

NATURAL SCIENCES

RESOURCE PACK
GRADE 8 TERM 2



RESOURCE 1

Humdan/Shutterstock

THE PERIODIC TABLE

Periodic Table of the Elements

1 IA		2 IIA		3 IIIB		4 IVB		5 VB		6 VIB		7 VIIB		8 VIII		9 VIII		10 VIII		11 IB		12 IIB		13 IIIA		14 IVA		15 VA		16 VIA		17 VIIA		18 VIIIA																																								
1 H Hydrogen 1.008	3 Li Lithium 6.94	11 Na Sodium 22.98976928	19 K Potassium 39.0983	37 Rb Rubidium 85.4678	55 Cs Cesium 132.90545196	87 Fr Francium (223)	20 Ca Calcium 40.078	38 Sr Strontium 87.62	56 Ba Barium 137.327	88 Ra Radium (226)	21 Sc Scandium 44.955908	39 Y Yttrium 88.90584	57-71 Lanthanoids	89-103 Actinoids	22 Ti Titanium 47.887	40 Zr Zirconium 91.224	72 Hf Hafnium 178.49	104 Rf Rutherfordium (261)	23 V Vanadium 50.9415	41 Nb Niobium 92.90637	73 Ta Tantalum 180.94788	105 Db Dubnium (268)	24 Cr Chromium 51.9961	42 Mo Molybdenum 95.95	74 W Tungsten 183.84	106 Sg Seaborgium (266)	25 Mn Manganese 54.938044	43 Tc Technetium (98)	75 Re Rhenium 186.207	107 Bh Bohrium (264)	26 Fe Iron 55.845	44 Ru Ruthenium 101.07	76 Os Osmium 190.23	108 Hs Hassium (265)	27 Co Cobalt 58.933194	45 Rh Rhodium 102.90550	77 Ir Iridium 192.227	109 Mt Meitnerium (269)	28 Ni Nickel 58.6934	46 Pd Palladium 106.42	78 Pt Platinum 195.084	110 Ds Darmstadtium (261)	29 Cu Copper 63.546	47 Ag Silver 107.8682	79 Au Gold 196.966569	111 Rg Roentgenium (262)	30 Zn Zinc 65.38	48 Cd Cadmium 112.414	80 Hg Mercury 200.592	112 Cn Copernicium (285)	31 Ga Gallium 69.723	49 In Indium 114.818	81 Tl Thallium 204.38	113 Nh Nihonium (286)	32 Ge Germanium 72.630	50 Sn Tin 118.710	82 Pb Lead 207.2	114 Fl Flerovium (289)	33 As Arsenic 74.921595	51 Sb Antimony 121.760	83 Bi Bismuth 208.98040	115 Mc Moscovium (289)	34 Se Selenium 78.971	52 Te Tellurium 127.60	84 Po Polonium (209)	116 Lv Livermorium (293)	35 Br Bromine 79.904	53 I Iodine 126.90447	85 At Astatine (210)	117 Ts Tennessine (294)	36 Kr Krypton 83.798	54 Xe Xenon 131.293	86 Rn Radon (222)	118 Og Oganesson (284)

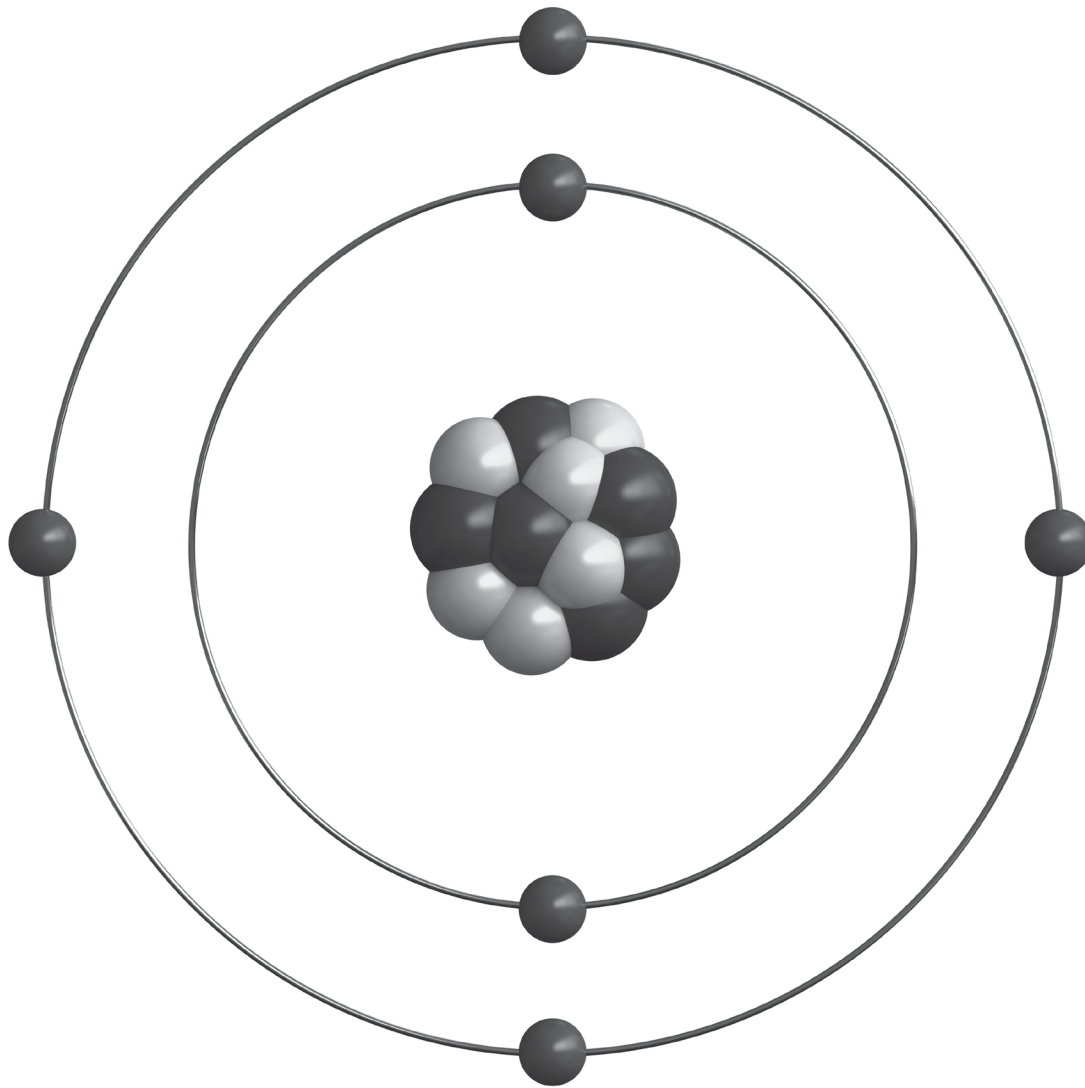
57 La Lanthanum 138.90547	58 Ce Cerium 140.116	59 Pr Praseodymium 140.90766	60 Nd Neodymium 144.242	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92535	66 Dy Dysprosium 162.500	67 Ho Holmium 164.93033	68 Er Erbium 167.259	69 Tm Thulium 168.93422	70 Yb Ytterbium 173.045	71 Lu Lutetium 174.9668
89 Ac Actinium (227)	90 Th Thorium 232.0377	91 Pa Protactinium 231.03588	92 U Uranium 238.02891	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (260)



