

Contents

<i>Preface</i>	vii
<i>My Philosophy of Education</i>	viii
<i>Suggestions for Teachers</i>	ix
<i>Equipment</i>	x
<i>Safety Procedures</i>	xi
1. MATTER, MASS, AND WEIGHT	1
2. MATTER TAKES UP SPACE (VOLUME)	1
3. MATTER CAN BE A SOLID	2
4. MATTER CAN BE A LIQUID	2
5. MATTER CAN BE A GAS	3
6. GAS CAN BE COMPRESSED	3
7. PHYSICAL CHANGE	4
8. CHEMICAL CHANGE	4
9. MIXTURES	5
10. SEPARATING A MIXTURE OF SALT AND WATER	6
11. SEPARATING SUSPENDED AND DISSOLVED SOLIDS FROM WATER ...	6
12. COMPOUNDS	7
13. SUBSTANCES CONTAIN MORE THAN ONE ELEMENT	9
14. TWO GASES FORM A SOLID (AMMONIUM CHLORIDE)	10
15. TWO LIQUIDS FORM A SOLID (NYLON)	10
16. PREPARING OXYGEN FROM PEROXIDE	11
17. ELECTROLYSIS OF WATER	12
18. SEPARATING THE ELEMENTS IN SALT	13
19. PROPERTIES OF METALS AND NONMETALS	14
20. METALS CONDUCT HEAT	15
21. NONMETALS DO NOT CONDUCT HEAT	16
22. METALS CONDUCT ELECTRICITY	17
23. EXCEPTIONS TO NONCONDUCTIVITY OF NONMETALS	17
24. METALS HAVE LUSTER	18
25. NONMETALS ARE BRITTLE AND NOT MALLEABLE	19
26. DIFFERENT METALS AND NONMETALS CONDUCT HEAT DIFFERENTLY	20
27. GLASS IS A POOR HEAT CONDUCTOR	21

28. WHY METALS CORRODE	22
29. LIQUIDS ARE POOR CONDUCTORS OF HEAT	23
30. CARBON DIOXIDE	24
31. CARBON DIOXIDE FIRE EXTINGUISHER	25
32. ATOMS—ATOMIC CHARGES—RULE OF CHARGES	25
33. MAKING AN ELECTROSCOPE	26
34. SOLUTIONS: SOLIDS AND LIQUIDS	27
35. SOLUTIONS AND SUSPENSIONS	28
36. OTHER SOLVENTS	29
37. SPEEDING UP SOLUTIONS	30
38. SOLUTIONS CHANGE TEMPERATURE	31
39. SATURATED SOLUTIONS	32
40. SOLUTIONS: LOWER FREEZING POINT	32
41. SOLUTIONS: HIGHER BOILING POINT	33
42. SEPARATION OF SOLUTE	34
43. DISTILLATION AND CONDENSATION	35
44. PAPER CHROMATOGRAPHY	35
45. CRYSTALS	36
46. SUSPENSIONS—CLOUDY LIQUIDS	37
47. DETERGENTS: EMULSIFIERS	38
48. DETERGENTS: WETTING AGENTS	39
49. MAKING MAYONNAISE—COLLOIDS	39
50. MAKING SOAP	40
51. COAGULATION	41
52. ACIDS	42
53. BASES	43
54. LITMUS AND OTHER INDICATORS	43
55. INDICATOR—BROMTHYMOL BLUE (BTB)	44
56. STARCH TEST —IODINE	45
57. NEUTRALIZATION	46
58. ELECTROLYTES—CONDUCTIVITY OF WATER	47
59. CONSERVATION OF MATTER	48
60. CORROSION OF METALS	49
61. PROTECTING METALS FROM CORROSION	50
62. OXIDATION OF PAPER	51
63. CITRUS BATTERY	52
64. METALS: ELECTROMOTIVE FORCE (EMF)	53
65. BATTERY: AN ELECTROCHEMICAL CELL	54
66. HARD AND SOFT WATER	55
67. ATOMIC DATA—PERIODIC TABLE—BOHR DIAGRAM	56
68. BOHR DIAGRAM OF ATOM	58

69. BOHR MODEL OF AN ATOM	58
70. VALENCE—IONS	60
71. ELECTROVALENCE—COVALENCE	61
72. FORMULA MASS	62
73. SUPERABSORBENCY AND POLYMERS	63
74. CHEMICAL FORMULAS	64
75. WRITING CHEMICAL FORMULAS	65
<i>Appendix</i>	71
BRIEF HISTORY OF CHEMISTRY	71
DENSITY OF LIQUIDS	73
SPECIFIC GRAVITY	73
ALTITUDE, BAROMETER, AND BOILING POINT	73
CONVERSIONS OF TEMPERATURE CELSIUS—FAHRENHEIT	74
CONVERSIONS OF TEMPERATURE FAHRENHEIT—CELSIUS	75
UNITS CONVERSIONS AND CONSTANTS	76
CHART OF ELEMENTS	92
<i>Index</i>	93

—Thomas Kardos