

**Careers in Science****Super Inventor . . . . . OK 38****Chapter 1 What Is Science? . . . . . 4**

What Is Science?

<b>1</b>	Thinking Like a Scientist . . . . .	6
<b>2</b>	Scientific Inquiry . . . . .	13
<b>3</b>	Why Study Science? . . . . .	24
<b>4</b>	Careers in Science . . . . .	30

**Chapter 2 The Work of Scientists . . . . . 42**The Work of  
Scientists

<b>1</b>	Measurement—A Common Language . . . . .	44
<b>2</b>	<b>Integrating Mathematics</b> Mathematics and Science . . . . .	60
<b>3</b>	Graphs in Science . . . . .	68
<b>4</b>	Safety in the Science Laboratory . . . . .	77

**Chapter 3 Technology and Engineering . . . . . 86**Technology and  
Engineering

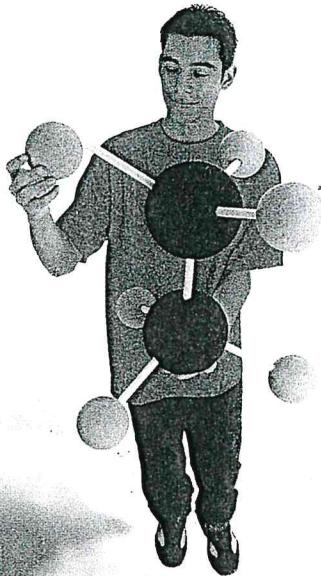
<b>1</b>	Understanding Technology . . . . .	88
<b>2</b>	Technology Design Skills . . . . .	97
<b>3</b>	Technology and Society . . . . .	108

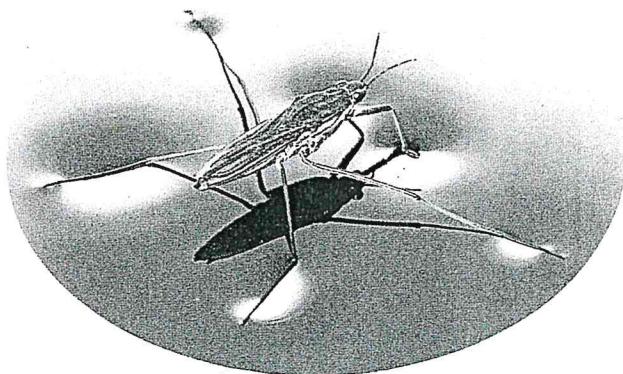
**Chapter 4 Atoms and Bonding . . . . . 122**Atoms and  
Bonding

<b>1</b>	Atoms, Bonding, and the Periodic Table . . . . .	124
<b>2</b>	Ionic Bonds . . . . .	132
<b>3</b>	Covalent Bonds . . . . .	140
<b>4</b>	<b>Tech &amp; Design</b> Bonding in Metals . . . . .	146

**Chapter 5 Chemical Reactions . . . . . 156**Chemical  
Reactions

<b>1</b>	Observing Chemical Change . . . . .	158
<b>2</b>	Describing Chemical Reactions . . . . .	168
<b>3</b>	Controlling Chemical Reactions . . . . .	178
<b>4</b>	<b>Integrating Health</b> Fire and Fire Safety . . . . .	186

**Interdisciplinary Exploration  
Soap—The Dirt Chaser . . . . . 194**



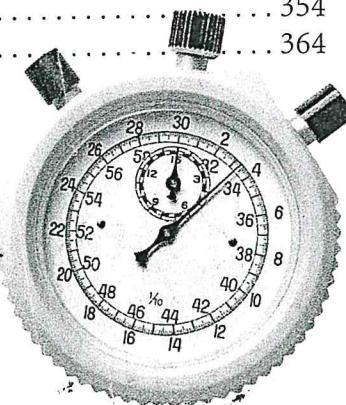
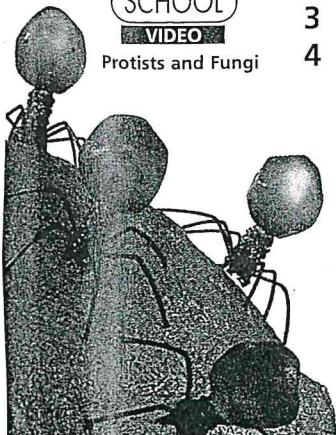
<b>Chapter 6</b>	<b>Motion . . . . .</b>	<b>202</b>
	1 Describing and Measuring Motion . . . . .	204
	2 Speed and Velocity . . . . .	208
	3 <b>Integrating Mathematics</b> Acceleration . . . . .	216

