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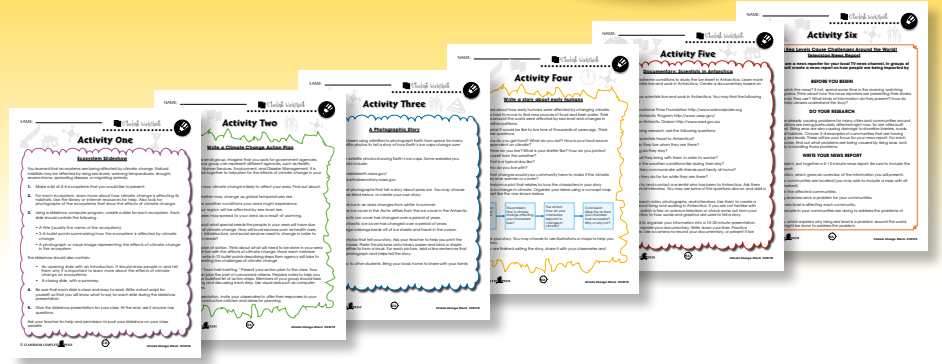
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Climate and Human Civilization

1. Think about a time before agriculture and technology to build houses. Now, think about how early humans lived during this time. How do you think early humans would have been affected by changes in Earth's climate?

2. Match the term on the left to its definition on the right. You may use a dictionary to help you.

<p>1 evolve</p> <p>2 society</p> <p>3 shrunk</p> <p>4 forage</p> <p>5 freeze</p> <p>6 habitable</p>	<p>To change from a liquid to a solid.</p> <p>To become smaller.</p> <p>A place that is able to be lived in.</p> <p>To change or develop over time.</p> <p>To search in nature for plants to use as food or medicine.</p> <p>A group of people living and working together.</p>	<p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p> <p>F</p>
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Climate and Human Civilization

Earth's climate has gone through many changes in its history. Humans have been around for only a tiny part of Earth's history. Climate has changed over the past 1 million years. These changes have greatly affected the development of humans and human societies.



Humans and their early relatives have been **evolving** during a relatively short time. During this time, Earth's climate has gone through many **cyclical** changes. Ice sheets have grown and shrunk as a result of changes in Earth's temperature. At one point, the Laurentide Ice Sheet covered much of North America only 11,700 years ago.

STOP

How long ago did ice sheets cover much of North America?

Climate changes affected how early humans moved, or **migrated**, around the world. Early humans had to hunt wild animals and forage wild plants for food. Sometimes, changes in climate would cause **droughts** or movement of ice sheets. When this happened, humans often had to move to follow their food supply. Climate changes also opened new lands for humans. Most of the water that freezes to form ice sheets comes from the ocean. As ice sheets grow, the level of water in the oceans, or **sea level**, drops. As sea level drops, new lands are exposed for people to live on or move across. When the climate warms, the ice sheets melt. Sea level rises and floods areas that were once dry. Early humans moved to find **habitable** places to live.



Climate and Human Civilization

1. Use the words in the box to answer each question.

migrate drought cyclical sea level

- _____ a) What is another word for the level of water in the oceans?
- _____ b) What did early humans have to do in order to find habitable places to live?
- _____ c) What happens after many seasons of dry weather?
- _____ d) What types of changes happen over and over again?

2. Put a checkmark (✓) next to the answer that is most correct.

- a) How long ago did ice sheets cover much of North America?
- A 1,170 years ago
- B 7,100 years ago
- C 11,700 years
- D 110,700 years ago
- b) Climate changes have affected early humans during the past how many years?
- A 4 billion years
- B 1 million years
- C 3 thousand years
- D 2 hundred years
- c) How did early humans get fruit to eat?
- A Growing it on farms.
- B Foraging for it in nature.
- C Trading it for other goods.
- D Shopping for it in a market.



Climate and Human Civilization

3. Answer each question with a complete sentence.

- a) Changes in global climate has affected how early humans migrated around the world. Describe how.
- _____
- _____
- _____
- b) How would the shorelines of North America have looked different 11,700 years ago?
- _____
- _____
- _____

Research

4. Learn more about the lives of early humans and how they would have been affected by climate. Learn about how human societies evolved from hunting and gathering, to agriculture and building, to the formation of cities and modern technology. Use the library or Internet resources for help.
- Choose a period in early human history. Create a diorama showing a typical setting for your period. Use clay or other materials to model humans doing everyday activities that they would need to do for survival. Include the type of shelter humans would have used to protect themselves from bad weather in your time period. Share your model with the class. Explain how the humans in your time period would have been affected by global changes in climate.



