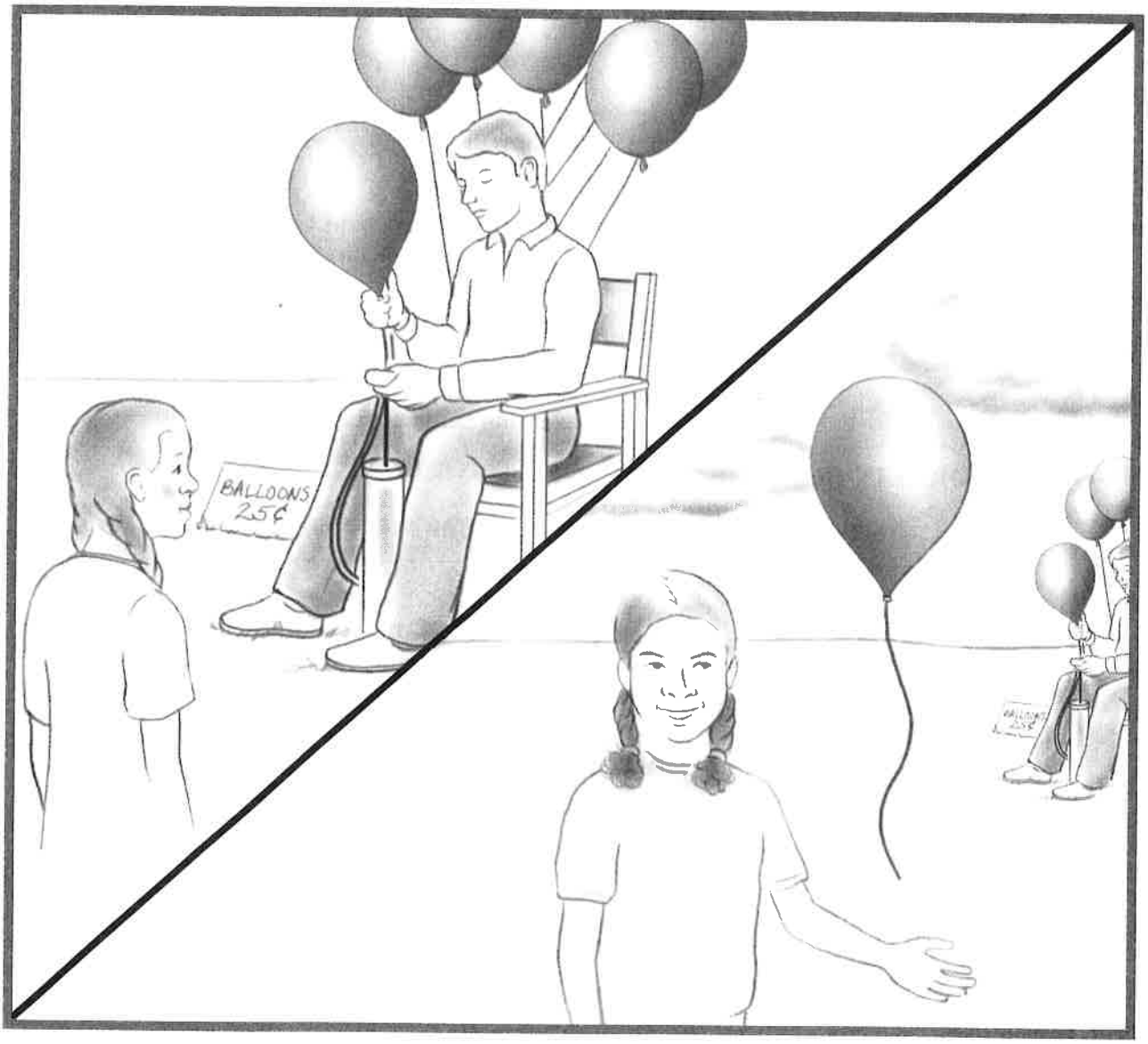
Lesson 9

What are some properties of air?



KEY TERMS

properties: characteristics used to describe an object

LESSON 9 | What are some properties of air?

What is this book made of—metal or paper? It is made of paper, of course. But how do you know? You know from its **properties** [PROP-ur-tees].

Properties are characteristics used to describe an object. They help us describe matter. Properties also help us to tell one kind of matter from another.