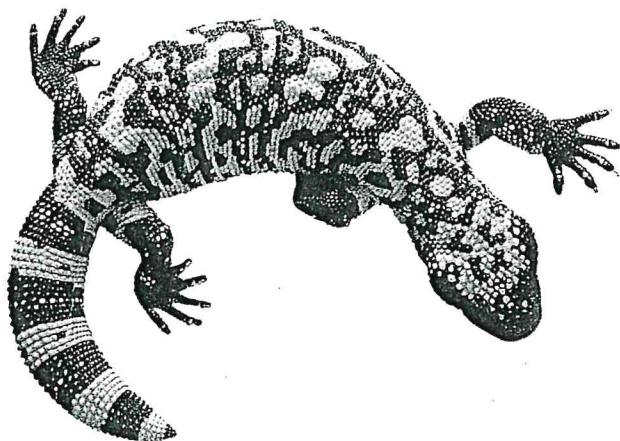
<b>Chapter 7</b>	<b>Forces . . . . .</b>	<b>228</b>
	1 The Nature of Force . . . . .	230
	2 Friction and Gravity . . . . .	236
	3 Newton's First and Second Laws . . . . .	245
	4 Newton's Third Law . . . . .	249
	5 <b>Integrating Space Science</b> Rockets and Satellites . . . . .	258

<b>Chapter 8</b>	<b>Work and Machines . . . . .</b>	<b>266</b>
	1 What Is Work? . . . . .	268
	2 <b>Integrating Mathematics</b> How Machines Do Work . . . . .	274
	3 Simple Machines . . . . .	284

<b>Chapter 9</b>	<b>Living Things . . . . .</b>	<b>302</b>
	1 What Is Life? . . . . .	304
	2 Classifying Organisms . . . . .	314
	3 Domains and Kingdoms . . . . .	324
	4 <b>Integrating Earth Science</b> The Origin of Life . . . . .	328

<b>Chapter 10</b>	<b>Viruses, Bacteria, Protists, and Fungi . . . . .</b>	<b>336</b>
	1 <b>Integrating Health</b> Viruses . . . . .	338
	2 Bacteria . . . . .	345
	3 Protists . . . . .	354
	4 Fungi . . . . .	364





## **Chapter 11 Plants . . . . . 376**



Introduction to  
Plants

- |          |   |     |
|----------|---|-----|
| <b>1</b> | The Plant Kingdom . . . . .                                       | 378 |
| <b>2</b> | Plants Without Seeds . . . . .                                    | 384 |
| <b>3</b> | The Characteristics of Seed Plants . . . . .                      | 390 |
| <b>4</b> | Gymnosperms and Angiosperms . . . . .                             | 400 |
| <b>5</b> | <b>Integrating Chemistry</b> Plant Responses and Growth . . . . . | 412 |

## **Interdisciplinary Exploration Corn—The Amazing Grain . . . . . 420**

## **Chapter 12 Animals . . . . . 426**



Sponges,  
Cnidarians,  
and Worms

- |          |  |     |
|----------|--|-----|
| <b>1</b> | What Is an Animal? . . . . .                             | 428 |
| <b>2</b> | <b>Integrating Mathematics</b> Animal Symmetry . . . . . | 431 |
| <b>3</b> | Sponges, Cnidarians, Worms, and Mollusks . . . . .       | 433 |
| <b>4</b> | Arthropods and Echinoderms . . . . .                     | 440 |
| <b>5</b> | Fishes, Amphibians, and Reptiles . . . . .               | 447 |
| <b>6</b> | Birds and Mammals . . . . .                              | 457 |

## **Chapter 13 Rocks . . . . . 470**



Rocks

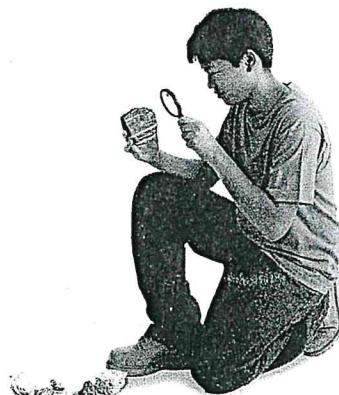
- |          |  |     |
|----------|--|-----|
| <b>1</b> | Classifying Rocks . . . . .                                | 472 |
| <b>2</b> | Igneous Rocks . . . . .                                    | 476 |
| <b>3</b> | Sedimentary Rocks . . . . .                                | 480 |
| <b>4</b> | <b>Integrating Life Science</b> Rocks From Reefs . . . . . | 485 |
| <b>5</b> | Metamorphic Rocks . . . . .                                | 488 |
| <b>6</b> | The Rock Cycle . . . . .                                   | 492 |

