was the purpose of the Pink Palace meeting?
2. Why did Anthony Scoville state that the problem was not atmospheric but political?
3. Why did the Pink Palace group not make any policy recommendations in its final statement?
4. What role did uncertainty play in the drafting of the final statement?

#### **1.6: 'Otherwise, They'll Gurgle' (November 1980-September 1981)**

1. What event in November 1980 changed the climate policy landscape in the U.S.?
2. What steps did the Reagan administration take to reverse environmental regulations?
3. Did other Republican politicians agree with the White House's positions? What did they do to push back?
4. How did Rafe Pomerance plan to raise the public profile of climate science?
5. Why was James Hansen a good candidate to be the leading voice on global warming?

#### **1.7: 'We're All Going To Be the Victims' (March 1982)**

1. Why was congressman Al Gore interested in climate change?
2. What does it mean that health and environmental stories had elements of "narrative drama"? What are those elements and why does it make a story more interesting to the public?
3. Who did Al Gore see as the hero, villain, and victims of the climate change story for his March 1982 hearing? Why did he view each person or group that way?
4. What was the partisan divide at the hearing? What was the viewpoint of each side? Who did the experts side with on the issue?
5. What information did James Hansen present to the subcommittee?

#### **1.8: 'The Direction of an Impending Catastrophe' (1982)**

1. How was Al Gore's hearing successful? How was it unsuccessful?
2. In 1982, what was Exxon's response to the global warming problem?
3. Why did James Hansen think that the Reagan administration might reassess its approach to the carbon dioxide issue?

#### **Part One Review: 1979-1982**

1. Who was concerned about the greenhouse effect in 1979 and why were they concerned?
2. During this time period, did the scientific understanding of the greenhouse effect and its impact on the environment change? If so, how?
3. What stakeholders (groups of people) played a role in climate change policy during this time period? List each one and summarize their role.

## Part Two: 1983 - 1989

### 2.1: 'Caution, Not Panic' (1983-1984)

1. What was the significance of the National Academy of Sciences analysis of the carbon dioxide problem?
2. What was the conclusion of the "Changing Climate" report?
3. What did chairman William Nierenberg say to the press after the publication of the report?
4. Why did the press focus on Nierenberg's verbal statements rather than the written report?
5. How did the press coverage of "Changing Climate" impact the climate policy of
  - The Reagan administration
  - Exxon

### 2.2: 'You Scientists Win' (1985)

1. The "ozone hole" is not actually a hole in the atmosphere. What is it?
2. What caused the depletion of atmospheric ozone? Did these chemicals also play a role in the greenhouse effect?
3. What factors led to the swift public and political response to the ozone problem?
4. How was the response to the ozone problem like the response to the carbon dioxide problem? How was it different?

### 2.3 The Size of the Human Imagination (Spring-Summer 1986)

1. Why did Curtis Moore, a Republican staff member for the Committee on Environment and Public Works, want to use the ozone debate to revive the climate debate? Why was Rafe Pomerance reluctant to do so?
2. What were the positive and negative effects of combining the hearings and publicity campaigns on the ozone and carbon dioxide issues?
3. Did people still think that more research on global warming was needed before policy could be implemented?
4. Consider the role visualization played in the ozone issue. The animation of the ozone hole was a computer simulation just like climate change modeling. Why was this visual model more compelling than the numbers-based model?

### 2.4 'Atmospheric Scientist, New York, N.Y.' (Fall 1987-Spring 1988)

1. Why did people think that climate change policy would follow the same trajectory as ozone policy?
2. Who was in attendance at the "Preparing for Climate Change" conference?
3. Why did people think the event represented positive progress in getting climate change policy passed?
4. Why did James Hansen have to submit his testimony to the White House Office of Management and Budget? What normally happened when he did this and what was different this time?
5. How did Hansen get around the censorship of his testimony?

6. Why did the White House censor Hansen's testimony and why did it make him pessimistic about the future of climate change policy?

### **2.5 "You Will See Things That You Shall Believe" (Summer 1988)**

1. In the summer of 1988, how did record heat affect wildlife across the United States? How did it affect life in major U.S. cities?
2. What global temperature data did James Hansen receive in June of 1988? What was his response?

