

NATURAL SCIENCES

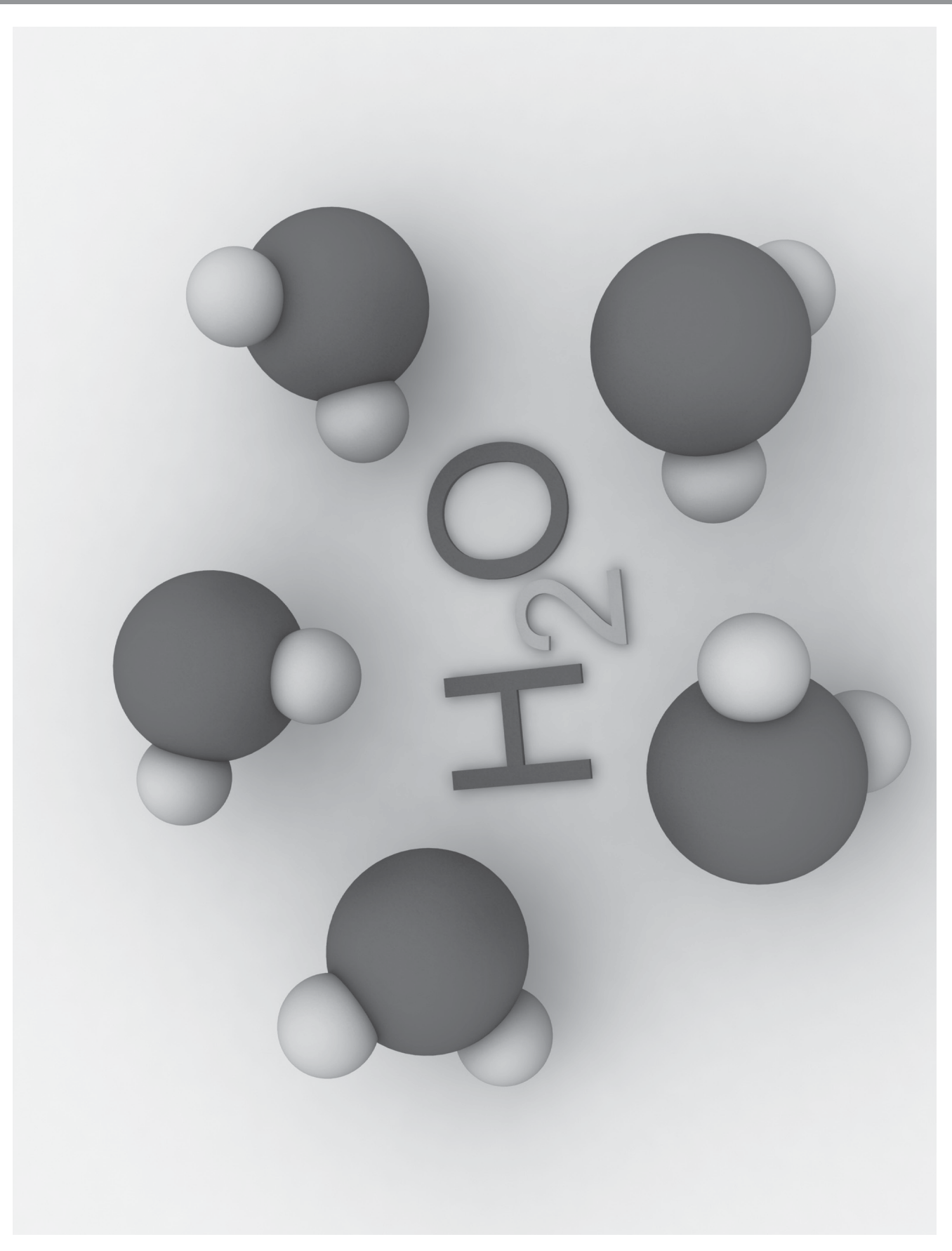
RESOURCE PACK
GRADE 7 TERM 2



RESOURCE 1

Master 3D/ Shutterstock

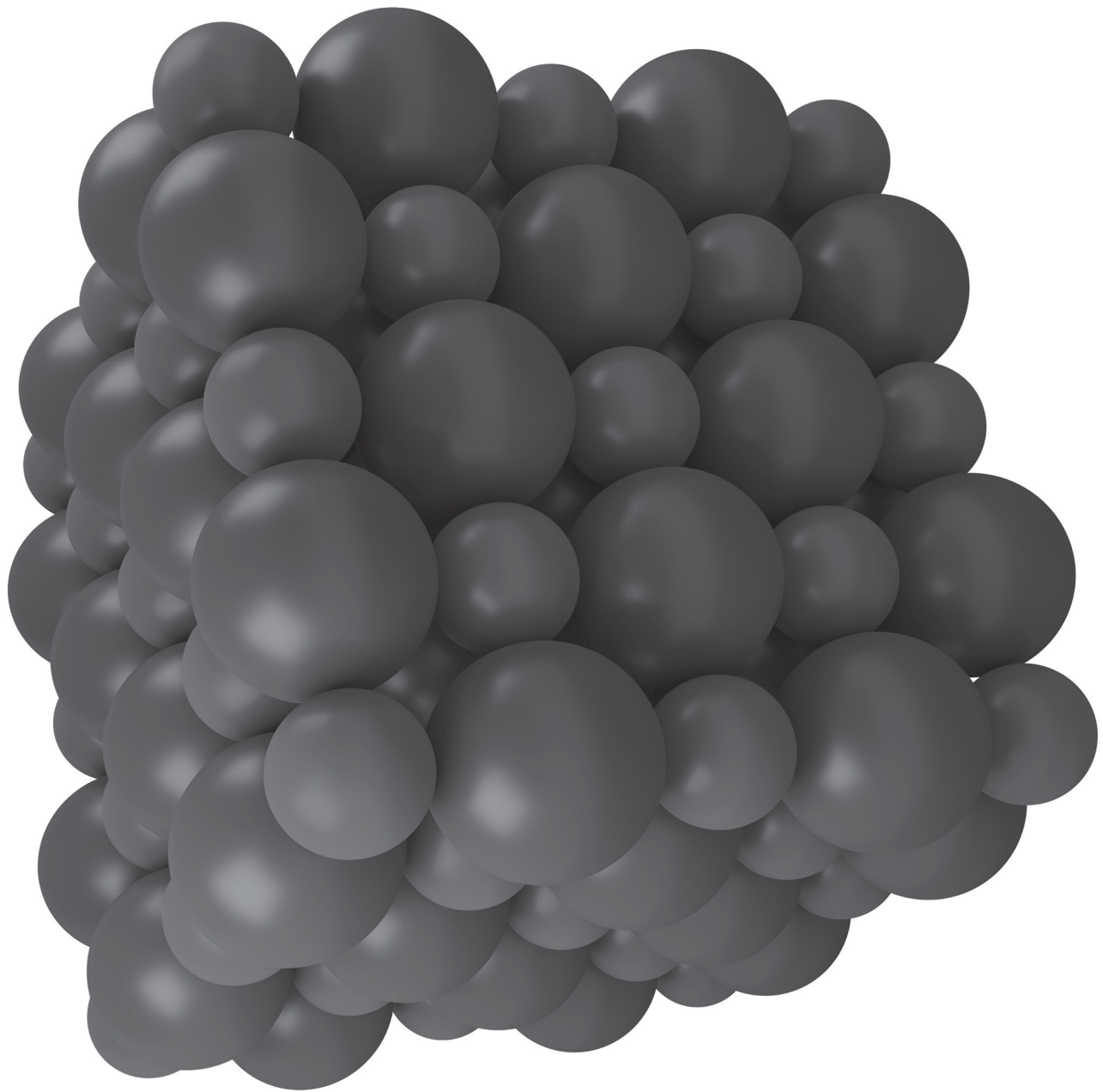
WATER PARTICLES



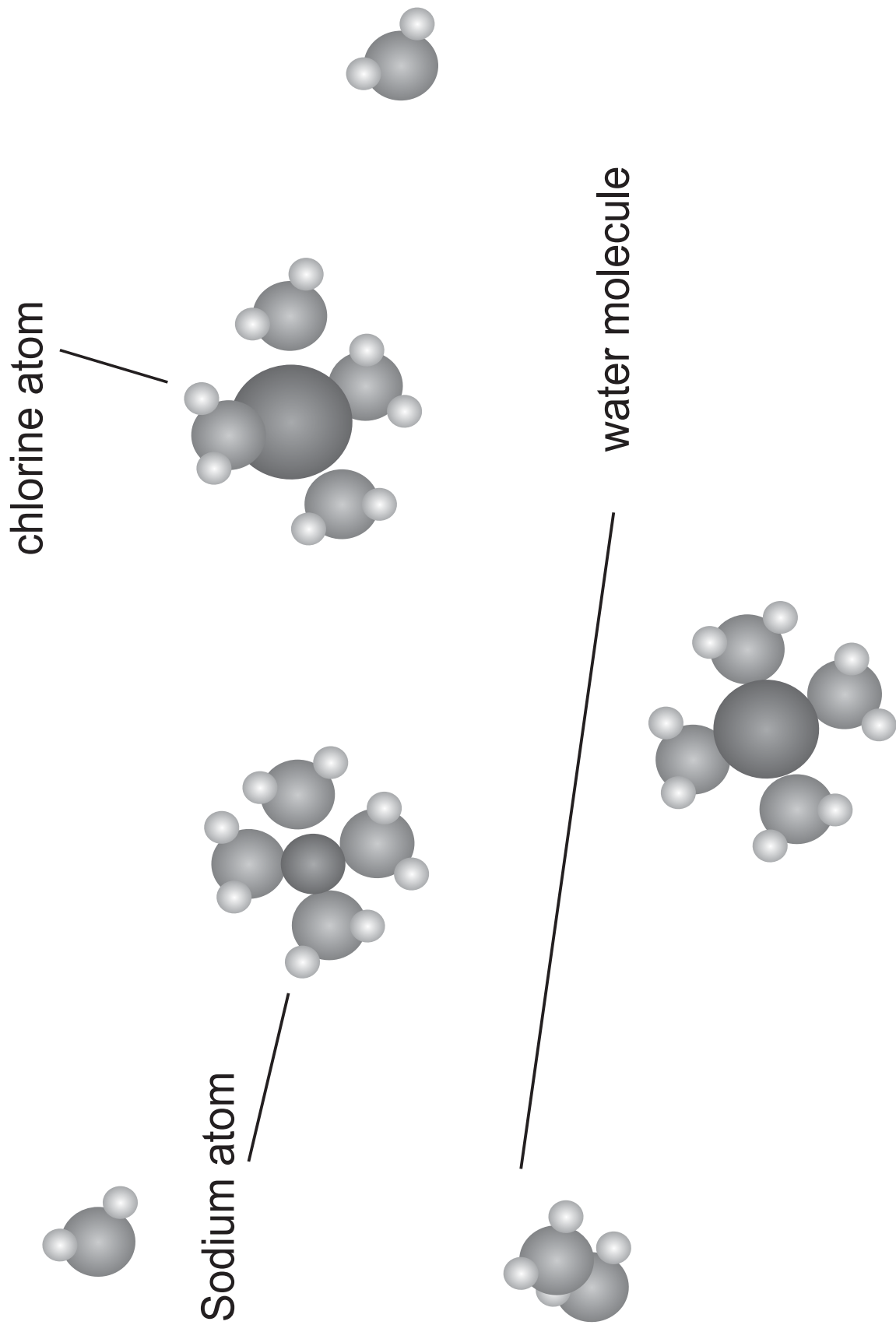
RESOURCE 2

Extender_01/ Shutterstock

