



## Analyzing Perspectives (1 of 2)

### EMILY'S PERSPECTIVE on the Natural Causes of Climate Change

1. What were your initial thoughts as you read the paragraph?

*Students' responses will vary.*

2. What are the assumptions Emily makes to arrive at her conclusion?

*Emily incorrectly assumes that all changes in climate are natural. She assumes that human carbon dioxide emissions cannot have an impact on Earth's climate because they make up a small percentage of total atmospheric carbon dioxide.*

3. What science-based information is relevant, but missing, from what Emily learned?

*Emily remembered that historically climate change has been largely shaped by natural forces, but did not learn that in recent years scientists have concluded that climate is being largely impacted by human activity.*

4. What would you say to Emily? REWRITE the conclusion to be more accurate, based on the additional information that challenges the conclusion.

*Student answers will vary. The following is an example response: While natural forces explain historical climate shifts, those same factors do not account for the changes that are now being observed. Recent models of climate change suggest that human-induced changes are most responsible for recent increases in global temperature.*

### JAMIE'S PERSPECTIVE on the Human Causes of Climate Change

1. What were your initial thoughts as you read the paragraph?

*Students' responses will vary.*

2. What are the assumptions Jamie makes to arrive at his conclusion?

*Jamie incorrectly assumes that climate change is entirely influenced by human activities.*

3. What science-based information is relevant, but missing, from what Jamie learned?

*Jamie did not learn that human activities alone do not adequately explain the changes we are seeing in climate; these changes are only explained by the combination of both human and natural factors. In recent years, human activities have had a large impact on the climate system even though there are natural factors always present that affect climate. Natural factors including variations in the Earth's orbit around the sun, volcanic eruptions, solar flares, and greenhouse gas concentrations also influence the climate system.*

4. What would you say to Jamie? REWRITE the conclusion to be more accurate, based on the additional information that challenges the conclusion.

*Student answers will vary. The following is an example response: Up-to-date models of climate change suggest that both natural and human-induced changes are responsible for recent increases in global temperature.*



## Analyzing Perspectives (2 of 2)

### MICAH'S PERSPECTIVE on the Greenhouse Effect

1. What were your initial thoughts as you read the paragraph?

*Students' responses will vary.*

2. What are the assumptions Micah makes to arrive at his conclusion?

*Micah incorrectly assumes that because climate change impacts can be negative that the greenhouse effect is also negative and harmful.*

3. What science-based information is relevant, but missing, from what Micah learned?

*Micah did not learn that the greenhouse effect is a natural process and beneficial to the Earth. Problems arise when human activities (such as the burning of fossil fuels) greatly increase the amount of carbon dioxide and other greenhouse gases in the atmosphere. Large increases in greenhouse gas emissions cause some of the effects of global warming.*

4. What would you say to Micah? REWRITE the conclusion to be more accurate, based on the additional information that challenges the conclusion.

*Student answers will vary. The following is an example response: The greenhouse effect is a natural process that supports life on Earth and is not innately negative or harmful. When greenhouse gas emissions rise too rapidly, the resulting impacts on the Earth can affect climate and be harmful.*

### JAYDEN'S PERSPECTIVE on the Effects of Climate Change

1. What were your initial thoughts as you read the paragraph?

*Students' responses will vary.*

2. What are the assumptions Jayden makes to arrive at her conclusion?

*Jayden incorrectly assumes that because the atmosphere surrounds the entire Earth that global warming will mean increasing temperatures and decreasing precipitation worldwide.*

3. What science-based information is relevant, but missing, from what Jayden learned?

*Jayden did not learn that climate change has different impacts on different areas of the world. More heat in the atmosphere will reduce moisture leading to drought in some areas; however, in other areas it will increase precipitation and extreme storm events. While the polar regions are currently experiencing warmer winters, less sea ice, and glacial retreat, the equatorial regions are experiencing less temperature change. Changing temperature and precipitation may change ocean and atmospheric currents, creating new weather patterns, with potentially welcomed, disastrous, or unanticipated effects. There is no uniform effect of climate change.*

4. What would you say to Jayden? REWRITE the conclusion to be more accurate, based on the additional information that challenges the conclusion.

*Student answers will vary. The following is an example response: Climate change is likely to have a variety of effects around the planet.*