



PALM TREES at the **NORTH POLE**

**The Hot Truth About
Climate Change**



**A COMPANION GUIDE
FOR TEACHERS AND PARENTS**

Title: *Palm Trees at the North Pole: The Hot Truth About Climate Change*

Author / Illustrator: Marc ter Horst, illustrated by Wendy Panders

Genre: Nonfiction

Themes: Earth science, weather and climate,
climate change, personal responsibility

Suitable for: Grades 2–7

Guided Reading Level: W

Lexile Level: 840L

Common Core Standards:

RI.6.1,2,3,4,5,6,7,8

W.6.1,1a,1b,1c,1d,1e,2,2a,2b,2c,2d,2e,2f,4,5,6,7,8,9,9b

SL.6.1,1a,1b,1c,1d,2,3,4,5,6

L.6.1,1a,1b,1c,1d,1e,2,2a,2b,3,3a,3b,4,4a,4b,4c,4d,5,5b,5e,6

Next Generation Science Standards:

MS-ESS1 Earth's Place in the Universe

MS-ESS2 Earth's Systems

MS-ESS2D Weather and Climate

Before Reading

- Discuss the title and cover illustration.
- What does the author infer?
- How does the author use figurative language to make a statement?
- Review the table of contents.
- Discuss how the author structures the book.
- Why is it important to think about the structure of nonfiction?
- Create an outline of the book using the table of contents.
 - I. History
 - II. Ice Ages
 - III. Research
 - IV. Causes
 - V. Consequences
 - VI. Consequences of Consequences
 - VII. Consequences for Nature
 - VIII. Measures to Tackle Climate Change
 - IX. Energy of the Future
 - X. Squabbling About Climate Change





Essential Questions

Before reading *Palm Trees at the North Pole*, read the essential questions and brainstorm what you already know about the topic. Write down any questions you have.

Weather and climate

- How is weather different from climate?

Greenhouse effect

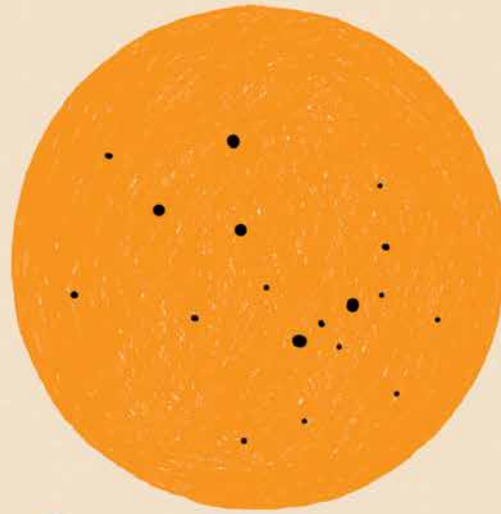
- What is the carbon cycle?
- What is the greenhouse effect?

Resources

- How has the availability of natural resources guided the development of human society?
- What are the economic, social, environmental, and geopolitical costs and risks associated with energy production?

Climate change

- What are some of the possible outcomes of a warming planet?
- What are some examples of engineering and technology that have reduced carbon emissions?
- What are the social impacts of climate change?
- What are the economic impacts of climate change?
- Who is responsible?
- Can climate change be reversed?



Skim the book briefly

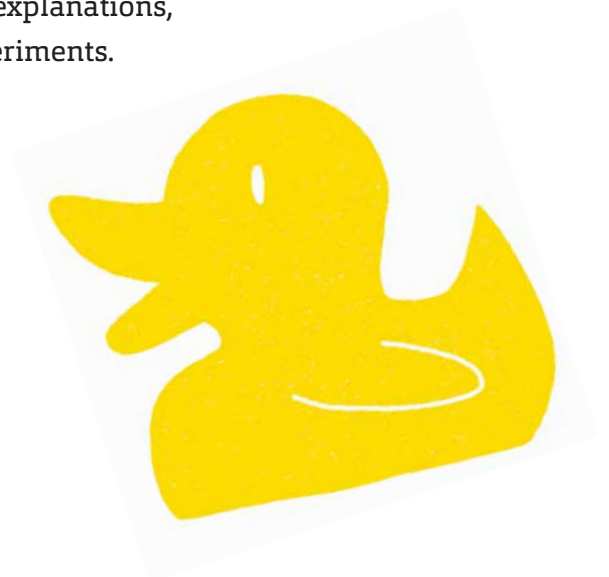
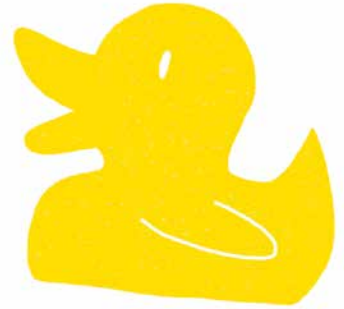
- What text features does the author use?
- How does the author use text features to enhance meaning?
- Look at the visuals and vocabulary.
- Do the chapters include photographs, drawings, maps, charts, or graphs?
- What can I learn from the visuals in a chapter?
- How do captions and side text help me better understand the meaning?

