WHAT IS AIR MADE OF?

- **atmosphere**: layer of gases that surrounds the earth
- **water vapor**: water in the gas state; one of the gases of the atmosphere
- **pollen**: tiny solid pieces in the air that come from plants
- **air pollution**: unwanted solids and gases in the atmosphere
Several Americans have walked on the moon. Some of them even rode among the craters in lunar “buggies.” But the moon has no air of its own. So the astronauts had to take along their own—in tanks.

Take a deep breath. Go ahead—really do it! Do you need air tanks in order to breathe?

Our planet is not like the moon. Our planet has air. It is surrounded by an “ocean” of air. We call this ocean of air the atmosphere [AT muh sfeer].

Besides giving us air to breathe, the atmosphere is important in many other ways. It gives us our weather. It affects us when we ride in airplanes or walk.

The atmosphere is a mixture of gases. Nitrogen [NI truh jen] and oxygen [OK suh jen] make up most of this mixture. Small amounts of other gases make up the rest. They are carbon dioxide, water vapor, and certain “rare” gases.

The atmosphere also contains tiny pieces of solids like pollen, dust, and ash.

Most of the gases and solids of the air belong in the air. But some gases and solids do not. They did not get there in a natural way.

Gases and solids that do not belong in the air cause air pollution. These materials can be harmful.

There are many causes of pollution. Most air pollution comes from cars and factories. Some pollution comes from home chimneys.

Air pollution is a very serious problem.
The atmosphere is a mixture of gases.

This pie graph shows the percentages of the different gases.

1. About 78 percent of the atmosphere is nitrogen.
   Write "NITROGEN-78%" on the proper line of the graph.
2. About 21 percent of the atmosphere is oxygen.
   Write "OXYGEN-21%" on the proper line of the graph.
3. Figure this one out.
   If the atmosphere has 78 percent nitrogen and 21 percent oxygen . . .
   then what percent is left for carbon dioxide and the other gases?
   Write this number on the proper line of the graph.

WHAT DOES THE PICTURE SHOW?

Look at Figure B. Then fill in the blanks.

1. All living things need ____________________.

2. Green plants also need the gas ____________________.

3. Plants get the carbon dioxide they need from ____________________.

4. Animals get the oxygen they need from ____________________.

5. Nitrogen from the air becomes an important part of the ____________________.
WHERE DOES NATURAL DUST COME FROM?

Natural dust is formed in two ways:

Dust comes from broken-up rocks.
Rocks break into smaller pieces.
Finally, they become the size of dust (Figure C).

Dust also comes from space.
Some dust comes from meteors that burn up in the atmosphere. Much more dust comes from deep outer space (Figure D).

Space dust adds about two million metric tons a year to the earth's weight. That's about 4 1/2 billion pounds!

COMPLETING SENTENCES

Complete the sentences with the choices below.

air pollution 78% pollen water vapor factories
nitrogen atmosphere automobiles dust 21%
home chimneys oxygen ash mixture of gases

1. The ocean of air that surrounds the earth is called the ____________.

2. The atmosphere is made up of a ____________.

3. Water in gas form is called ____________.

4. Examples of tiny solid pieces in the atmosphere are ____________.

   ____________, and ____________.

5. Most of the atmosphere is made up of the gas ____________.
6. Nitrogen makes up about _____________ of the atmosphere.

7. The gas needed by all living things is _____________.

8. Oxygen makes up about _____________ of the atmosphere.

9. Unwanted gases and solids in the atmosphere cause _____________.

10. Three causes of pollution are _____________, _____________, and _____________.

MATCHING  Match the two lists. Write the correct letter on the line next to each number.

1. ______ atmosphere a) needed by all living things
2. ______ water vapor b) tiny solids in the atmosphere
3. ______ oxygen c) mixture of gases that surrounds the earth
4. ______ dust, pollen, and smoke particles d) unwanted dust and gases
5. ______ pollution e) water in the gas form

TRUE OR FALSE  Write T on the line next to the number if the sentence is true. Write F if the sentence is false.

1. ______ Every ocean can be seen.
2. ______ Every ocean is wet.
3. ______ You are sitting in an ocean.
4. ______ The atmosphere is an ocean of gases.
5. ______ Most of the atmosphere is oxygen.
6. ______ Oxygen makes up about 21 percent of the atmosphere.
7. ______ Only animals need oxygen.
8. ______ Water vapor is a gas.
9. ______ Some dust is a natural part of the atmosphere.
10. ______ Pollution is a natural part of the atmosphere.
WHERE DOES AIR POLLUTION COME FROM?

Figure E shows some of the ways our air becomes polluted. How many of them can you find? Match the letters from the picture with the sources of pollution listed below.

1. home chimneys ______ 5. factories ______
2. automobiles ______ 6. airplanes ______
3. buses ______ 7. burning garbage ______
4. motorcycles ______ 8. burning leaves ______

CITY, SUBURBS, OR COUNTRY?

Some parts of our nation are cities. Some parts are suburbs. Still other parts are country areas.

1. Where would you expect to find the most air pollution? ______
   Why? ______

2. Where would you expect to find the least air pollution? ______
   Why? ______

3. How does air pollution spread from one place to another? ______