RESOURCE 2

Oorka/ Shutterstock

THE ATOMIC STRUCTURE OF A CARBON ATOM

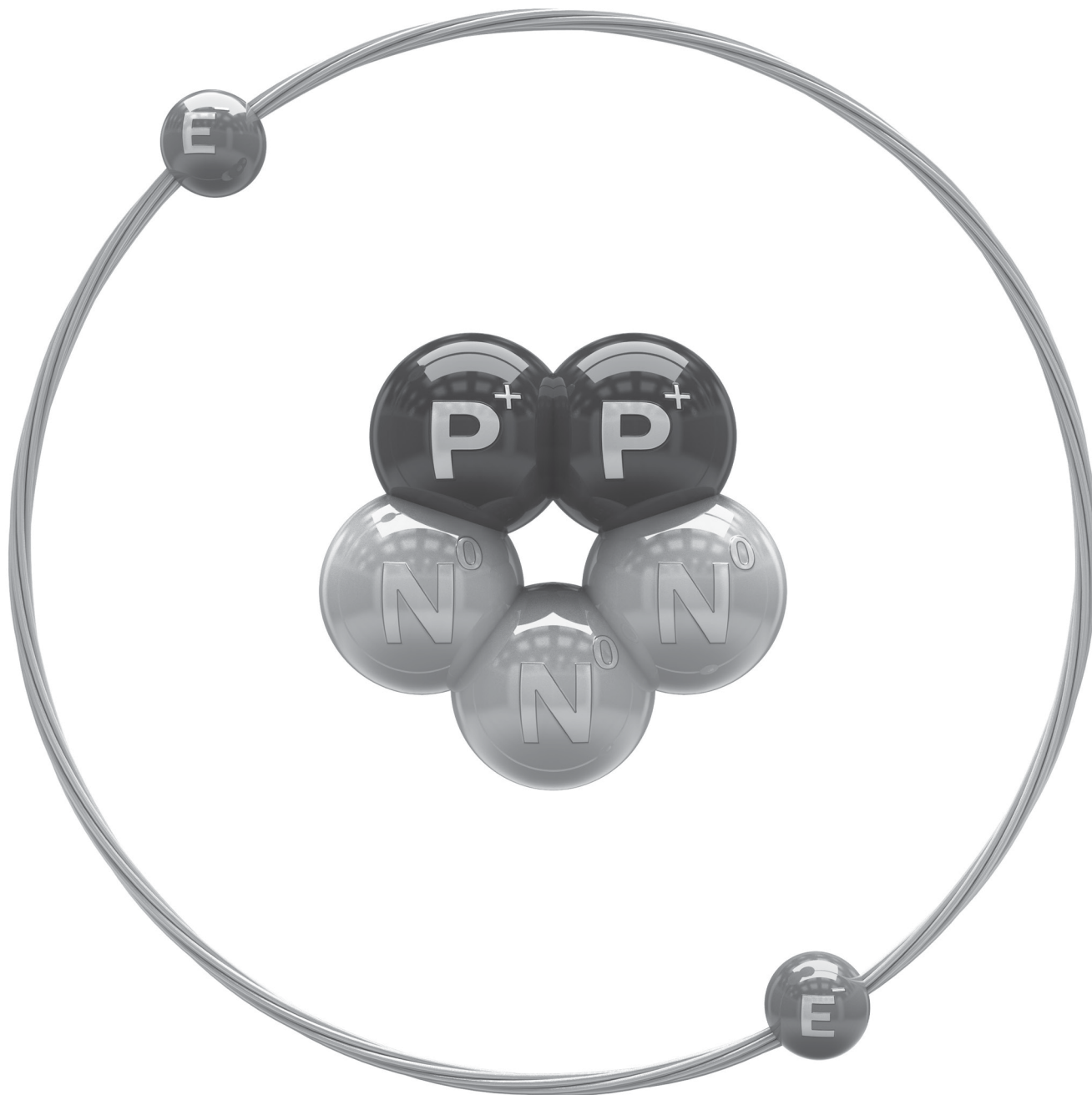


 **6 Protons**  **6 Neutrons**  **6 Electrons**

RESOURCE 3

General-fmv/ Shutterstock

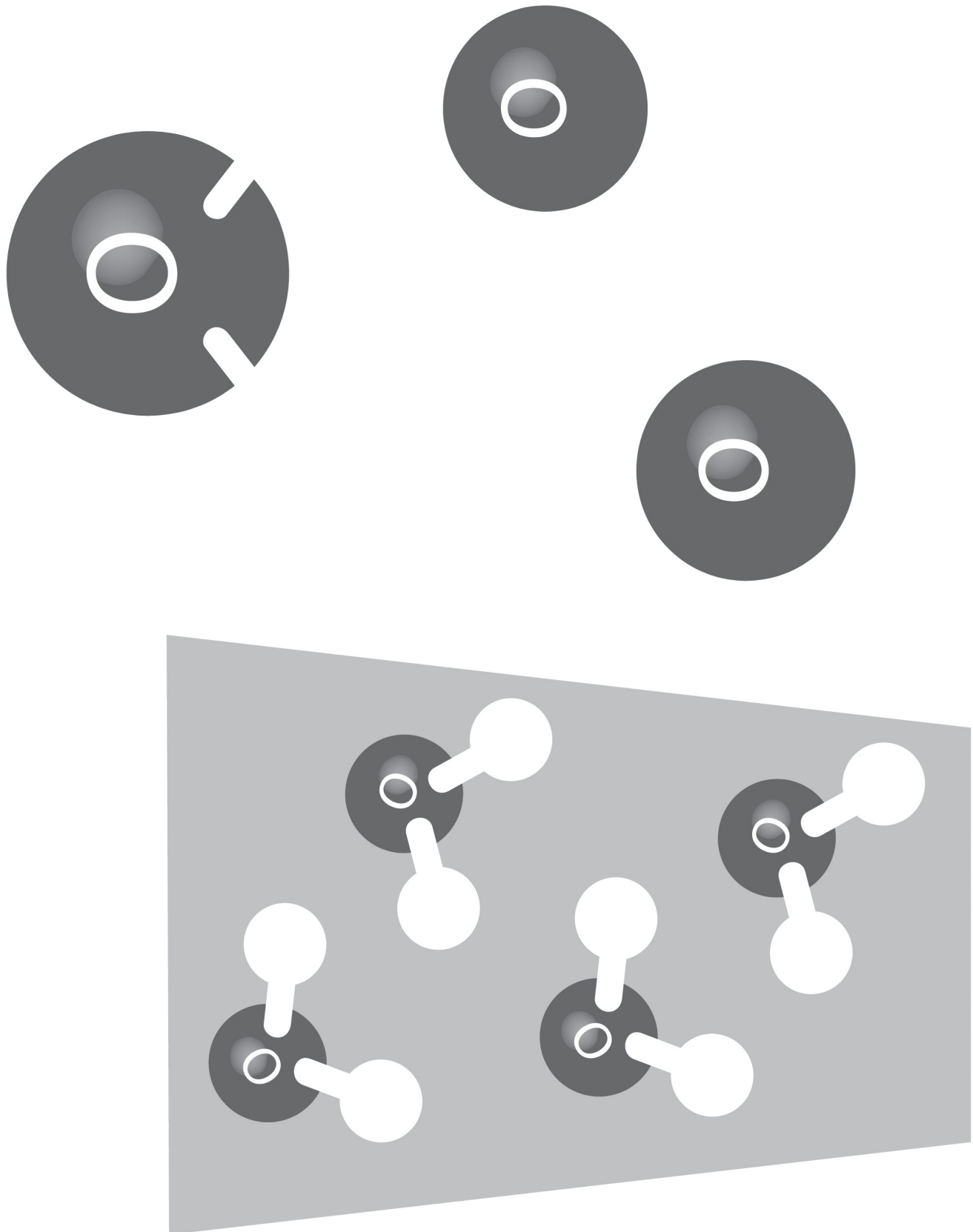
THE ATOMIC STRUCTURE OF A HELIUM ATOM



RESOURCE 4

T and Z/ Shutterstock

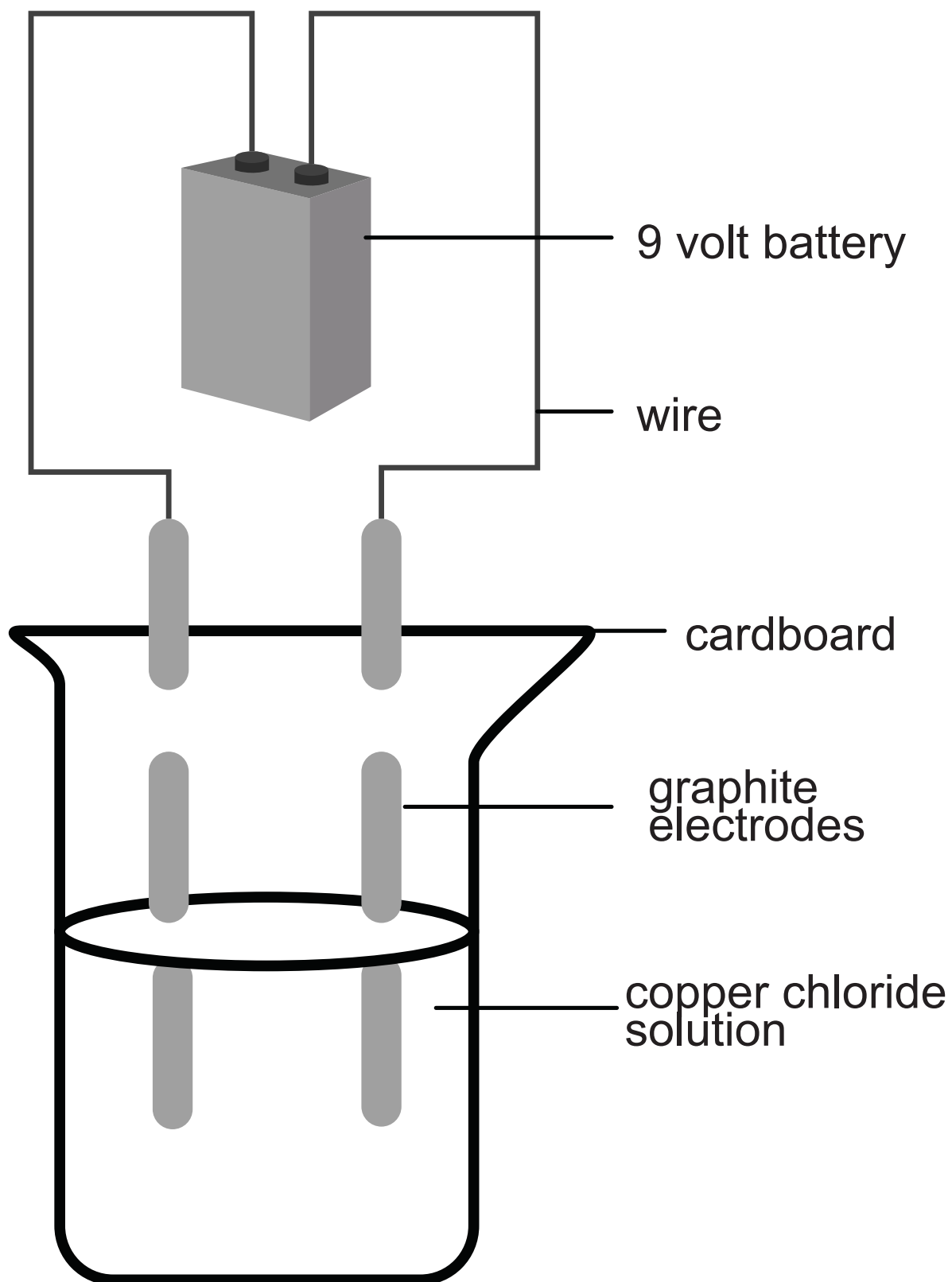
WATER MOLECULES



RESOURCE 5

(https://c1.staticflickr.com/3/2895/13579996444_c012ef422c_b.jpg)

