

HUMAN IMPACT ON CLIMATE CHANGE / GLOBAL WARMING

Science Reading

Human Impact on Climate Change Global Warming

The collage features several educational components: a main title, a diagram showing CO2 levels rising from the Industrial Revolution, a graph of global temperature trends, and various text passages discussing the causes and effects of climate change. A yellow box in the bottom right corner lists the resources included: Reading Passages, Notes, Worksheets, and Task Cards.

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Readings with Questions

Scroll Through

To take a peek inside!

Help students learn about global warming and the effects humans have on climate change and then test their comprehension with these easy to read science reading passages.

HUMAN IMPACT ON CLIMATE CHANGE / GLOBAL WARMING

Science Reading



Topics Included

- Global warming
- Human impact on global warming
- Effects of climate change

Each topic *includes*

- ✓ **One page science reading passage to teach the topic.**
- ✓ **Notes with questions to guide their reading**
- ✓ **Comprehension worksheets to review the information using multiple levels of questioning**
- ✓ **Task cards to extend their learning and for extra review**
- ✓ **Answer keys to easily check the student knowledge**
- ✓ **Digital version for more flexibility on how to use the lesson**
- ✓ **Lesson Design to help you differentiate the lesson in your classroom**

Global Warming

Define / Describe:

1. What is global warming?
2. How do scientists measure global temperatures?
3. What role do greenhouse gases play in global warming?

Interpret:

4. What does the graph show about Earth's temperature from 1880 to 2020?

Global warming refers to the long-term increase in Earth's average temperature. Scientists have observed that over the past century, global temperatures have risen at an unprecedented rate. This warming has led to changes in weather patterns, rising sea levels, and ecosystem shifts. But how do we know the planet is getting warmer, and what is causing it?

Scientists use multiple methods to track global temperatures. Historical temperature records, collected for over a century, show a clear warming trend. Ice core samples taken from glaciers provide information about Earth's climate going back hundreds of thousands of years, revealing past temperature fluctuations. Satellite measurements track temperature changes in the atmosphere and on land, confirming a consistent rise in global temperatures over time.

Throughout Earth's history, temperatures have changed due to natural causes such as variations in solar radiation, volcanic eruptions, and shifts in ocean currents. However, the rapid warming observed today is different. Human activities, including burning fossil fuels, deforestation, and industrial processes, have increased the levels of greenhouse gases like carbon dioxide (CO₂) and methane (CH₄) in the atmosphere. These gases trap heat, leading to a faster and more intense rise in global temperatures than natural processes alone can explain. This sharp increase began during the Industrial Revolution in the late 1700s, when the widespread use of coal, oil, and gas for machines and factories led to a surge in greenhouse gas emissions.

Multiple sources of evidence confirm that Earth's climate is changing in measurable and widespread ways. NASA's global temperature records show that the last decade has been the warmest since modern measurements began, with each of the past eight years ranking among the hottest on record (Diagram 1). One major sign of this warming is the rapid melting of glaciers in the Arctic and Antarctic, which adds large volumes of freshwater to the oceans and causes sea levels to rise, threatening coastal cities and island nations. Warmer ocean temperatures have also had serious consequences, such as coral bleaching—where corals expel the algae they depend on, turning white and often dying. Additionally, warmer temperatures are making hurricanes and other storms stronger, slower-moving, and more destructive. Climate change is not just a theory but actively reshaping Earth's climate, and we must take action to slow its effects for future generations.

Diagram 1: This graph shows that Earth's average surface temperature in 2024 was the warmest on record since 1880, measuring about 2.65°F (1.47°C) warmer than the preindustrial average from 1850–1900. The Industrial Revolution, which began in the late 1700s and expanded through the 1800s, marked a rise in fossil fuel use that has contributed to global warming. NASA's findings align with NOAA and other research groups, and the 10 most recent years have been the hottest ever recorded.

Global warming is a serious issue with far-reaching consequences. To understand climate in the past, the current rapid rise in temperature is largely from temperature records, ice cores, and satellites confirms the impact and take action to slow its effects for future generations.

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Class: _____
Date: _____

Notes

human impact on climate change digital reading

File Edit View Insert Format Slide Arrange Tools Extensions Help

Background Layout Theme Transition

Define / Describe:

1. What is global warming?
Add text
2. How do scientists measure global temperatures?
Add text
3. What role do greenhouse gases play in global warming?
Add text

Interpret:

4. What does the graph show about Earth's temperature from 1880 to 2020?
Add text

Elaborate / Extend:

5. Why is the current warming trend different from past climate changes?
Add text
6. What evidence supports the idea that human activities are the main cause of recent warming?
Add text
7. What are some possible long-term consequences of continued global warming?
Add text

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Science Reading

Global Warming

Define / Describe:

1. What is global warming?
2. How do scientists measure global temperatures?
3. What role do greenhouse gases play in global warming?

