## On the Cover

Our universe is a wondrous place. How can hydroelectric and other alternative energy sources provide sustainability for our planet and its inhabitants? The essentials of physics, chemistry, earth science, and astronomy presented in Physical Science will help you to discover how the universe works. Knowing something about the connections between science and everyday life will allow you to act as an informed citizen when making decisions that affect our economy, society, and environment.

## **connect**

Connect is a digital teaching and learning environment that improves student performance over a variety of critical outcomes; it is easy to use; and it is proven effective.

Connect empowers students by continually adapting to deliver precisely what they need, when they need it and how they need it, so class time is more engaging and effective.

- Connect provides an analytics dashboard—now available for both instructors and students—with at-a-glance information regarding student assignment, assessment, and topical performance, for aggregate or individual results.
- Connect empowers students and instructors to improve class performance, in a way that is efficient and effective.

## **SMARTBOOK®**

SmartBook contains the same content within the print book, but actively tailors that content to the needs of the individual. SmartBook's adaptive technology provides precise, personalized instruction on what the student should do next, guiding the student to master and remember key concepts, targeting gaps in knowledge and offering customized feedback, driving the student toward comprehension and retention of the subject matter.





1 What Is Science? 1	11 Water and Solutions 276	<b>21</b> Geologic Time 522
PHYSICS	12 Organic Chemistry 300	22 The Atmosphere of Earth 543
2 Motion 25	<b>13</b> Nuclear Reactions 324	23 Weather and Climat
3 Energy 62	ASTRONOMY	24 Earth's Waters 600
4 Heat and Temperature 87	<b>14</b> The Universe 352	Openitions Poneries 4
5 Wave Motions and	<b>15</b> The Solar System 377	Appendix A A-1
Sound 116	16 Earth in Space 405	Appendix <b>B</b> A-9
6 Electricity 140		Appendix C A-11
<b>7</b> Light 178	EARTH SCIENCE	Appendix <b>D</b> A-13
or conduction	17 Rocks and Minerals 433	Appendix <b>E</b> A-25
CHEMISTRY	18 Plate Tectonics 454	Index I-1
8 Atoms and Periodic Properties 205	19 Building Earth's Surface 477	Symbols such Equations 10 few 10/Solsy Ausblens 12 The Matan of Seigens 13
<ul><li>9 Chemical Bonds 231</li><li>10 Chemical Reactions 253</li></ul>	20 Shaping Earth's Surface 501	The Scientific Methods 14 Septendings make and Investigations 16 Univestigations 16 Univestigations 16 Univestigations 16 University 16 Univer

The Atmosphere of Earth 543

Weather and Climate 567 Earth's Waters 600