**The Nature of Science**

1. **Basic tools of science are universal.**
   - CONNECTING SCIENCES The Science of Clean Water
2. **Scientific ideas are based on evidence.**
   - CHAPTER INVESTIGATION Using a Filter
3. **Scientists belong to a world community.**
   - MATH IN SCIENCE Making Bar Graphs

**FLORIDA CONNECTIONS**

- Saving Coral
- Florida’s Sinkholes
- Animatronics
- The Ultimate Fish
- A Place in the Sun
- Cape Canaveral: Step to the Stars

**Student Resources**

- Florida Resources
- Florida Content Review/Preview
- FCAT Science Reference
- Appendix
- Student Resource Handbooks
  - Scientific Thinking Handbook
  - Lab Handbook
  - Math Handbook
  - Note-Taking Handbook
- Glossary
- Index
- Acknowledgments
UNIT 1
Earth’s Waters

Unit Features

FRONTIERS IN SCIENCE Exploring the Water Planet 38

FLORIDA CONNECTION Saving Coral 42

TIMELINES IN SCIENCE Exploring the Ocean 146

The Water Planet 46

1. Water continually cycles.
   THINK SCIENCE Does Mars Have a Water Cycle? 55

2. Fresh water flows and freezes on Earth.
   MATH IN SCIENCE Multiplying Fractions and Whole Numbers 63

3. Fresh water flows underground.
   CHAPTER INVESTIGATION Water Moving Underground 72

Freshwater Resources 78

1. Fresh water is an essential resource.
   MATH IN SCIENCE Volume of Rectangular Prisms 89

2. Society depends on clean and safe water.
   CHAPTER INVESTIGATION Monitoring Water Quality 98

   SCIENCE ON THE JOB Water and Farming 107

In what ways do you depend on water? page 78
The oceans are a connected system of water in motion. The oceans are a connected system. Ocean water moves in currents. Waves move through oceans. Waters rise and fall in tides.

Ocean Systems

The oceans are a connected system. Ocean water moves in currents. Waves move through oceans. Waters rise and fall in tides.

Ocean Environments

Ocean coasts support plant and animal life. Conditions differ away from shore. The ocean contains natural resources.

Visual Highlights

Springs and Wells Sources of Water Pollution The Ocean Floor Ocean Waves Intertidal Zone Coral Reefs Life in the Open Ocean

Table of Contents FL9
UNIT 2
Earth’s Surface

Unit Features

- SCIENTIFIC AMERICAN FRONTIERS IN SCIENCE Remote Sensing 186
- FLORIDA CONNECTION Florida’s Sinkholes 190
- TIMELINES IN SCIENCE History of the Earth System 292

Views of Earth Today

1. Technology is used to explore the Earth system. 197
2. Maps and globes are models of Earth. 203
   MATH IN SCIENCE Using Proportions 211
3. Topographic maps show the shape of the land. 212
   CHAPTER INVESTIGATION Investigate Topographic Maps 216
4. Technology is used to map Earth. 218
   THINK SCIENCE Which Site Is Best for an Olympic Stadium? 223

Weathering and Soil Formation

1. Mechanical and chemical forces break down rocks. 231
   MATH IN SCIENCE Surface Area of a Prism 237
2. Weathering and organic processes form soil. 238
   CHAPTER INVESTIGATION Testing Soil 246
3. Human activities affect soil. 248
   SCIENCE ON THE JOB Soil, Water, and Architecture 253

How is rock related to soil? page 228
Erosion and Deposition

1. Forces wear down and build up Earth's surface.
   - CHAPTER INVESTIGATION Creating Stream Features
3. Waves and wind shape land.
   - CONNECTING SCIENCES Life on Dunes
   - MATH IN SCIENCE Creating a Line Graph

Natural Resources

1. Natural resources support human activity.
   - CONNECTING SCIENCES Got Oil Spills?
2. Resources can be conserved and recycled.
   - MATH IN SCIENCE Comparing Decimals
3. Energy comes from other natural resources.
   - CHAPTER INVESTIGATION Wind Power