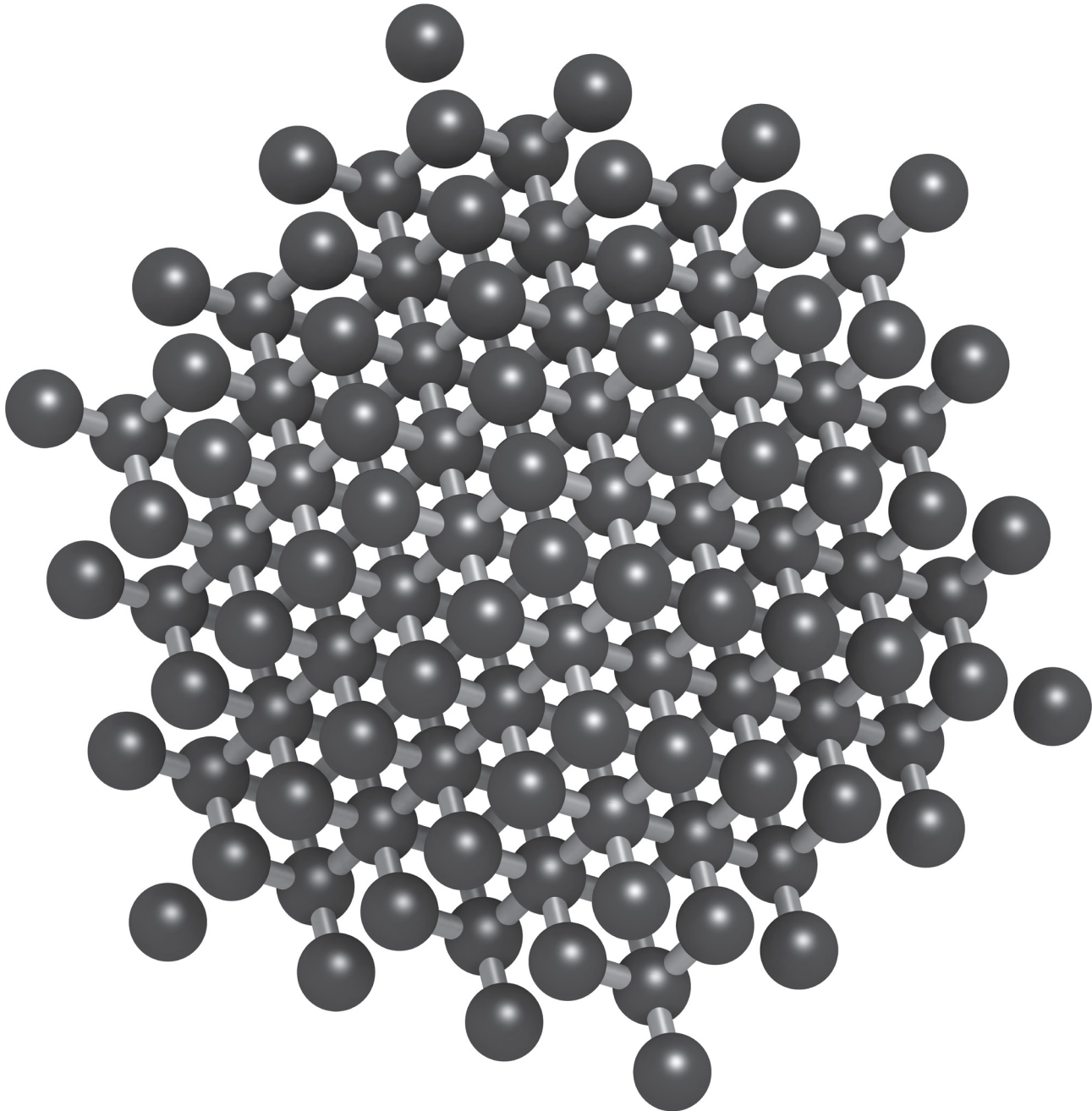
ELECTROLYSIS OF COPPER CHLORIDE



RESOURCE 6

Molekuul_be/ Shutterstock

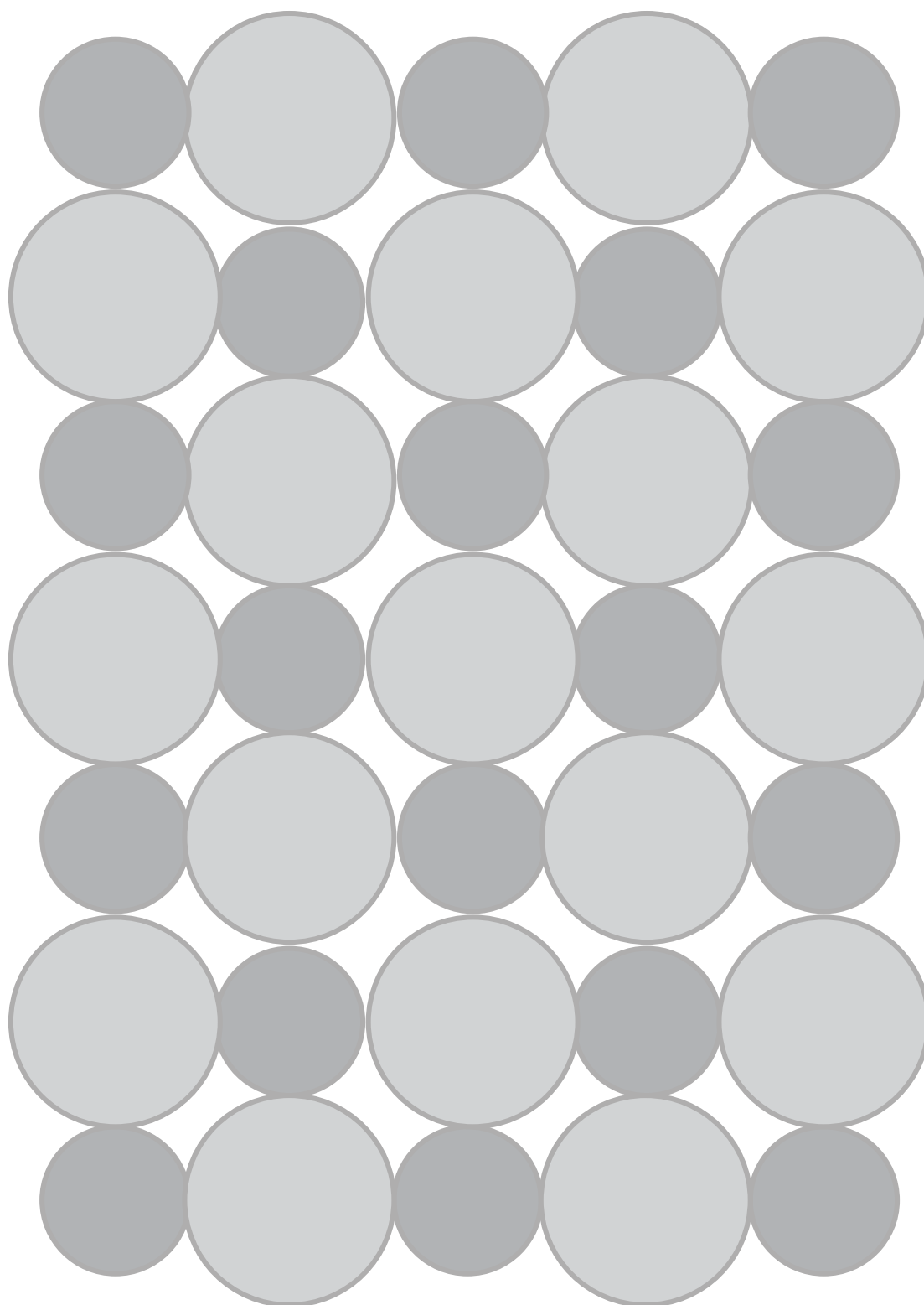
SILICON CRYSTAL STRUCTURE



RESOURCE 7

Udaix/ Shutterstock

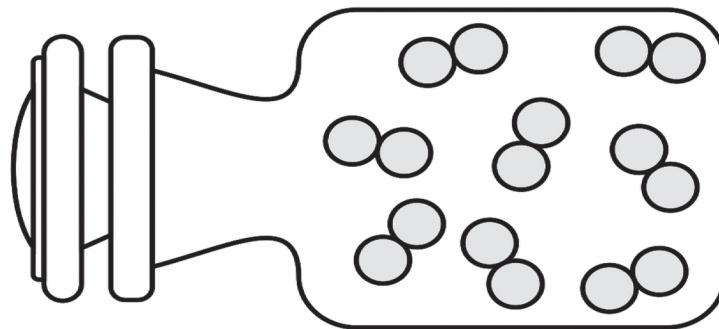
TABLE SALT [SODIUM CHLORIDE] CRYSTAL



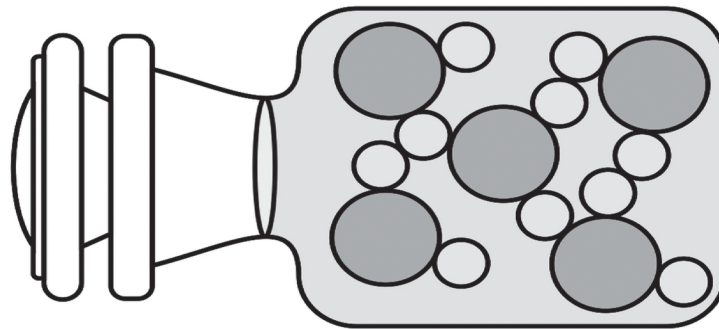
The dark grey circles are the sodium (Na) atoms and the light grey circles are the chlorine (Cl) atoms.

ELEMENTS, COMPOUNDS AND MIXTURES

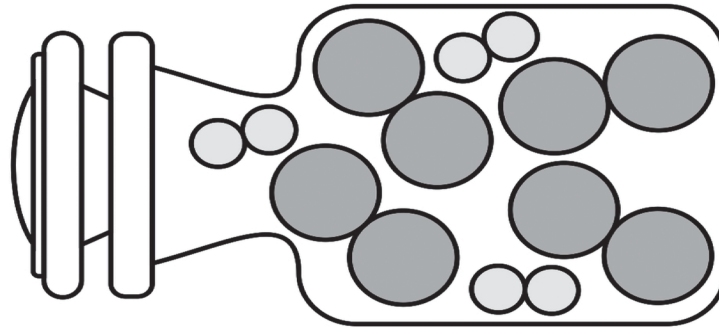
Elements, Compounds and Mixtures



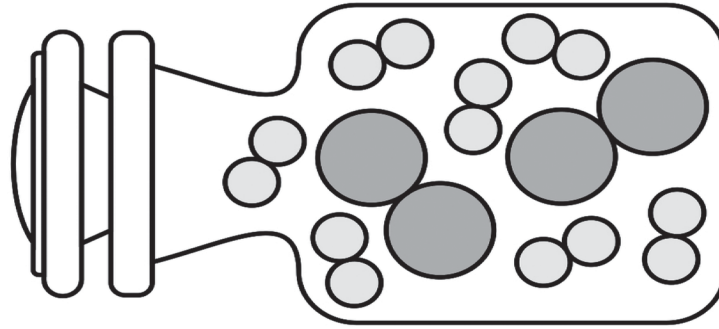
An Element
(Hydrogen)



A Compound
(Water)



A Mixture
(Hydrogen & Oxygen)

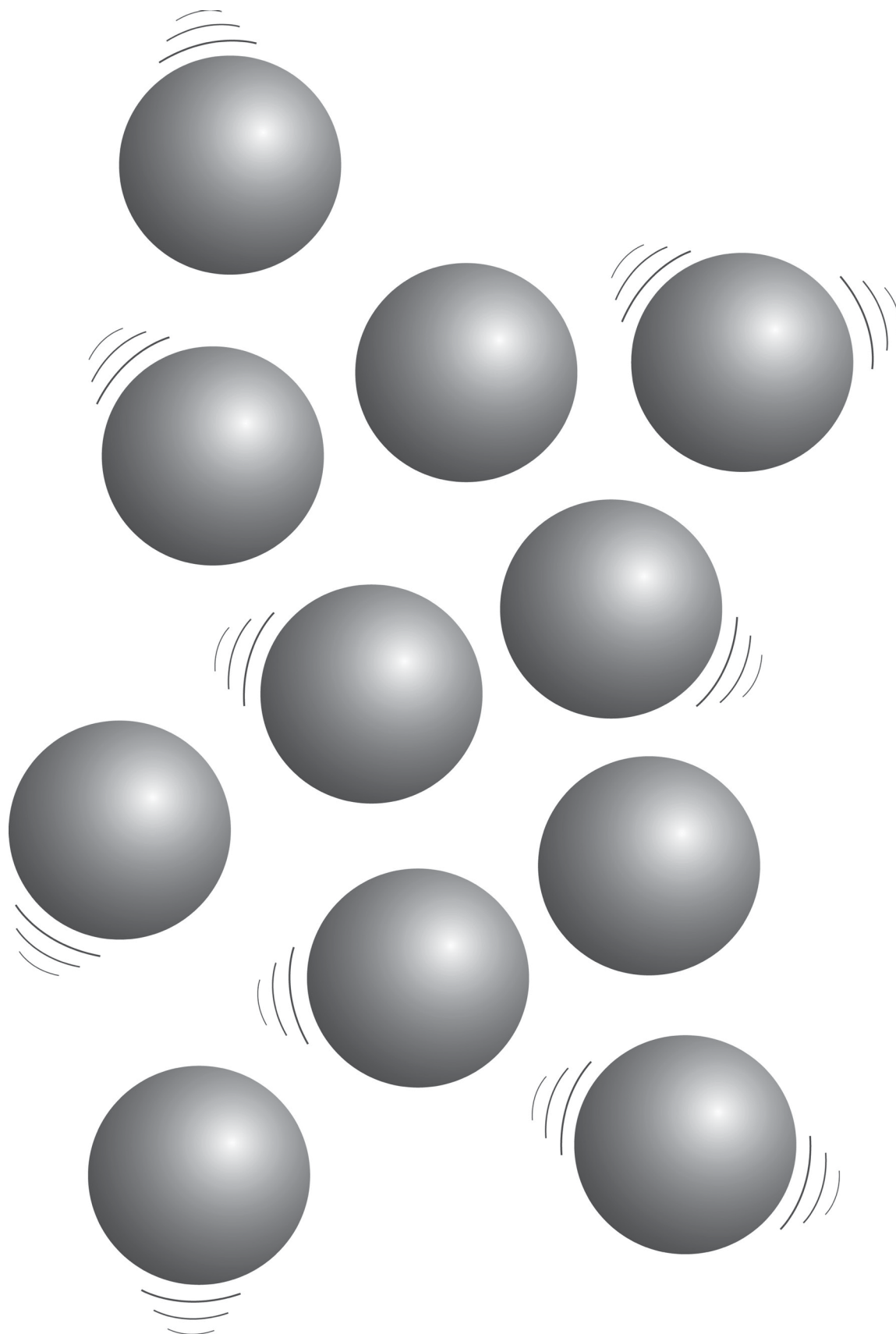


A Mixture
(Hydrogen & Oxygen)