Interpret:

4. What does the graph show about Earth's temperature?

Elaborate / Extend:

5. Why is the current warming trend different?
6. What evidence supports the...
7. What are some...

Global Warming

Global warming refers to the long-term increase in Earth's average temperature. Scientists have observed that over the past century, global temperatures have risen at an unprecedented rate. This warming has led to changes in weather patterns, rising sea levels, and ecosystem shifts. But how do we know the planet is getting warmer, and what is causing it?

Scientists use multiple methods to track global temperatures. Historical temperature records, collected for over a century, show a clear warming trend. Ice core samples taken from glaciers provide information about Earth's climate going back hundreds of thousands of years, revealing past temperature fluctuations. Satellite measurements track temperature changes in the atmosphere and on land, confirming a consistent rise in global temperature over time.

This history, temperatures have changed due to natural causes such as variations in solar activity, volcanic eruptions, and shifts in ocean currents. However, the rapid warming observed today is different. Burning fossil fuels, deforestation, and industrial processes, have increased the levels of carbon dioxide (CO₂) and methane (CH₄) in the atmosphere. These gases trap heat, leading to an intense rise in global temperatures than natural processes alone can explain. This rise began during the Industrial Revolution in the late 1700s, when the widespread use of coal, oil, and gas led to a surge in greenhouse gas emissions.

Recent data confirm that Earth's climate is changing in measurable and widespread ways. Modern temperature records show that the last decade has been the warmest since modern records began, with each of the past eight years ranking among the hottest on record (Diagram 1). One of the most visible signs of global warming is the rapid melting of glaciers in the Arctic and Antarctic, which adds large volumes of water to the oceans and causes sea levels to rise, threatening coastal cities and island nations. Warmer oceans have also had serious consequences, such as coral bleaching—where corals expel the algae that live inside them, turning white and often dying. Additionally, warmer seas provide more energy to hurricanes, making them stronger, slower-moving, and more destructive. Together, these changes show that global warming is not just a theory but actively reshaping Earth's climate, oceans, and ecosystems in real time.

Diagram 1: This graph shows that Earth's average surface temperature in 2024 was the warmest on record since 1880, measuring about 2.65°F (1.47°C) warmer than the preindustrial average from 1850–1900. The Industrial Revolution, which began in the late 1700s and expanded through the 1800s, marked a rise in fossil fuel use that has contributed to global warming. NASA's findings align with NOAA and other research groups, and the 10 most recent years have been the hottest ever recorded.

Global warming is a serious issue with far-reaching consequences. While natural factors have influenced Earth's climate in the past, the current rapid rise in temperature is largely driven by human activities. Scientific evidence from temperature records, ice cores, and satellites confirms this trend. Understanding global warming helps us recognize its impact and take action to slow its effects for future generations.

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Different ways to use the *science readings*

- ✓ Substitute plan on days you will be out
- ✓ Introduction of the material at the beginning of the unit
- ✓ During the explain phase of the 5E model
- ✓ As part of a science station
- ✓ For reteach to reinforcing their understanding
- ✓ During the review at the end of the unit

Why? SCIENCE READING PASSAGES?

- ✓ Increase science literacy in the classroom
- ✓ Simple passages to help students comprehend the information
- ✓ Note-taking template to help students interact with the reading
- ✓ Worksheets to review and apply their knowledge
- ✓ Reinforcement task cards to continue their understanding



“My students and I absolutely loved this resource!!! The way this was planned out with the reading, diagrams, and questions was perfect. I mainly used this with my students but they used it one day with a substitute and they wrote to tell me how great it was! (I think they thought I created it so I have to tell them otherwise!)” -

Nicole

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Science Reading

Effects of Climate Change **Answer Key**

Define / Describe:

1. What is climate change? A long-term change in Earth's temperature and weather patterns.
2. What are some sources of evidence for climate change? Temperature records, CO₂ levels, ice core samples, and satellite data.
3. What are some effects of climate change? Climate change is causing rising sea levels, stronger storms, more wildfires, coral bleaching, disrupted farming, and the death of coastal forests known as ghost forests.