Visual Highlights

- Mechanical Weathering
- World Soil Types
- Organisms and Soil Formation
- Types of Glaciers and Movement
- Natural Resources
Electricity and Magnetism

Unit Features

1. Materials can become electrically charged. CONNECTING SCIENCES Electric Eels 341
2. Charges can move from one place to another. CHAPTER INVESTIGATION Lightning 350
3. Electric current is a flow of charge. MATH IN SCIENCE Using Variables 360

Electricity

Materials can become electrically charged. CONNECTING SCIENCES Electric Eels 341

Electric current is a flow of charge. MATH IN SCIENCE Using Variables 360

Circuits and Electronics

Charge needs a continuous path to flow. SCIENCE ON THE JOB The Science of Electrical Work 375

Circuits make electric current useful. MATH IN SCIENCE Solving Percent Problems 383

Electronic technology is based on circuits. CHAPTER INVESTIGATION Design an Electronic Communication Device 389

How can circuits control the flow of charge? page 372
Current can produce magnetism, and magnetism can produce current.

What force is acting on this compass needle? 

page 408

**Magnetism**

1. Magnetism is a force that acts at a distance.  
   THINK SCIENCE  Can Magnets Heal People?  
   page 419

2. Current can produce magnetism.  
   page 420

3. Magnetism can produce current.  
   CHAPTER INVESTIGATION  Build a Speaker  
   page 432

4. Generators supply electrical energy.  
   MATH IN SCIENCE  Using Significant Figures  
   page 439

**Visual Highlights**

How a Photocopier Works  
How Lightning Forms  
Batteries  
How a PC Works  
How Magnets Differ from Other Materials  
How a Motor Works  

347  
353  
365  
394  
415  
425
Views of Earth’s Past

1. Earth’s past is revealed in rocks and fossils.
   - CONNECTING SCIENCES Could T. Rex Win a Race? 464

2. Rocks provide a timeline for Earth.
   - MATH IN SCIENCE Interpreting Graphs 472

3. The geologic time scale shows Earth’s past.
   - CHAPTER INVESTIGATION Geologic Time 480

What does this footprint tell you about the animal that left it? page 454
14 The History of Life on Earth

1. Earth has been home to living things for about 3.8 billion years.
   MATH IN SCIENCE Using Proportions

2. Species change over time.
   CHAPTER INVESTIGATION Modeling Natural Selection

3. Many types of evidence support evolution.
   THINK SCIENCE How Did the Deep-Sea Angler Get Its Glow?

15 Population Dynamics

1. Populations have many characteristics.
   MATH IN SCIENCE Finding Averages

2. Populations respond to pressures.
   SCIENCE ON THE JOB Studying the Schools

3. Human populations have unique responses to change.
   CHAPTER INVESTIGATION Sustainable Resource Management

Visual Highlights

- Fossils in Rocks
- Radioactive Breakdown
- Natural Selection
- Biological Evidence for Evolution
The human body is complex. What does the body need to survive?

1. The human body is complex. Think Science: What Does the Body Need to Survive?
2. The skeletal system provides support and protection. Math in Science: Comparing Rates
3. The muscular system makes movement possible. Chapter Investigation: A Closer Look at Muscles
Absorption, Digestion, and Exchange

1. The respiratory system gets oxygen and removes carbon dioxide.
   - SCIENCE ON THE JOB Breathing and Yoga

2. The digestive system breaks down food.
   - MATH IN SCIENCE Choosing Units of Length

3. The urinary system removes waste materials.
   - CHAPTER INVESTIGATION Modeling a Kidney

Transport and Protection

1. The circulatory system transports materials.
   - CHAPTER INVESTIGATION Heart Rate and Exercise

2. The immune system defends the body.
   - MATH IN SCIENCE Making a Line Graph

3. The integumentary system shields the body.
   - EXTREME SCIENCE Artificial Skin

Visual Highlights

- The Skeletal System
- Muscle Tissue
- Respiratory System
- Digestive System
- Circulatory System
UNIT 6
Space Science