### **2.6: 'The Signal Has Emerged' (June 1988)**

1. What major statement did James Hansen plan to make during the June 23, 1988 Senate hearing?
2. Why did Senator Wirth want Hansen to testify at the hearing?
3. Why was news coverage about the greenhouse effect important at this moment? How did Senator Dale Bumpers of Arkansas explain this importance?

### **2.7: 'Woodstock For Climate Change' (June 1988-April 1989)**

1. What number did Rafe Pomerance and his Capitol Hill allies choose as the target for carbon emission reduction? How did they justify this number?
2. What did the World Conference on the Changing Atmosphere final statement demand?
3. During the summer 1988 presidential campaigns, what was George H.W. Bush's position on environmental policy?
4. What was included in the National Energy Policy Act of 1988?
5. How did other countries respond to the threat of climate change during this period?
6. What recommendation did senators make to the Bush administration on April 14, 1989? Why was this an advantageous moment to make this recommendation?

### **2.8: 'You Never Beat The White House' (April 1989)**

1. Name at least three major policies/initiatives that John Sununu supported or passed as governor of New Hampshire or White House chief of staff.
2. What concerns did Sununu have about how scientific knowledge was being used in the post-WWII era?
3. How did Sununu feel about the science of the greenhouse effect? What made him feel qualified to critique the government scientists' models?
4. What were the pros and cons of supporting a global treaty to reduce carbon emissions for the Bush Administration? Why didn't Sununu support President Bush in demanding such a treaty at the Intergovernmental Panel on Climate Change (IPCC) meeting in Geneva?

### **2.9: 'A Form of Science Fraud' (May 1989)**

1. What scientific point did James Hansen want to clarify in the May 1989 Senate hearing organized by Senator Gore?

2. What changes did the Office of Management and Budget (OMB) want Hansen to make to his Senate hearing testimony? How would these changes alter the meaning of his testimony?
3. How did Senator Gore and Hansen tell the press about the changes the OMB made to Hansen's testimony?
4. Following the May 1989 Senate hearing, who became a "villain" in the press?

### **2.10: 'The White House Effect' (Fall 1989)**

1. What did Senator Gore do in response to the OMB's censorship of scientists like James Hansen?
2. What climate change policies and initiatives did the Bush White House promise to pursue in response to the May 8, 1988 hearing? How did Rafe Pomerance respond to these promises?
3. What did John Sununu think about the scientific findings presented by Hansen at the May 8, 1988 hearing?
4. How did Sununu attempt to block climate change policies in the Bush administration? What other officials within the Bush administration influenced the prominence of climate change policy proposals?

### **2.11: 'The Skunks at the Garden Party' (November 1989)**

1. What was the goal of the Noordwijk Ministerial Conference in the Netherlands?
2. What mission did Rafe Pomerance, Daniel Becker, Alden Meyer, and Stewart Boyle have at the conference?
3. What was the first publicity stunt that the unofficial American delegates at the conference staged? What was the message behind this stunt?
4. How did the official from Kiribati, an island in the Pacific Ocean between Hawaii and Australia, demonstrate the impact of climate change on his nation?
5. Why was the proposed commitment to freeze greenhouse gas emissions abandoned at the conference?

### **Part Two Review: 1983-1989**

1. What strategies did activists, politicians and scientists use to increase public and political concern about climate change from 1983-1989?
2. How did the U.S. government's position on climate change research and action evolve throughout the Carter, Reagan and Bush administrations?
3. How did the U.S. government's response to climate change research compare to responses from governments of other countries?

### Epilogue

1. To what degree have carbon emissions increased since 1989?
2. How have fossil fuel companies and other corporations discussed in the story responded to the increased carbon emissions since 1989?

3. What does Nathaniel Rich mean when he writes that many economists think of climate change as “the perfect economic disaster”?
4. What does Rich and James Hansen propose to ensure that the planet’s temperature does not rise above two degrees Celsius? What role does the public play in this plan?