

SOLIDS, LIQUIDS & GASES

BY DELORES BOUFFARD

TABLE OF CONTENTS

Matter	1	Changing States of Matter	17
The Atom	2, 3	Changing States of Matter: Freezing	18
Molecules	4	Changing States of Matter: Melting.....	19
Molecules in Three States of Matter.....	5	Changing States of Matter: Condensation.	20
Review	6	People and Nature Change the States of Matter.....	21
Matter and Physical Properties	7	Evaporation of Water, Glycerin, Vinegar ...	22
Solids and Physical Properties.....	8	Experiment with Evaporation.....	23
Liquids	9	Review Changing States of Matter	24
Surface Tension	10	Review of Molecular Action	25
Capillary Action	11	Magic Matter.....	26
Gases.....	12	Review	27, 28
The Expansion of Matter.....	13	Solids, Liquids & Gases Background Material.....	29
Contraction of Solids, Liquids, Gases.....	14	Answers	31
States of Matter—Water	15		
Using the Three States of Water.....	16		

The activities in this book explain elementary concepts in the study of chemistry, including matter, atoms, molecules, physical properties of matter, and changing states of matter.

General background information, suggested activities, questions for discussion, and answers are included.

Encourage students to keep completed pages in a folder or notebook for further reference and review.

Copyeditor: Cindy Barden

Illustrations: James Price, Carol Tiernon and Nancee McClure

Cover and Inside Design: Good Neighbor Press, Inc.

© Copyright 1999

Milliken Publishing Co

All rights reserved.

Permission to reproduce pages extends only to the teacher-purchaser for individual classroom use, not to exceed in any event more than one copy per student in a course.

The reproduction of any part for an entire school or school system or for commercial use is strictly prohibited.

SOLIDS, LIQUIDS & GASES**MATTER**

Everything you can see, touch, and feel is **matter**. Matter is anything that takes up space and has mass. You are made of matter! Matter can be dead or it can be alive.

ACTIVITY

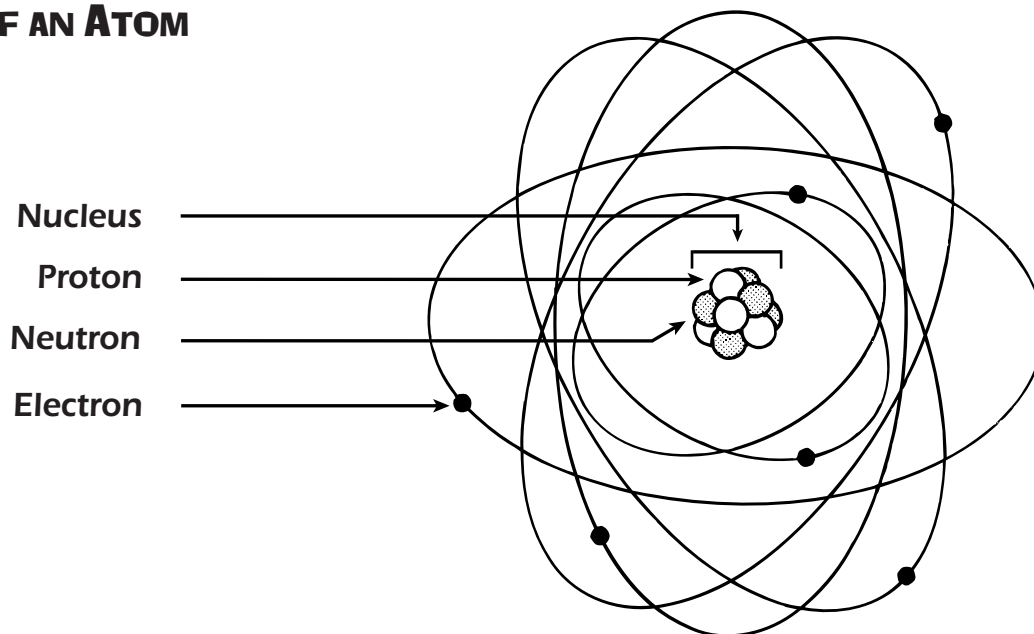
1. Hold your hand close to your mouth, and breathe through your mouth. The warm air you feel on your hand is matter!
2. Touch the tip of your finger to your tongue. Your fingertip becomes wet from the saliva. Saliva is matter!
3. Touch your hair, a fingernail, your nose, and teeth. These parts of you are all forms of matter!
4. Matter is found in three forms in nature: solids, liquids, and gases.
5. Your breath is a _____.
6. Your saliva is a _____.
7. Your hair, skin, teeth, and fingernails are _____ forms of matter.
8. Give another example of each form of matter.
Solid _____.
Liquid _____.
Gas _____.