RESOURCE 9

Edu Watanabe/ Shutterstock

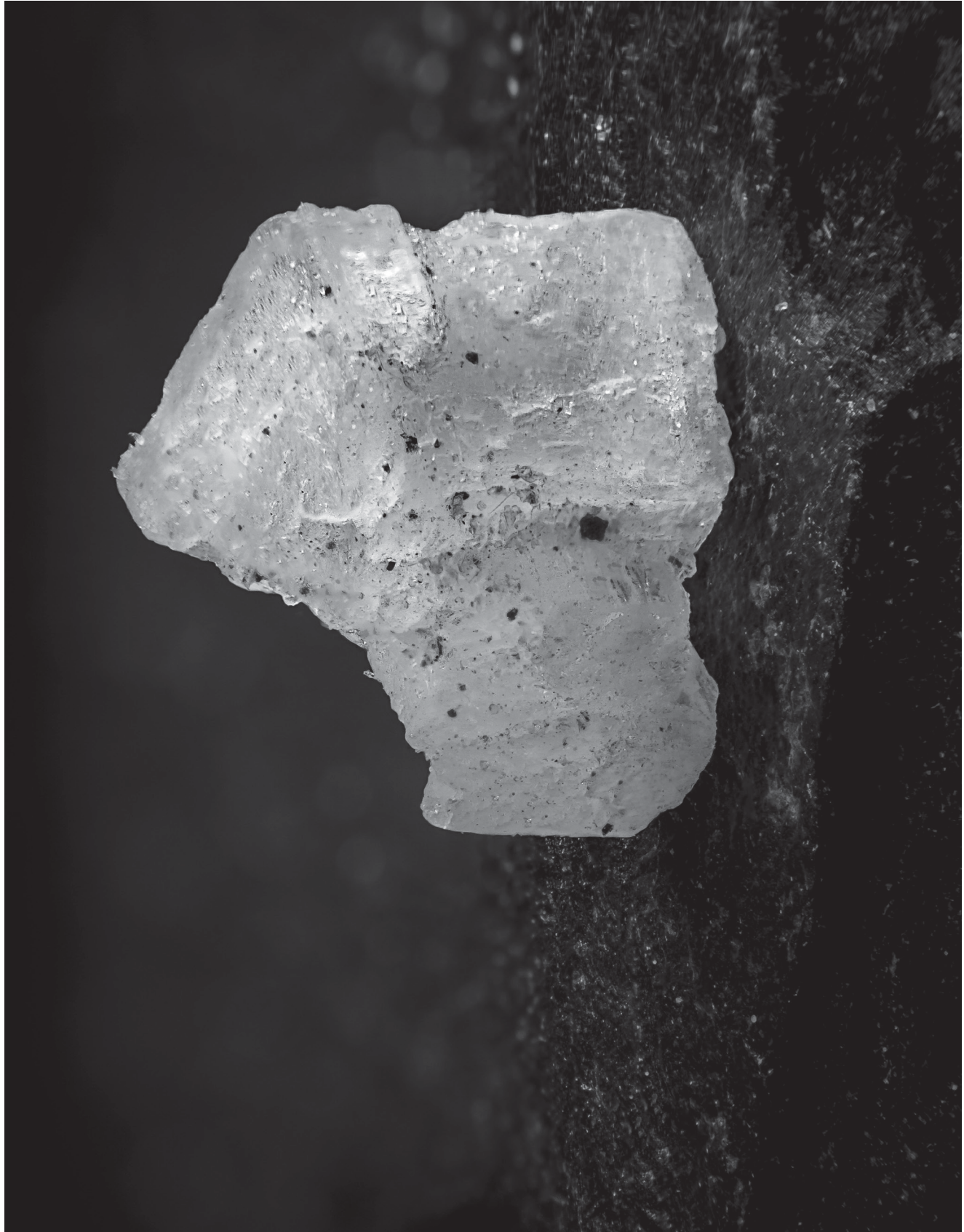
PARTICLE MODEL OF MATTER



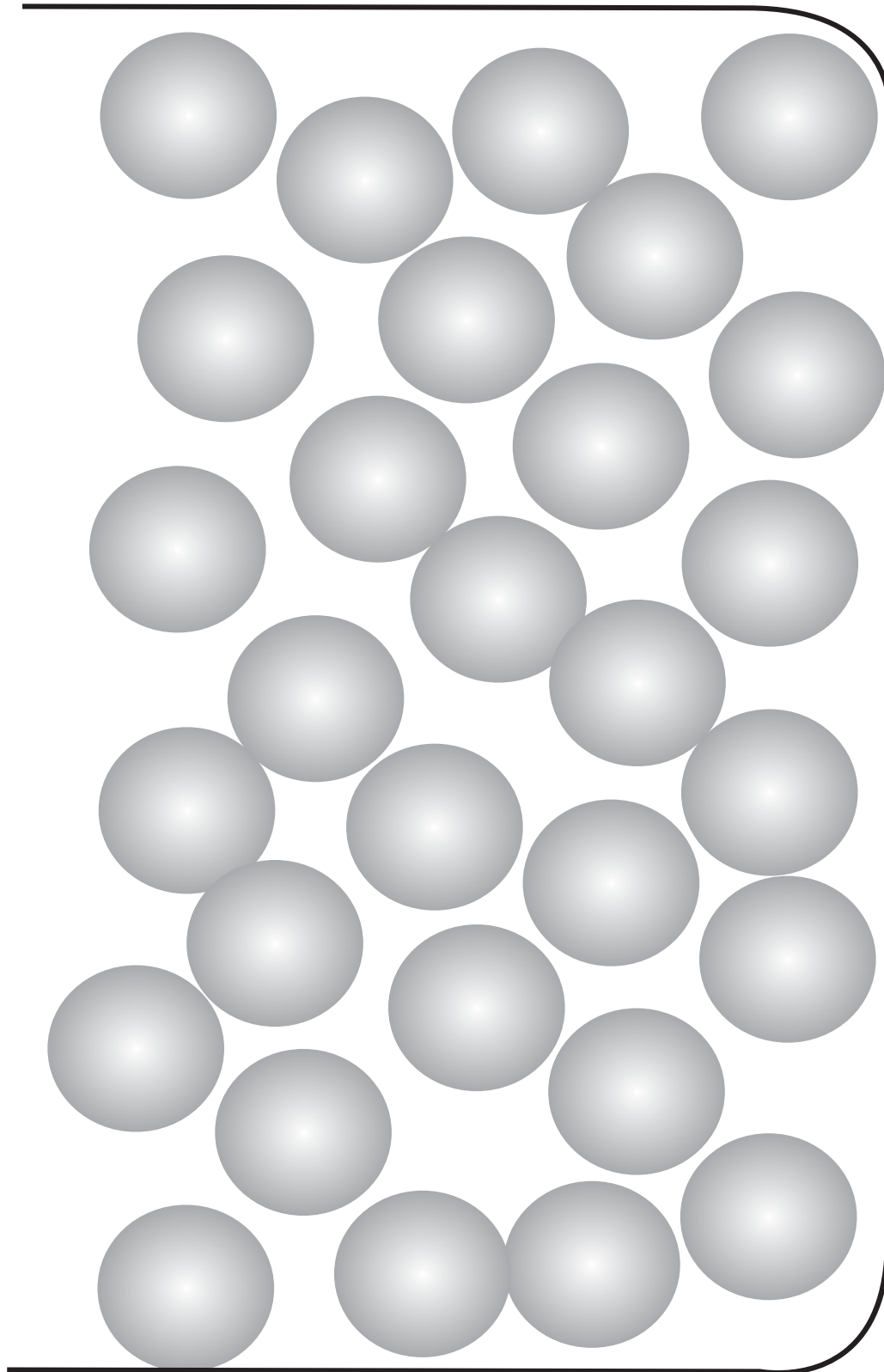
RESOURCE 10

Dieter Schultschik/ Shutterstock

SALT CRYSTAL



LIQUID STATE

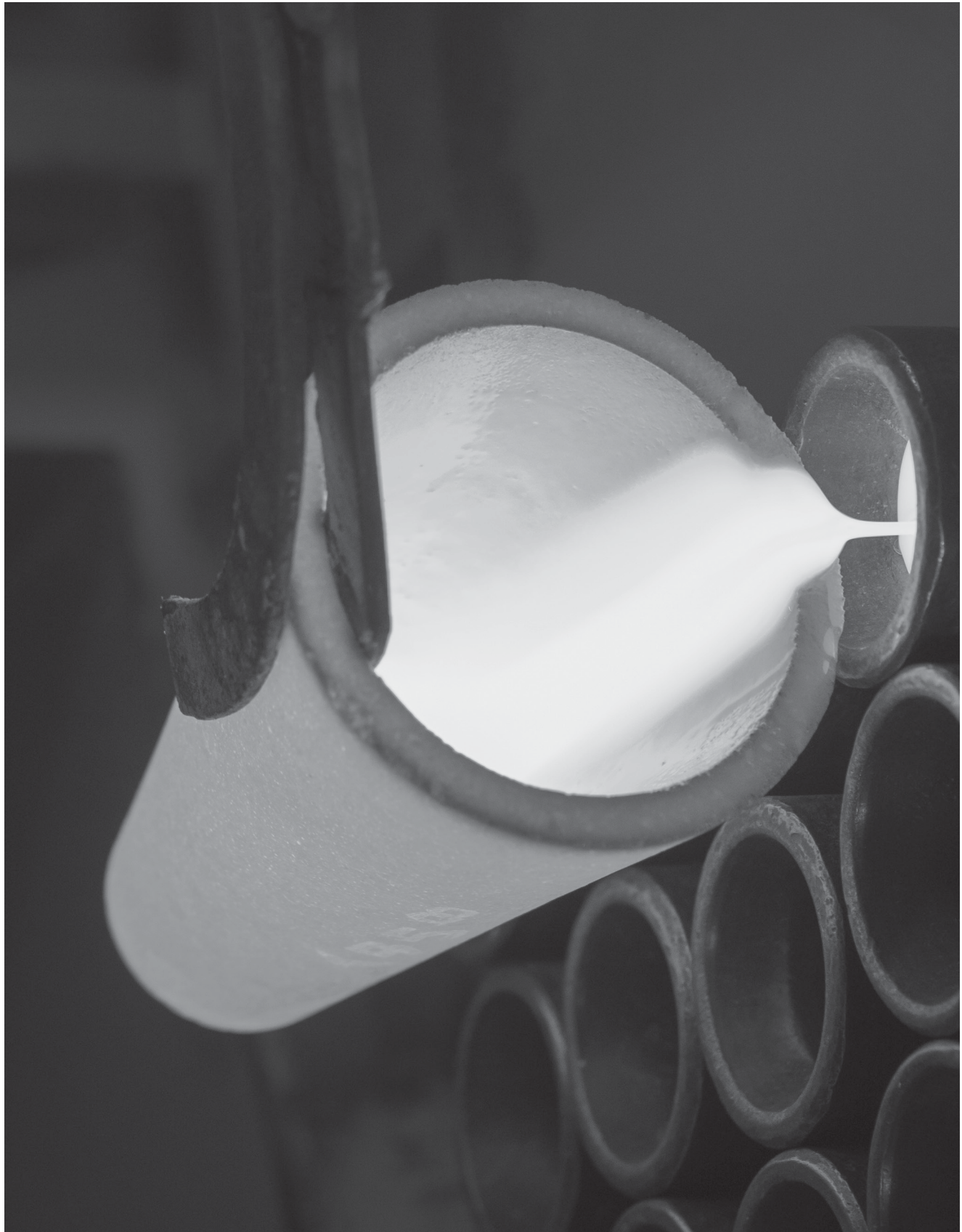


Intermolecular structure of liquid

RESOURCE 12

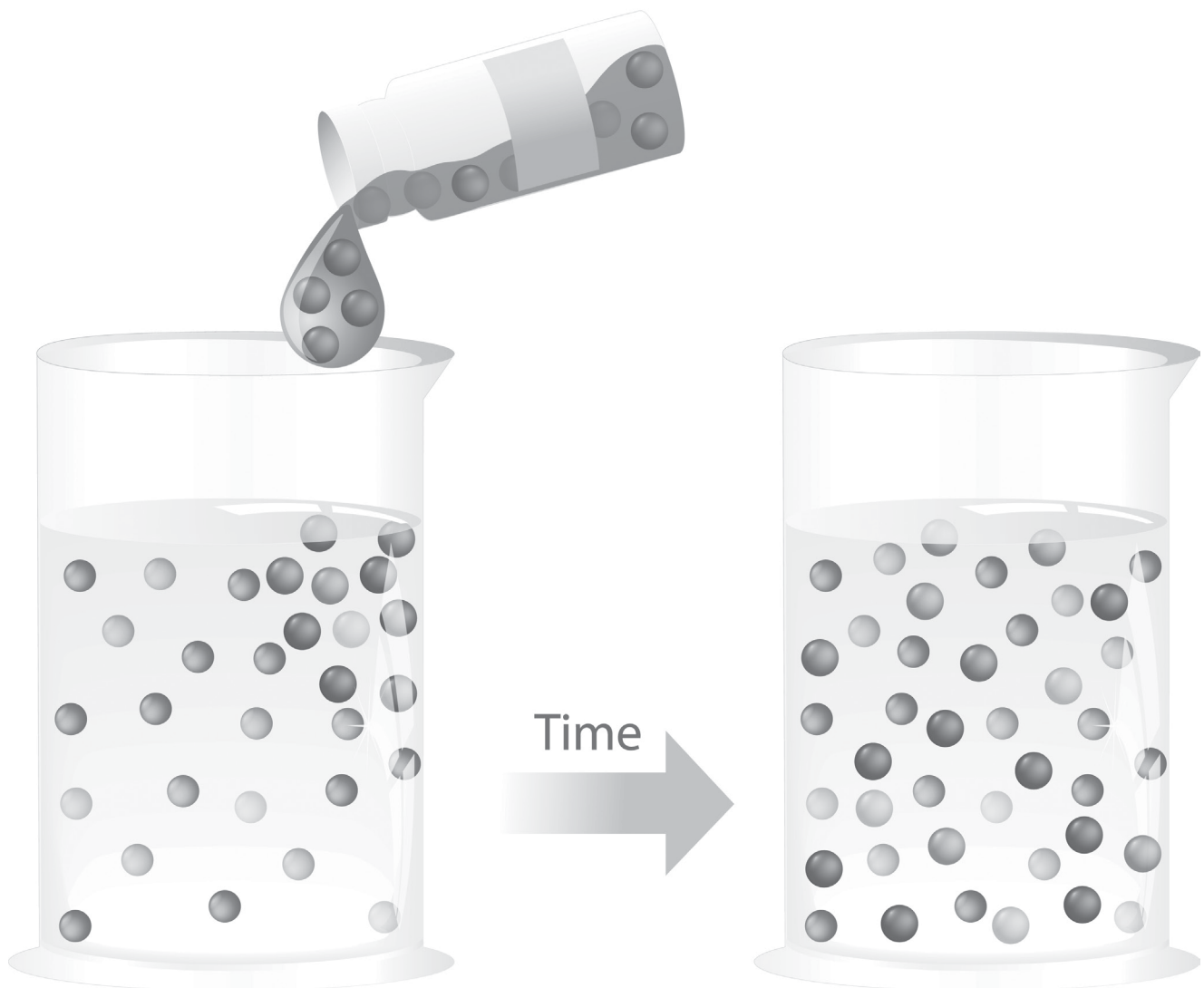
(https://upload.wikimedia.org/wikipedia/commons/f/fa/Chlorine_gas_in_high_concentration.jpg)