There are many kinds of properties. Some common properties are state, weight, hardness, color, shape, and odor.

Air has certain properties. Let us examine three properties of air.

AIR IS INVISIBLE

The natural gases of the air have no color. You cannot see them.

AIR HAS MASS

Air is matter. It is made up of atoms and molecules. Atoms and molecules have mass. This means that air has mass.

AIR TAKES UP SPACE

Air also takes up space. Think about blowing up a balloon. When you blow air into a balloon, the balloon gets larger. It gets larger because air takes up space.

So far, you have learned that:

AIR { is invisible. / has mass. / takes up space.

You will learn more about these properties on the following pages.

SEEING IS BELIEVING

Look at Figure A. Then answer the questions.

1. What is inside the glass?

   _____

2. What property of air is shown here?

   _____

   _____

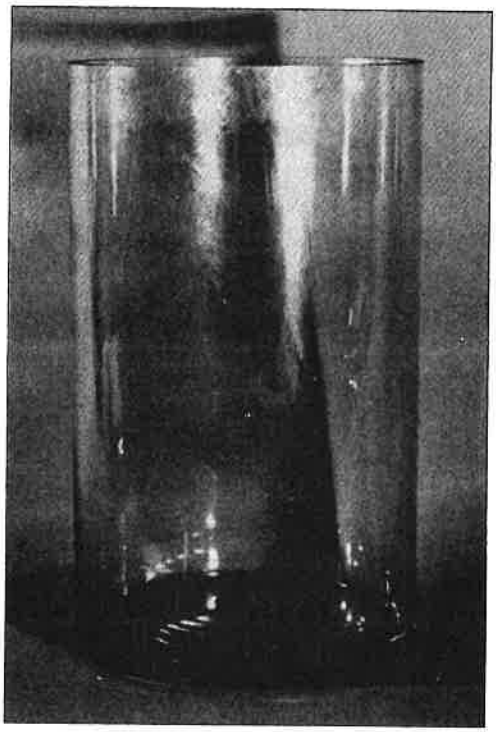


Figure A

PROVING THAT AIR HAS MASS

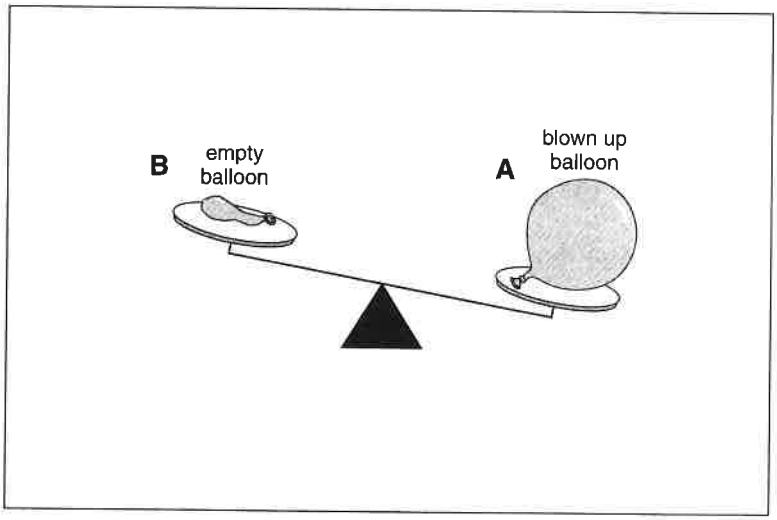


Figure B

Without air in them, both balloons in Figure B have the same mass.

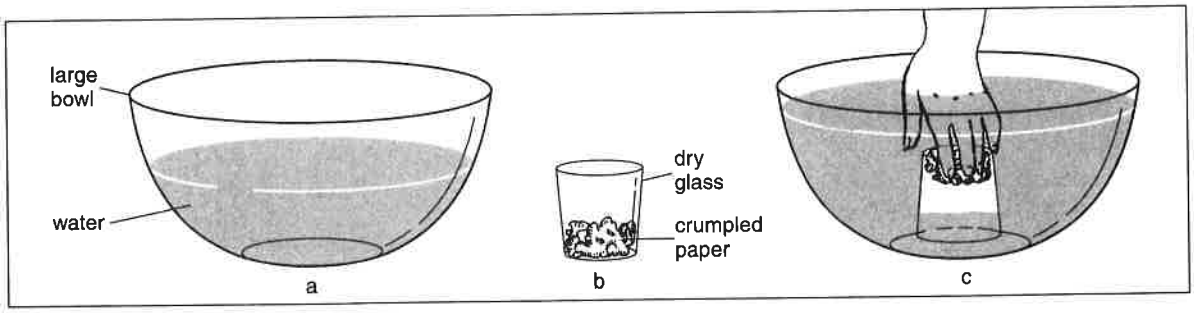
1. Which balloon has more mass, A or B? _____
2. Balloon _____ has more mass because it has _____ in it.
3. What property of air does this show? _____