Observe a melting ice sheet.

You will need the following materials for this activity:

- A freezer
- A shallow pan
- Water
- Towels
- A large sheet of thick plastic (you may also use a tarp, an oil cloth, or a laminated tablecloth).

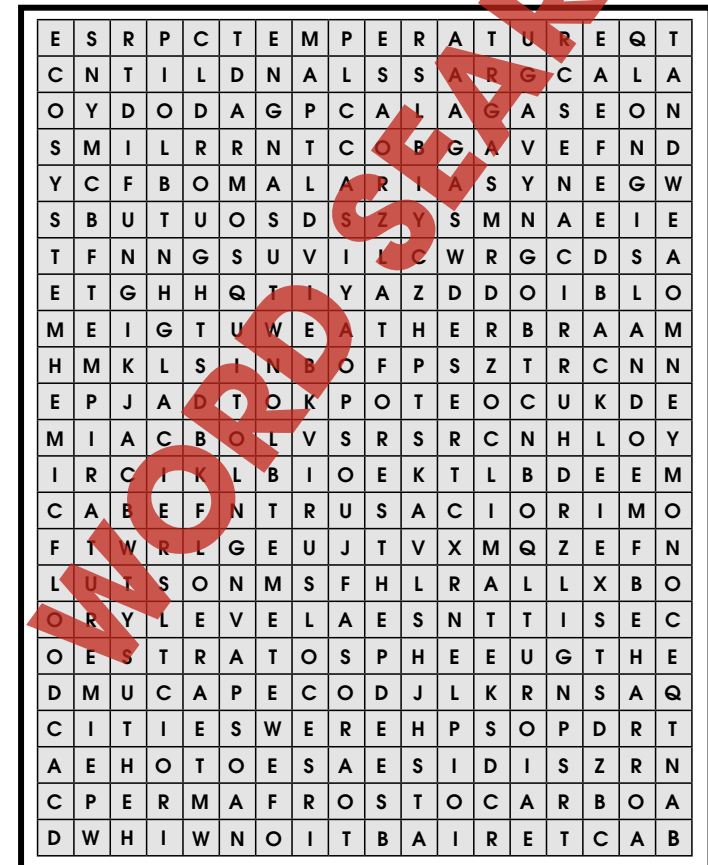
1. First, create a small ice sheet. Fill a shallow pan with water. Place it in the freezer overnight.
2. When your ice sheet is frozen, take it out of the freezer. Place the pan of ice on a counter for several minutes. Overturn the pan to release the ice sheet.
3. Prepare a surface to observe your ice sheet as it melts. Cover a desk or table with towels. Bunch up the towels in one area to model a sloped landscape with a hill. Cover the towels with a sheet of thick plastic. Place the ice sheet on top of this sheet.
4. Observe your ice sheet as it melts. Make periodic observations during the time it takes for the ice to melt completely. Answer the following questions:
 - What part of the ice sheet began to melt first?
 - Where did the water from the melting ice go?
 - Did the ice sheet begin to move at any point in the melting?
 - During what time period did the melting seem to go fastest?



Word Search

Find all of the words in the Word Search. Words are written horizontally, vertically, diagonally, and some are even written backwards.

- | | | | |
|----------|-----------|-------------|-------------|
| bacteria | economy | grassland | sea level |
| cape cod | ecosystem | hurricanes | storms |
| cities | feedback | ice | temperature |
| climate | flood | long island | tundra |
| deposit | forest | malaria | virus |
| desert | fungi | melt | weather |
| disease | gas | mosquito | |
| drought | glaciers | permafrost | |



Comprehension Quiz

Part C

Answer the questions in complete sentences.

