

Grade 8 NTI Day #7 ELA

Teacher: Mrs. Lee

Text:

Climate Change Could Make Blizzards More Intense, Scientists Say

By National Geographic Society

Assignment Instruction:

- Task 1 – Read and Annotate the Article
 - Underline key ideas and details
 - Make notes in the margin every couple of paragraphs – write a summary or ask a question
- Task 2 – Complete the Writing Prompt – Short paragraph
- Task 3 – Complete the text dependent questions (1-4).

Important:

This assignment will also be available in Google Classroom. Please feel free to contact Mrs. Lee with any questions via email: andrea.lee@pineville.kyschools.us

Climate change could make blizzards more intense, scientists say

By National Geographic Society, adapted by Newsela staff on 01.29.20

Word Count **883**

Level **1160L**



A snowplow at work in the streets of Washington, D.C., during the January 2016 blizzard. Photo: John Flood/National Oceanic and Atmospheric Administration Photo: John Flood/National Oceanic and Atmospheric Administration

In the last decade, unusually severe blizzards have hit the Northeastern United States, making headline news. In February 2010, the U.S. East Coast was hit by a winter storm dubbed "Snowmageddon" or "Snowpocalypse." The storm caused blizzard conditions that brought the Washington, D.C., area to a standstill and broke snowfall records for the mid-Atlantic region. In January 2016, another historic and deadly blizzard, nicknamed "Snowzilla," struck the mid-Atlantic region. In January 2019, a storm that pulled cold low-pressure air from the polar vortex plunged the U.S. Midwest into Arctic conditions.

Scientists predict that extreme weather events like these will become more intense due to climate change. This is despite the fact that winters are getting shorter and global temperatures are on the rise.



Image 1. natgeoed.org

A blizzard is a dangerous type of winter storm characterized by strong winds, snow and reduced visibility. Blizzards form when snow falls in windy conditions or when snow is lifted from the ground by strong winds. Some blizzards can cause whiteout conditions where it is impossible to tell the sky from the ground.

Carbon Dioxide Triggers Global Warming

Between 1991 and 2011, 97 percent of research studies published agree that climate change is real and caused by human activities, like burning of fossil fuels. When fossil fuels such as gas, coal and oil are burned, large amounts of carbon dioxide (CO₂) are released into the atmosphere. Carbon dioxide is a greenhouse gas that traps heat from the sun in the Earth's atmosphere. Greenhouse gases in appropriate amounts help keep Earth warm enough to support life. However, the addition of human-contributed greenhouse gases to the atmosphere causes global temperatures to rise. This is known as global warming. Average global temperatures have already risen by about 0.8 degrees Celsius (1.4 degrees Fahrenheit) in the last century. Scientists expect temperatures to keep rising if action is not taken to reduce the amount of greenhouse gases in the atmosphere.

Warmer Oceans Help Produce More Severe Storms

Weather and climate are two different things. Weather refers to short-term conditions in the atmosphere in terms of humidity, precipitation, temperature, wind velocity and atmospheric pressure. It could be rainy, sunny, windy or snowing, for example. Climate, on the other hand, is a long-term average of weather patterns. Climate is usually measured over a period of 30 years or more.

A blizzard such as "Snowzilla" is an example of a short-term weather event. On the other hand, the recent warming temperature trends over the past two decades suggest a change in climate.

Scientists predict climate change could make blizzards more intense. A warmer atmosphere holds more moisture. This moisture eventually falls as precipitation, either as rain when temperatures are warm, or snow when temperatures are below freezing. This results in more frequent and intense storms. Sea temperatures are also on the rise, which increases the amount of energy and moisture available to storms, thus increasing their severity.

Winters are getting warmer and shorter, with fewer places experiencing extremely cold temperatures. However, because the warmer atmosphere holds more moisture, blizzards are more likely to occur and be more severe in places where temperatures are still cold enough for snow.

It is difficult to look at a specific storm and say it was caused by climate change. However, scientists are getting closer to doing so with a developing area of research. For example, the "Snowmageddon" blizzards of 2010 have been linked to higher-than-usual surface temperatures in the Atlantic Ocean. Scientists are confident that global warming is making extreme weather events more likely.

Arctic Amplification's Global Effects

Sea ice in the Arctic has been steadily declining. Melting sea ice adds to the effects of global warming in the Arctic. Sunlight usually gets reflected by the ice, but because there is less ice, sunlight gets absorbed by the newly exposed, dark ocean water instead. The sunlight warms the sea surface, which melts more sea ice, and so on. As a result, the Arctic is warming about twice as

fast as the rest of the world. It is known as Arctic amplification. This influences weather patterns in other parts of the world.

