

Life Science Daybook © 2002  
Physical Science Daybook © 2003  
Earth Science Daybook © 2002

correlated to

Mississippi  
Science Framework  
Competencies and Objectives  
Grades 6-8



 HOUGHTON MIFFLIN HARCOURT  
Supplemental Publishers

[www.greatsource.com](http://www.greatsource.com)

To contact your Great Source Representative,  
Call: 800-289-4490, option 4



**Life Science Daybook © 2002**  
**Physical Science Daybook © 2003**  
**Earth Science Daybook © 2002**  
 correlated to  
**Mississippi Science Framework**  
**Competencies and Objectives**  
**Sixth Grade**

**C O M P E T E N C Y   1**

**Conduct a scientific investigation utilizing appropriate process skills.**

| Objectives, Sixth Grade  | Science Daybook, Grade 6   |
|--|--|
| <p>a. Design and conduct an investigation that includes predicting outcomes, using experimental controls, and making inferences.</p> | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> “A Lot O’ Stomata” pg. 26-27, “Make a Prediction” pg. 98, 127, 169, 195., “Make Inferences” pg. 43, 47, 130, 200, “Before You Read” pg. 40, 44, 64, 94, 108, 110, 114, 150, 162, 166, 188, 208</p> <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> “The Big Drop” pg. 18-19, “Wind and Waves” pg. 96, “How Strong are the Waves?” pg. 97, “ What the Table Shows” pg. 174, “Why Not Silicon?” pg. 175, “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Predicting Change” pg. 171, “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 141, 165, 195</p> |
| <p>b. Distinguish between qualitative and quantitative observations and make inferences based on observations.</p>                   | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> “Make Inferences” pg. 43, 47, 130, 200, “Make Comparisons” pg. 12-13, 54, “ The Great Divide” pg. 36-37, “State Your Trait” pg. 63, “Who Are You” pg. 68, “Compare Adaptations” pg. 74, “Elephant Walk” pg. 78-79, “Into the Field” pg. 85, “Make Observations” pg. 175, “Where Do Cane Toads Live?” pg. 180-181, “Taking Measurements” pg. 198, “Biodiversity in Your World” pg. 216-217</p>   |

| Objectives, Sixth Grade   | Science Daybook, Grade 6   |
|---|--|
| <p>b. Distinguish between qualitative and quantitative observations and make inferences based on observations.</p>  | <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199, “Going the Distance” pg. 18-19, “Zapping Static” pg. 55, “Your Own Magnet Train” pg. 81, “Create a Model” pg. 107, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “Make a Snow Globe” pg. 156-157, “A Recipe For Disaster” pg. 161, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “ Make Inferences” pg. 18, 42, 47, 49, 58, 126, 141, 165, 195, “The View From There” pg. 12, “Test Your 3-D Vision” pg. 16, “Seeing Patterns” pg. 24, “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Water, Water, Everywhere” pg. 95, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Make a Graph” pg. 140, “Analyzing Air Pressure Data” pg. 149, “Inside a Tree” pg. 166, “Distinguish Data From Conclusions” pg. 174-175, “Moon Make-Up” pg. 196-197, “The Effects of Sunlight” pg. 208</p> |
| <p>c. Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement).</p> <ul style="list-style-type: none"> <li>• Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales)</li> <li>• Types of data (e.g., linear measures, mass, volume, temperature, time, area, perimeter)</li> <li>• Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)</li> </ul> | <p><b>Life Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Taking Measurements” pg. 198, “The Great Divide” pg. 36-37, “Elephant Walk” pg. 78, “What Attracts Insects to Flowers?” pg. 132-133, “Getting in Touch With Touch” pg 144-145, “Create a Model” pg. 147-149, “Taking Measurements” pg. 198, “Biodiversity in Your World” pg. 216-217</li> <li>• “Do Research” pg. 33, 39, 61, 191, “Research Reflexes” pg. 43, “Propose Explanations” pg. 49, “Why Ivory?” pg. 79, “Convergent Evolution in the Desert” pg. 81, “Into the Field” pg. 85, “Germinate Awareness” pg. 101, “Group Behavior” pg. 121, “Research an Invading Species” pg. 185, “Amazon Adaptations” pg. 201, “Funding the Rain Forest” pg. 205, “Finding Answers” pg. 207, “Compare and Contrast” pg. 211</li> </ul>   |

| Objectives, Sixth Grade   | Science Daybook, Grade 6   |
|---|--|
| <p>c. Use simple tools and resources to gather and compare information (using standard, metric, and non-standard units of measurement).</p> <ul style="list-style-type: none"> <li>• Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales)</li> <li>• Types of data (e.g., linear measures, mass, volume, temperature, time, area, perimeter)</li> <li>• Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)</li> </ul> | <p><b>Physical Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• “Going the Distance” pg. 18-19, “Your Own Magnet Train” pg. 81, “Keeping Warm” pg. 133, “It’s Freezing!” pg. 148, “It’s Boiling!” pg. 150, “Making a Snow Globe” pg. 156, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Making a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207</li> <li>• acceleration calculations on pg. 25, scientific notation pg. 144</li> <li>• “Machines Then and Now” pg. 39, “Find Out More” pg. 49, “Research Other Magnetic Personalities” pg. 77, “That’s Disturbing!” pg. 97, “Conduct an Interview” pg. 101, “Research How Glass is Made” pg. 154, “Find Examples” pg. 203</li> </ul> <p><b>Earth Science Daybook Student Book:</b></p> <p>“Draw a Map” pg. 11, “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Analyze Air Pressure Data” pg. 149, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, <i>Opportunity exists</i> “Get Air” pg. 137</p> <ul style="list-style-type: none"> <li>• “Draw a Map” pg. 11, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Read a Data Table” pg. 139, “Make Graph” pg. 140, “Analyze Air Pressure Data” pg. 149, “Hailstone Sizes” pg. 162, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, <i>Opportunity exists</i> “Get Air” pg. 137, “Interpreting a Modified H-R Diagram” pg. 200-201</li> <li>• “Consider Your Options” pg. 39, “Conduct an Interview” pg. 43, “Research Folk Songs” pg. 59, “Do Research” pg. 113, “Investigate Your Local Winds” pg. 145, “Communicate Tornado Safety” pg. 159, “Do Research” pg. 169, “Write a Research Proposal” pg. 175, “Do Online Research” pg. 205, “Freefalling” pg. 213</li> </ul> |