1. Describe the difference between **weather** and **climate**. 2

2. Describe **two** tools scientists use to study melting ice sheets. 4

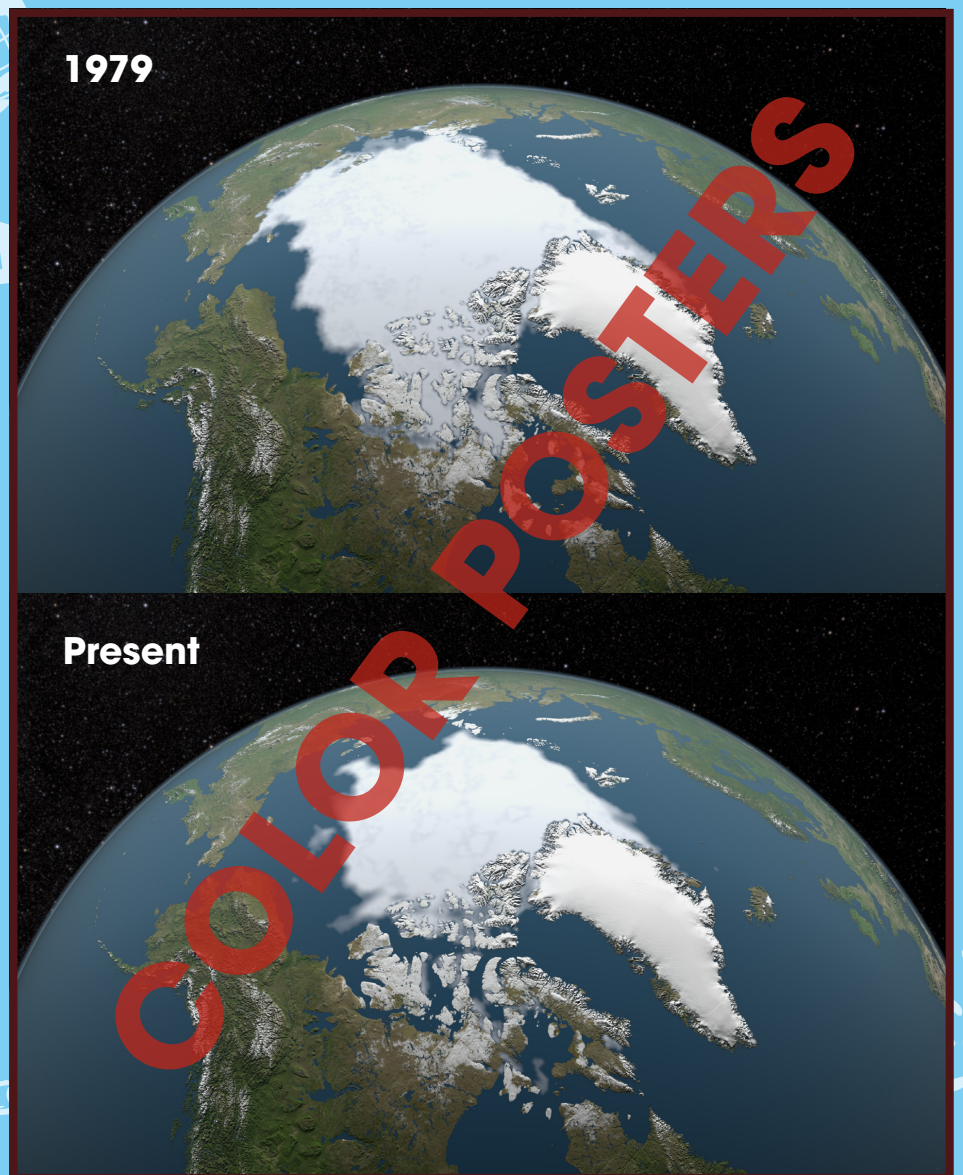
3. Explain why small changes in sea level can have a big effect on people. 2

4. Explain how climate change could cause the spread of diseases. 3

5. Describe how the economies of countries could be affected by climate change. 3

SUBTOTAL: /14

Arctic Ice Cap Reduction



"Image courtesy of NASA"



Climate and Human Civilization

3. Answer each question with a complete sentence.

a) Changes in global climate has affected how early humans migrated around the world. Describe how.

b) How would the shorelines of North America have looked different 11,700 years ago?

Research

4. Learn more about the lives of early humans and how they would have been affected by climate. Learn about how human societies evolved from hunting and gathering, to agriculture and building, to the formation of cities and modern technology. Use the library or Internet resources for help.

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3.

a) Answers will vary, but may include: Causing humans to migrate to new lands.

b) Answers should describe how the shorelines would be further out towards ocean than they are now.