CHLORINE GAS



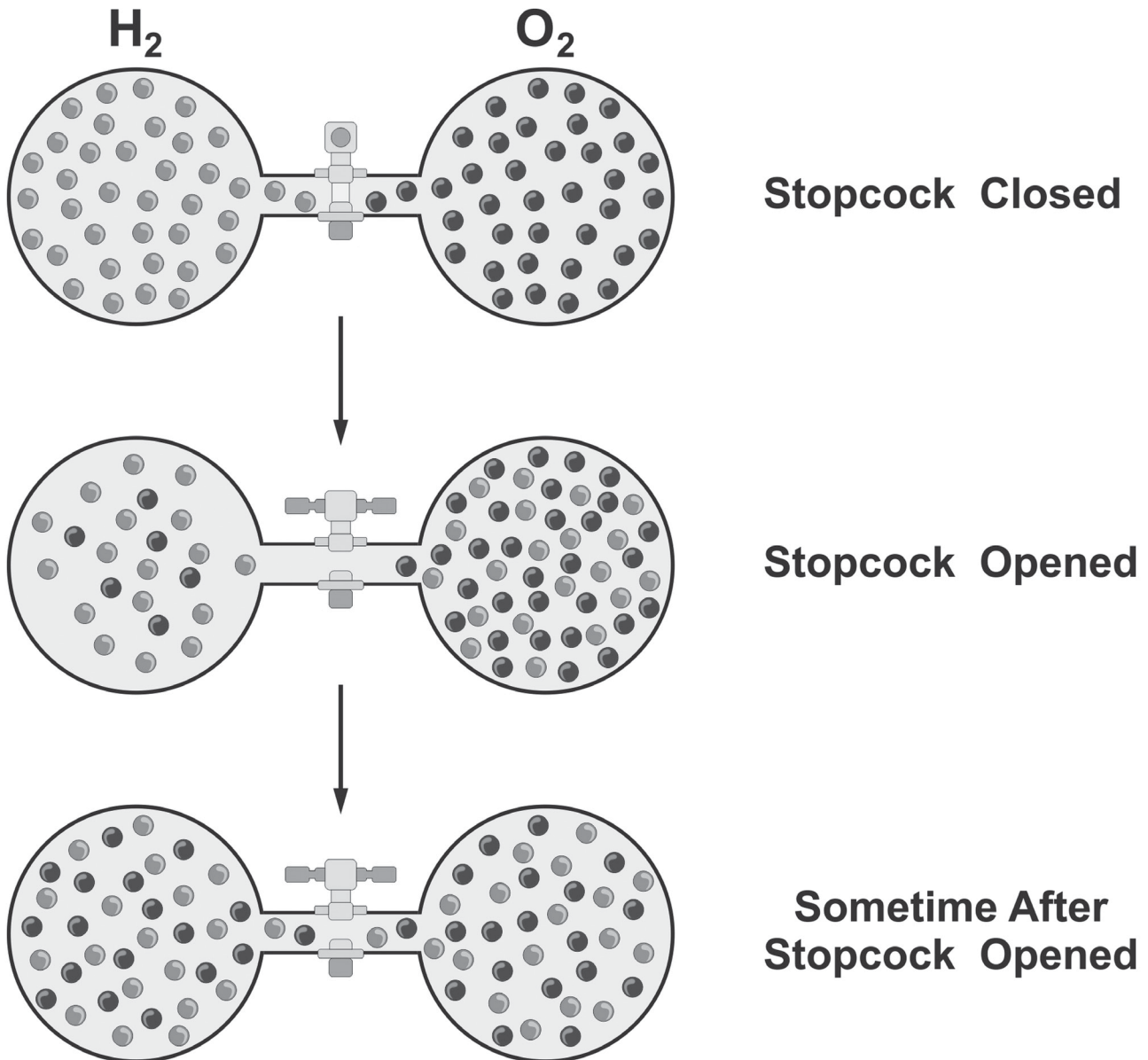
DIFFUSION IN A LIQUID

Diffusion




DIFFUSION IN A GAS

Gas Diffusion




DANGER SIGN & CORROSIVE SAFETY SIGN


States of Matter



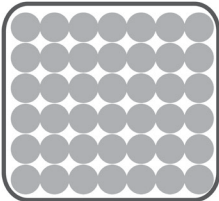
SOLID



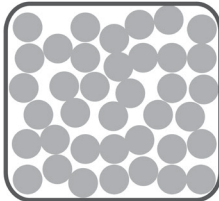
LIQUID




GAS



Solid state



Liquid state



Gas state

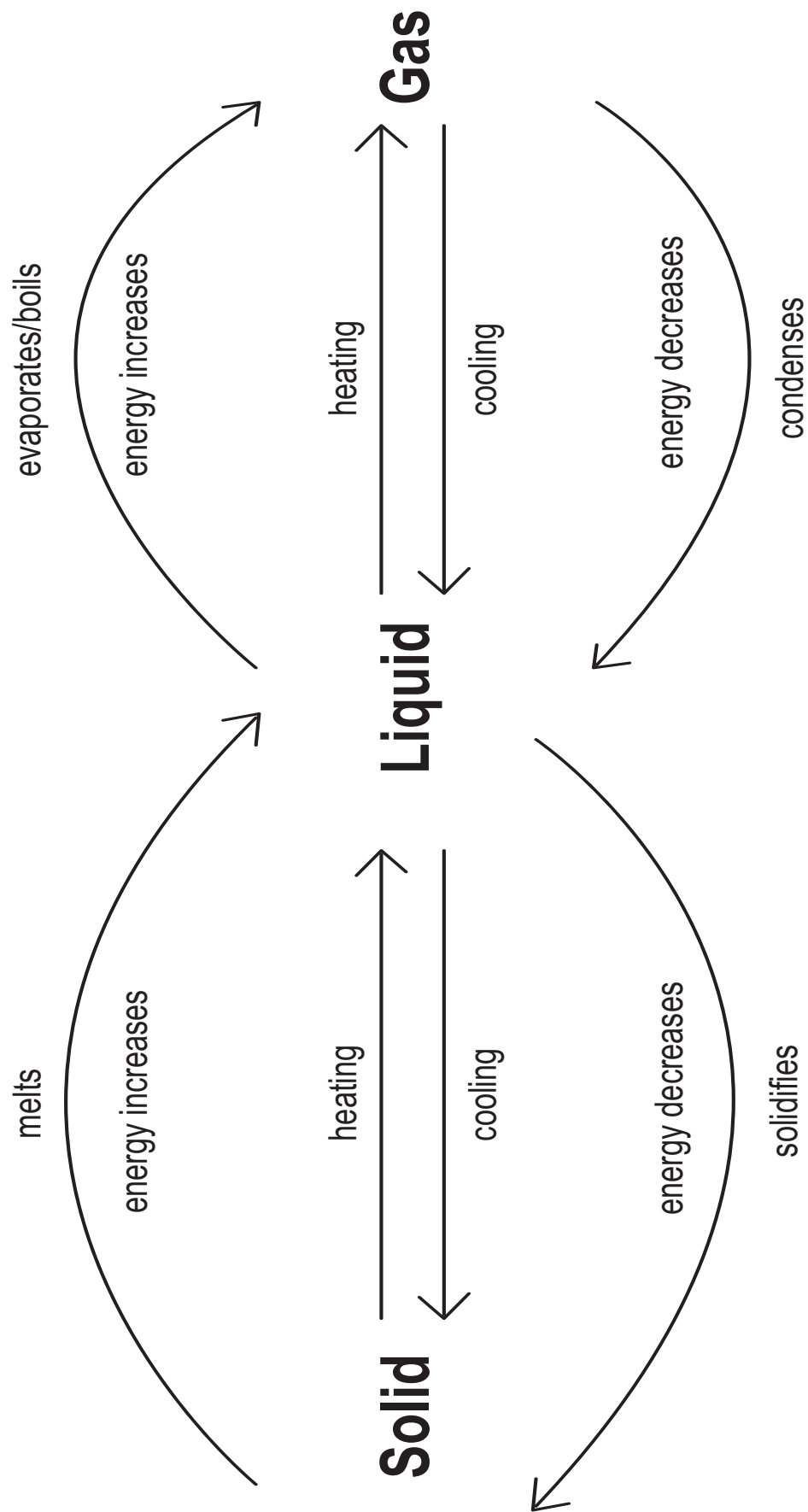
RESOURCE 16

Abramova Elena/ Shutterstock

COKE CAN WITH WATER DROPLETS



CHANGE OF STATE: SUMMARY



DENSITY AND STATES OF MATTER

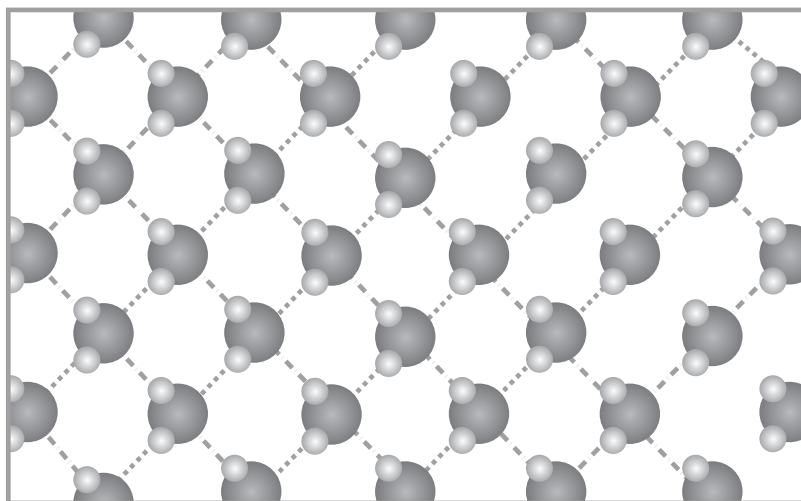
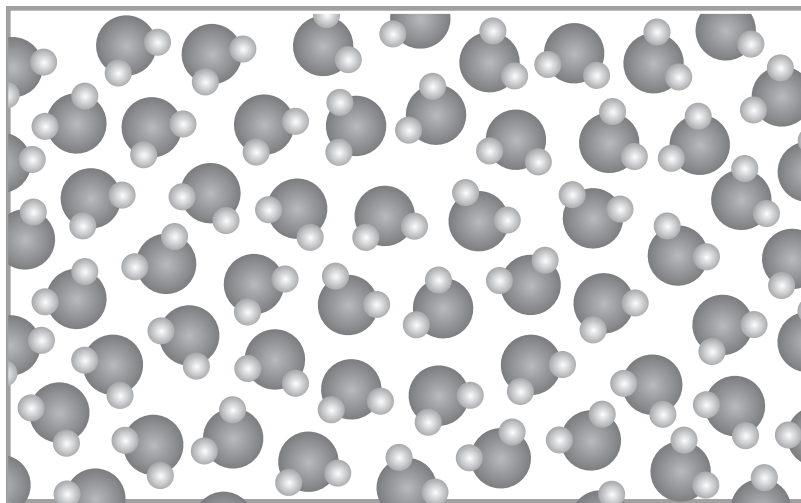
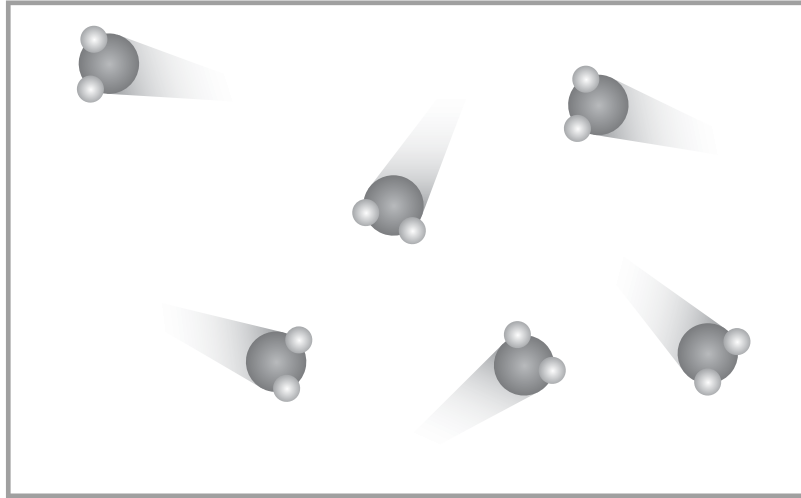
DENSITY

Demonstrate the density of two objects by comparing the mass of equal volumes.