Unit Features

1. **Some space objects are visible to the human eye.**
   - 673

2. **Telescopes allow us to study space from Earth.**
   - CHAPTER INVESTIGATION Observing Spectra
   - 684

3. **Spacecraft help us explore beyond Earth.**
   - MATH IN SCIENCE Using Exponents
   - 694

4. **Space exploration benefits society.**
   - CONNECTING SCIENCES How Earth’s Gravity Affects Plants
   - 699

**Exploring Space**

**Earth, Moon, and Sun**

1. **Earth rotates on a tilted axis and orbits the Sun.**
   - CHAPTER INVESTIGATION Modeling Seasons
   - 707

2. **The Moon is Earth’s natural satellite.**
   - MATH IN SCIENCE Making Line Graphs
   - 714

3. **Positions of the Sun and Moon affect Earth.**
   - SCIENCE ON THE JOB Astronomy in Archaeology
   - 723

**Frontiers in Science**

Danger from the Sky

**Florida Connection**

Cape Canaveral: Step to the Stars

**Timelines in Science**

The Story of Astronomy

---

What would you see if you looked at the Moon with a telescope? page 704
Planets and other objects form a system around our Sun. Our Sun is one of billions of stars in one of billions of galaxies in the universe.

**Our Solar System**

1. Planets orbit the Sun at different distances.
   - MATH IN SCIENCE Using Percentages
2. The inner solar system has rocky planets.
   - THINK SCIENCE What Shapes the Surface of Mars?
3. The outer solar system has four giant planets.
4. Small objects are made of ice and rock.
   - CHAPTER INVESTIGATION Exploring Impact Craters

**Stars, Galaxies, and the Universe**

1. The Sun is our local star.
   - CHAPTER INVESTIGATION Temperature, Brightness, and Color
2. Stars change over their life cycles.
   - MATH IN SCIENCE Interpreting a Scatter Plot
3. Galaxies have different sizes and shapes.
   - EXTREME SCIENCE When Galaxies Collide
4. The universe is expanding.

**Visual Highlights**

- Structures in the Universe
- Seasons
- Lunar Phases
- Objects in the Solar System
- Features of Rocky Planets
- Layers of the Sun
- Life Cycles of Stars
Fish in an Aquarium

A fish requires a certain minimum amount of water to survive. If you plan to keep fish in an aquarium, you can calculate the volume of the aquarium to be sure it will contain enough water.

Find the volume of each aquarium. Give your answer in liters.

1. The aquarium is 100 centimeters long, 50 centimeters wide, and 80 centimeters high.
2. The aquarium is 50 centimeters long, 20 centimeters wide, and 40 centimeters high.
3. The aquarium is 50 centimeters long, 40 centimeters wide, and 50 centimeters high.

**Challenge**

You are designing an aquarium to house several fish of different species. The aquarium must hold 300 liters of water and fit in a space that is 100 centimeters long and 50 centimeters wide. How high should the aquarium be?
Science on the Job