| Objectives, Sixth Grade  | Science Daybook, Grade 6   |
|--|--|
| <p>d. Analyze data collected from a scientific investigation to construct explanations and draw conclusions.</p> | <p><b>Life Science Daybook Student Book:</b> “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Do Research” pg. 33, “The Great Divide” pg. 36-37, “State Your Trait” pg. 63, “Who’s in Control?” pg. 70-71, “Elephant Walk” pg. 78-79, “Compare Orders” pg. 84-85, “Identifying Families” pg. 87-89, “Shake a Leg” pg. 105-107, “Navigation Under Water” pg. 116-117, “A Formidable Foe” pg. 120-121, “Whale Identification” pg. 123, “Make Inferences” pg. 130-131, “What Attracts Insects to Flowers?” pg. 132-133, 138-139, “Fooling Your Sense of Balance” pg. 141, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 148-149, “Thinking About Thinking” pg. 157, “Sleep Stages” pg. 160-161, “Where Do Cane Toads Live?” pg. 180-181, “Interactions Within a Community” pg. 184-185, 190-191, 193-195, “Tapir Tracks” pg. 204-205, “Compare Easter Island and Your Community” pg. 210-211, “Biodiversity in Your World” pg. 216-217, “Draw Conclusions” pg. 22, 149, 194, “Analyze Data” pg. 56-57, 193, “Analyze a Graph” pg. 138, 152, “Interpret a Diagram” pg. 42-43, 46-47, 66-67, 171, “Propose Explanations” pg. 49, 153, 187, 197, “Using Graphs” pg. 126-127, 213</p> <p><b>Physical Science Daybook Student Book:</b> ”Going the Distance” pg. 18-19, “Watch it Fly” pg. 29, “Zapping Static” pg. 55, “Your Own Magnetic Train” pg. 81, “Create a Model” pg. 107, Analyze Data 110, “Color Constancy” pg. 118, “Before and After” pg. 119, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “It’s Freezing!” pg. 148-149, “It’s Boiling!” pg. 150-151, “Make a Snow Globe” pg. 156-157, “A Recipe for Disaster” pg. 161, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217, “Propose Explanations” pg. 23, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 111, 123, 141, 171, 175, 181, 195, 211, 215</p> <p><b>Earth Science Daybook Student Book:</b> “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Identify Your Watershed” pg. 105, “Build a Desalination Device” pg. 120-121, “Make a Graph” pg. 140-141, “Analyze Air Pressure Data” pg. 149, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, <i>opportunity exists</i> “Find the Coal” pg. 31, “Interpreting a Map” pg. 36, 54, 104, 126, 152, “Interpreting Graphs” pg. 116, “Get Air” pg. 137, “Read a Data Table” pg. 139, “Reading Air Pressure Maps” pg. 148, “Heading Home” pg. 155, “Interpret a Tornado Map” pg. 158, “Hailstone Size” pg. 162, “Distinguishing Data From Conclusions” pg. 174, “Interpret a Diagram” pg. 186, “Interpret a Scientific Image” pg. 194-195, “Interpret a Modified H-R Diagram” pg. 200-201</p> |

| Objectives, Sixth Grade   | Science Daybook, Grade 6   |
|---|--|
| <p>e. Communicate scientific procedures and conclusions using diagrams, charts, tables, graphs, maps, written explanations, and/or scientific models.</p> | <p><b>Life Science Daybook Student Book:</b> “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Design a Model” pg. 32, “Do Research” pg. 33, “The Great Divide” pg. 36-37, “State Your Trait” pg. 63, “Who’s in Control?” pg. 70-71, “Elephant Walk” pg. 78-79, “Compare Orders” pg. 84-85, “Identifying Families” pg. 87-89, “How the Plague Travels” pg. 100, “Shake a Leg” pg. 105-107, “Navigation Under Water” pg. 116-117, “A Formidable Foe” pg. 120-121, “Whale Identification” pg. 123, “Make Inferences” pg. 130-131, 200-201, “What Attracts Insects to Flowers?” pg. 132-133, 138-139, “Fooling Your Sense of Balance” pg. 141, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 148-149, “Thinking About Thinking” pg. 157, “Sleep Stages” pg. 160-161, “Draw a Diagram” pg. 168, “Make a Poster” pg. 175, “Where Do Cane Toads Live?” pg. 180-181, “Interactions Within a Community” pg. 184-185, “Draw a Food Chain” pg. 188, 190-191, 193-195, “Diagram Your Ecosystem” pg. 196, “Tapir Tracks” pg. 204-205, “Compare Easter Island and Your Community” pg. 210-211, “Biodiversity in Your World” pg. 216-217, “Draw Conclusions” pg. 22, 149, 194, “Analyze Data” pg. 56-57, 193, “Analyze a Graph” pg. 138, 152, “Interpret a Diagram” pg. 42-43, 46-47, 66-67, 171, “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, “Using Graphs” pg. 126-127, 213</p> <p><b>Physical Science Daybook Student Book:</b> “Apply the Concept” pg. 17, “Going the Distance” pg. 18-19, “Watch it Fly” pg. 29, “Sketch a Gadget” pg. 34-35, “Zapping Static” pg. 55, “On the Fast Track” pg. 78, “Your Own Magnetic Train” pg. 81, “How a Telephone Works” pg. 87, “Create a Model” pg. 107, Analyze Data 110, “Color Constancy” pg. 118, “Before and After” pg. 119, “Check the Angle” pg. 122-123, “Interpret an Engineering Diagram” pg. 126-127, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “It’s Freezing!” pg. 148-149, “It’s Boiling!” pg. 150-151, “Make a Snow Globe” pg. 156-157, “Milky Mixtures” pg. 160, “A Recipe for Disaster” pg. 161, “What’s That Smell?” pg. 170, “Organizing Information” pg. 180, “Compare and Contrast” pg. 181, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Step by Step” pg. 202, “Find Examples” pg. 203, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217, “Propose Explanations” pg. 23, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 111, 123, 141, 171, 175, 181, 195, 211, 215</p> |

| Objectives, Sixth Grade   | Science Daybook, Grade 6  |
|---|---|
| <p>e. Communicate scientific procedures and conclusions using diagrams, charts, tables, graphs, maps, written explanations, and/or scientific models.</p> | <p><b>Earth Science Daybook Student Book:</b> “Get to Know a Pebble” pg. 29, “Find the Coal” pg. 31, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Identify Your Watershed” pg. 105, “Build a Desalination Device” pg. 120-121, “Get Air” pg. 137, “Read a Data Table” pg. 139, “Make a Graph” pg. 140-141, “Reading Air Pressure Maps” pg. 148, “Analyze Air Pressure Data” pg. 149, “Heading Home” pg. 155, “Interpret a Tornado Map” pg. 158, “Hailstone Size” pg. 162, “Distinguishing Data From Conclusions” pg. 174, “Draw a Diagram” pg. 181, “Interpret a Diagram” pg. 186, “Interpret a Scientific Image” pg. 194-195, “Determine Rock-Ice Percentages” pg. 196-197, “Interpret a Modified H-R Diagram” pg. 200-201, “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, “Interpreting a Map” pg. 36, 54, 104, 126, 152, “Interpreting Graphs” pg. 116</p> |
| <p>g. Infer explanations for why scientists might draw different conclusions from a given set of data.</p>  | <p><b>Life Science Daybook Student Book:</b> “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, <i>opportunity exists</i> “Make Inferences” pg. 130-131, 200-201</p> <p><b>Physical Science Daybook Student Book:</b> “Propose Explanations” pg. 23, 29, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 107, 111, 119, 123, 137, 141, 151, 165, 171, 175, 181, 185, 191, 195, 197, 211, 215, 217, <i>opportunity exists</i> “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, <i>opportunity exists</i> “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 195, “Why Explore Space?” pg. 214-216, “Hold a Debate” pg. 217</p>    |