Read the introduction

- What is the author's purpose for writing this book?
- What important message does he want to communicate to the reader?
- Does the author seem authentic?
- Do you believe he is an expert in the field of environmental science?
- How does the author approach the topic in a way that is "user-friendly"?

During Reading

- Look for text features. How do they enhance meaning?
- What does the heading of the chapter tell you about what you are going to be reading about?
- How are the chapters related?
- What does the first paragraph introduce?
- What information is important?
- What do specific text features tell you?
- What is the tone of the text?
- How does the tone affect the content?
- Jot down new vocabulary words. [See Jot Chart, p 11]
- What do new vocabulary words mean in context?
- As you read, look for answers to questions that you have about climate change.
- Distinguish between facts, reasoned judgments based on research findings, and speculations in the book.
- Analyze the structure of the book and how the author organizes the major sections.
- How does this contribute to the whole and to the understanding of climate change?
- Analyze the author's purpose in providing explanations, describing procedures, and discussing experiments.



After Reading

Use information from *Palm Trees at the North Pole* to answer the questions below. Use evidence from the book.

- Why is *Palm Trees at the North Pole* a good title for this book?
- What would be another good title?
- What exactly is “climate change”?
- What is the biggest contributor to climate change?
- Are you sure this is not part of a natural cycle?
- Why is climate change a problem?
- Do scientists agree on climate change?
- How is climate change affecting the planet right now?
- Is there really anything we can do about climate change?
- Discuss human activities that interfere with ecosystems.
- What are the major impacts humans have on the environment?
- What causes are anthropogenic?
- What are some of the possible outcomes of a warming planet in various areas?



Research

Create a PowerPoint presentation on one of the following:



What countries produce the most carbon dioxide, as a total for the country?

How does the increase in anthropogenic carbon dioxide and other greenhouse gases affect climate?

Which countries produce the most, per capita?

Add in the projected population increases for these countries.

What conclusions can you draw from this data?

What new technologies and social regulations balance the costs and risks of energy production? Is it our responsibility to reduce carbon emissions to try to mitigate climate change? Why or why not?

How can climate scientists predict how climate change will impact the future?

What can be done to mitigate climate change?

...by individuals?

...by local/state/national government?

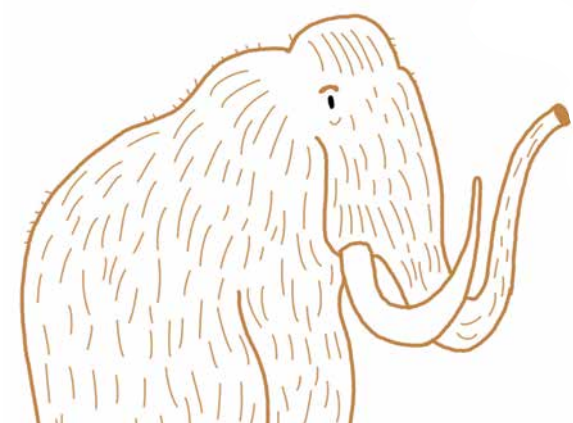
...by local/state/national nonprofit organizations?

How might climate change affect human health globally?

...food access?

...civil strife?

Describe these outcomes in terms of their impacts on the environment, humans living in the affected areas, and the economy.





Causes and Effects of Climate Change

What shocked you?

Cause	Effect



Go back to the book with a partner and complete the outline, summarizing each chapter.



- I. History
- II. Ice Ages
- III. Research
- IV. Causes
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New Vocabulary Jot Chart

Unknown word	I think it means...	Because...	Definition

Making Connections

1. Write a response to the letter written to Coal, Natural Gas, and Oil (on pages 146–47). Choose one point of view.
2. Why are the following sources of energy promising for the future?

Source of Energy	Pros	Cons
Sun		
Wind		
Water		
Biomass		
Geothermal		
Nuclear		

Plan, design, and create a poster for one of the six sources of energy candidates that do not emit greenhouse gasses.

Choose a notable person or scientist from the book who you find interesting. Write a biography on this individual and discuss how they have contributed to the understanding of climate change.