**NOTE**

The word matter comes from the latin word *mater* which means "mother." Matter is the mother of all things.

SOLIDS, LIQUIDS & GASES**THE ATOM**

All matter is made up of particles called **atoms**. Atoms are all about the same size. All atoms are very tiny. One atom is more than one million (1,000,000) times smaller than the thickness of a single hair on your head! Billions of atoms make up the period at the end of this sentence. Only by using powerful microscopes can evidence of atoms be seen.

PARTS OF AN ATOM

All atoms have the same basic parts. An atom is made up of three particles: **protons**, **neutrons**, and **electrons**. The protons and neutrons form the **nucleus** in the center of the atom. Most of the mass of an atom is in the nucleus. The electrons move at high speed around the nucleus. Most of the size of the atom is the space where the electrons circle around the nucleus.

ACTIVITY

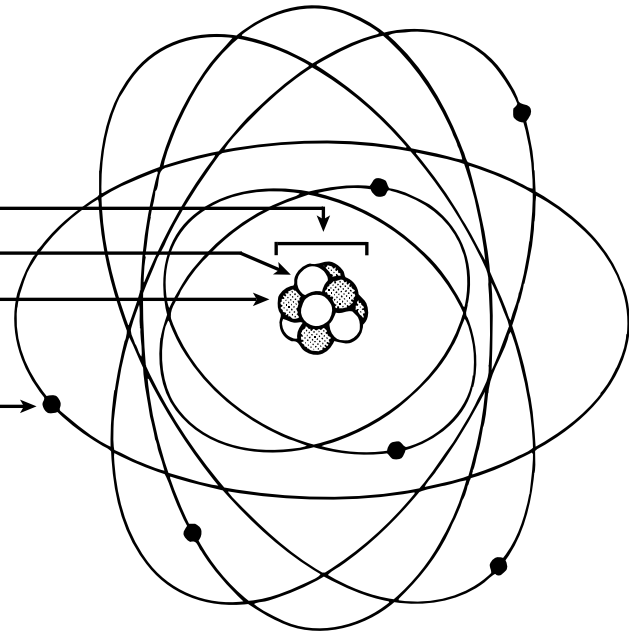
1. All matter is made up of particles called _____.
2. All atoms are very _____.
3. All atoms are made up of _____ basic particles.
4. The _____ is in the center of the atom.

SOLIDS, LIQUIDS & GASES

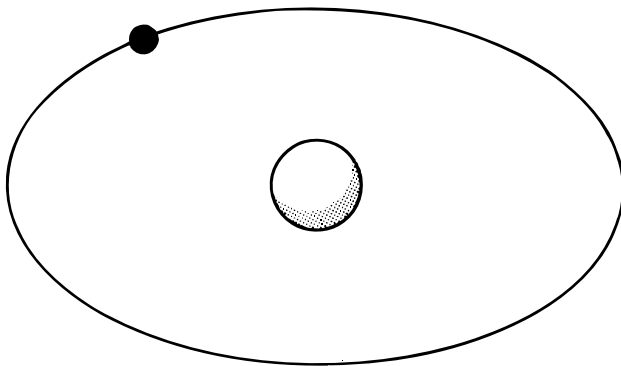
THE ATOM

Label the parts of the atom.

- 1. _____
- 2. _____
- 3. _____
- 4. _____

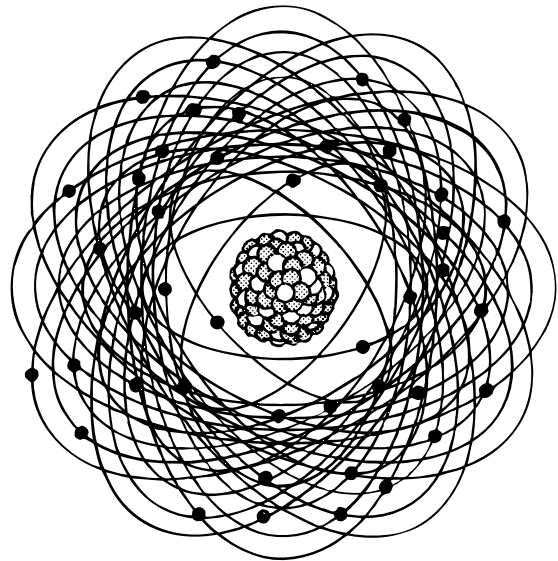


HYDROGEN ATOM



the lightest atom 1 electron

URANIUM ATOM



the heaviest atom 92 electrons