| Objectives, Sixth Grade   | Science Daybook, Grade 6  |
|---|---|
| <p>h. Recognize and analyze alternative explanations and predictions.</p> | <p><b>Life Science Daybook Student Book:</b> “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, “Make a Prediction” pg. 98, 127, 169, 195, “Form a Hypothesis” pg. 26, 190, “Explain Your Model” pg. 32, “Before You Read” pg. 40, 44, 64, 94, 108, 110, 114, 150, 162, 166, 188, 208, <i>opportunity exists</i> “What Attracts Insects to Flowers?” question #7 on pg. 133, “Fooling Your Sense of Balance” pg. 141</p> <p><b>Physical Science Daybook Student Book:</b> “Propose Explanations” pg. 17, 19, 23, 29, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 107, 111, 119, 123, 137, 141, 151, 165, 171, 175, 181, 185, 191, 195, 197, 211, 215, 217 “Before You Read” pg. 78, 212, “Debate the Issue” pg. 45, “An Inventor’s Workshop” pg. 67, “Where Does Your Power Come From?” pg. 71, “It’s Boiling!” pg. 150</p> <p><b>Earth Science Daybook Student Book:</b> “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, “Why Explore Space?” pg. 214-216, “Hold a Debate” pg. 217</p> |

## C O M P E T E N C Y 2

**Analyze chemical and physical changes and interactions involving energy and forces that affect motion of objects.**

| Objectives, Sixth Grade  | Science Daybook, Grade 6   |
|--|--|
| <p>a. Recognize that atoms of a given element are all alike but atoms of other elements have different atomic structures.</p>  | <p><b>Physical Science Daybook Student Book:</b> Ch 13 L 37 “What’s an Atom?” pg. 136-137, Ch 13 L 38 “Building Blocks” pg. 138-141, Ch 16 L 46-48 “Properties of Elements” pg. 166-175</p>                        |
| <p>b. Distinguish physical properties of matter (e.g., melting points, boiling points, solubility) as it relates to changes in states.</p> <ul style="list-style-type: none"> <li>• Between solids, liquids, and gases through models that relate matter to particles in motion</li> <li>• Solubility in water of various solids to activities (e.g., heating, stirring, shaking, crushing) on the rate of solution</li> <li>• Use of solubility differences to identify components of a mixture (e.g., chromatography)</li> </ul> | <p><b>Physical Science Daybook Student Book:</b> Ch 14 L 40-42 “It’s a Matter of State” pg. 146-155, Ch 15 L 43-45 “Mixtures, Solutions, and Suspensions” pg. 156-165, Ch 17 L 50 “Chemical Bonds” pg. 182-185</p> |

| Objectives, Sixth Grade  | Science Daybook, Grade 6  |
|--|---|
| <p>c. Investigate and describe the effects of forces acting on objects.</p> <ul style="list-style-type: none"> <li>• Gravity, friction, magnetism, drag, lift, and thrust</li> <li>• Forces affecting the motion of objects</li> </ul>   | <p><b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 2 L 4-6 “May the Force Be With You” pg. 20-29, Ch 3 L 7-9 “Da Vinci’s Designs” pg. 30-39, Ch 4 L 10-12 “Modern Machines” pg. 40-49</p>   |
| <p>d. Investigate the mechanical and chemical forms of energy and demonstrate the transformations from one form to another.</p> <ul style="list-style-type: none"> <li>• Energy transformations represented in the use of common household objects</li> <li>• Mechanical energy transformed to another form of energy (e.g., vibrations, heat through friction)</li> <li>• Chemical energy transformed to another form of energy (e.g., light wands, lightning bugs, batteries, bulbs)</li> </ul>  | <p><b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 5 L 13-15 “How Shocking!” pg. 52-61, Ch 5 L 16-18 “Edison at Work” pg. 62-71, Ch 9 L 25-27 “The Energy of Waves” pg. 94-103, Ch 10 L 28-30 “Sounding Off” pg. 104-113, Ch 19 L 55-57 “Energy from Chemicals” pg. 198-207</p> |
| <p>e. Apply the laws of reflection and refraction to explain everyday phenomena.</p> <ul style="list-style-type: none"> <li>• Properties of reflection, refraction, transmission, and absorption of light</li> <li>• Images formed by plane, convex, and concave lenses and mirrors, and reflecting and refracting telescopes</li> <li>• Objects that are opaque, transparent, or translucent</li> </ul>   | <p><b>Physical Science Daybook Student Book:</b> Ch 11 L 31-33 “Light It Up!” pg. 114-123</p>   |
| <p>f. Develop a logical argument to explain how the forces which affect the motion of objects has real-world applications including (but not limited to) examples of Mississippi’s contributions as follows:</p> <ul style="list-style-type: none"> <li>• Automotive industry (Nissan’s new production plant is located in Canton, MS. Toyota’s new facility is in Tupelo, MS.)</li> <li>• Aerospace industry (The Raspet Flight Research Laboratory, housed at Mississippi State University, is one of the premier university flight research facilities in the country.)</li> <li>• Shipbuilding industry (Ingall’s Shipbuilding, of Pascagoula, MS, is a leading supplier of marine vessels to the United States Navy.</li> </ul> | <p><b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 2 L 4-6 “May the Force Be With You” pg. 20-29, Ch 3 L 7-9 “Da Vinci’s Designs” pg. 30-39, Ch 4 L 10-12 “Modern Machines” pg. 40-49</p>   |
| <p>g. Predict and explain factors that affect the flow of heat in solids, liquids, and gases.</p> <ul style="list-style-type: none"> <li>• Insulating factors in real life applications (e.g., building, construction, clothing, animal covering)</li> <li>• Conduction, convection, or radiation factors used to enhance the flow of heat</li> <li>• Temperature differences on the movement of water</li> </ul>  | <p><b>Physical Science Daybook Student Book:</b> Ch 12 L 34-36 “Heating Things Up” pg. 124-133</p>  |