EARTH'S WATERS
Water and Farming 107

EARTH'S SURFACE
Soil, Water, and Architecture 253

ELECTRICITY AND MAGNETISM
The Science of Electrical Work 382

LIFE OVER TIME
Studying the Schools 543

HUMAN BIOLOGY
Breathing and Yoga 606

SPACE SCIENCE
Astronomy in Archaeology 731

Extreme Science

EARTH'S WATERS
Undersea Hot Spots 169

HUMAN BIOLOGY
Artificial Skin 655

SPACE SCIENCE
When Galaxies Collide 798

Frontiers in Science

EARTH'S WATERS
Exploring the Water Planet 38

EARTH’S SURFACE
Remote Sensing 186

ELECTRICITY AND MAGNETISM
Electronics in Music 330

LIFE OVER TIME
Life by Degrees 446

HUMAN BIOLOGY
Surprising Senses 560

SPACE SCIENCE
Danger from the Sky 662

Florida Connections

EARTH'S WATERS
Saving Coral 42

EARTH'S SURFACE
Florida's Sinkholes 190

ELECTRICITY AND MAGNETISM
Animatronics 334

LIFE OVER TIME
The Ultimate Fish 450

HUMAN BIOLOGY
A Place in the Sun 564

SPACE SCIENCE
Cape Canaveral: Step to the Stars 666

Timelines in Science

EARTH'S WATERS
Exploring the Ocean 146

EARTH'S SURFACE
History of the Earth System 292

ELECTRICITY AND MAGNETISM
The Story of Electronics 404

LIFE OVER TIME
Life Unearthed 520

HUMAN BIOLOGY
Seeing Inside the Body 624

SPACE SCIENCE
The Story of Astronomy 736
Simulations

**EARTH’S WATERS**
- Aquifers
- Limits of an Aquifer
- The Ocean Floor
- Ocean Life and Environments

**EARTH’S SURFACE**
- Topographic Maps and Surface Features
- Nuclear Power Plant

**ELECTRICITY AND MAGNETISM**
- Static Electricity
- Ohm’s Law
- Circuits
- Electromagnets

**LIFE OVER TIME**
- Matching Finch Beaks to Food

**HUMAN BIOLOGY**
- Human Body Systems
- Assemble a Skeleton

**SPACE SCIENCE**
- Levels of the Universe
- Sun at Different Wavelengths

---

**Visualizations**

**EARTH’S WATERS**
- The Water Cycle
- Water Treatment Plant
- Daily Tides
- Life at Hydrothermal Vents

**EARTH’S SURFACE**
- Latitude and Longitude
- Soil Formation
- Chemical Weathering
- Wind Erosion
- Cave Formation
- Hydrogen Fuel Cell

**ELECTRICITY AND MAGNETISM**
- Hard Drive
- Motor

**LIFE OVER TIME**
- Molten Rock in Sedimentary Layers
- Fossil Formation
- Response to Environmental Change

**HUMAN BIOLOGY**
- Lung and Diaphragm Movement
- Peristalsis
- Heart Pumping Blood
- Skin Healing

**SPACE SCIENCE**
- Night Sky throughout the Year
- Exploring Seasons
- Lunar Phases
- Virtual Flight through the Solar System
- Shapes of Galaxies

---

**Career Centers**

- Oceanography
- Mineralogy
- Music and Computer Science
- Paleontology
- Neurobiology
- Astronomy
Resource Centers

NATURE OF SCIENCE
Resources for the following topics may be found at ClassZone.com: Ethics; Prions; Technology and Its Consequences; Aquifers and Purification.

EARTH'S WATERS
Resources for the following topics may be found at ClassZone.com: Florida's Coral Reefs; Water; Evidence of a Water Cycle on Mars; Frozen Fresh Water; Geysers and Hot Springs; Ocean Currents; Ocean Waves; Ocean Tides; Ocean Research; Coral Reefs; Hydrothermal Vents; Ocean Pollution and Polluton Prevention.

EARTH'S SURFACE
Resources for the following topics may be found at ClassZone.com: Sinkholes; Satellite Mapping; Map Projections; GIS; Weathering; Soil; Mudflows; Rivers and Erosion; Glaciers; Earth System Research; Natural Resources; Pollution-Digesting Microbes; Renewable Energy Resources.

ELECTRICITY AND MAGNETISM
Resources for the following topics may be found at ClassZone.com: Amusement Park Animatronics; Lightning and Lightning Safety; Electrochemical Cells; Electrical Safety; Electronics; Electronic and Computer Research; Magnetism; Dams and Electricity; Energy Use and Conservation.

LIFE OVER TIME
Resources for the following topics may be found at ClassZone.com: Sharks; Evidence of an Event in Earth’s Past; Fossils; Finding the Ages of Rocks; Mass Extinctions; Natural Selection; Evidence Supporting Evolution; Current Fossil and Living Fossil Finds; Population Dynamics; Human Population Growth; Introduced Species in the United States.