SALT PARTICLES



WATER AND SALT SOLUTION PARTICLES



RESOURCE 4

F. Plock/ Shutterstock

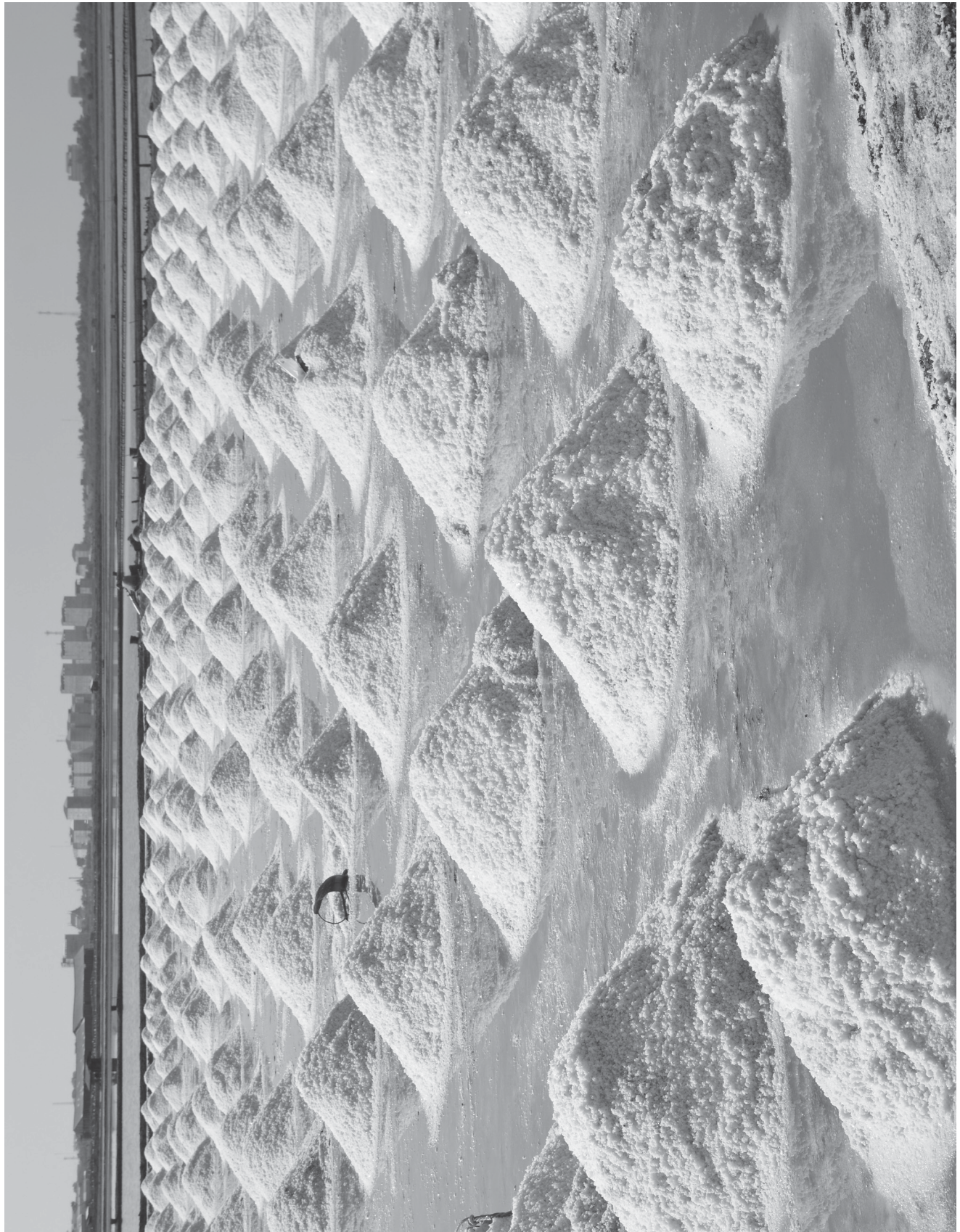
SALT PANS



RESOURCE 5

Ideation90/ Shutterstock

SALT HARVESTING



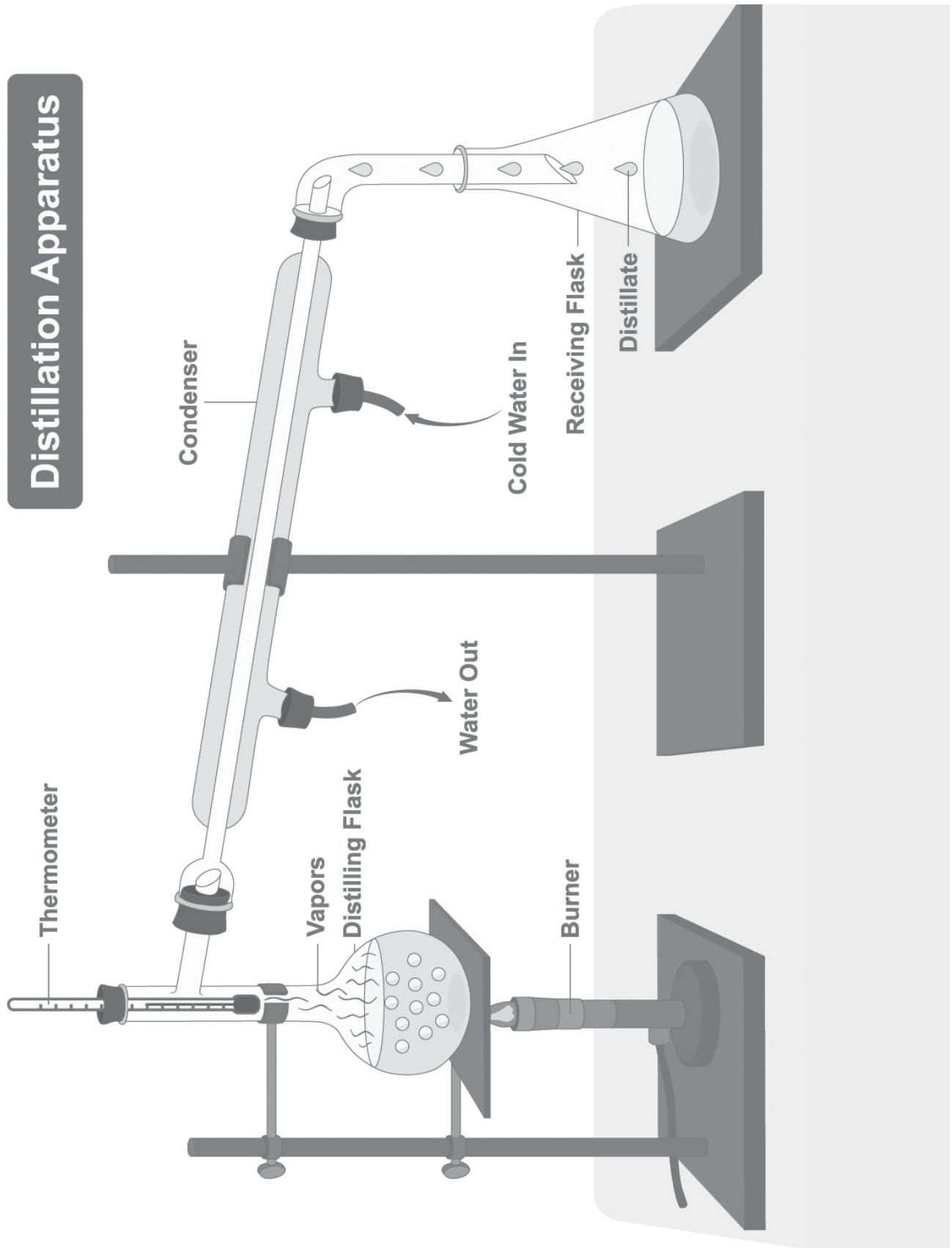
RESOURCE 6