## COMPETENCY 3

**Explain the organization of living things, the flow of matter and energy through ecosystems, the diversity and interactions among populations, and the natural and human-made pressures that impact the environment.**

| Objectives, Sixth Grade   | Science Daybook, Grade 6  |
|---|---|
| <p>a. Describe and predict interactions (among and within populations) and the effects of these interactions on population growth to include the effects on available resources.</p> <ul style="list-style-type: none"> <li>• How cooperation, competition and predation affect population growth</li> <li>• Effects of overpopulation within an ecosystem on the amount of resources available</li> <li>• How natural selection acts on a population of organisms in a particular environment via enhanced reproductive success</li> </ul> | <p><b>Life Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• Unit 5 “Ecology” pg. 176-217, Ch 11 L 31-33 “Killer Whales: Wolves of the Sea” pg. 114-123, Ch 12 L 34-35 “Plant Adaptations” pg. 124-132</li> <li>• Ch 17 L 49-50 “Populations, Communities, and Ecosystems” pg 178-187</li> <li>• Ch 7 L 19-21 “Most Likely to Survive” pg. 72-81, opportunity exists Ch 10 L 28-30 pg. 104-113, Ch 12 L 34-36 “Plant Adaptations” pg. 124-133, Ch 19 L 55 “Rain Forest” pg. 198-201</li> </ul> |
| <p>b. Compare and contrast structure and function in living things to include cells and whole organisms.</p> <ul style="list-style-type: none"> <li>• Hierarchy of cells, tissues, organs, and organ systems to their functions in an organism</li> <li>• Function of plant and animal cell parts (vacuoles, nucleus, cytoplasm, cell membrane, cell wall, chloroplast)</li> <li>• Vascular and nonvascular plants, flowering and non-flowering plants, deciduous and coniferous trees</li> </ul>   | <p><b>Life Science Daybook Student Book:</b> Ch 1 L 1-4 “Structure of a Cell” pg. 8-23, Ch 2 L 4-6 “Cells at Work” pg. 20-28, Ch 4 L 10-12 “When Cells Get Together” pg. 40-49, Ch 13-15 “Human Body Systems” pg. 134-165</p>   |
| <p>c. Distinguish between the organization and development of humans to include the effects of disease.</p> <ul style="list-style-type: none"> <li>• How systems work together (e.g., respiratory, circulatory)</li> <li>• Fertilization, early cell division, implantation, embryonic and fetal development, infancy, childhood, adolescence, adulthood, and old age</li> <li>• Common diseases caused by microorganisms (e.g., bacteria, viruses, malarial parasites)</li> </ul>  | <p><b>Life Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• Unit 4 “Human Body Systems” Ch 13-15 pg. 134-162</li> <li>• Ch 2 L 6 “Cells Division” pg 30-37</li> <li>• Ch 9 L 25-27 “Bacteria” pg. 94-103, Ch 16 L 46-48 “Diseases Through Time” pg. 166-175</li> </ul>  |
| <p>e. Construct a diagram of the path of solar energy through food webs that include humans and explain how the organisms relate to each other.</p> <ul style="list-style-type: none"> <li>• Autotrophs and heterotrophs, producers, consumers and decomposers</li> <li>• Predator/prey relationships, competition, symbiosis, parasitism, commensalism</li> </ul>  | <p><b>Life Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• Ch 18 L54 “Under the Grassland Sky” pg. 196-197</li> <li>• Ch 11 L 31-33 “Killer Whales: Wolves of the Sea” pg. 114-123, Ch 12 L 34 “Plant Adaptations” pg. 124-127</li> </ul>  |

## COMPETENCY 4

**Establish connections among Earth’s layers including the lithosphere, hydrosphere, and atmosphere.**

| Objectives, Sixth Grade   | Science Daybook, Grade 6   |
|---|--|
| a. Compare and contrast the relative positions and components of the Earth’s crust (e.g., mantle, liquid and solid core, continental crust, oceanic crust).   | <b>Earth Science Daybook Student Book:</b> Ch 1 L 1-3 “What Earth Looks Like” pg. 10-19, Ch 2 L 4-6 “Rock On!” pg. 20-29, Ch 3 L 8 “Energy Resources” pg. 34-35  |
| b. Draw conclusions about historical processes that contribute to the shaping of planet Earth. <ul style="list-style-type: none"> <li>• Movements of the continents through time</li> <li>• Continental plates, subduction zones, trenches etc.</li> </ul>  | <b>Earth Science Daybook Student Book:</b> Ch 7 L 19-21 “The Puzzle of Earth’s Crust” pg. 72-81, Ch 8 L 22-24 “Volcanoes” pg. 82-91  |
| c. Analyze climate data to draw conclusions and make predictions.   | <b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 7 L 19-20 “It’s Magnetic” pg. 72-77<br><br><b>Earth Science Daybook Student Book:</b> Ch 13 L 37-39 “The Atmosphere” pg. 136-145, Ch 14 L 40-42 “Stormy Weather” pg. 146-155, Ch 16 L 46-48 “Climate Change” pg. 166-175  |
| d. Summarize the causes and effects of pollution on people and the environment (e.g., air pollution, ground pollution, chemical pollution) and justify how and why pollution should be minimized.   | <b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> “A Lot O’ Stomata” pg. 26<br><br><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Identify Your Watershed” pg. 105, “Freshwater Worries” pg. 114-117  |
| f. Differentiate between objects in the universe (e.g., stars, moons, solar systems, asteroids, galaxies).  | <b>Earth Science Daybook Student Book:</b> Ch 17 L 49-51 “Rocks and Ice in Orbit” pg. 178-187, Ch 18 L 52-54 “Solar System News” pg. 188-197, Ch 19 L 55-57 “Picturing the Universe” pg. 198-207   |
| g. Research and cite evidence of current resources in Earth’s systems. <ul style="list-style-type: none"> <li>• Resources such as fuels, metals, fresh water, wetlands, and farmlands</li> <li>• Methods being used to extend the use of Earth’s resources through recycling, reuse, and renewal</li> <li>• Factors that contribute to and result from runoff (e.g., water cycle, groundwater, drainage basin (watershed))</li> </ul> | <b>Life Science Daybook Student Book:</b> Ch 20 L 58 “The Lesson of Easter Island” pg. 208-211, Ch 20 L 59 “People Make a Difference” pg. 212-213, <i>opportunity exists</i> Ch 19 L 57 “Going, Going...Gone?” pg. 206-207<br><br><b>Earth Science Daybook Student Book:</b> Ch 3 L 7-9 “Energy Resources” pg. 30-39, Ch 5 L 13-15 “Conserving Soil” pg. 52-61, Ch 9 L 25-27 “The Water Cycle” pg. 94-103, Ch 10 L 28-30 “Bountiful River” pg. 104-113, Ch 11 L 31-33 “Water Watch” pg. 114-123, Ch 12 L 36 “Current Events” pg. 130-133 |



**Life Science Daybook © 2002**  
**Physical Science Daybook © 2003**  
**Earth Science Daybook © 2002**  
 correlated to  
**Mississippi Science Framework**  
**Competencies and Objectives**  
**Seventh Grade**