Interpret:

Effects of Climate Change

Climate change is altering Earth's environment in many ways. Scientists have gathered extensive evidence showing that global temperatures rise due to increased greenhouse gases, primarily from human activities. This warming trend is leading to significant changes in weather patterns, sea levels, and ecosystems worldwide.

Scientists use multiple sources of data to track climate change. Temperature records show that Earth's average temperature has increased by about 1.2°C (2.2°F) since the late 19th century (Diagram 1). CO₂ levels, measured from air samples and ice cores, have dramatically increased atmospheric carbon dioxide since the Industrial Revolution. Ice core samples from glaciers contain trapped air bubbles that allow scientists to analyze past climate conditions and compare them to today's warming trends. Satellite data confirms that shrinking polar ice caps, rising sea levels, and increasing ocean temperatures provide further proof of climate change. These different types of evidence work together to build a clear picture of how Earth's climate is changing. Together, they help scientists understand the causes, effects, and future risks of global warming, guiding efforts to slow its impact.

Diagram 1: The graph shows that while the Sun's energy has stayed fairly constant since the 1950s, Earth's surface temperature has risen sharply. This suggests that the recent global warming trend is not due to changes in solar energy but is likely caused by other factors, such as human activities.



Climate change is already having noticeable effects on the planet. Rising sea levels are causing coastal flooding, threatening cities like Miami and Jakarta. Warmer ocean temperatures intensify hurricanes and typhoons, leading to stronger storms and more damage. Increased heat is also causing more wildfires, such as those in California and Australia, which destroy forests and homes. Coral bleaching, a process where coral loses its color due to warmer ocean temperatures, damages marine ecosystems. Additionally, changes in precipitation patterns, such as more frequent droughts and heavy rain events, are affecting agriculture, making some areas drier while increasing rainfall and floods. In coastal areas, the melting of polar ice caps and glaciers is causing sea levels to rise. This is leading to saltwater intrusion in the United States, for example, saltwater intrusion from rising seas is killing off oysters and other shellfish. "ghost forests" of dead, leafless trees—clear evidence of how ecosystems are being affected (Diagram 2).

Diagram 2: Rising sea levels are flooding coastal forests along the Northeast and Southeast coasts of the United States, allowing saltwater to seep into the soil and drown tree roots. Many trees cannot survive the high salt levels, leading to widespread die-offs and creating "ghost forests" filled with dead and dying trees where healthy woodlands once stood.

Some people believe that climate change is just part of Earth's natural cycles. While Earth has gone through natural climate shifts in the past, the current warming is happening much faster than natural changes. Other factors, such as a cold winter disproves global warming, but climate change affects long-term trends, not just short-term weather. Scientists overwhelmingly agree that human activities, especially burning fossil fuels, are the primary cause of today's rapid climate change.

The evidence for climate change is clear, with rising temperatures, melting ice caps, and stronger storms affecting people and ecosystems worldwide. Scientists continue to monitor these changes, using advanced technology to improve predictions and solutions. Understanding the impact of climate change helps us take action to reduce greenhouse gas emissions and protect the planet for future generations.

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Check out what teachers just like you have said about the science reading products:



"I love using reading passages in my science classes because I am able to reinforce all the learning strategies they have learned in the past and give the students more understanding of the information provided." – Suzzane



"I was really glad to find a bundle that included so many of our objectives since we do not have a curriculum" – Amanda



"This article kept my 8th graders engaged while reviewing this topic" Brower Power Science

HOW TO USE THE RESOURCE IN

3 simple steps

1

Print the PDF version, make copies, and hand out to students

2

Use the digital version by clicking the titles in the RED BOX to make your own copy (found at the end of the PDF)

3

Share the resource with your students using your favorite LMS (Google Classroom, Powerschool (schoolology), Canva...)

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Teachers Guide

What You Will Need To Get Started:

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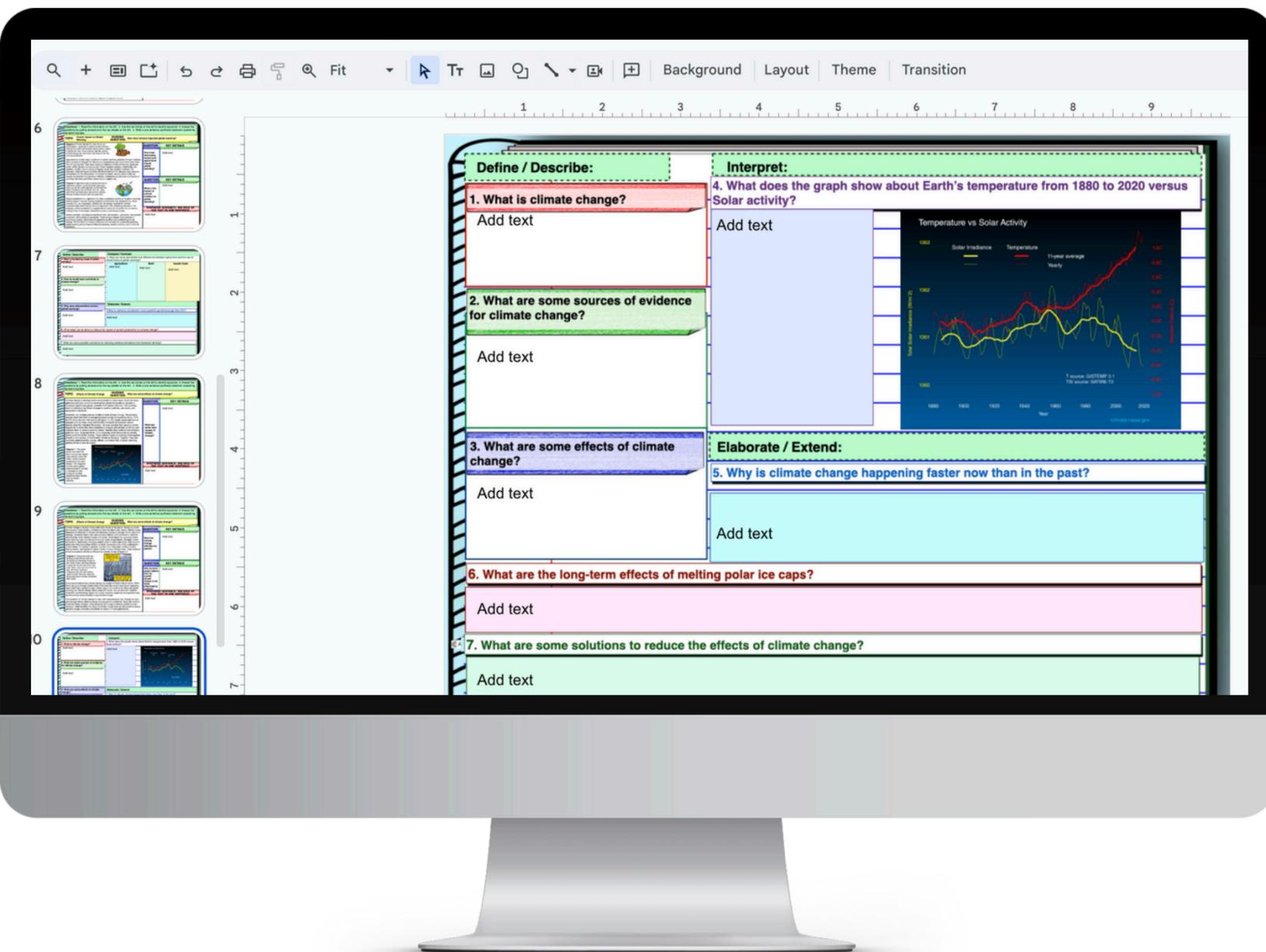
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Readings with Questions

Earth Science Standards

Earth and Space

NGSS MS-ESS1

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Earth's Systems

NGSS MS-ESS2

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Human Impact on the Environment

NGSS MS-ESS3

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Life Science Standards

Integrated Model by Grade Level

NGSS Grade 6 Integrated

Full Year

- ✓ Reading Passages
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Readings with Questions

NGSS Grade 7 Integrated

Full Year

- ✓ Reading Passages
- ✓ Notes
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NGSS Grade 8 Integrated

Full Year

- ✓ Reading Passages
- ✓ Notes
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Molecules to Organisms

NGSS MS-LS1

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Readings with Questions

Ecosystems

NGSS MS-LS2

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Heredity

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Evolution

NGSS MS-LS4

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- ✓ Notes
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Physical Science Standards

Alternative Model by Topic

Earth Science

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
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Readings with Questions

Life Science

Full Year

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Readings with Questions

Physical Science

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- ✓ Notes
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Chemistry

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- ✓ Notes
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Chemistry also includes thermal energy

Waves

NGSS MS-PS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Force and Motion

NGSS MS-PS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Physics

NGSS MS-PS2, MS-PS3, MS-PS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

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Physics includes mechanical energy



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