

Content Vocabulary

LESSON 1

Describing Earth's Atmosphere

Directions: In this word search puzzle, find and circle the seven terms listed below. Then on each line, write the term that correctly completes each sentence.

- atmosphere
- ionosphere
- liquid
- ozone layer
- stratosphere
- troposphere
- water vapor

L	J	D	U	R	M	W	X	T	Y	E	N	R
T	I	N	Z	B	H	N	K	R	S	X	A	E
X	C	Q	I	U	Q	K	C	O	M	T	V	Y
S	O	J	U	L	D	O	J	P	M	R	X	A
D	T	I	O	I	C	Y	F	O	L	G	G	L
Y	X	R	J	I	D	Y	S	S	R	X	H	E
S	J	H	A	U	L	P	K	P	P	Z	A	N
C	Q	A	R	T	H	G	E	H	Y	O	R	O
L	L	L	A	E	O	B	S	E	S	H	I	Z
D	L	W	R	Z	X	S	A	R	Y	M	F	O
N	Y	E	E	Z	N	L	P	E	T	X	X	M
Y	S	S	Z	B	B	O	Z	H	Q	W	V	P
Z	B	D	R	O	P	A	V	R	E	T	A	W
U	A	I	O	N	O	S	P	H	E	R	E	Z
Z	U	F	X	Q	V	J	Y	L	B	B	E	Y

1. The _____ is the layer of atmosphere just above the _____, which is the layer that is closest to Earth's surface.
2. Water exists in the atmosphere in a gaseous form as _____ and in a _____ form as droplets.
3. The area of the stratosphere that contains a high concentration of ozone is called the _____.
4. Ions are located in the region of the atmosphere called the _____.
5. _____ is a layer of gases surrounding Earth.

Copyright © Glencoe/McGraw-Hill, a division of The McGraw-Hill Companies, Inc.

Enrichment

LESSON 1

Where is your ozone today?

About 90 percent of the ozone in our atmosphere is contained in the stratosphere. The remaining 10 percent is contained in the troposphere, the lowest part of our atmosphere, where all our weather takes place.

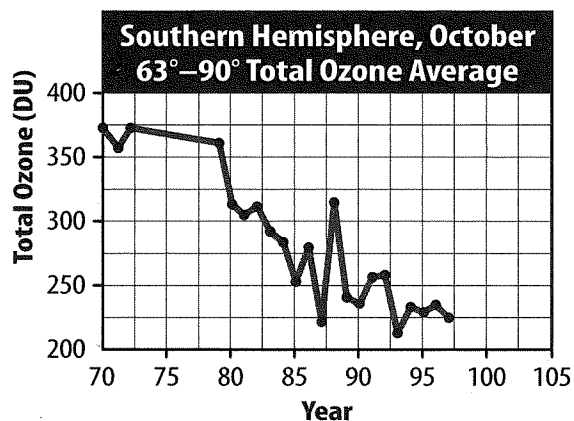
Because most of the ozone in Earth's atmosphere is in the stratosphere, this region is called the stratospheric ozone layer. The ozone layer is beneficial to living things because it absorbs biologically harmful ultraviolet (UV) radiation from the Sun, which breaks the bonds of DNA molecules and damages living cells. While most plants and animals are able to repair or destroy damaged cells, sometimes the DNA molecules are not repaired. The result can be dangerous forms of skin cancer.

Beginning in the late 1970s, scientists observed a steady decline in the total volume of ozone in Earth's ozone layer. A large seasonal decrease in stratospheric ozone over Antarctica is known as the ozone hole.

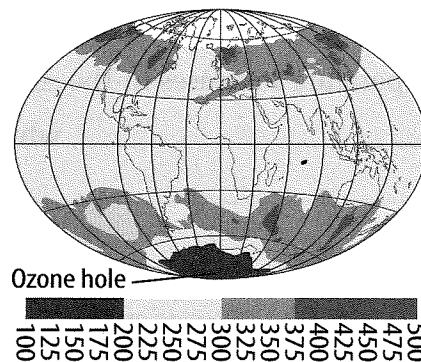
Researchers discovered that the decline of ozone was associated with increases of chlorofluorocarbons (CFCs) in the atmosphere. These ozone-depleting substances were used in air-conditioning units, aerosol spray propellants, and cleaning processes. The Montreal Protocol on Substances That Deplete the Ozone Layer

was signed in 1987 and now includes other substances besides CFCs and a schedule for eliminating production and use of those substances.

The amount of ozone above a fixed point in the atmosphere is measured in Dobson units. The graph shows the average annual October ozone levels in the southern hemisphere between 1970 and 1997.



The location of the ozone hole is shown in the map below.



Applying Critical-Thinking Skills

Directions: Respond to each statement.

- Hypothesize** The level of ozone in the atmosphere is associated with the level of CFCs and other ozone-depleting substances. Use the data in the graph to hypothesize which year the level of ozone-depleting substances in the atmosphere was the greatest.
- Analyze** Use the map to decide which areas of Earth had the highest levels of Dobson units and, therefore, were most protected by the ozone layer in October 2008.