**C O M P E T E N C Y   1**

**Design and conduct a scientific investigation utilizing appropriate process skills and technology.**

| Objectives, Seventh Grade  | Science Daybook, Grade 7  |
|--|---|
| <p>a. Design, conduct, and draw conclusions from an investigation that includes using experimental controls.</p> | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> “A Lot O’ Stomata” pg. 26-27, “Make a Prediction” pg. 98, 127, 169, 195., “Make Inferences” pg. 43, 47, 130, 200, “Before You Read” pg. 40, 44, 64, 94, 108, 110, 114, 150, 162, 166, 188, 208</p> <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> “The Big Drop” pg. 18-19, “Wind and Waves” pg. 96, “How Strong are the Waves?” pg. 97, “ What the Table Shows” pg. 174, “Why Not Silicon?” pg. 175, “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Analyze Air Pressure” pg. 149</p> |

| Objectives, Seventh Grade  | Science Daybook, Grade 7   |
|--|--|
| <p>b. Discriminate among observations, inferences, and predictions.</p>  | <p><b>Life Science Daybook Student Book:</b> “Make Observations” pg. 175, “Make Inferences” pg. 43, 47, 130, 200, “Make a Prediction” pg. 98, 127, 169, 195</p> <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> “The Big Drop” pg. 18-19, “Wind and Waves” pg. 96, “How Strong are the Waves?” pg. 97, “What the Table Shows” pg. 174, “Why Not Silicon?” pg. 175, “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Analyze Air Pressure” pg. 149, “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 141, 165, 195</p>   |
| <p>c. Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement).</p> <ul style="list-style-type: none"> <li>• Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches)</li> <li>• Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter)</li> <li>• Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)</li> </ul> | <p><b>Life Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• “What Attracts Insects to Flowers?” pg. 132-133, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 147-149, “Taking Measurements” pg. 198, “Biodiversity in Your World” pg. 216-217</li> <li>• “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Taking Measurements” pg. 198, <i>opportunity exists</i> “The Great Divide” pg. 36-37, “Elephant Walk” pg. 78</li> <li>• “Do Research” pg. 33, 39, 61, 191, “Research Reflexes” pg. 43, “Propose Explanations” pg. 49, “Why Ivory?” pg. 79, “Convergent Evolution in the Desert” pg. 81, “Into the Field” pg. 85, “Germinate Awareness” pg. 101, “Group Behavior” pg. 121, “Research an Invading Species” pg. 185, “Amazon Adaptations” pg. 201, “Funding the Rain Forest” pg. 205, “Finding Answers” pg. 207, “Compare and Contrast” pg. 211</li> </ul> <p><b>Physical Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• “Going the Distance” pg. 18-19, “Your Own Magnet Train” pg. 81, “Keeping Warm” pg. 133, “It’s Freezing!” pg. 148, “It’s Boiling!” pg. 150, “Making a Snow Globe” pg. 156, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Making a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207</li> <li>• acceleration calculations on pg. 25, scientific notation pg. 144</li> <li>• “Machines Then and Now” pg. 39, “Find Out More” pg. 49, “Research Other Magnetic Personalities” pg. 77, “That’s Disturbing!” pg. 97, “Conduct an Interview” pg. 101, “Research How Glass is Made” pg. 154, “Find Examples” pg. 203</li> </ul> |

| Objectives, Seventh Grade  | Science Daybook, Grade 7  |
|--|---|
| <p>c. Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement).</p> <ul style="list-style-type: none"> <li>• Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches)</li> <li>• Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter)</li> <li>• Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)</li> </ul> | <p><b>Earth Science Daybook Student Book:</b></p> <p>“Draw a Map” pg. 11, “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Analyze Air Pressure Data” pg. 149, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, <i>Opportunity exists</i> “Get Air” pg. 137</p> <ul style="list-style-type: none"> <li>• “Draw a Map” pg. 11, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Read a Data Table” pg. 139, “Make Graph” pg. 140, “Analyze Air Pressure Data” pg. 149, “Hailstone Sizes” pg. 162, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, <i>Opportunity exists</i> “Get Air” pg. 137, “Interpreting a Modified H-R Diagram” pg. 200-201</li> <li>• “Consider Your Options” pg. 39, “Conduct an Interview” pg. 43, “Research Folk Songs” pg. 59, “Do Research” pg. 113, “Investigate Your Local Winds” pg. 145, “Communicate Tornado Safety” pg. 159, “Do Research” pg. 169, “Write a Research Proposal” pg. 175, “Do Online Research” pg. 205, “Freefalling” pg. 213</li> </ul> |
| <p>d. Organize data in tables and graphs and analyze data to construct explanations and draw conclusions.</p>  | <p><b>Life Science Daybook Student Book:</b> “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “The Great Divide” pg. 36-37, “Sate Your Trait” pg. 63, “Elephant Walk” pg. 78-79, “What Attracts Insects to Flowers?” pg. 132-133, “Fooling Your Sense of Balance” pg. 141, “Getting in Touch With Touch” pg. 144-145, “Using Graphs” pg. 126-127, <i>opportunity exists</i> “Using a Graph” pg. 213</p> <p><b>Physical Science Daybook Student Book:</b> “Going the Distance” pg. 18-19, “Watch it Fly” pg. 29, “Zapping Static” pg. 55, “Your Own Magnetic Train” pg. 81, “Create a Model” pg. 107, Analyze Data 110, “Color Constancy” pg. 118, “Before and After” pg. 119, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “It’s Freezing!” pg. 148-149, “It’s Boiling!” pg. 150-151, “Make a Snow Globe” pg. 156-157, “A Recipe for Disaster” pg. 161, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217</p>   |