Y. Therdthai/ Shutterstock

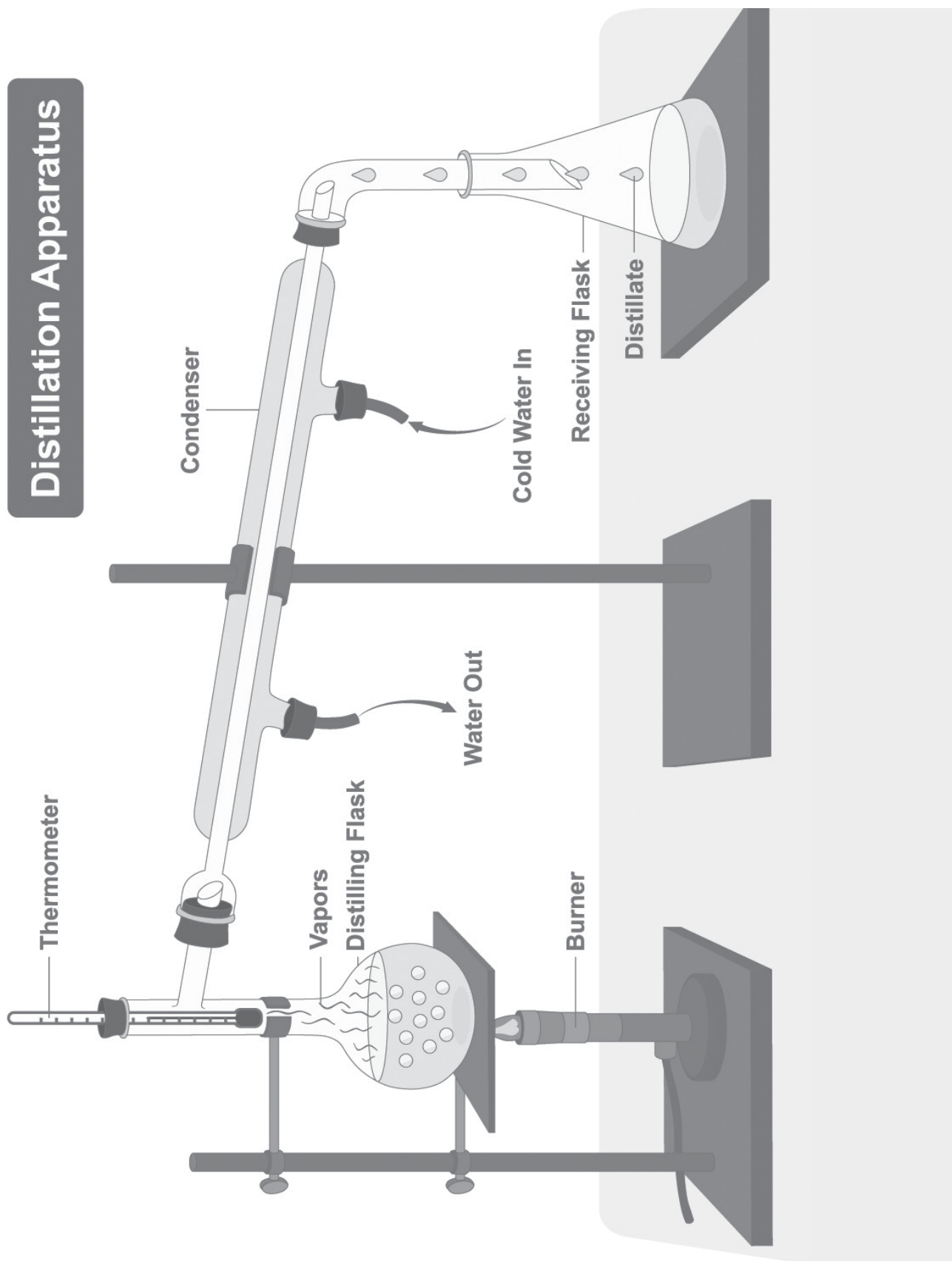
SALT COLLECTION



DISTILLATION OF WATER



DISTILLATION OF WATER



Distillation Apparatus

Condenser

Cold Water In

Receiving Flask

Distillate

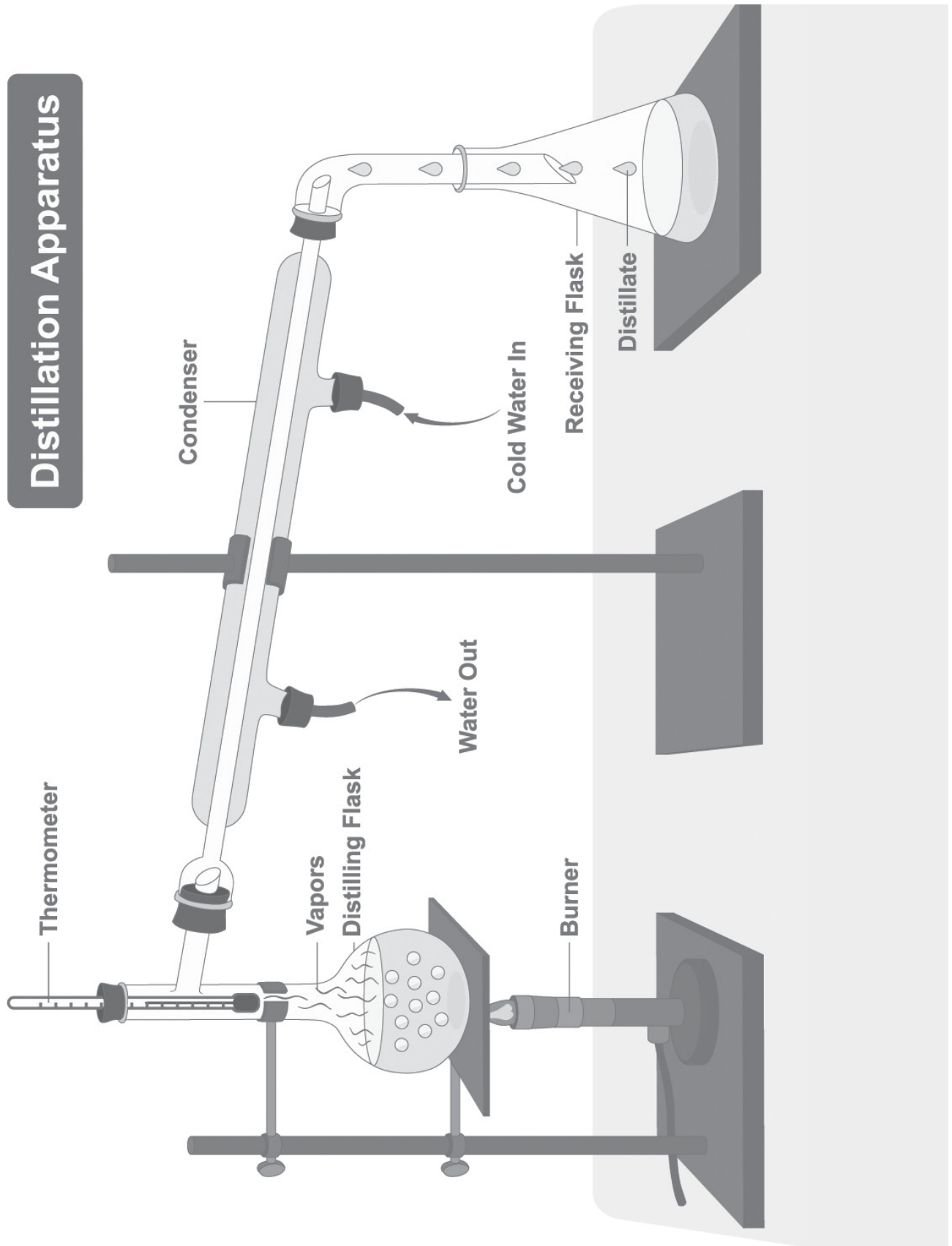
Water Out

