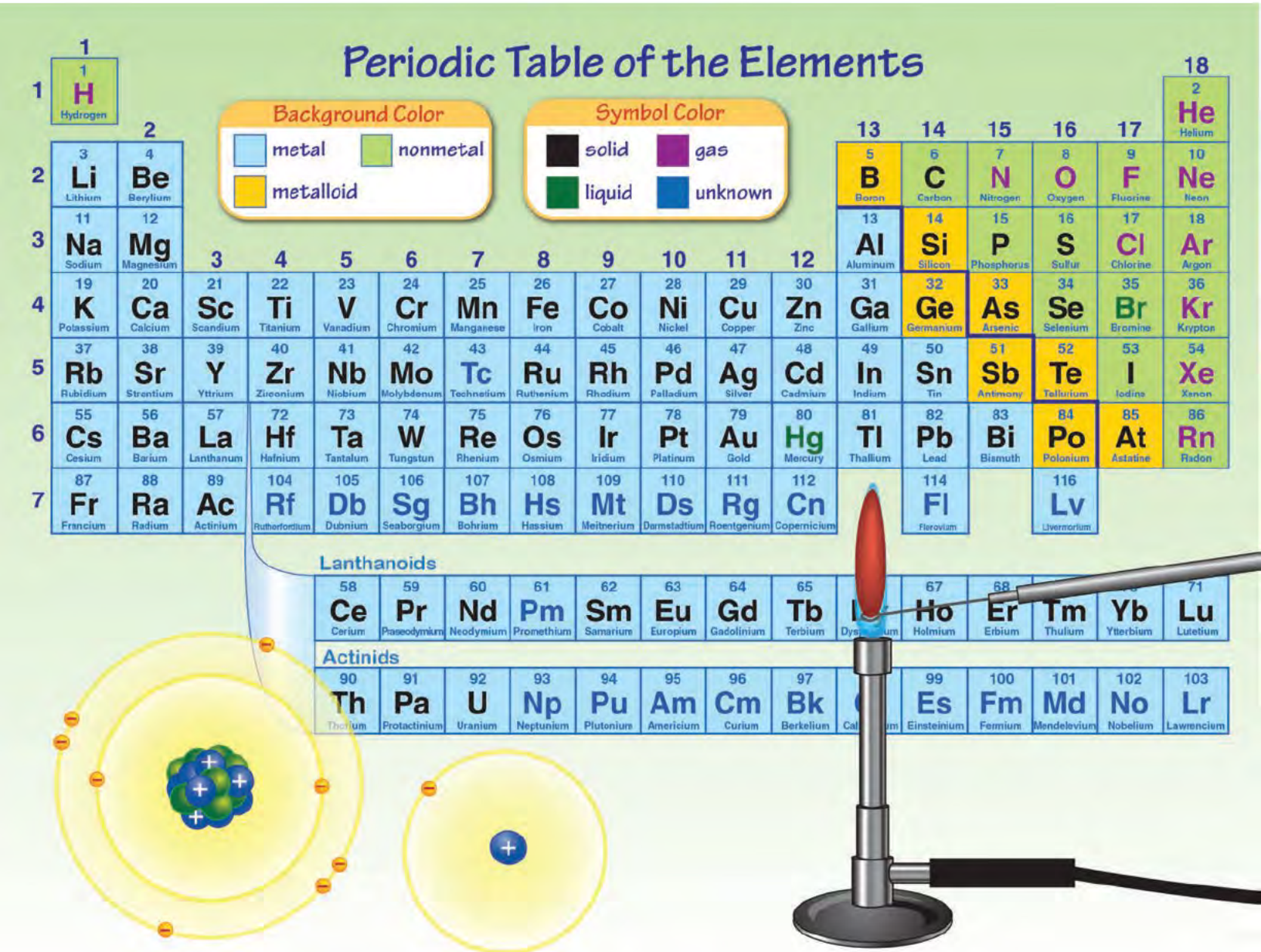
Elements & the Periodic Table

Learning Guide



NewPath Learning

Visit **www.newpathlearning.com** for Online Learning Resources.

Table of Contents

Phone: 800-507-0966
Fax: 800-507-0967
www.newpathlearning.com

NewPath Learning® Products are developed by teachers using research-based principles and are classroom tested. The company's product line consists of an array of proprietary curriculum review games, workbooks, charts, posters, visual learning guides, interactive whiteboard software and other teaching resources. All products are supplemented with web-based activities, assessments and content to provide an engaging means of educating students on key, curriculum-based topics correlated to applicable state and national education standards.

ISBN 978-1-63212-068-7

Printed in the United States of America.

INTRODUCTION TO ELEMENTS

Elements

An **element** is a pure substance that cannot be separated into simpler substances. This means an **element** is a substance made entirely of one type of **atom**. For example, every **atom** in a piece of copper is the same.

Scientists have identified **90 elements** that occur naturally in our universe. Some **elements** you might recognize include **oxygen**, **iron**, and **calcium**.