| Objectives, Seventh Grade   | Science Daybook, Grade 7   |
|---|--|
| <p>d. Organize data in tables and graphs and analyze data to construct explanations and draw conclusions.</p>             | <p><b>Earth Science Daybook Student Book:</b> “Get to Know a Pebble” pg. 29, “Find the Coal” pg. 31, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Identify Your Watershed” pg. 105, “Build a Desalination Device” pg. 120-121, “Get Air” pg. 137, “Read a Data Table” pg. 139, “Make a Graph” pg. 140-141, “Reading Air Pressure Maps” pg. 148, “Analyze Air Pressure Data” pg. 149, “Heading Home” pg. 155, “Interpret a Tornado Map” pg. 158, “Hailstone Size” pg. 162, “Distinguishing Data From Conclusions” pg. 174, “Draw a Diagram” pg. 181, “Interpret a Diagram” pg. 186, “Interpret a Scientific Image” pg. 194-195, “Determine Rock-Ice Percentages” pg. 196-197, “Interpret a Modified H-R Diagram” pg. 200-201, “Interpreting a Map” pg. 36, 54, 104, 126, 152, “Interpreting Graphs” pg. 116</p>   |
| <p>e. Communicate results of scientific procedures and explanations through a variety of written and graphic methods.</p> | <p><b>Life Science Daybook Student Book:</b> “Make Comparisons” pg. 12-13, “Think About It” pg. 20, “A Lot O’ Stomata” pg. 26-27, “Design a Model” pg. 32, “Do Research” pg. 33, “The Great Divide” pg. 36-37, “Make Comparisons” pg. 54, “State Your Trait” pg. 63, “Who’s in Control?” pg. 70-71, “Elephant Walk” pg. 78-79, “Compare Orders” pg. 84-85, “Identifying Families” pg. 87-89, “Health is Wealth” pg. 97, “How the Plague Travels” pg. 100, “Shake a Leg” pg. 105-107, “Jumping Gear” pg. 108, “Navigation Under Water” pg. 116-117, “Organizing Information” pg. 118, “A Formidable Foe” pg. 120-121, “Whale Identification” pg. 123, “Use Graphic Organizers” pg. 126, “Create a Plant” pg. 131, “What Attracts Insects to Flowers?” pg. 132-133, 138-139, “Fooling Your Sense of Balance” pg. 141, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 148-149, “By Heart” pg. 150, “Thinking About Thinking” pg. 157, “Sleep Stages” pg. 160-161, “Draw a Diagram” pg. 168, “Make a Poster” pg. 175, “Where Do Cane Toads Live?” pg. 180-181, “Interactions Within a Community” pg. 184-185, “Draw a Food Chain” pg. 188, 190-191, 193-195, “Diagram Your Ecosystem” pg. 196, “Tapir Tracks” pg. 204-205, “Compare Easter Island and Your Community” pg. 210-211, “Biodiversity in Your World” pg. 216-217</p> |

| Objectives, Seventh Grade  | Science Daybook, Grade 7  |
|--|---|
| <p>e. Communicate results of scientific procedures and explanations through a variety of written and graphic methods.</p>                  | <p><b>Physical Science Daybook Student Book:</b> “Apply the Concept” pg. 17, “Going the Distance” pg. 18-19, “Watch it Fly” pg. 29, “Sketch a Gadget” pg. 34-35, “Zapping Static” pg. 55, “On the Fast Track” pg. 78, “Your Own Magnetic Train” pg. 81, “How a Telephone Works” pg. 87, “Create a Model” pg. 107, Analyze Data 110, “Color Constancy” pg. 118, “Before and After” pg. 119, “Check the Angle” pg. 122-123, “ Interpret an Engineering Diagram” pg. 126-127, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “It’s Freezing!” pg. 148-149, “It’s Boiling!” pg. 150-151, “Make a Snow Globe” pg. 156-157, “Milky Mixtures” pg. 160, “A Recipe for Disaster” pg. 161, “What’s That Smell?” pg. 170, “Organizing Information” pg. 180, “Compare and Contrast” pg. 181, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Step by Step” pg. 202, “Find Examples” pg. 203, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217</p> <p><b>Earth Science Daybook Student Book:</b> “Get to Know a Pebble” pg. 29, “Find the Coal” pg. 31, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Identify Your Watershed” pg. 105, “Build a Desalination Device” pg. 120-121, “Get Air” pg. 137, “Read a Data Table” pg. 139, “Make a Graph” pg. 140-141, “Reading Air Pressure Maps” pg. 148, “Analyze Air Pressure Data” pg. 149, “Heading Home” pg. 155, “Interpret a Tornado Map” pg. 158, “Hailstone Size” pg. 162, “Distinguishing Data From Conclusions” pg. 174, “Draw a Diagram” pg. 181, “Interpret a Diagram” pg. 186, “Interpret a Scientific Image” pg. 194-195, “Determine Rock-Ice Percentages” pg. 196-197, “Interpret a Modified H-R Diagram” pg. 200-201, “Interpreting a Map” pg. 36, 54, 104, 126, 152, “Interpreting Graphs” pg. 116</p> |
| <p>g. Develop a logical argument to explain why scientists often review and ask questions about the results of other scientists’ work.</p> | <p><b>Life Science Daybook Student Book:</b> “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, “Make Inferences” pg. 130-131, 200-201</p> <p><b>Physical Science Daybook Student Book:</b> “Propose Explanations” pg. 23, 29, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 107, 111, 119, 123, 137, 141, 151, 165, 171, 175, 181, 185, 191, 195, 197, 211, 215, 217, “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 195, “Why Explore Space?” pg. 214-216, “Hold a Debate” pg. 217</p>  |

| Objectives, Seventh Grade                                       | Science Daybook, Grade 7   |
|---|--|
| <p>h. Make relationships between evidence and explanations.</p> | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211</p> <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> “Propose Explanations” pg. 17, 19, 23, 29, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 107, 111, 119, 123, 137, 141, 151, 165, 171, 175, 181, 185, 191, 195, 197, 211, 215, 217</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207</p> |

## COMPETENCY 2

**Develop an understanding of chemical and physical changes, interactions involving energy, and forces that affect motion of objects.**

| Objectives, Seventh Grade  | Science Daybook, Grade 7  |
|--|---|
| <p>a. Identify patterns (e.g., atomic mass, increasing atomic numbers) and common characteristics (metals, nonmetals, gasses) of elements found in the periodic table of elements.</p>   | <p><b>Physical Science Daybook Student Book:</b> Ch 13 L 37 “What’s an Atom?” pg. 136-137, Ch 13 L 38 “Building Blocks” pg. 138-141, Ch 16 L 46-48 “Properties of Elements” pg. 166-175</p>   |
| <p>c. Compare the force (effort) required to do the same amount of work with and without simple machines (e.g., levers, pulleys, wheel and axle, inclined planes).</p>   | <p><b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 2 L 4-6 “May the Force Be With You” pg. 20-29, Ch 3 L 7-9 “Da Vinci’s Designs” pg. 30-39, Ch 4 L 10-12 “Modern Machines” pg. 40-49</p>   |
| <p>d. Describe cause and effect relationships of electrical energy.</p> <ul style="list-style-type: none"> <li>• Energy transfers through an electric circuit (using common pictures and symbols)</li> <li>• Electric motor energy transfers (e.g., chemical to electrical to mechanical motion) and generators</li> </ul> | <p><b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 5 L 13-15 “How Shocking!” pg. 52-61, Ch 5 L 16-18 “Edison at Work” pg. 62-71, Ch 9 L 25-27 “The Energy of Waves” pg. 94-103, Ch 10 L 28-30 “Sounding Off” pg. 104-113, Ch 19 L 55-57 “Energy from Chemicals” pg. 198-207</p> |
| <p>e. Distinguish how various types of longitudinal and transverse waves (e.g., water, light, sound, seismic) transfer energy.</p> <ul style="list-style-type: none"> <li>• Frequency</li> <li>• Wavelength</li> <li>• Speed</li> <li>• Amplitude</li> </ul>   | <p><b>Physical Science Daybook Student Book:</b> Ch 9 L 25-27 “The Energy of Waves” pg. 94-103, Ch 10 L 28-30 “Sounding Off” pg. 104-113, Ch 11 L 31-33 “Light It Up!” pg. 114-123</p>  |

| Objectives, Seventh Grade   | Science Daybook, Grade 7  |
|---|---|
| <p>f. Describe the effects of unbalanced forces on the speed or direction of an object's motion.</p> <ul style="list-style-type: none"> <li>• Variables that describe position, distance, displacement, speed, and change in speed of an object</li> <li>• Gravity, friction, drag, lift, electric forces, and magnetic forces</li> </ul> | <p><b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 2 L 4-6 “May the Force Be With You” pg. 20-29, Ch 3 L 7-9 “Da Vinci’s Designs” pg. 30-39, Ch 4 L 10-12 “Modern Machines” pg. 40-49, Ch 7 L 19-21 “It’s Magnetic” pg. 72-81</p> |