Across:

- 1. fossils
- 3. permafrost
- 6. glacier
- 7. forest
- 9. desert
- 13. satellites
- 14. migrate

Down:

- 2. infrastructure
- 4. economy
- 5. levee
- 8. sea level
- 10. ecosystem
- 11. climate
- 12. tundra

EASY MARKING ANSWER KEY

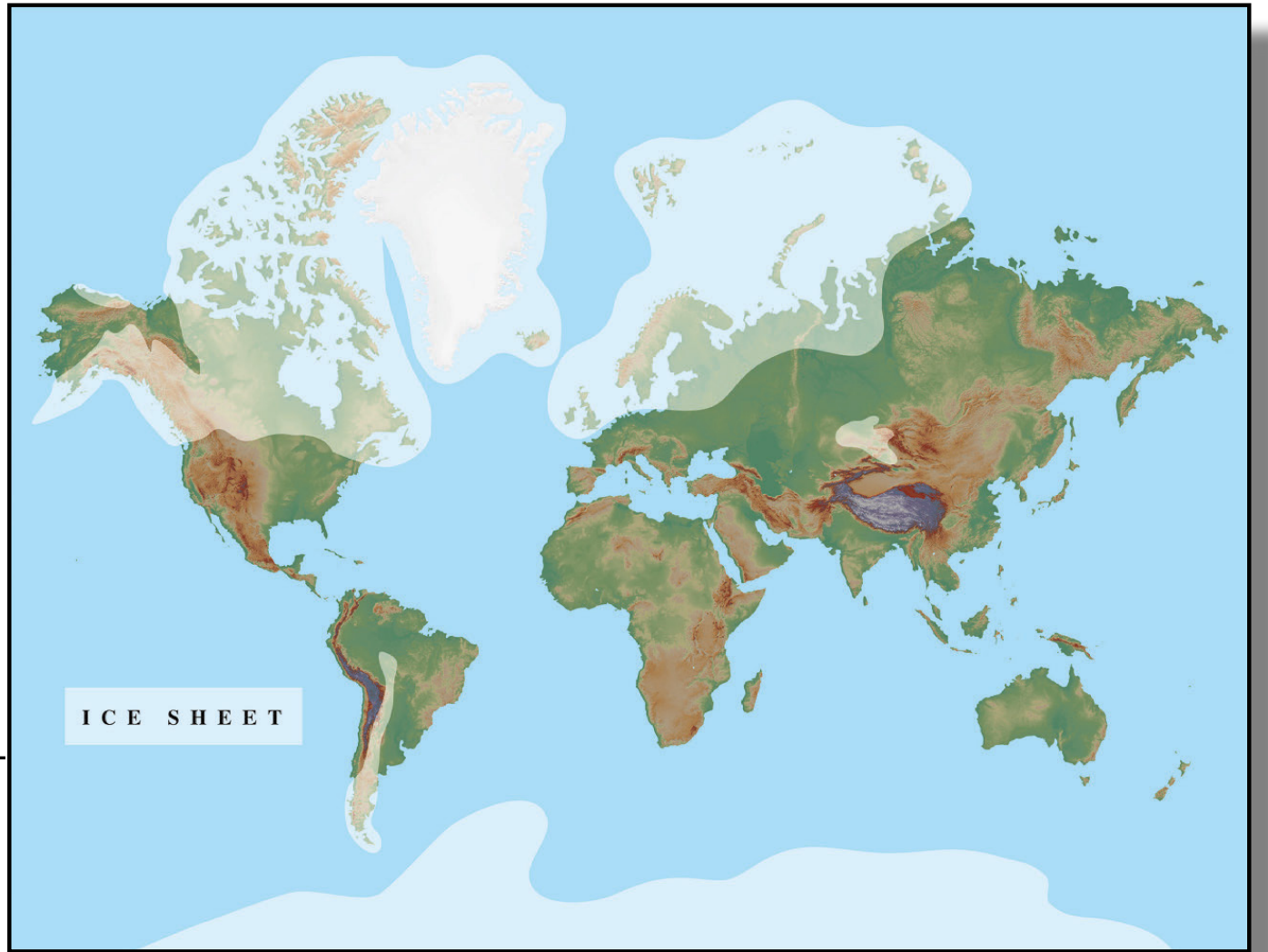




Climate and Human Civilization



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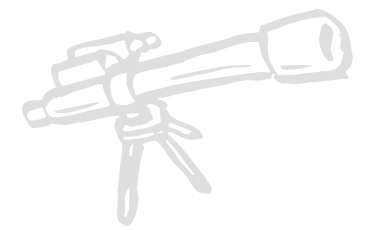