Thermometer

Vapors
Distilling Flask

Burner

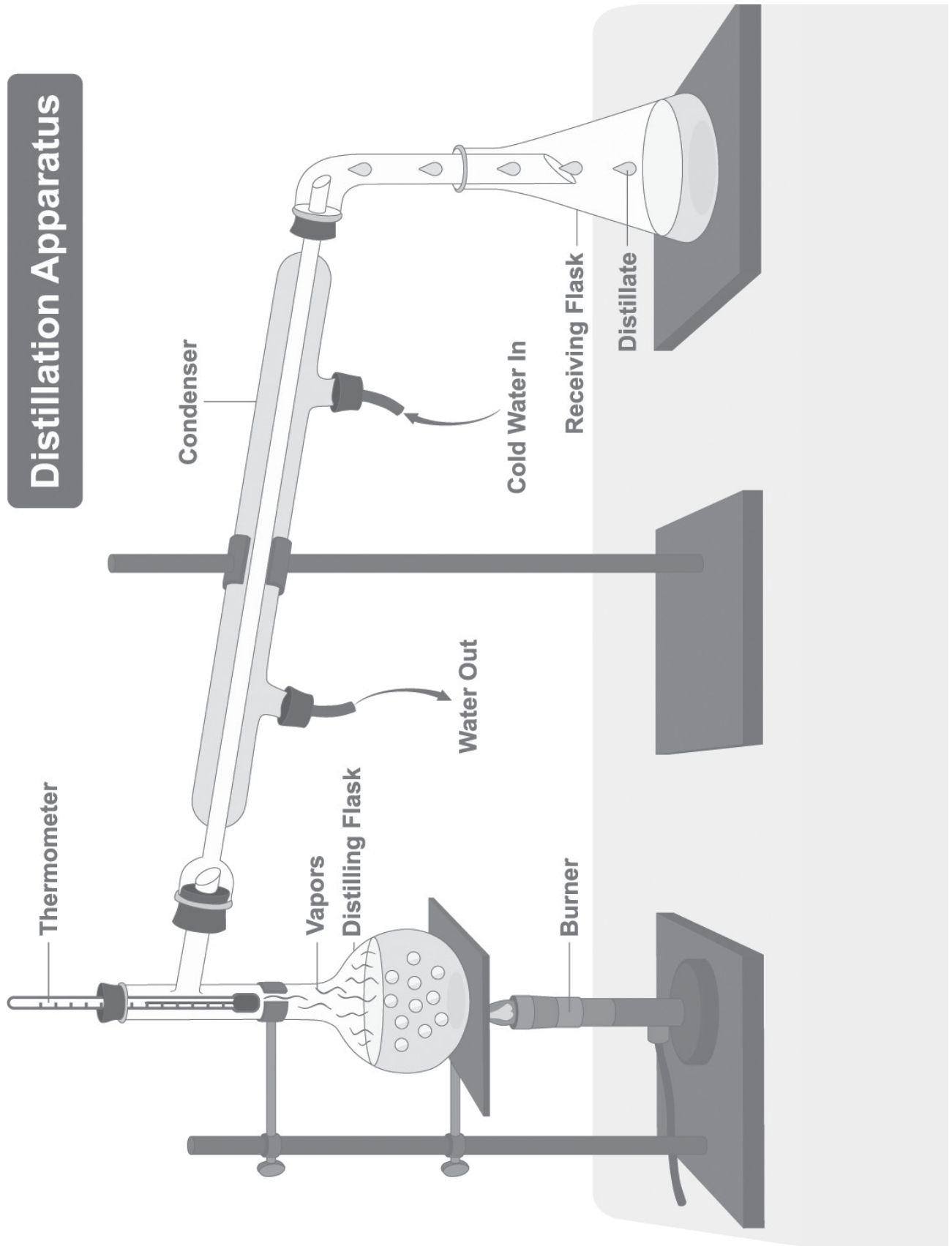
DISTILLATION OF WATER



RESOURCE 7.4

Udaix/ Shutterstock

DISTILLATION OF WATER



RESOURCE 8

s0urav_diaz/Shutterstock

WATER POLLUTION



RESOURCE 9

<http://blogs.reuters.com/photographers-blog/files/2013/03/11mar1.jpg>

A MAN COLLECTING OBJECTS THAT HAVE POLLUTED THE WATER



RESOURCE 10

docter_k/Shutterstock

LAND POLLUTION



RESOURCE 11

<http://blog.1800gotjunk.com/wp-content/uploads/2014/10/01-Strange-junk-at-the-dump.jpg>