### COMPETENCY 3

**Distinguish the characteristics of living things and explain the interdependency between form and function using the systems of the human organism to illustrate this relationship.**

| Objectives, Seventh Grade  | Science Daybook, Grade 7  |
|--|---|
| <p>a. Assess how an organism's chances for survival are influenced by adaptations to its environment.</p> <ul style="list-style-type: none"> <li>• The importance of fungi as decomposers</li> <li>• Major characteristics of land biomes (e.g., tropical rainforests, temperate rainforests, deserts, tundra, coniferous forests/taiga, and deciduous forests)</li> <li>• Adaptations of various plants to survive and reproduce in different biomes</li> </ul> | <p><b>Life Science Daybook Student Book:</b> Ch 7 L19-21 “Most Likely to Survive” pg. 72-81, Ch 12 L 34-36 “Plant Adaptations” pg. 124-133, “Amazon Adaptations” pg. 201</p>  |
| <p>b. Classify the organization and development of living things to include prokaryotic (e.g., bacteria) and eukaryotic organisms (e.g., protozoa, certain fungi, multicellular animals and plants).</p>   | <p><b>Life Science Daybook Student Book:</b> Ch 8 L 22-24 “One Hundred Million Kinds of Things” pg. 82-91</p>   |
| <p>c. Evaluate how health care technology has improved the quality of human life (e.g., computerized tomography [CT], artificial organs, magnetic resonance imaging [MRI], ultrasound).</p>  | <p><b>Life Science Daybook Student Book:</b> “Unhealthy Hearts” pg. 151, Ch 16 L 46-48 “Diseases Through Time” pg. 166-175</p> <p><b>Physical Science Daybook Student Book:</b> Ch 10 L 30 “Healing Vibrations” pg. 112-113</p>                       |
| <p>d. Compare and contrast reproduction in terms of the passing of genetic information (DNA) from parent to offspring.</p> <ul style="list-style-type: none"> <li>• Sexual and asexual reproduction</li> <li>• Reproduction that accounts for evolutionary adaptability of species</li> <li>• Mitosis and meiosis</li> <li>• Historical contributions and significance of discoveries of Gregor Mendel and Thomas Hunt Morgan as related to genetics</li> </ul>  | <p><b>Life Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• Ch 7 L 19-21 “Most Likely to Survive” pg. 72-81</li> <li>• Ch 3 L 7 “Cell Division” pg. 30-33</li> <li>• Ch 5 L 14-15 “How Genes Work” pg. 54-61</li> </ul> |

| Objectives, Seventh Grade   | Science Daybook, Grade 7  |
|---|---|
| <p>e. Compare and contrast how organisms obtain and utilize matter and energy.</p> <ul style="list-style-type: none"> <li>• How organisms use resources, grow, reproduce, maintain stable internal conditions (homeostasis) and recycle waste</li> <li>• How plants break down sugar to release stored chemical energy through respiration</li> </ul> | <p><b>Life Science Daybook Student Book:</b> Ch 2 L 4-6<br/>“Cells at Work” pg. 20-29</p> |

## C O M P E T E N C Y 4

**Describe the properties and structure of the sun and the moon with respect to the Earth.**

| Objectives, Seventh Grade   | Science Daybook, Grade 7   |
|---|--|
| <p>a. Justify the importance of Earth materials (e.g., rocks, minerals, atmospheric gases, water) to humans.</p>  | <p><b>Earth Science Daybook Student Book:</b> Ch 3 L 7-9<br/>“Energy Resources” pg. 30-39, Ch 5 L 13-15<br/>“Conserving Soil” pg. 52-61, Ch 9 L 25-27 “The Water Cycle” pg. 94-103, Ch 10 L 28-30 “Bountiful River” pg. 104-113, Ch 11 L 31-33 “Water Watch” pg. 114-123, Ch 12 L 36 “Current Events” pg. 130-133</p>  |
| <p>b. Explain the causes and effects of historical processes shaping the planet Earth (e.g., movements of the continents, continental plates, subduction zones, trenches, etc.)</p>   | <p><b>Earth Science Daybook Student Book:</b> Ch 7 L 19-21<br/>“The Puzzle of Earth’s Crust” pg. 72-81, Ch 8 L 22-24<br/>“Volcanoes” pg. 82-91</p>   |
| <p>c. Describe the causes and effects of heat transfer as it relates to the circulation of ocean currents, atmospheric movement, and global wind patterns (e.g., trade winds, the jet stream). Provide examples of how these global patterns can affect local weather.</p> <ul style="list-style-type: none"> <li>• Characteristics of the Gulf Stream and other large ocean currents</li> <li>• Effects on climate in Eastern North America and Western Europe</li> <li>• Effects of heat transfer to the movement of air masses, high and low pressure areas, and fronts in the atmosphere</li> </ul> | <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Water Watch” pg. 114-123, Ch 12 L 36 “Current Events” pg. 130-133, Ch 13 L 39 “The Atmosphere” pg. 142-145, Ch 14 L 40-43, “Stormy Weather” pg. 146-159, Ch 15 L 44-45 “Weird Weather” pg. 160-165, Ch 16 L 46-48 “Climate Change” pg. 166-175</p>  |
| <p>d. Conclude why factors, such as lack of resources and climate can limit the growth of populations in specific niches in the ecosystem.</p> <ul style="list-style-type: none"> <li>• Abiotic factors that affect population, growth, and size (quantity of light, water, range of temperatures, soil compositions)</li> <li>• Cycles of water, carbon, oxygen, and nitrogen in the environment</li> <li>• Role of single-celled organisms (e.g., phytoplankton) in the carbon and oxygen cycles</li> </ul>   | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 17 L 51</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 3 L 7-9 “Energy Resources” pg. 30-39, “Conserving Soil” pg. 52-61, Ch 9 L 25-27 “The Water Cycle” pg. 94-103, Ch 10 L 28-30 “Bountiful River” pg. 104-113, Ch 11 L 31-33 “Water Watch” pg. 114-123, Ch 12 L 36 “Current Events” pg. 130-133</p> |