HUMAN BIOLOGY
Resources for the following topics may be found at ClassZone.com: Skin and the Sun; Shackleton’s Expedition; Skeletal System; Muscles; Respiratory System; Urinary System; Current Medical Imaging Techniques; Circulatory System; Blood Types; Lymphatic System; Skin.

SPACE SCIENCE
Resources for the following topics may be found at ClassZone.com: Cape Canaveral; Telescopes; Space Exploration; Seasons; Tides; Advances in Astronomy; Impact Craters; Moons of Giant Planets; Life Cycles of Stars; Galaxies; Galaxy Collisions.

Math Tutorials

NATURE OF SCIENCE
Bar Graphs 31

EARTH’S WATERS
Multiplying Fractions and Whole Numbers 63
Volume of a Rectangular Prism 89
Coordinates and Line Graphs 123
Bar Graphs 160

EARTH’S SURFACE
Solving Proportions 211
Surface Area of a Rectangular Prism 237
Making a Line Graph 287
Comparing Decimals 312

ELECTRICITY AND MAGNETISM
Equations 367
Percents and Proportions 388
Rounding Decimals 439

LIFE OVER TIME
Reading Line Graphs and Multiplying Whole Numbers 472
Writing and Solving Proportions 496
Finding the Mean 535

HUMAN BIOLOGY
Unit Rates 583
Measuring Length 613
Making Line Graphs 648

SPACE SCIENCE
Powers and Exponents 694
Line Graphs 722
The Percent Equations 748
Scatter Plots 793

NSTA SciLinks

Codes for use with the NSTA SciLinks site may be found on every chapter opener.

Florida Review

There is a content review and FCAT practice for every chapter at ClassZone.com.
## Explore the Big Idea

**Chapter Opening Inquiry**

Each chapter opens with hands-on explorations that introduce the chapter’s Big Idea.

### Nature of Science

- **Reproducing a Result; Effects of Changes**
  - Page: 3

### Earth’s Waters

- **Where Can You See Water?**
  - Page: 47
- **Does the Ice Float?**
  - Page: 47
- **How Much Water Do You Drink?**
  - Page: 79
- **What Happens When Salt Water Evaporates?**
  - Page: 79
- **What Makes Things Float or Sink?**
  - Page: 113
- **How Does Moving Air Affect Water?**
  - Page: 113
- **It’s Alive! Beneath the Surface**
  - Page: 151

### Earth’s Surface

- **Earth’s Changing Surface; Using Modern Maps**
  - Page: 195
- **Ice Power; Getting the Dirt on Soil**
  - Page: 229
- **Where Has Water Been?**
  - Page: 259
- **How Do Waves Shape Land?**
  - Page: 259
- **Sunlight as an Energy Source; Saving Water as You Brush**
  - Page: 297

### Electricity and Magnetism

- **How Do the Pieces of Tape Interact?**
  - Page: 339
- **Why Does the Water React Differently?**
  - Page: 339
- **Will the Flashlight Still Work?**
  - Page: 373
- **What’s Inside a Calculator?**
  - Page: 373
- **Is It Magnetic? How Can You Make a Chain?**
  - Page: 409

### Life Over Time

- **How Do You Know What Happened?**
  - Page: 455
- **How Long Has That Been There?**
  - Page: 455
- **What Can Rocks Show About Earth’s History?**
  - Page: 487
- **Which One of These Things Is Not Like the Others?**
  - Page: 487
- **How Does Population Grow?**
  - Page: 525
- **How Do Populations Differ?**
  - Page: 525

### Human Biology

- **How Many Bones Are in Your Hand?**
  - Page: 569
- **How Does It Move?**
  - Page: 569
- **Mirror, Mirror; Water Everywhere**
  - Page: 597
- **Blood Pressure; Wet Fingers**
  - Page: 629