A LANDFILL



RESOURCE 12

YegoeVdo22/Shutterstock
AveNa/Shutterstock

DANGER SIGN & CORROSIVE SAFETY SIGN



TOXIC HAZARD

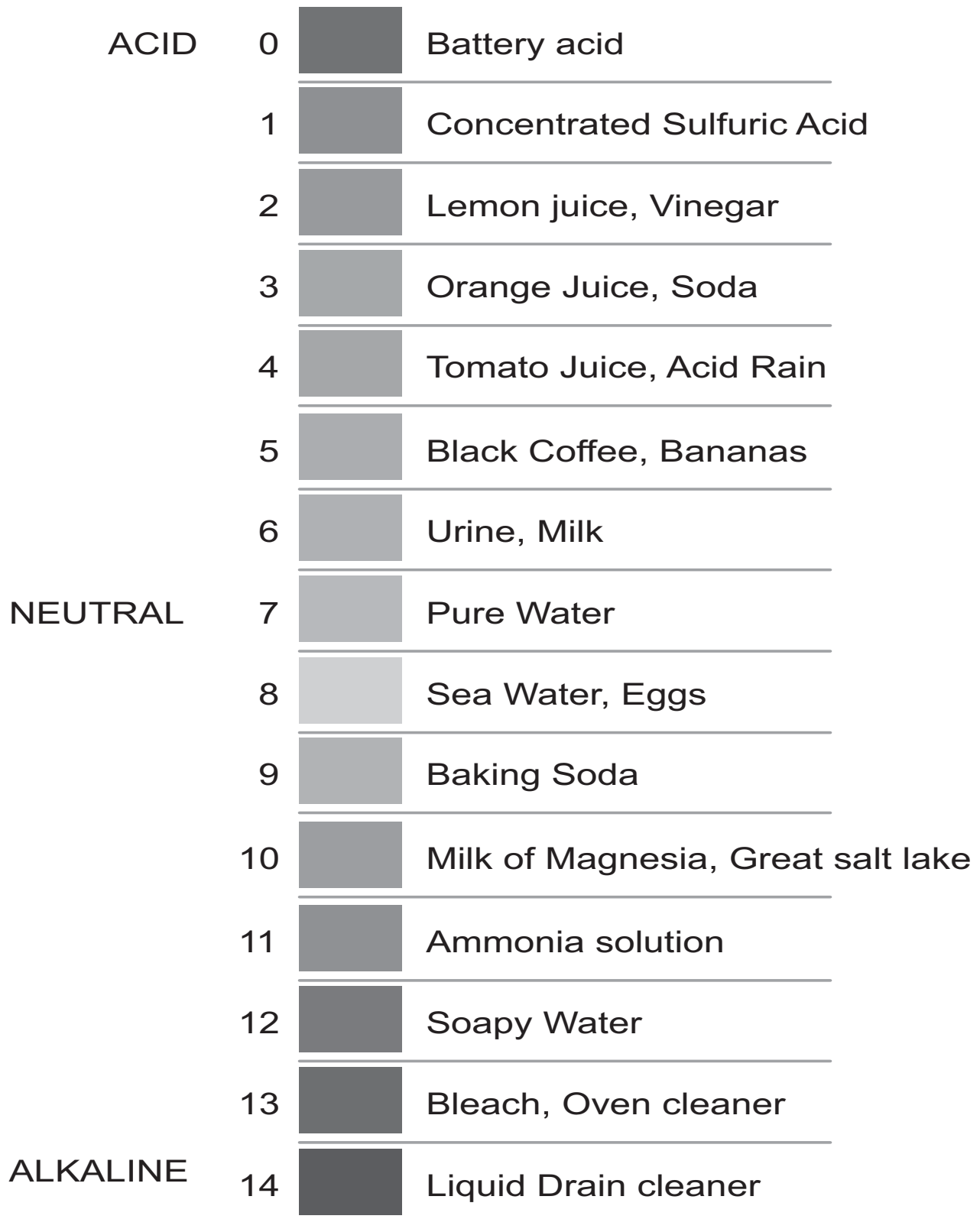


DANGER



**Highly Corrosive
Chemicals**

pH Scale



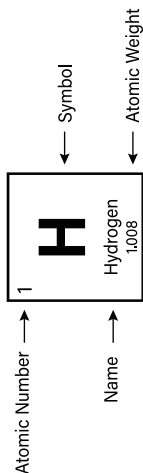
KEY FOR THE NITROGEN BOX ON THE PERIODIC TABLE

The diagram shows a rectangular box representing a single element on a periodic table. Inside the box, the atomic number '7' is positioned at the top left, the symbol 'N' is in the center, the name 'Nitrogen' is at the bottom, and the atomic mass '14' is at the bottom right. Four vertical lines extend from the top of the box to labels on the right side of the page: the first line connects to 'atomic number', the second to 'symbol', the third to 'name', and the fourth to 'atomic mass'.

THE PERIODIC TABLE

Periodic Table of the Elements

1 IA	2 IIA											18 VIIIA						
1 H Hydrogen 1.008	3 Li Lithium 6.94	4 Be Beryllium 9.0121831	5 VB	6 VIB	7 VIIB	8 VIIIB	9 VIIIB	10 VIIIB	11 IB	12 IIB	13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA	2 He Helium 4.002602		
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955908	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938044	26 Fe Iron 55.845	27 Co Cobalt 58.933194	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.630	33 As Arsenic 74.921625	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 83.798	
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90584	40 Zr Zirconium 91.224	41 Nb Niobium 92.90637	42 Mo Molybdenum 95.95	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.293	
55 Cs Cesium 132.90545196	56 Ba Barium 137.327	57 - 71 Lanthanoids		72 Hf Hafnium 178.49	73 Ta Tantalum 180.94788	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.227	78 Pt Platinum 195.084	79 Au Gold 196.966569	80 Hg Mercury 200.592	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98040	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89 - 103 Actinoids		104 Rf Rutherfordium (261)	105 Db Dubnium (268)	106 Sg Seaborgium (269)	107 Bh Bohrium (270)	108 Hs Hassium (285)	109 Mt Meitnerium (276)	110 Ds Darmstadtium (281)	111 Rg Roentgenium (282)	112 Cn Copernicium (285)	113 Nh Nihonium (286)	114 Fl Flerovium (289)	115 Mc Moscovium (289)	116 Lv Livermorium (293)	117 Ts Tennessine (294)	118 Og Oganesson (294)