The effects of global warming are also felt in the atmosphere, particularly the jet stream. The jet stream is a fast-moving current of air that circulates in the lowest region of the atmosphere and has a significant effect on weather in Europe and North America. The bigger the temperature difference in the north and south of its path, the faster the jet stream. As the Arctic warms, the temperature difference between the polar regions and the tropical regions decreases, which slows the jet stream and causes its path to weave farther north and south. As it dips farther south than usual, it pulls Arctic air down from the north, causing a persistent spell of unusually cold weather in that region. Disturbances to the jet stream have been linked to an increase in extreme cold weather events, including blizzards and polar vortex storms.

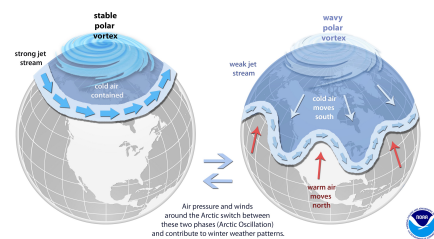


Image 2. The jet stream circles the atmosphere in a fast and straight current. When the temperatures to the north and south of the stream are too similar, the stream becomes wavy. This pulls cold air from the polar vortex south. Blizzards and polar vortex storms happen. Photo: National Oceanic and Atmospheric Administration

Write Prompt

Choose an argument or claim from the text, either made by the writer or by someone referred to by the writer. Summarize the argument or claim, and then explain why you agree or disagree with it. Support your position with evidence from the text.

Quiz

- 1 The author claims that climate change will cause more frequent and intense blizzards. Which selection shows that the author acknowledges a limitation to their claim?
- (A) In January 2019, a storm that pulls cold low-pressure air from the polar vortex plunged the U.S. Midwest into Arctic conditions.
 - (B) On the other hand, the recent warming temperature trends over the past two decades suggest a change in climate.
 - (C) It is difficult to look at a specific storm and say it was caused by climate change. However, scientists are getting closer to doing so with a developing area of research.
 - (D) As a result, the Arctic is warming about twice as fast as the rest of the world. It is known as Arctic amplification. This influences weather patterns in other parts of the world.
- 2 What kinds of evidence does the author use to support the claim that the global climate change will cause more blizzards? What makes this evidence effective in supporting the author's argument?
- (A) The author uses expert opinions; they are effective because they are supported by detailed research and observations about the relationship between climate and weather.
 - (B) The author uses anecdotes; they are effective because they help the reader to understand the perspective of people who have lived through increasingly intense blizzards.
 - (C) The author uses data and statistics; they are effective because they illustrate the correlation between climate and snowfall.
 - (D) The author uses firsthand accounts; they are effective because they illustrate the human effect of the warming global climate.
- 3 Read the following paragraph from the introduction [paragraphs 1-3].

Scientists predict that extreme weather events like these will become more intense due to climate change. This is despite the fact that winters are getting shorter and global temperatures are on the rise.

Which sentence from the section "Arctic Amplification's Global Effects" BEST supports the idea that climate change will cause more extreme weather events?

- (A) Sunlight usually gets reflected by the ice, but because there is less ice, sunlight gets absorbed by the newly exposed, dark ocean water instead.
- (B) The jet stream is a fast-moving current of air that circulates in the lowest region of the atmosphere and has a significant effect on weather in Europe and North America.
- (C) As it dips farther south than usual, it pulls Arctic air down from the north, causing a persistent spell of unusually cold weather in that region.
- (D) Disturbances to the jet stream have been linked to an increase in extreme cold weather events, including blizzards and polar vortex storms.

According to the article, blizzards will become more frequent and powerful due to climate change. Which paragraph BEST supports the idea outlined above?

- (A) A blizzard is a dangerous type of winter storm characterized by strong winds, snow and reduced visibility. Blizzards form when snow falls in windy conditions or when snow is lifted from the ground by strong winds. Some blizzards can cause whiteout conditions where it is impossible to tell the sky from the ground.
- (B) Weather and climate are two different things. Weather refers to short-term conditions in the atmosphere in terms of humidity, precipitation, temperature, wind velocity and atmospheric pressure. It could be rainy, sunny, windy or snowing, for example. Climate, on the other hand, is a long-term average of weather patterns. Climate is usually measured over a period of 30 years or more.
- (C) Scientists predict climate change could make blizzards more intense. A warmer atmosphere holds more moisture. This moisture eventually falls as precipitation, either as rain when temperatures are warm, or snow when temperatures are below freezing. This results in more frequent and intense storms. Sea temperatures are also on the rise, which increases the amount of energy and moisture available to storms, thus increasing their severity.
- (D) Sea ice in the Arctic has been steadily declining. Melting sea ice adds to the effects of global warming in the Arctic. Sunlight usually gets reflected by the ice, but because there is less ice, sunlight gets absorbed by the newly exposed, dark ocean water instead. The sunlight warms the sea surface, which melts more sea ice, and so on. As a result, the Arctic is warming about twice as fast as the rest of the world. It is known as Arctic amplification. This influences weather patterns in other parts of the world.