RESOURCE 19

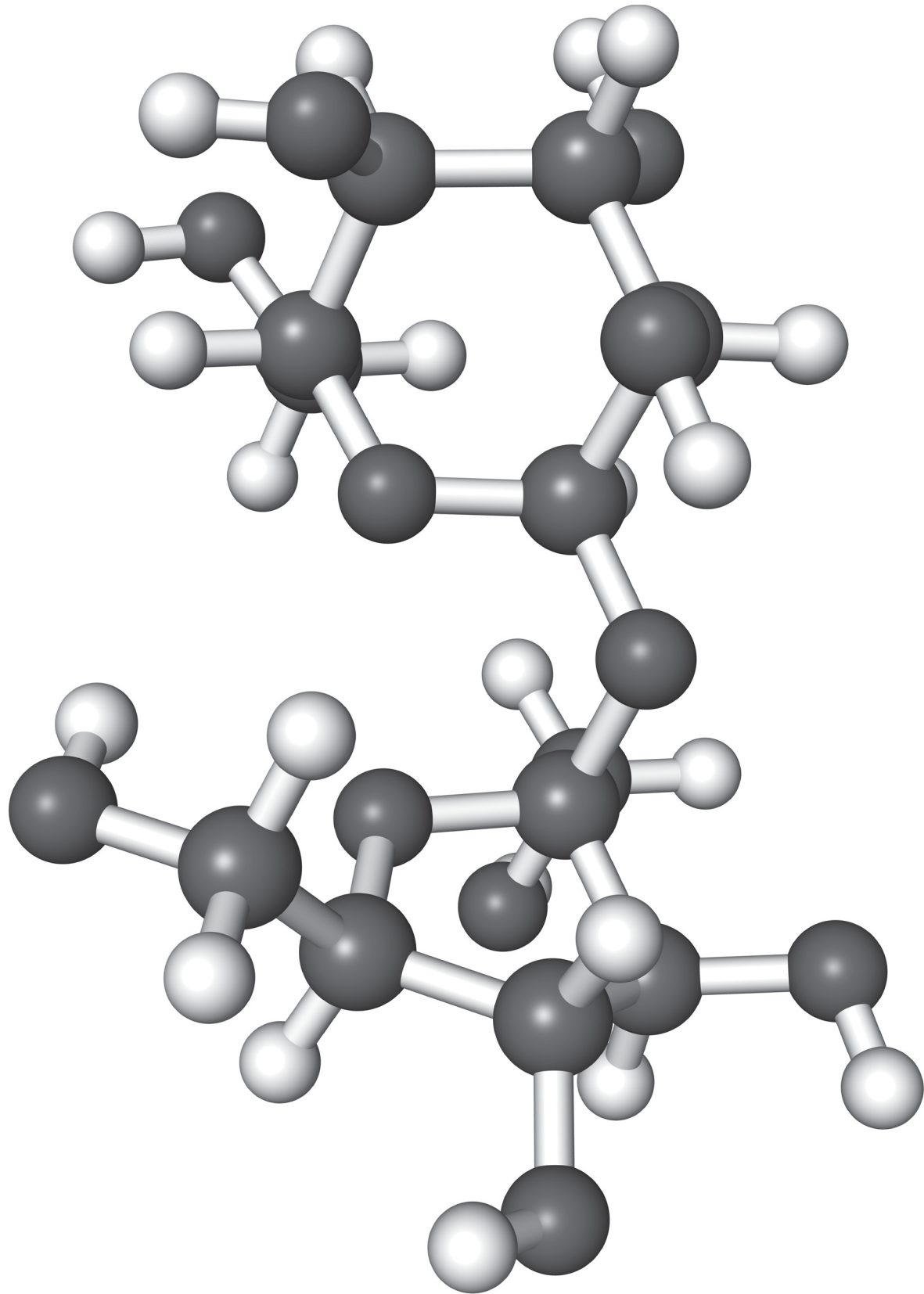
DIFFERENT STATES OF WATER MOLECULES



RESOURCE 20

Petarg/ Shutterstock

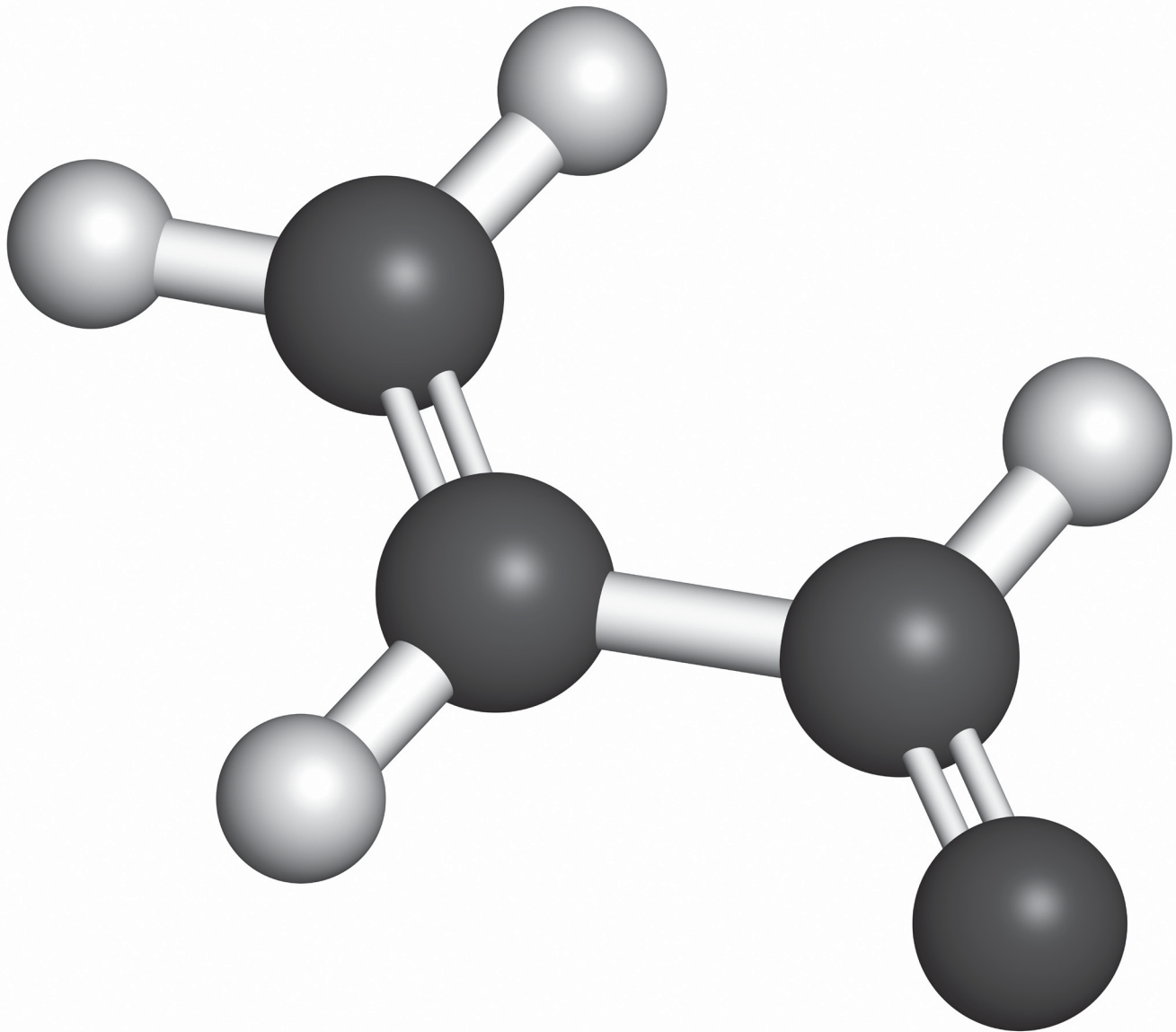
TABLE SUGAR [SUCROSE] MOLECULE



RESOURCE 21

Molecuul_be/ Shutterstock

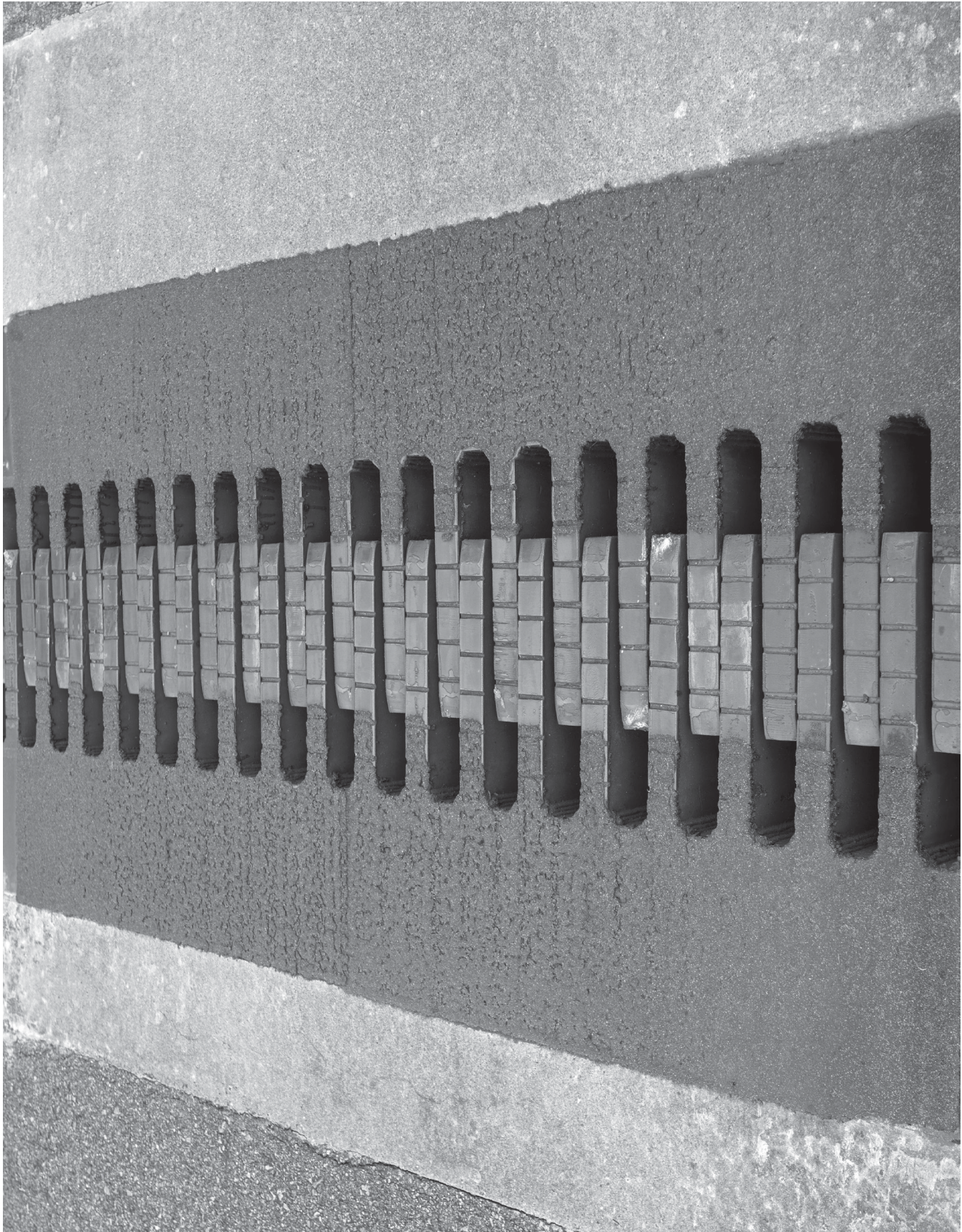
COOKING OIL (PROPENAL) MOLECULE



RESOURCE 22

Jerry Lin/ Shutterstock

