

Critical Thinking Skills

Global Warming: Effects

Skills For Critical Thinking		Reading								Hands-on Activities
		Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	
LEVEL 1 Remembering	<ul style="list-style-type: none"> List Details/Facts Recall Information Match Vocabulary to Definitions Define Vocabulary Recognize Validity (T/F) 	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 2 Understanding	<ul style="list-style-type: none"> Demonstrate Understanding Explain Scientific Causation Rephrasing Vocab Meaning Describe Classify Objects into Groups 	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 3 Applying	<ul style="list-style-type: none"> Application to Own Life Model Scientific Process Organize and Classify Facts Utilize Alternative Research Tools 	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 4 Analysing	<ul style="list-style-type: none"> Distinguish Meanings Make Inferences Draw Conclusions Based on Facts Provided Classify Based on Facts Researched Sequence Events 	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 5 Evaluating	<ul style="list-style-type: none"> State and Defend an Opinion Evaluate Best Practices Make Recommendations Influence Community 	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 6 Creating	<ul style="list-style-type: none"> Compile Research Information Design and Application Create and Construct Imagine Self in Scientific Role 	✓	✓	✓	✓	✓	✓	✓	✓	✓

Based on Bloom's Taxonomy



Melting Ice Sheets

1. Write each word beside its meaning.

satellite

Arctic

estimate

energy

atmosphere

century

shrinking

heat

a) the area around Earth's north pole

b) the ability to do work

c) a period of a hundred years

d) the layer of air that surrounds Earth's surface

e) an object in space above Earth's surface

f) to determine an approximate value

g) the energy that matter has due to moving particles

h) becoming smaller

2. Fill in the chart below with a definition of **absorb** and **reflect** and examples of surfaces that absorb and reflect light.

Term	Definition	Examples
Absorb		
Reflect		

NAME: _____

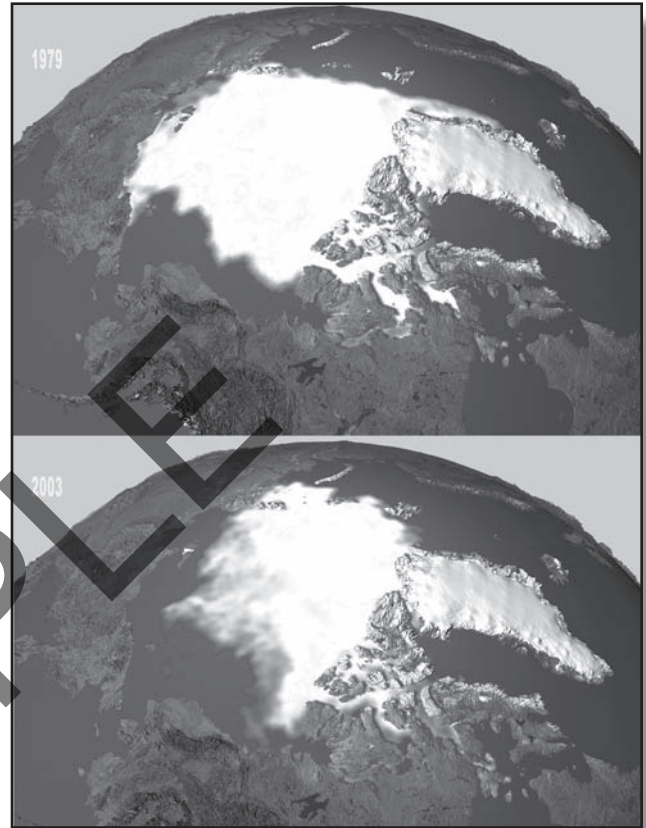


Melting Ice Sheets

Scientists have been measuring the size of Earth's ice sheets for many years.

Satellites in orbit around Earth take photographs that show how much area the ice sheets cover. Scientists also drill down into the ice sheets to find out how deep the ice is in different places. By comparing these measurements from year to year, scientists have discovered that Earth's ice caps are shrinking fast.

The satellite photograph to the right shows how the size of Earth's northern, or **Arctic**, ice cap has changed since 1979. The ice has become thinner in many places, too. Scientists estimate that the polar ice is shrinking by about 9% a decade. At that rate, the Arctic will no longer have year-round ice by the end of this century. However, certain processes may actually be speeding up the loss of ice. Scientists are finding that the water from melting ice seeps down to the bottom of the ice layer. The liquid water acts as a lubricant, speeding up the movement of ice downhill towards the ocean. As ice moves faster, it heats up more and melts faster.



Arctic Ice Cap (image courtesy of NASA)



What happens to the size of Earth's ice caps when global temperature rises?

Melting ice sheets can create **positive feedback**, the kind of process that leads to more and more change. Ice **reflects**, or bounces back, sunlight. When large areas of ice disappear, more sunlight is **absorbed**, or taken in, by Earth's surface. Sunlight is the main source of heat energy in Earth's atmosphere. Therefore, melting ice caps create more warming.



Melting Ice Sheets

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

- a) Positive feedback is a kind of change that leads to balance.
TRUE **FALSE**
- b) Scientists use satellites to measure the size of polar ice caps.
TRUE **FALSE**
- c) Melting ice caps create more global warming.
TRUE **FALSE**
- d) Polar ice caps absorb sunlight.
TRUE **FALSE**
- e) Water from melting ice caps speeds up the movement of the ice.
TRUE **FALSE**
- f) The Arctic may have no ice in the summers by the end of this century.
TRUE **FALSE**

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

- a) About what percent of the ice caps are melting each year?
 - A** 1%
 - B** 9%
 - C** 30%
 - D** 79%
- b) 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
- c) What is the main source of heat energy in Earth's atmosphere?
 - A** clouds
 - B** sunlight
 - C** ice caps
 - D** ocean water