Periodic Table of the Elements

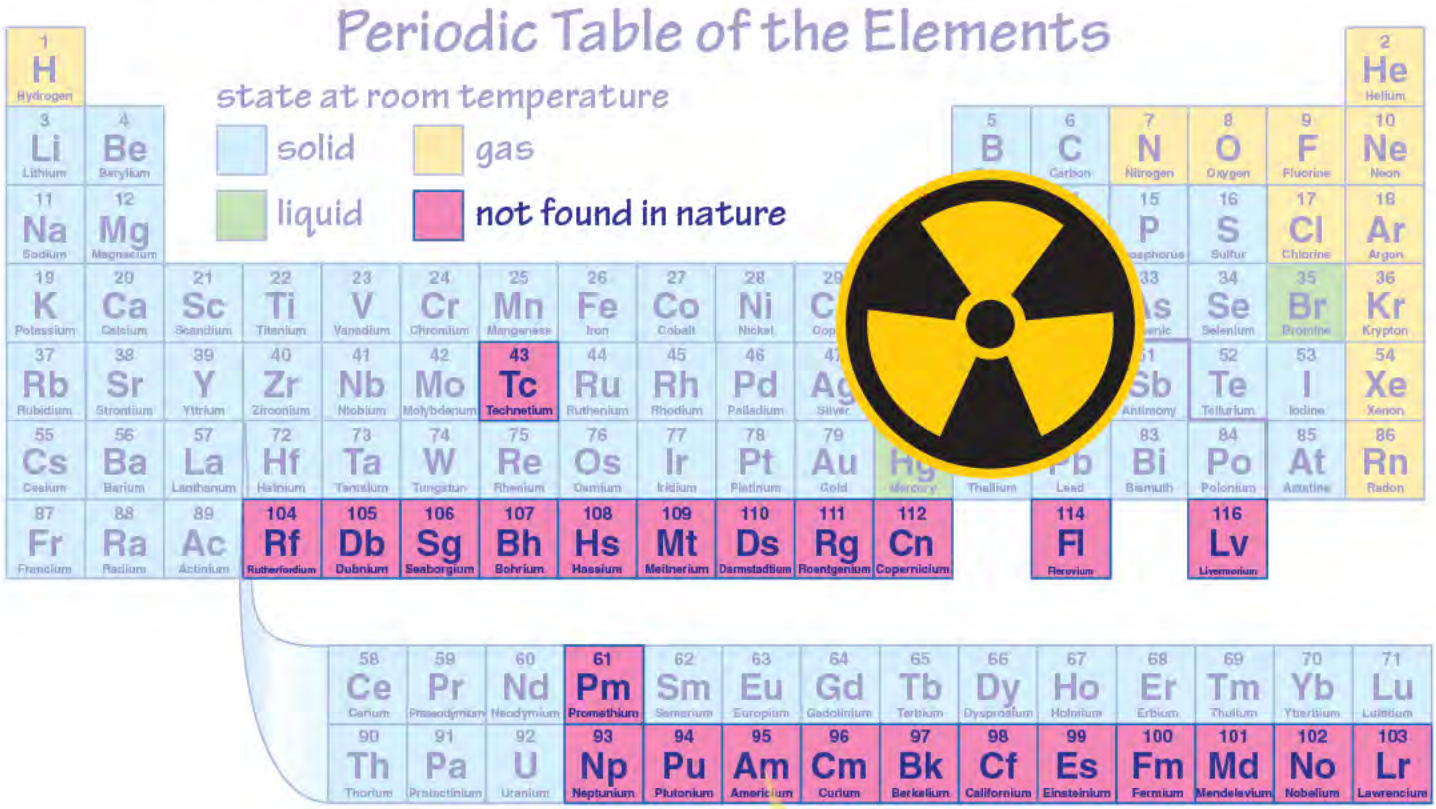
state at room temperature

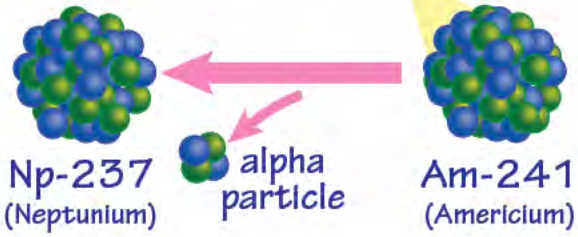
solid
gas
liquid
not found in nature

1 H Hydrogen																	2 He Helium
3 Li Lithium	4 Be Berylium											5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon
11 Na Sodium	12 Mg Magnesium											13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon
55 Cs Cesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungstun	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon
87 Fr Francium	88 Ra Radium	89 Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium		114 Fl Flerovium		116 Lv Livermorium		

58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

There are also over **20 man-made elements**, such as **einsteinium**.





Man-made **elements** are **radioactive** and unstable and decay over time into lighter elements.

Compounds

Most living and nonliving things are made up of a combination of **elements**. **Elements chemically combine** in a variety of ways to form **compounds**. A **compound** is made of two or more different **elements** bonded together in an exact ratio according to their masses.

NaCl

$C_{12}H_{22}O_{11}$

H_2O