EXPANSION JOINT ON BRIDGE



RESOURCE 23

Valeriy Lebedev/ Shutterstock

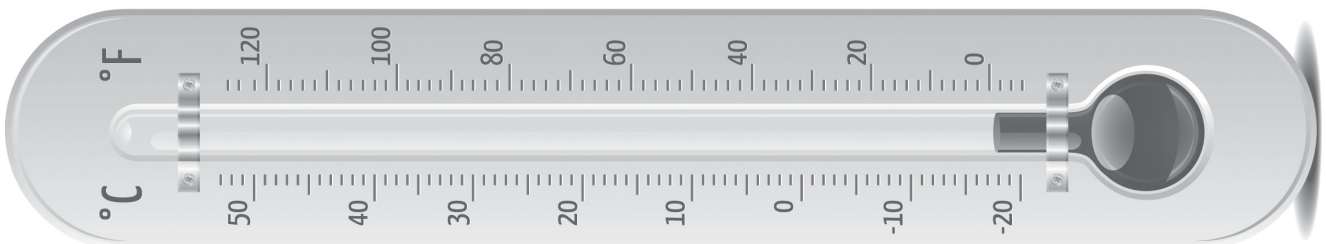
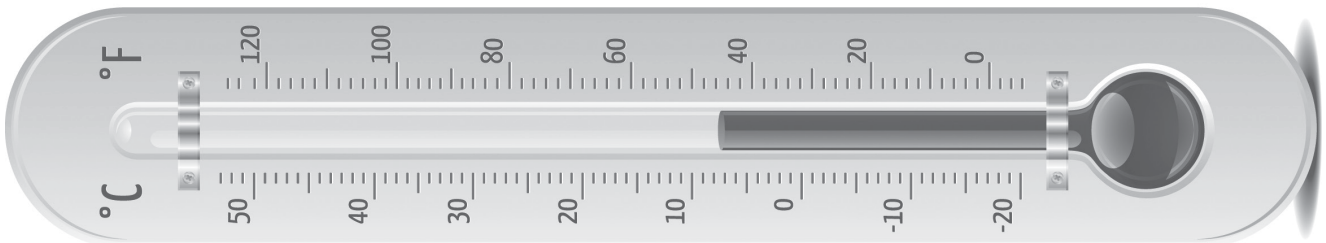
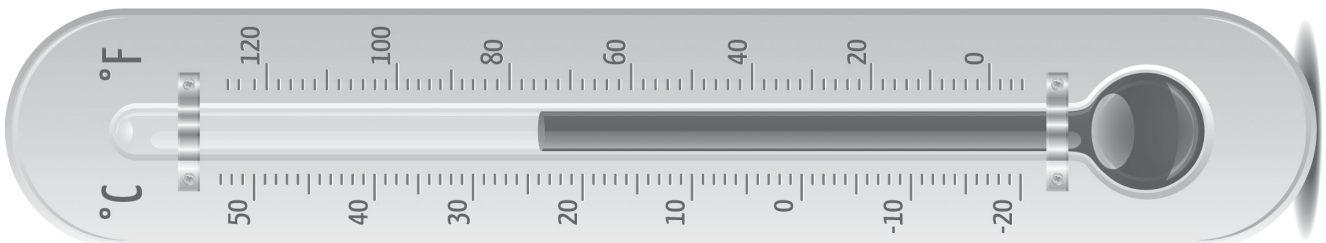
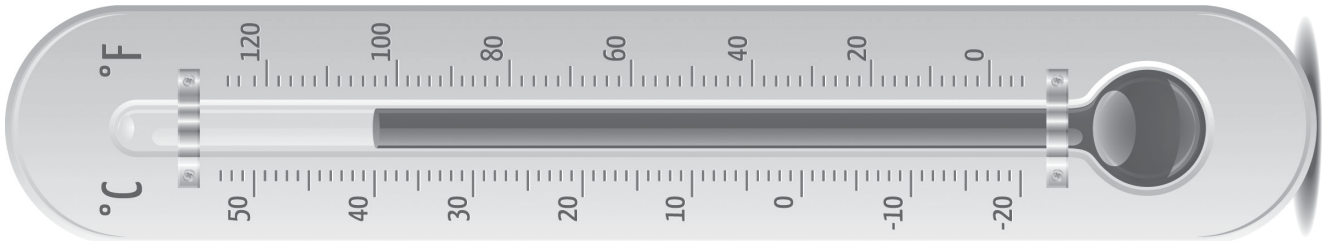
HOT IRON ROD



RESOURCE 24

PhoelixDE/ Shutterstock

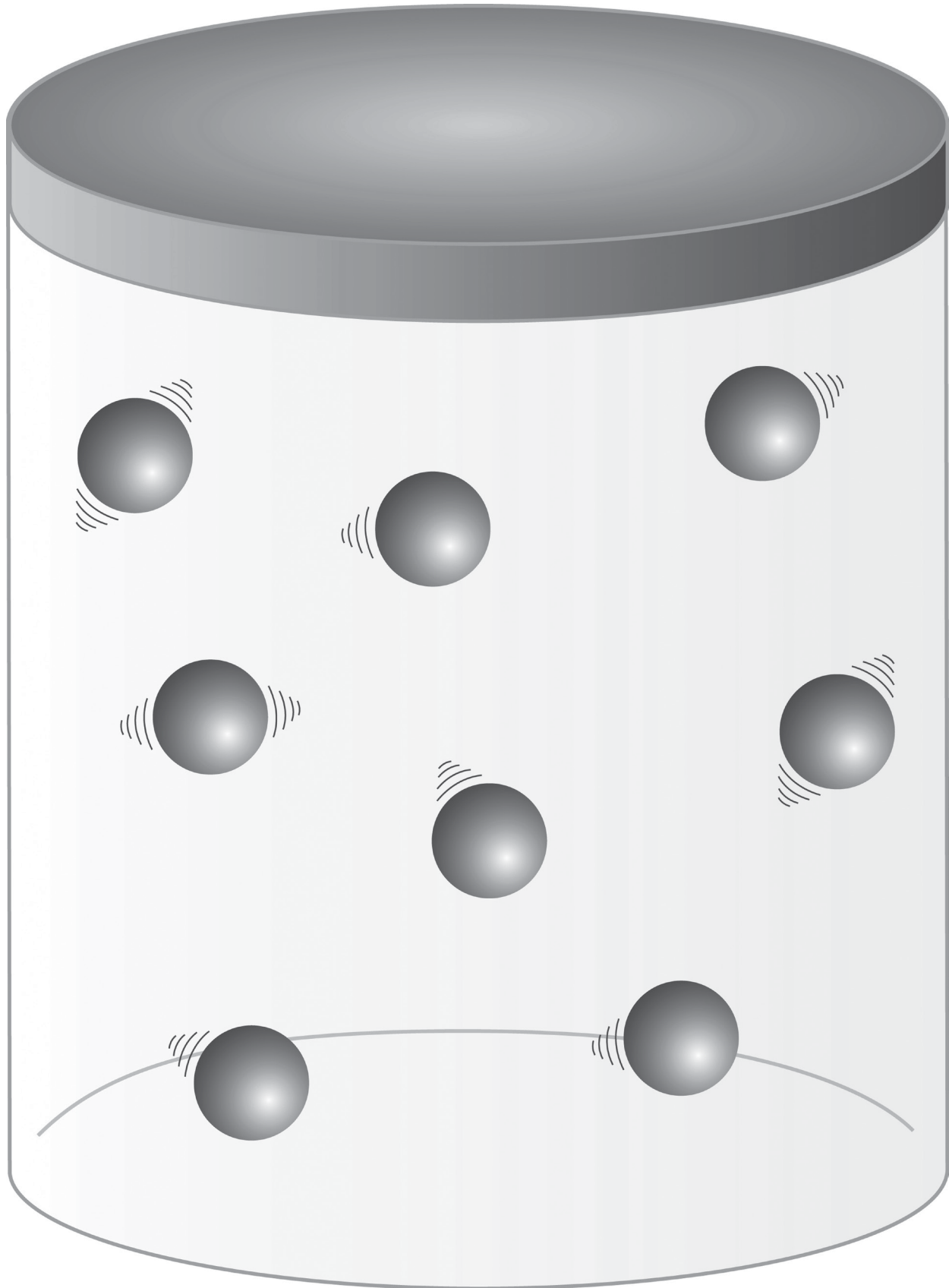
THERMOMETERS WITH DIFFERENT TEMPERATURES



