The atmosphere is the air around Earth. We find rain, fog, clouds, and wind in the atmosphere. Earth’s atmosphere makes life possible.

Air is made of several gases. The atmosphere also contains pollution, water vapor, and particles.

**Vocabulary in Context**

1. Look at the pictures. What kind of weather do you see?
2. What do you find in the atmosphere?
3. What is the atmosphere made of?

**Critical Thinking**

Applying Information

4. What causes air pollution? Think about your city or town. Is there much air pollution? Why?

**Workbook page 145**
**Gases in the Atmosphere**

*Ask:* Did you ever wonder what is in the air you breathe? Then play the audio or read aloud the paragraph. *Ask:* What are some gases in air? (oxygen and nitrogen) What are trace gases? (small amounts of other gases in air)

**Science Skill: Reading a Pie Chart**

1. Read about the Science Skill. Draw students' attention to the pie chart. Remind students that the pie chart is cut into several slices. *Ask:* What color is the biggest part of the pie chart? (purple) What gas does this stand for? (nitrogen) How much of the atmosphere is made of this gas? (78 percent)

2. Have students work together in pairs to answer the questions.

**Answers**

1. The most common gas is nitrogen.
2. Oxygen is 21 percent of the atmosphere.
3. The oxygen-carbon dioxide cycle.
4. The air you breathe?

**The Oxygen-Carbon Dioxide Cycle**

1. Play the audio. Then ask a volunteer to read aloud the first paragraph. *Ask:* What gas do animals need? (oxygen) What gas do plants need? (carbon dioxide) What gas do plants put into the air? (oxygen)

2. Play the audio. Then ask another volunteer to read aloud the second paragraph. *Ask:* What gas in air do animals need? (oxygen) What gas do animals put into the air? (carbon dioxide)

3. Draw students' attention to the graphic. *Ask:* What gas do the red arrows represent? (carbon dioxide) What gas do the blue arrows represent? (oxygen) *Ask:* Why do you think this is called the oxygen-carbon dioxide cycle? (because oxygen moves from the plant to the air to the animal, while carbon dioxide moves from the animal to the air to the plant)

4. *Ask:* Why do you think this is called the oxygen-carbon dioxide cycle? (because oxygen moves from the plant to the air to the animal, while carbon dioxide moves from the animal to the air to the plant) What part of the cycle are people? (people take in oxygen and give off carbon dioxide)

**Academic Vocabulary**

1. Point out that the phrases in bold letters have similar meanings.

**Layers of the Atmosphere**

1. Read aloud the concept title. Have students pronounce the title with you. Demonstrate the word layers by placing different colored sheets of construction paper on top of one another. *Ask:* questions such as: *What color is the bottom layer? What color is the top layer?*

2. Play the audio or ask a volunteer to read the paragraph. Draw students' attention to the diagram. Read the names of each layer aloud. Break the name of each layer into syllables and write the syllables on the board. Point out how each name ends in “sphere.” Then have students repeat the name of each layer with you. *Finally:* *Ask:* how many layers does the atmosphere have? (five) Which layer of the atmosphere is closest to Earth? (the troposphere) Where do plants and animals live? (in the troposphere) Which layer are satellites? (the exosphere)

**Science Skill:** Reading a Pie Chart

A pie chart shows the parts of something. The pie is cut into several slices. The size of the slice shows the amount. A large slice shows a large amount. A small slice shows a small amount. Look at the pie chart to the left. It shows that the atmosphere is composed of several gases.

1. *What is the most common gas?*
2. *What percent of the atmosphere is oxygen?*
3. *What is one trace gas?*

**The Oxygen-Carbon Dioxide Cycle**

1. Plants and animals need gases to live. Plants need carbon dioxide. They get it from the air or the water. Plants make oxygen as waste.

2. Animals need oxygen. They get it from the air or the water. Animals make carbon dioxide as waste.

**Research and Inquiry**

*Use the Internet, the library, or your science book to answer these questions.*

1. *What are the effects of pollution on the atmosphere?*
2. *What will happen if the carbon dioxide in the atmosphere increases?*
3. *Who discovered oxygen? How did he discover it?*

**Writing**

Imagine that there are no plants on Earth. Explain what would happen. Write a paragraph.

**Additional Resources**

**Making a diorama**

*Show small groups of students magazine pictures of various plants and animals. For each picture, ask: What does this living thing need? (All animals need oxygen. All plants need carbon dioxide) What gas does it make as waste? (All animals give off carbon dioxide. All plants give off oxygen)*

**Writing a paragraph**

*Ask students to write a paragraph describing at least four things they have learned about the atmosphere. Then have them add each layer. Encourage creative use of classroom materials.*

**EARTH SCIENCE**

**The Atmosphere**

**Gases in the Atmosphere**

Air is made of several gases. The most common gases are oxygen and nitrogen. There are small amounts of other gases in Earth's atmosphere. These gases are called trace gases.

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