57 La Lanthanum 138.90547	58 Ce Cerium 140.16	59 Pr Praseodymium 140.90766	60 Nd Neodymium 144.242	61 Pm Promethium (145)	62 Pm Promethium (145)	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 173.054	71 Lu Lutetium 174.9668
89 Ac Actinium (227)	90 Th Thorium 232.0377	91 Pa Protactinium 231.03688	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)

THE PERIODIC TABLE

Periodic Table of the Elements

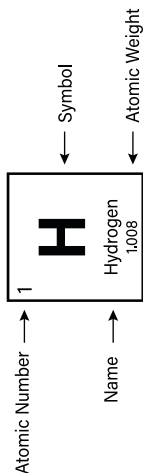
1 IA	2 IIA											18 VIIIA	
1 H Hydrogen 1.008	3 Li Lithium 6.94	4 Be Beryllium 9.0121831											2 He Helium 4.002602
5 Na Sodium 22.98976928	6 Mg Magnesium 24.305											10 Ne Neon 18.998403163	
11 K Potassium 39.0983	12 Ca Calcium 40.078											18 Ar Argon 39.948	
19 Rb Rubidium 85.4678	20 Sr Strontium 87.62											36 Kr Krypton 83.798	
37 Cs Cesium 132.90545196	38 Ba Barium 137.327											54 Xe Xenon 131.293	
87 Fr Francium (223)	88 Ra Radium (226)											86 Rn Radon (222)	
<p>Atomic Number →</p> <p>← Symbol</p> <p>← Atomic Weight</p>													
13 IIIA	14 IVA	15 VA	16 VIA	17 VIIA									
5 B Boron 10.81	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998403163									
13 Al Aluminum 26.9815385	14 Si Silicon 28.085	15 P Phosphorus 30.973761998	16 S Sulfur 32.06	17 Cl Chlorine 35.45									
31 Ga Gallium 69.723	32 Ge Germanium 72.630	33 As Arsenic 74.921595	34 Se Selenium 78.971	35 Br Bromine 79.904									
49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447									
81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98040	84 Po Polonium (209)	85 At Astatine (210)									
113 Nh Nihonium (286)	114 Fl Flerovium (289)	115 Mc Moscovium (289)	116 Lv Livermorium (293)	117 Ts Tennessine (294)									
<p>12 IIB</p>													
30 Zn Zinc 65.38	31 Cu Copper 63.546	47 Ag Silver 107.8682	48 Cd Cadmium 112.414	80 Hg Mercury 200.592									
46 Rh Rhodium 102.90550	45 Pd Palladium 106.42	77 Au Gold 196.966569	78 Pt Platinum 195.084	79 Au Gold 196.966569									
109 Mt Meitnerium (276)	110 Ds Darmstadtium (281)	111 Rg Roentgenium (282)	112 Cn Copernicium (285)	113 Nh Nihonium (286)									
<p>9 VIIIIB</p>													
27 Co Cobalt 58.933194	28 Ni Nickel 58.6934	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	76 Os Osmium 196.223									
44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)	77 Au Gold (98)	78 Pt Platinum (98)									
<p>8 VIIIIB</p>													
26 Fe Iron 55.845	27 Co Cobalt 58.933194	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
25 Mn Manganese 54.938044	26 Fe Iron (98)	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>7 VIIB</p>													
25 Mn Manganese 54.938044	26 Fe Iron 55.845	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>6 VIB</p>													
24 Cr Chromium 51.9961	25 Mn Manganese 54.938044	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>5 VB</p>													
23 V Vanadium 50.9415	24 Cr Chromium 51.9961	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>4 IVB</p>													
22 Ti Titanium 47.867	23 V Vanadium 50.9415	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>3 IIIB</p>													
21 Sc Scandium 44.955908	22 Ti Titanium 47.867	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>2 IIA</p>													
20 Ca Calcium 40.078	21 Sc Scandium 44.955908	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									
<p>1 IIA</p>													
19 K Potassium 39.0983	20 Ca Calcium 40.078	44 Ru Ruthenium (98)	45 Rh Rhodium (98)	76 Os Osmium (98)									

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 231.03688	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)

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	2 He Helium 4.002602	3 Li Lithium 6.94	4 Be Beryllium 9.0121831	5 B Boron 10.81	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998403163	10 Ne Neon 20.1797	11 Na Sodium 22.98976928	12 Mg Magnesium 24.305	13 Al Aluminum 26.9815385	14 Si Silicon 28.085	15 P Phosphorus 30.973761998	16 S Sulfur 32.06	17 Cl Chlorine 35.45	18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955908	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938044	26 Fe Iron 55.845	27 Co Cobalt 58.933194	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.630	33 As Arsenic 74.921595	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 83.798
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90584	40 Zr Zirconium 91.224	41 Nb Niobium 92.90637	42 Mo Molybdenum 95.95	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.760	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.293
55 Cs Cesium 132.90545196	56 Ba Barium 137.327	57 - 71 Lanthanoids	72 Hf Hafnium 178.49	73 Ta Tantalum 180.94788	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.227	78 Pt Platinum 195.084	79 Au Gold 196.966569	80 Hg Mercury 200.592	81 Tl Thallium 204.38	82 Pb Lead 207.2	83 Bi Bismuth 208.98040	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89 - 103 Actinoids	104 Rf Rutherfordium (261)	105 Db Dubnium (268)	106 Sg Seaborgium (266)	107 Bh Bohrium (270)	108 Hs Hassium (285)	109 Mt Meitnerium (276)	110 Ds Darmstadtium (281)	111 Rg Roentgenium (282)	112 Cn Copernicium (285)	113 Nh Nihonium (286)	114 Fl Flerovium (289)	115 Mc Moscovium (289)	116 Lv Livermorium (293)	117 Ts Tennessine (294)	118 Og Oganesson (294)

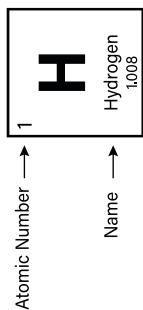


57 La Lanthanum 138.90547	58 Ce Cerium 140.16	59 Pr Praseodymium 140.90766	60 Nd Neodymium 144.242	61 Pm Promethium (145)	62 Pm Promethium (145)	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92535	66 Dy Dysprosium 162.500	67 Ho Holmium 164.93033	68 Er Erbium 167.259	69 Tm Thulium 168.93422	70 Yb Ytterbium 173.054	71 Lu Lutetium 174.9668
89 Ac Actinium (227)	90 Th Thorium 232.0377	91 Pa Protactinium 231.03688	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)