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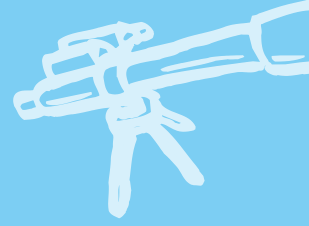
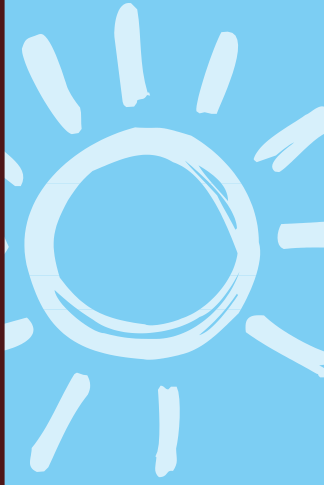
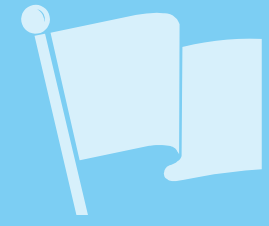
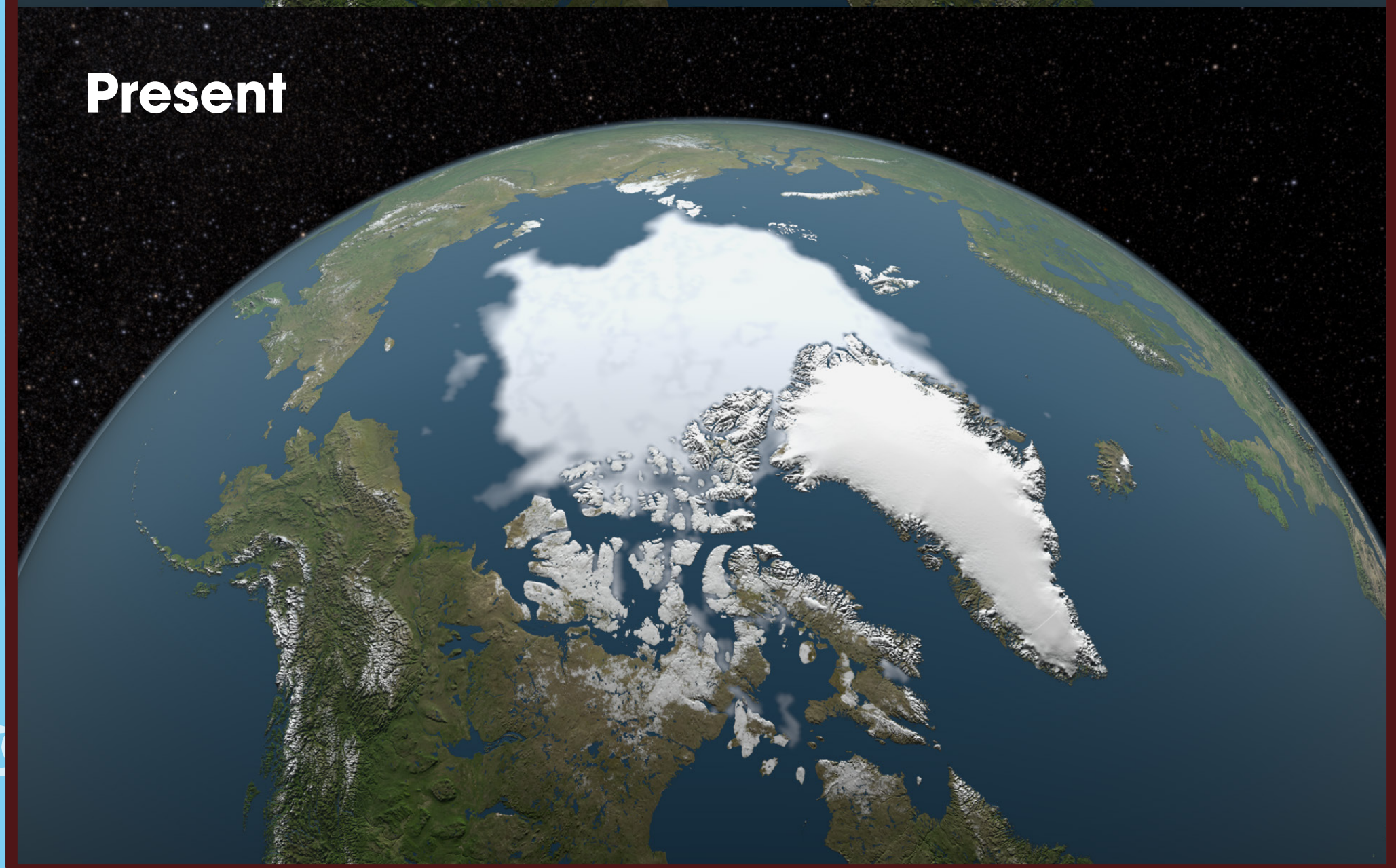