### Space Science

- **Why Does the Sun Appear to Move Around Earth?**
  - Page: 671
- **What Colors Are in Sunlight?**
  - Page: 671
- **How Do Shadows Move?**
  - Page: 705
- **What Makes the Moon Bright?**
  - Page: 705
- **How Big Is Jupiter?**
  - Page: 741
- **How Round Is an Orbit?**
  - Page: 741
- **How Can Stars Differ?**
  - Page: 777
- **How Do Galaxies Move Apart?**
  - Page: 777
**Chapter Investigations**

**Full-Period Labs**

The Chapter Investigations are in-depth labs that let you form and test a hypothesis, build a model, or sometimes design your own investigation.

**Nature of Science**
- Using a Filter 22

**Earth’s Waters**
- Water Moving Underground 72
- Monitoring Water Quality 98
- Wave Movement 134
- Population Sampling 178

**Earth’s Surface**
- Investigate Topographic Maps 216
- Testing Soil 246
- Creating Stream Features 272
- Wind Power 322

**Electricity and Magnetism**
- Lightning 358
- Design an Electronic Communication Device 398
- Build a Speaker 432

**Life Over Time**
- Geologic Time 480
- Modeling Natural Selection 506
- Sustainable Resource Management 552

**Human Biology**
- A Closer Look at Muscles 590
- Modeling a Kidney 618
- Heart Rate and Exercise 638

**Space Science**
- Observing Spectra 684
- Modeling Seasons 714
- Exploring Impact Craters 770
- Temperature, Brightness, and Color 784
### Nature of Science

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations and Opinions</td>
<td>5</td>
</tr>
<tr>
<td>Effects of Changes in Procedures</td>
<td>14</td>
</tr>
</tbody>
</table>

### Earth's Waters

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Vapor</td>
<td>49</td>
</tr>
<tr>
<td>Water Collection</td>
<td>56</td>
</tr>
<tr>
<td>Flow of Water</td>
<td>64</td>
</tr>
<tr>
<td>Concentration</td>
<td>90</td>
</tr>
<tr>
<td>The Value of Fresh Water</td>
<td>100</td>
</tr>
<tr>
<td>Density</td>
<td>115</td>
</tr>
<tr>
<td>Currents</td>
<td>124</td>
</tr>
<tr>
<td>Waves</td>
<td>129</td>
</tr>
<tr>
<td>Air Bladders</td>
<td>161</td>
</tr>
<tr>
<td>Ocean Pollution</td>
<td>170</td>
</tr>
</tbody>
</table>

### Earth's Surface

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mapping</td>
<td>203</td>
</tr>
<tr>
<td>Topographic Maps</td>
<td>212</td>
</tr>
<tr>
<td>Mechanical Weathering</td>
<td>231</td>
</tr>
<tr>
<td>Soil Composition</td>
<td>238</td>
</tr>
<tr>
<td>Divides</td>
<td>266</td>
</tr>
<tr>
<td>Glaciers</td>
<td>281</td>
</tr>
<tr>
<td>Energy Use</td>
<td>308</td>
</tr>
<tr>
<td>Nuclear Energy</td>
<td>313</td>
</tr>
</tbody>
</table>

### Electricity and Magnetism

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Electricity</td>
<td>341</td>
</tr>
<tr>
<td>Static Discharge</td>
<td>350</td>
</tr>
<tr>
<td>Current</td>
<td>360</td>
</tr>
<tr>
<td>Circuits</td>
<td>375</td>
</tr>
<tr>
<td>Codes</td>
<td>389</td>
</tr>
<tr>
<td>Magnetism</td>
<td>411</td>
</tr>
<tr>
<td>Magnetism from Electric Current</td>
<td>420</td>
</tr>
<tr>
<td>Energy Conversion</td>
<td>427</td>
</tr>
</tbody>
</table>