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3	4											10						
3 Li Lithium 6.94	Be Beryllium 9.0121831																9 F Fluorine 18.998403163	
11	12											18						
11 Na Sodium 22.98976928	Mg Magnesium 24.305																17 Cl Chlorine 35.45	
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
19 K Potassium 39.0983	Ca Calcium 40.078	Sc Scandium 44.955908	Ti Titanium 47.867	V Vanadium 50.9415	Cr Chromium 51.9961	Mn Manganese 54.938044	Fe Iron 55.845	Co Cobalt 58.933194	Ni Nickel 58.6934	Cu Copper 63.546	Zn Zinc 65.38	Ga Gallium 69.723	Ge Germanium 72.630	As Arsenic 74.921595	Se Selenium 78.971	Br Bromine 79.904	Kr Krypton 83.798	
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	
37 Rb Rubidium 85.4678	Sr Strontium 87.62	Y Yttrium 88.90584	Zr Zirconium 91.224	Nb Niobium 92.90637	Mo Molybdenum 95.95	Tc Technetium (98)	Ru Ruthenium 101.07	Rh Rhodium 102.90550	Pd Palladium 106.42	Ag Silver 107.8682	Cd Cadmium 112.414	In Indium 114.818	Sn Tin 118.710	Sb Antimony 121.760	Te Tellurium 127.60	I Iodine 126.90447	Xe Xenon 131.293	
55	56	57 - 71 Lanthanoids										86						
55 Cs Cesium 132.90545196	Ba Barium 137.327																	86 Rn Radon (222)
87	88	89 - 103 Actinoids	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	
87 Fr Francium (223)	Ra Radium (226)		Rf Rutherfordium (261)	Db Dubnium (268)	Sg Seaborgium (266)	Bh Bohrium (270)	Hs Hassium (285)	Mt Meitnerium (276)	Ds Darmstadtium (281)	Rg Roentgenium (282)	Cn Copernicium (289)	Nh Nihonium (286)	Fl Flerovium (289)	Mc Moscovium (289)	Lv Livermorium (293)	Ts Tennessine (294)	Og Oganesson (294)	



57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
La Lanthanum 138.90547	Ce Cerium 140.116	Pr Praseodymium 140.90766	Nd Neodymium 144.242	Pm Promethium (145)	Sm Samarium 150.36	Eu Europium 151.964	Gd Gadolinium 157.25	Tb Terbium 158.92535	Dy Dysprosium 162.500	Ho Holmium 164.93033	Er Erbium 167.259	Tm Thulium 168.93422	Yb Ytterbium 173.045	Lu Lutetium 174.9668
89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
Ac Actinium (227)	Th Thorium 232.0377	Pa Protactinium 231.03688	U Uranium 238.02891	Np Neptunium (237)	Pu Plutonium (244)	Am Americium (243)	Cm Curium (247)	Bk Berkelium (247)	Cf Californium (251)	Es Einsteinium (252)	Fm Fermium (257)	Md Mendelevium (258)	No Nobelium (259)	Lr Lawrencium (260)

RESOURCE 16.1

- 1: https://upload.wikimedia.org/wikipedia/commons/3/3d/Paperclip-01_%28xndr%29.jpg
- 2: terekhov igor/Shutterstock
- 3: https://upload.wikimedia.org/wikipedia/commons/c/c0/WLA_cma_Suit_of_armor_c_1530_steel.jpg
- 4: 12photography/Shutterstock
- 5: https://upload.wikimedia.org/wikipedia/commons/6/68/Metal_pieces_for_jewellery.jpg
- 6: yongyut rukkachatsuwa/Shutterstock
- 7: https://en.wikipedia.org/wiki/Homopolar_motor#/media/File:Homopolar_Motor_Large_neutral.jpg

PROPERTIES OF METALS

<p>Picture 1</p> 	<p>Picture 2</p> 	<p>Picture 3</p> 
<p>Picture 4</p> 	<p>Picture 5</p> 	<p>Picture 6</p> 
<p>Picture 7</p> 		

RESOURCE 16.2

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- 3: https://upload.wikimedia.org/wikipedia/commons/c/c0/WLA_cma_Suit_of_armor_c_1530_steel.jpg
- 4: 12photography/Shutterstock
- 5: https://upload.wikimedia.org/wikipedia/commons/6/68/Metal_pieces_for_jewellery.jpg
- 6: yongyut rukkachatsuwa/Shutterstock
- 7: https://en.wikipedia.org/wiki/Homopolar_motor#/media/File:Homopolar_Motor_Large_neutral.jpg

PROPERTIES OF METALS

<p>Picture 1</p> 	<p>Picture 2</p> 	<p>Picture 3</p> 
<p>Picture 4</p> 	<p>Picture 5</p> 	<p>Picture 6</p> 
<p>Picture 7</p> 		

RESOURCE 16.3

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- 3: https://upload.wikimedia.org/wikipedia/commons/c/c0/WLA_cma_Suit_of_armor_c_1530_steel.jpg
- 4: 12photography/Shutterstock
- 5: https://upload.wikimedia.org/wikipedia/commons/6/68/Metal_pieces_for_jewellery.jpg
- 6: yongyut rukkachatsuwa/Shutterstock
- 7: https://en.wikipedia.org/wiki/Homopolar_motor#/media/File:Homopolar_Motor_Large_neutral.jpg

PROPERTIES OF METALS

<p>Picture 1</p> 	<p>Picture 2</p> 	<p>Picture 3</p> 
<p>Picture 4</p> 	<p>Picture 5</p> 	<p>Picture 6</p> 
<p>Picture 7</p> 		

RESOURCE 16.4

- 1: https://upload.wikimedia.org/wikipedia/commons/3/3d/Paperclip-01_%28xndr%29.jpg
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- 3: https://upload.wikimedia.org/wikipedia/commons/c/c0/WLA_cma_Suit_of_armor_c_1530_steel.jpg
- 4: 12photography/Shutterstock
- 5: https://upload.wikimedia.org/wikipedia/commons/6/68/Metal_pieces_for_jewellery.jpg
- 6: yongyut rukkachatsuwa/Shutterstock
- 7: https://en.wikipedia.org/wiki/Homopolar_motor#/media/File:Homopolar_Motor_Large_neutral.jpg

PROPERTIES OF METALS

<p>Picture 1</p> 	<p>Picture 2</p> 	<p>Picture 3</p> 
<p>Picture 4</p> 	<p>Picture 5</p> 	<p>Picture 6</p> 
<p>Picture 7</p> 		