   _____

PROVING THAT AIR TAKES UP SPACE

What You Need (Materials)

drinking glass
large bowl (or sink)
piece of paper
water



How to Do the Experiment (Procedure)

1. Fill a large bowl (or your sink) halfway with water (Figure a).
2. Stuff a piece of paper into a small glass. Push it all the way to the bottom (Figure b).
3. Turn the glass upside down. Hold it straight. Put it into the bowl (Figure c). Hold it there for a short time. Then lift the glass out.
4. Look at the paper in the glass. Then take the paper out and feel it.

What You Learned (Observations)

1. Did the paper get wet? _____
2. Did the water get into the entire glass? _____
3. What stopped the water from filling the glass? _____
4. Can two things take up the same space at the same time? _____
5. This experiment shows that _____
   air has mass, air takes up space

Something to Think About (Conclusions)

What do you think would happen if the bottom of the glass had a hole in it? _____

_____

_____

How would you explain that? _____

_____

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided.

molecules	space	air has mass
nitrogen	water vapor	see
properties	gases	air is invisible
air takes up space	invisible	mass

1. Air is a mixture of _____.
2. We cannot _____ the gases of the air.
3. The word that means "not capable of being seen" is _____.
4. Air is made up of atoms and _____.
5. Atoms and molecules have _____ and take up _____.
6. Characteristics that help us identify matter are called _____.
7. This lesson discussed three properties of air. They are: _____, _____, _____.
8. The gas that makes up most of the air is _____.
9. Water in gas form is called _____.

TRUE OR FALSE

In the space provided, write "true" if the sentence is true. Write "false" if the sentence is false.

_____ 1. You can see the gases of the air.

_____ 2. Dust is invisible.

_____ 3. Most of the time we do not see dust because dust is very small.

_____ 4. Air is made up of atoms and molecules.

_____ 5. Atoms and molecules have no mass.

_____ 6. Atoms and molecules take up space.

_____ 7. Air has mass.

_____ 8. Air takes up space.

_____ 9. Air has mass and takes up space because it is invisible.

WORD SCRAMBLE

Below are several scrambled words you have used in this Lesson. Unscramble the words and write your answers in the spaces provided.

1. SMAS _____
2. IRA _____
3. PPSETREORI _____
4. EIINBSLIV _____
5. SEPCA _____

REACHING OUT

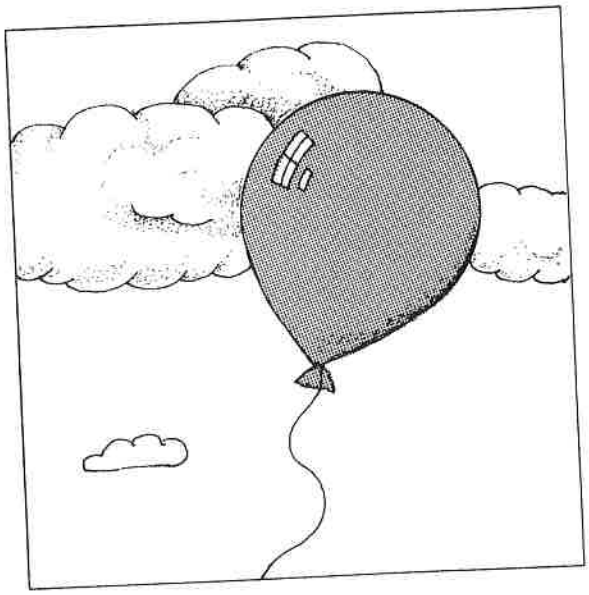


Figure D

A balloon filled with helium gas floats away.

1. Does this mean that helium does not have mass? _____
2. What does it mean? _____