## **Chapter 14 Weathering and Soil Formation . . . . . 500**



Weathering and  
Soil Formation

- |          |  |     |
|----------|--|-----|
| <b>1</b> | Rocks and Weathering . . . . .                                       | 502 |
| <b>2</b> | How Soil Forms . . . . .   | 512 |
| <b>3</b> | <b>Integrating Environmental Science</b> Soil Conservation . . . . . | 520 |



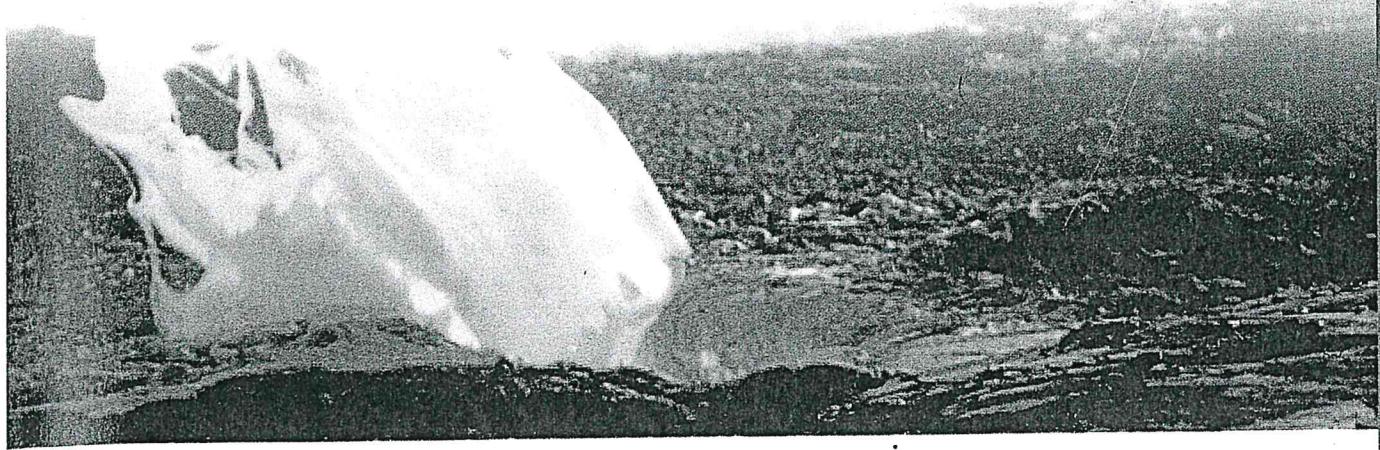
**Chapter 15 Plate Tectonics .....** **528**

Plate Tectonics

1	Earth's Interior .....	530
2	<b>Integrating Physics</b> Convection and the Mantle .....	538
3	Drifting Continents .....	542
4	Sea-Floor Spreading .....	547
5	The Theory of Plate Tectonics .....	556

**Chapter 16 Earthquakes and Volcanoes .....** **566**

Earthquakes

1	Forces in Earth's Crust .....	568
2	Earthquakes and Seismic Waves .....	575
3	<b>Tech &amp; Design</b> Monitoring Earthquakes .....	584
4	Volcanoes and Plate Tectonics .....	592
5	Volcanic Eruptions .....	597

**Interdisciplinary Exploration**  
**Pompeii—In the Shadow of Vesuvius .....** **610****Chapter 17 A Trip Through Geologic Time .....** **616**A Trip Through  
Geologic Time

1	Fossils .....	618
2	The Relative Age of Rocks .....	625
3	<b>Integrating Chemistry</b> Radioactive Dating .....	631
4	The Geologic Time Scale .....	635
5	Early Earth .....	638
6	Eras of Earth's History .....	642

**Chapter 18 Energy Resources .....** **660**

Energy Resources

1	Fossil Fuels .....	662
2	<b>Tech &amp; Design</b> Renewable Sources of Energy .....	669
3	Nuclear Energy .....	678
4	Energy Conservation .....	683