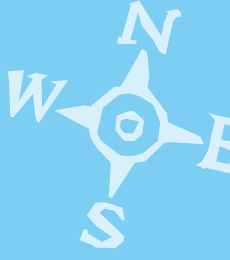
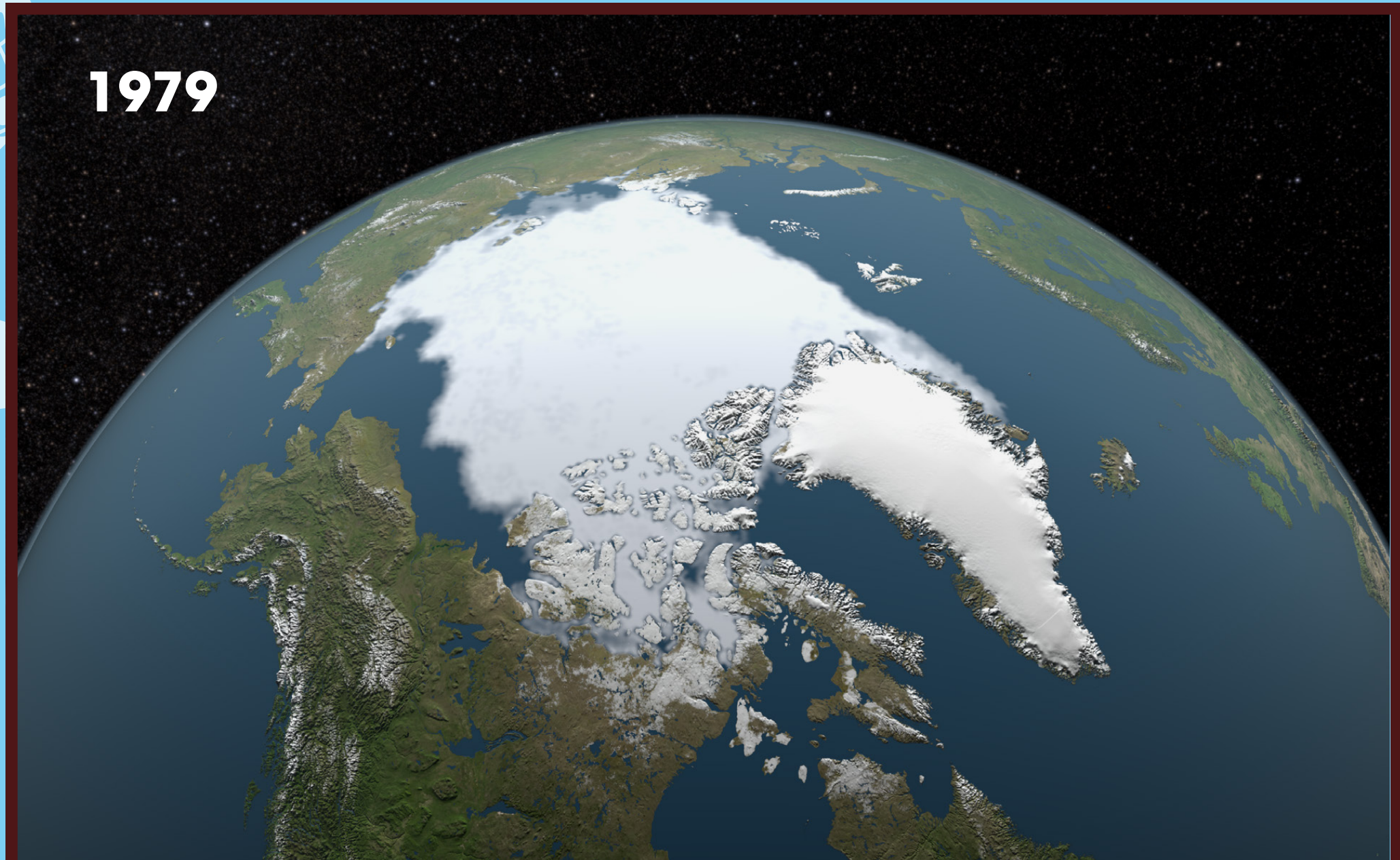
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Arctic Ice Cap Reduction



"image courtesy of NASA"