### Life Over Time

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocks</td>
<td>457</td>
</tr>
<tr>
<td>Time Scales</td>
<td>473</td>
</tr>
<tr>
<td>Fossils</td>
<td>489</td>
</tr>
<tr>
<td>Evidence</td>
<td>508</td>
</tr>
<tr>
<td>Population Density</td>
<td>536</td>
</tr>
<tr>
<td>Population Change</td>
<td>544</td>
</tr>
</tbody>
</table>

### Human Biology

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levers</td>
<td>576</td>
</tr>
<tr>
<td>Muscles</td>
<td>584</td>
</tr>
<tr>
<td>Breathing</td>
<td>599</td>
</tr>
<tr>
<td>Digestion</td>
<td>607</td>
</tr>
<tr>
<td>Waste Removal</td>
<td>614</td>
</tr>
<tr>
<td>The Circulatory System</td>
<td>631</td>
</tr>
<tr>
<td>Membranes</td>
<td>640</td>
</tr>
<tr>
<td>The Skin</td>
<td>649</td>
</tr>
</tbody>
</table>

### Space Science

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>673</td>
</tr>
<tr>
<td>Distortion of Light</td>
<td>679</td>
</tr>
<tr>
<td>Viewing Space Objects</td>
<td>686</td>
</tr>
<tr>
<td>Time Zones</td>
<td>707</td>
</tr>
<tr>
<td>The Moon’s Motion</td>
<td>716</td>
</tr>
<tr>
<td>Planet Formation</td>
<td>743</td>
</tr>
<tr>
<td>Surfaces</td>
<td>749</td>
</tr>
<tr>
<td>Solar Atmosphere</td>
<td>779</td>
</tr>
<tr>
<td>Characteristics of Stars</td>
<td>786</td>
</tr>
<tr>
<td>The Milky Way</td>
<td>794</td>
</tr>
<tr>
<td>Large Numbers</td>
<td>799</td>
</tr>
</tbody>
</table>
**Investigate**

**Skill Labs**

Each Investigate activity gives you a chance to practice a specific science skill related to the content that you’re studying.

### Nature of Science

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solving Problems</td>
<td>Design Your Own</td>
<td>9</td>
</tr>
<tr>
<td>Ethics</td>
<td>Judging</td>
<td>28</td>
</tr>
</tbody>
</table>

### Earth’s Waters

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Water Cycle</td>
<td>Design Your Own</td>
<td>52</td>
</tr>
<tr>
<td>Icebergs</td>
<td>Calculating</td>
<td>61</td>
</tr>
<tr>
<td>Aquifer Filtration</td>
<td>Making Models</td>
<td>67</td>
</tr>
<tr>
<td>Water Usage</td>
<td>Analyzing Data</td>
<td>83</td>
</tr>
<tr>
<td>Water Conservation</td>
<td>Measuring</td>
<td>103</td>
</tr>
<tr>
<td>Density</td>
<td>Predicting</td>
<td>118</td>
</tr>
<tr>
<td>Currents</td>
<td>Observing</td>
<td>127</td>
</tr>
<tr>
<td>Tides</td>
<td>Making Models</td>
<td>138</td>
</tr>
<tr>
<td>Coastal Environments</td>
<td>Design Your Own</td>
<td>156</td>
</tr>
<tr>
<td>Floating</td>
<td>Design Your Own</td>
<td>165</td>
</tr>
</tbody>
</table>

### Earth’s Surface

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geosphere’s Layers</td>
<td>Modeling</td>
<td>201</td>
</tr>
<tr>
<td>Map Projections</td>
<td>Modeling</td>
<td>208</td>
</tr>
<tr>
<td>Satellite Imaging</td>
<td>Modeling</td>
<td>220</td>
</tr>
<tr>
<td>Chemical Weathering</td>
<td>Identifying Variables</td>
<td>234</td>
</tr>
<tr>
<td>Soil Conservation</td>
<td>Making Models</td>
<td>251</td>
</tr>
<tr>
<td>Erosion</td>
<td>Design Your Own</td>
<td>262</td>
</tr>
<tr>
<td>Longshore Drift</td>
<td>Observing</td>
<td>276</td>
</tr>
<tr>
<td>Kettle Lake Formation</td>
<td>Design Your Own</td>
<td>285</td>
</tr>
<tr>
<td>Fossil Fuels</td>
<td>Modeling</td>
<td>305</td>
</tr>
<tr>
<td>Conservation</td>
<td>Design Your Own</td>
<td>310</td>
</tr>
</tbody>
</table>

