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Earth's Climate



1. Complete each sentence with a word from the list. Use a dictionary to help you.

average	humid	glacier	deposit
Arctic	fossil	atmosphere	polar

- Earth's _____ regions are covered in ice year-round.
- A _____ is a large mass of ice that does not completely melt during summer months.
- The value that represents the middle of a set of numbers is the _____.
- On a _____ day, there is a lot of moisture in the air.
- Sediment that settles out of water, wind, or ice, and comes to rest on Earth's surface is called a _____.
- The _____ is the region around Earth's north pole.
- A _____ is the remains or imprint in rock of a once-living thing.
- The layer of air surrounding Earth's surface is called the _____.

2. Think about where you live. Describe the year-round weather pattern.



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.



Melting Ice Sheets



1. Circle the word **TRUE** if the statement is TRUE OR Circle the word **FALSE** if it is FALSE.

- Positive feedback is a kind of change that leads to balance.
TRUE FALSE
- Scientists use satellites to measure the size of polar ice caps.
TRUE FALSE
- Melting ice caps allow for more sunlight to reach Earth's surface.
TRUE FALSE
- Polar ice caps absorb sunlight.
TRUE FALSE
- Water from melting ice caps speeds up the movement of the ice.
TRUE FALSE
- The Arctic may have no ice in the summers by the end of this century.
TRUE FALSE

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

- About what percent of the ice caps are melting each year?
 A 1%
 B 9%
 C 12.8%
 D 79%
- What method do scientists use to measure the thickness of the ice caps?
 A Drilling down into the ice.
 B Melting ice in a laboratory.
 C Taking satellite photos of the ice.
 D Measuring how fast ice moves downhill.
- What is the main source of heat energy in Earth's atmosphere?
 A clouds
 B sunlight
 C ice caps
 D ocean water



Extreme Weather



3. Answer each question with a complete sentence.

- Explain why storms, such as hurricanes, may become stronger as Earth's average temperature rises.

- Explain why climate change may lead to drought in some areas.

Research

4. How will climate change affect the extreme weather in your area?

List the types of extreme weather that your area experiences.

Use the library or Internet resources for help. Research ways that climate change may affect the types of extreme weather that your area experiences. Contact your local government emergency management offices. Ask for information about how to prepare for extreme weather in your area. Ask whether the office is making any plans for increased extreme weather due to climate change. Design a poster to report your findings. Share with the class and post in your school.



Investigate fossils. Obtain a selection of fossils from your teacher.

For each fossil:

- Draw a sketch.
- Describe what parts of the plant or animal are preserved.
- Compare it to living things that are on Earth today.
- Describe what environmental conditions the plant or animal would have needed to live.
- Identify the ecosystem in which the plant or animal most likely lived.

Create a chart like the one shown below to organize your information.

Fossil Sketch	Living things that are like the fossil.	Needs of the plant or animal that made the fossil.	Ecosystem the plant or animal most likely lived in.



Crossword Puzzle!

WORD LIST

- climate
- desert
- economy
- ecosystem
- forest
- fossils
- glacier
- infrastructure
- levee
- migrate
- permafrost
- satellites
- sea level
- tundra

Across

- Remains of once-living things preserved in rock.
- The permanent parts of cities.
- The frozen ground in the tundra.
- The use of money by a government.
- This structure is built to help stop flood waters from spreading.
- A large mass of ice that doesn't totally melt in summer.
- A common ecosystem in North America filled with trees.
- A hot, dry ecosystem.
- Objects that orbit Earth.
- When people move from one area to another.

Down

- Where the ocean meets land.
- The interaction between the living and nonliving parts of an environment.
- The average weather conditions over time.
- The ecosystem in the Arctic and Antarctic.



Comprehension Quiz

26

Part A

8

Circle the word **TRUE** if the statement is TRUE OR Circle the word **FALSE** if it is FALSE.

- Melting ice caps can create a negative feedback cycle.
TRUE **FALSE**
- Early humans migrated around the globe in response to changes in climate.
TRUE **FALSE**
- Fossils are the remains in rock of plants and animals that lived a very long time ago.
TRUE **FALSE**
- Ice sheets once covered Florida.
TRUE **FALSE**
- Climate change may lead to tropical diseases spreading to more locations.
TRUE **FALSE**
- Global climate change is causing fewer severe storms to form.
TRUE **FALSE**
- Ozone cannot harm the lungs of healthy people.
TRUE **FALSE**
- Ice sheets and permafrost are already melting at a fast pace due to climate change.
TRUE **FALSE**

Part B

4

Label the diagram by doing the following:

- Label the map of North America with the ecosystems from the list below.
 - desert
 - deciduous forest
 - grassland
 - tundra



Arctic & Antarctic Icebergs



"Ice reflects more sunlight than other materials on Earth's surface."