RESOURCE 25

Edu Watanabe/ Shutterstock

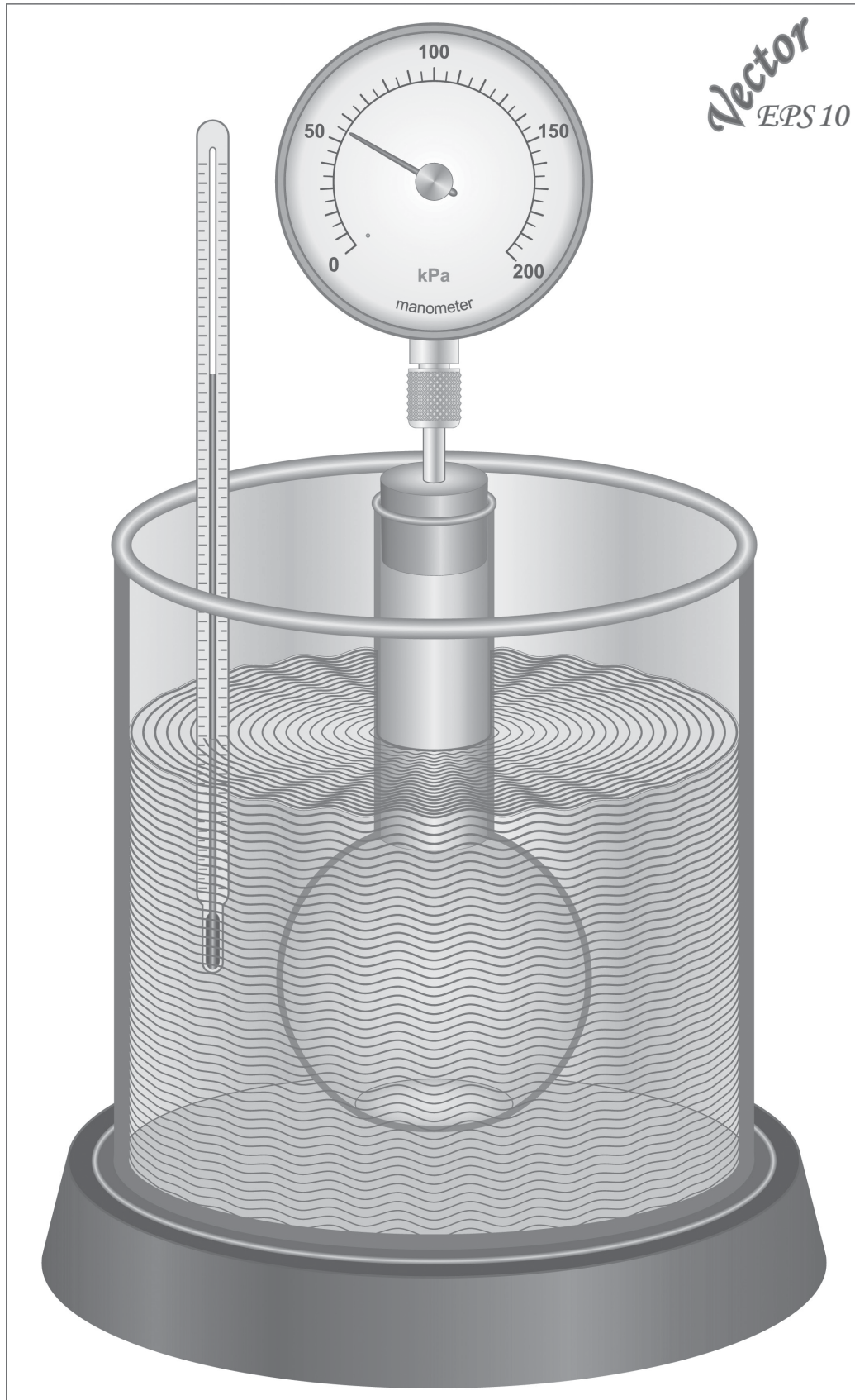
GAS PARTICLES IN CLOSED CONTAINER



RESOURCE 26

Edu Watanabe/ Shutterstock

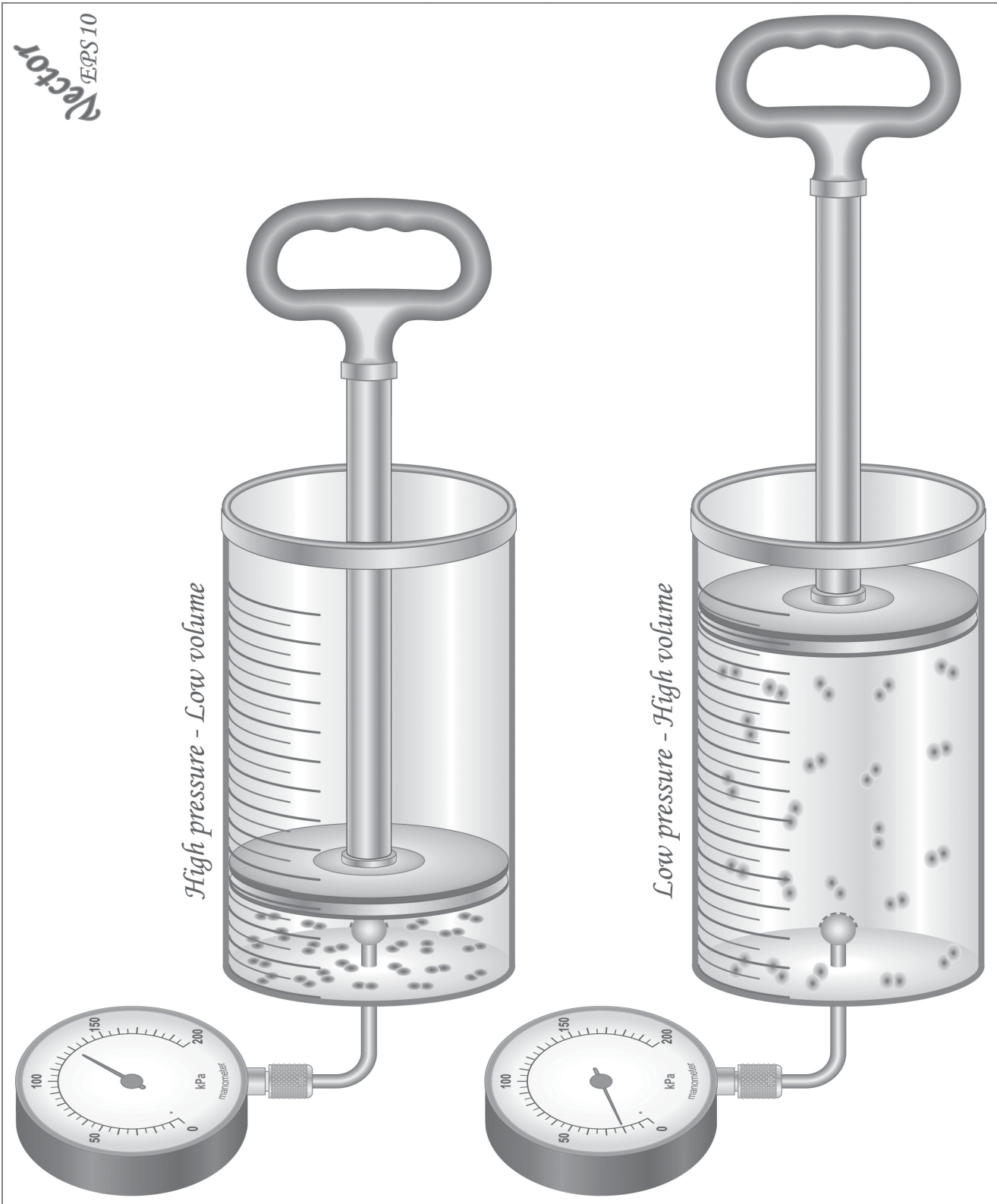
PRESSURE AND TEMPERATURE



RESOURCE 27

Fouad A. Saad/ Shutterstock

PRESSURE AND VOLUME



RESOURCE 28

Moriz/ Shutterstock

PRESSURE AND NUMBER OF GAS PARTICLES



RESOURCE 29

Pat Leelaamornvichet/ Shutterstock

SYRINGE



RESOURCE 30

Kissmelunastudio/ Shutterstock

BICYCLE WITH FLAT TYRE



RESOURCE 31

Marina Grigorivna/ Shutterstock

MODELLING CLAY



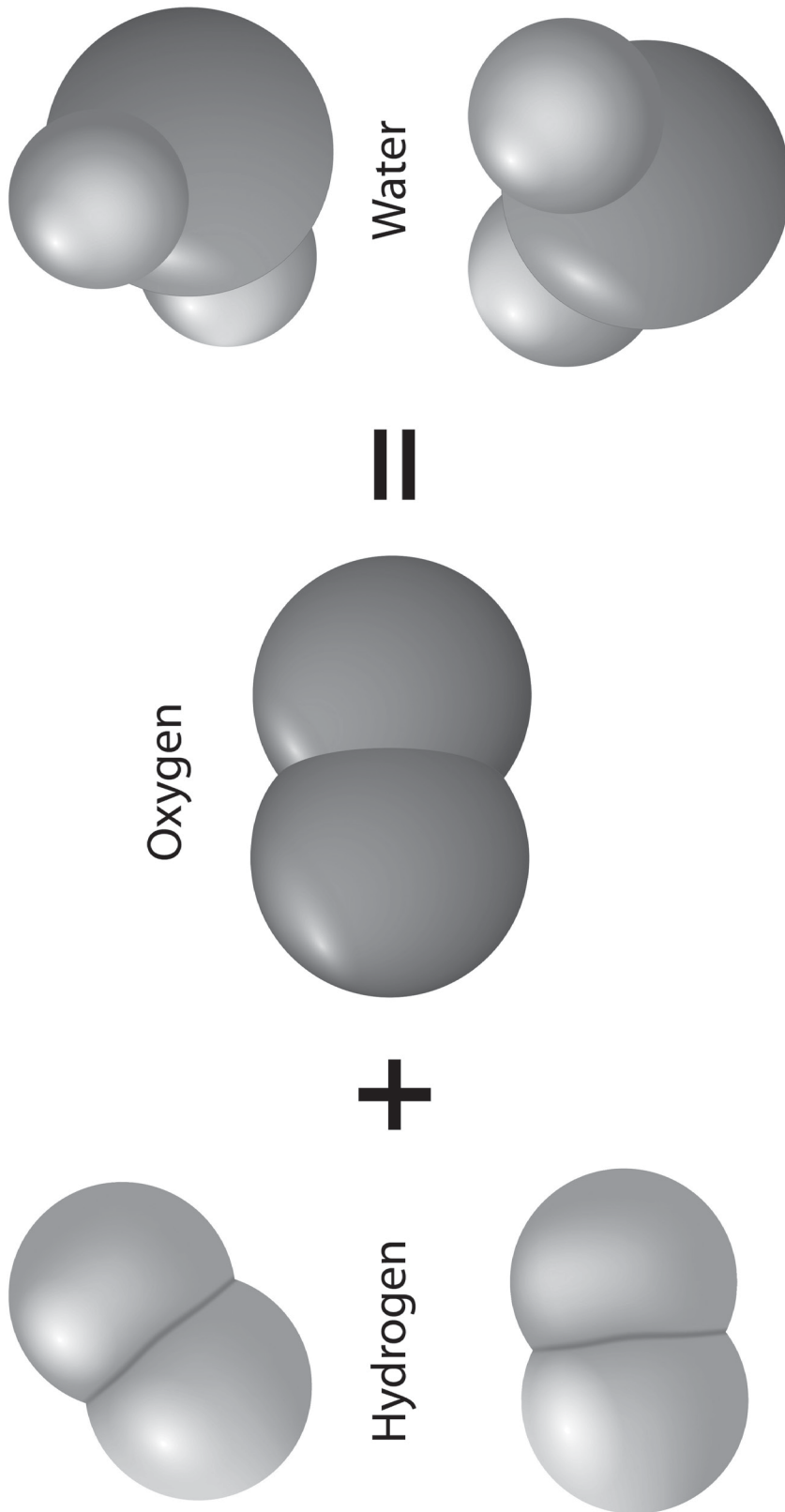
RESOURCE 32

Swa 182/ Shutterstock

FIREWORKS



THE SYNTHESIS OF WATER



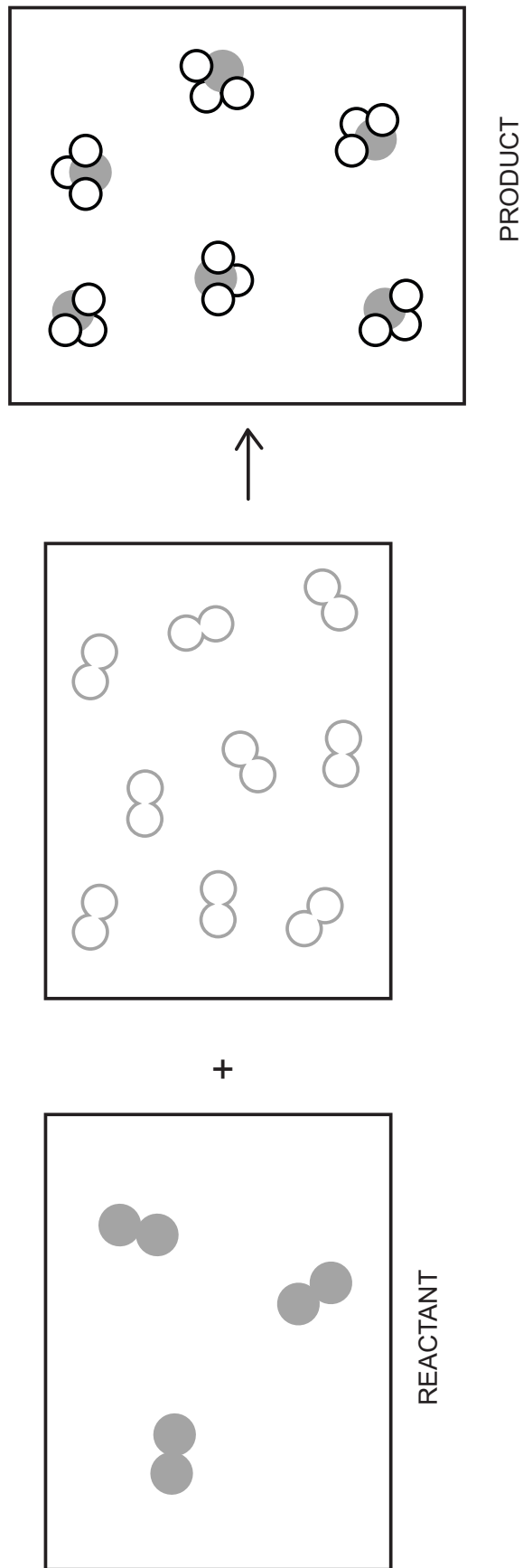
THE DECOMPOSITION OF MERCURY(II) OXIDE

Thermal Decomposition of Mercury (II) Oxide

Equation

mercury (II) oxide	→	mercury	+	oxygen
$2\text{HgO}(s)$	→	$2\text{Hg}(l)$	+	$\text{O}_2(g)$

THE SYNTHESIS OF AMMONIA



RESOURCE 36

(<https://commons.wikimedia.org/w/index.php?curid=10695347>)

By Simon A. Eugster

STRAWBERRY WINE FERMENTATION



RESOURCE 37

(https://upload.wikimedia.org/wikipedia/commons/f/fb/Chicken_Egg_without_Eggshell_5859.jpg)

EGG WITHOUT A SHELL



RESOURCE 38

(https://upload.wikimedia.org/wikipedia/commons/thumb/9/97/Baking_soda_and_vinegar.jp/1024px-Baking_soda_and_vinegar.jpg) By Katerha

REACTION OF BICARBONATE OF SODA AND VINEGAR



RESOURCE 39

(https://upload.wikimedia.org/wikipedia/commons/thumb/c/c6/Ethanol_burning_flame.png/800px-Ethanol_burning_flame.png)

BURNING ETHANOL



RESOURCE 40

Tim Knight/ Shutterstock

MAGNESIUM BURNING IN AIR