### Electricity and Magnetism

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making a Static Detector</td>
<td>Inferring</td>
<td>346</td>
</tr>
<tr>
<td>Conductors and Insulators</td>
<td>Interpreting Data</td>
<td>354</td>
</tr>
<tr>
<td>Electric Cells</td>
<td>Inferring</td>
<td>363</td>
</tr>
<tr>
<td>Fuses</td>
<td>Making Models</td>
<td>380</td>
</tr>
<tr>
<td>Circuits</td>
<td>Inferring</td>
<td>386</td>
</tr>
</tbody>
</table>

### Digital Information

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth’s Magnetic Field</td>
<td>Inferring</td>
<td>417</td>
</tr>
<tr>
<td>Electromagnets</td>
<td>Observing</td>
<td>422</td>
</tr>
<tr>
<td>Electric Current</td>
<td>Inferring</td>
<td>430</td>
</tr>
<tr>
<td>Power</td>
<td>Making Models</td>
<td>437</td>
</tr>
</tbody>
</table>

### Life Over Time

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning from Tree Rings</td>
<td>Observing</td>
<td>462</td>
</tr>
<tr>
<td>Relative and Absolute Age</td>
<td>Making Models</td>
<td>468</td>
</tr>
<tr>
<td>Fossil Records</td>
<td>Analyzing</td>
<td>491</td>
</tr>
<tr>
<td>Genes</td>
<td>Sequencing</td>
<td>513</td>
</tr>
<tr>
<td>Limiting Factors</td>
<td>Design Your Own</td>
<td>540</td>
</tr>
<tr>
<td>Population</td>
<td>Graphing data</td>
<td>548</td>
</tr>
</tbody>
</table>

### Human Biology

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems</td>
<td>Predicting</td>
<td>572</td>
</tr>
<tr>
<td>Movable Joints</td>
<td>Observing</td>
<td>581</td>
</tr>
<tr>
<td>Lungs</td>
<td>Making models</td>
<td>601</td>
</tr>
<tr>
<td>Chemical Digestion</td>
<td>Making models</td>
<td>609</td>
</tr>
<tr>
<td>Antibodies</td>
<td>Making models</td>
<td>645</td>
</tr>
<tr>
<td>Skin Protection</td>
<td>Observing</td>
<td>651</td>
</tr>
</tbody>
</table>

### Space Science

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constellation Positions</td>
<td>Analyzing</td>
<td>677</td>
</tr>
<tr>
<td>Launch Planning</td>
<td>Identifying Variables</td>
<td>689</td>
</tr>
<tr>
<td>Weathering</td>
<td>Predicting</td>
<td>697</td>
</tr>
<tr>
<td>Rotation</td>
<td>Making Models</td>
<td>708</td>
</tr>
<tr>
<td>Moon Features</td>
<td>Inferring</td>
<td>719</td>
</tr>
<tr>
<td>Phases of the Moon</td>
<td>Making Models</td>
<td>726</td>
</tr>
<tr>
<td>Distances</td>
<td>Using Models</td>
<td>746</td>
</tr>
<tr>
<td>Layers</td>
<td>Using Models</td>
<td>752</td>
</tr>
<tr>
<td>Giant Planets</td>
<td>Observing</td>
<td>761</td>
</tr>
<tr>
<td>Parallax</td>
<td>Measuring</td>
<td>787</td>
</tr>
<tr>
<td>Galaxy Shapes</td>
<td>Classifying</td>
<td>795</td>
</tr>
<tr>
<td>Galaxies</td>
<td>Measuring</td>
<td>802</td>
</tr>
</tbody>
</table>