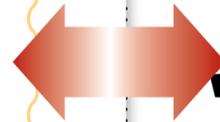
Climate and Human Health

1. Have you ever experienced a heat wave? How did you stay cool and protected from the heat? What steps can be taken?

2. Write each word beside its meaning.

- | | | | |
|---------|----------|-----------|-----------|
| disease | bacteria | drought | flood |
| rescue | lung | pollution | radiation |

- a) A long period without rain in which plants dry out and die.
- b) To help people who are in danger.
- c) A group of living things whose bodies have only one cell.
- d) Waste made by humans that gets into the environment.
- e) The part of the body that takes in oxygen from the air.
- f) The transfer of heat energy through space.
- g) When a usually dry area gets covered with water.
- h) A condition in which parts of the body are not working well.



EASY MARKING ANSWER KEY

1. Answers will vary.

Bacteria, fungi and viruses.

29

A condition in which the body's temperature becomes dangerously high.

30

1.

1 B

2 D

3 F

4 A

a) drought

b) rescue

c) bacteria

d) pollution

e) lung

f) radiation

g) flood

h) disease

28

3.

a) Warmer temperatures allow disease-causing organisms to survive in more areas of the world.

b) Higher air temperatures can cause a higher concentration of ozone gas near Earth's surface.



1.

Sea level is the line along which the ocean meets the land. Rising sea level causes more land to be covered by water.

2.

Answers will vary.

3.

Answers will vary.

33

2.

Answers will vary.

31

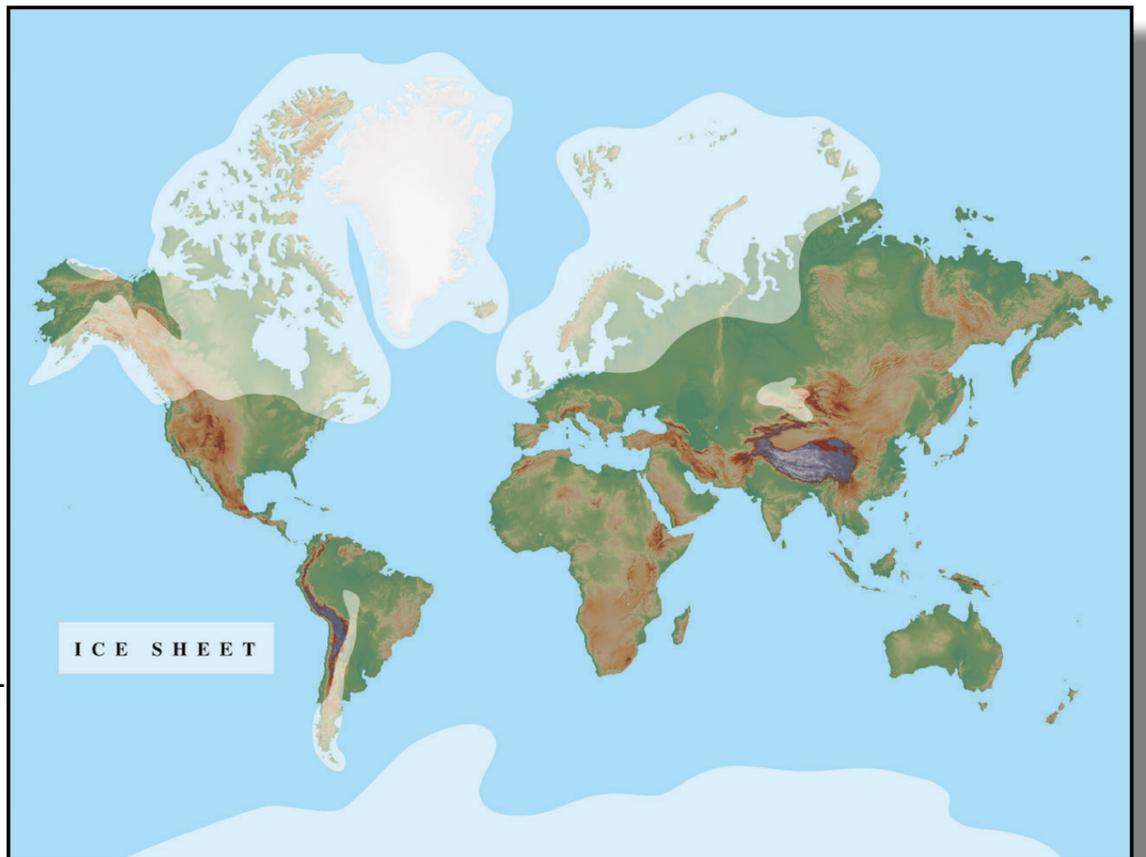
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NAME: _____



Climate and Human Civilization

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