| Objectives, Seventh Grade  | Science Daybook, Grade 7  |
|--|---|
| <p>e. Research and develop a logical argument to support the funding of NASA’s Space Programs.</p> <ul style="list-style-type: none"> <li>• Space exploration (e.g., telescopes, radio telescopes, X-ray telescopes, cameras, spectro-meters, etc.)</li> <li>• Spinoffs (e.g., laser, pacemaker, dehydrated food, flame retardant clothing, global positioning system [GPS], satellite imagery, global weather information, diagnostic imagery)</li> <li>• Mississippi’s contributions to the space industry</li> </ul>  | <p><b>Earth Science Daybook Student Book:</b> Supporting evidence can be found throughout the text.</p>   |
| <p>f. Distinguish the structure and movements of objects in the solar system.</p> <ul style="list-style-type: none"> <li>• Sun’s atmosphere (corona, chromosphere, photosphere and core)</li> <li>• How phenomena on the sun’s surface (e.g., sunspots, prominences, solar wind, solar flares) affect Earth (e.g., auroras, interference in radio and television communication)</li> <li>• Eclipses relative to the position of the sun, moon, and Earth</li> <li>• Contributions of Copernicus, Galileo, and Kepler in describing the solar system</li> </ul>   | <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 17 L 49-51 “Rocks and Ice in Orbit” pg. 178-187, Ch 18 L 52-54 “Solar System News” pg. 188-197, Ch 19 L 55-57 “Picturing the Universe” pg. 198-207, Ch 20 L 58-60 “Exploring Space” pg 208-217</p>   |
| <p>g. Research and evaluate the use of renewable and nonrenewable resources and critique efforts in the United States including (but not limited) to Mississippi to conserve natural resources and reduce global warming.</p> <ul style="list-style-type: none"> <li>• How materials are reused in a continuous cycle in ecosystems, (e.g., Mississippi Ethanol Gasification Project to develop and demonstrate technologies for the conversion of biomass to ethanol)</li> <li>• Benefits of solid waste management (reduce, reuse, recycle)</li> <li>• Conserving renewable and nonrenewable resources (e.g., The Recycling and Solid Waste Reduction Program in Jackson, MS)</li> </ul> | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 20 L 58-60 “Protecting Earth” pg. 208-217</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 3 L 7-9 “Energy Resources” pg. 30-39, Ch 5 L 13-15 “Conserving Soil” pg. 52-61, Ch 9 L 25-27 “The Water Cycle” pg. 94-103, Ch 10 L 28-30 “Bountiful River” pg. 104-113, Ch 11 L 31-33 “Water Watch” pg. 114-123, Ch 12 L 36 “Current Events” pg. 130-133</p> |
| <p>h. Predict weather events by analyzing clouds, weather maps, satellites, and various data.</p>  | <p><b>Earth Science Daybook Student Book:</b> Ch 13 L 37-39 “The Atmosphere” pg. 136-145, Ch 14 L 40-42 “Stormy Weather” pg. 146-155, Ch 16 L 46-48 “Climate Change” pg. 166-175</p>  |



**Life Science Daybook © 2002**  
**Physical Science Daybook © 2003**  
**Earth Science Daybook © 2002**  
 correlated to  
**Mississippi Science Framework**  
**Competencies and Objectives**  
**Eighth Grade**

**COMPETENCY 1**

**Draw conclusions from scientific investigations including controlled experiments.**

| Objectives, Eighth Grade  | Science Daybook, Grade 8   |
|---|--|
| <p>a. Design, conduct, and analyze conclusions from an investigation that includes using experimental controls.</p> | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> “A Lot O’ Stomata” pg. 26-27, “Make a Prediction” pg. 98, 127, 169, 195,, “Make Inferences” pg. 43, 47, 130, 200, “Before You Read” pg. 40, 44, 64, 94, 108, 110, 114, 150, 162, 166, 188, 208</p> <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> “The Big Drop” pg. 18-19, “Wind and Waves” pg. 96, “How Strong are the Waves?” pg. 97, “ What the table Shows” pg. 174, “Why not Silicon?” pg. 175, “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> “Distinguishing Data From Conclusions” pg. 174-175, <i>opportunity exists</i> “Predicting Change” pg. 171, “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 141, 165, 195</p> |
| <p>b. Distinguish between qualitative and quantitative observations and make inferences based on observations.</p>  | <p><b>Life Science Daybook Student Book:</b> “Make Inferences” pg. 43, 47, 130, 200, “Make Comparisons” pg. 12-13, 54, “ The Great Divide” pg. 36-37, “State Your Trait” pg. 63, “Who Are You” pg. 68, “Compare Adaptations” pg. 74, “Elephant Walk” pg. 78-79, “Into the Field” pg. 85, “Make Observations” pg. 175, “Where Do Cane Toads Live?” pg. 180-181, “Taking Measurements” pg. 198, “Biodiversity in Your World” pg. 216-217</p>   |

| Objectives, Eighth Grade  | Science Daybook, Grade 8  |
|---|---|
| <p>b. Distinguish between qualitative and quantitative observations and make inferences based on observations.</p>  | <p><b>Physical Science Daybook Student Book:</b> “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199, “Going the Distance” pg. 18-19, “Zapping Static” pg. 55, “Your Own Magnet Train” pg. 81, “Create a Model” pg. 107, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “Make a Snow Globe” pg. 156-157, “A Recipe For Disaster” pg. 161, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 141, 165, 195, “The View From There” pg. 12, “Test Your 3-D Vision” pg. 16, “Seeing Patterns” pg. 24, “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Water, Water, Everywhere” pg. 95, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Make a Graph” pg. 140, “Analyzing Air Pressure Data” pg. 149, “Inside a Tree” pg. 166, “Distinguish Data From Conclusions” pg. 174-175, “Moon Make-Up” pg. 196-197, “The Effects of Sunlight” pg. 208</p> |
| <p>c. Summarize data to show the cause and effect relationship between qualitative and quantitative observations (using standard, metric, and non-standard units of measurement).</p> <ul style="list-style-type: none"> <li>• Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches, graduated cylinders, medicine droppers)</li> <li>• Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter)</li> <li>• Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Life Science Daybook Student Book:</b> “What Attracts Insects to Flowers?” pg. 132-133, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 147-149, “Taking Measurements” pg. 198, “Biodiversity in Your World” pg. 216-217</li> <li>• “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Taking Measurements” pg. 198, <i>opportunity exists</i> “The Great Divide” pg. 36-37, “Elephant Walk” pg. 78</li> <li>• “Do Research” pg. 33, 39, 61, 191, “Research Reflexes” pg. 43, “Propose Explanations” pg. 49, “Why Ivory?” pg. 79, “Convergent Evolution in the Desert” pg. 81, “Into the Field” pg. 85, “Germinate Awareness” pg. 101, “Group Behavior” pg. 121, “Research an Invading Species” pg. 185, “Amazon Adaptations” pg. 201, “Funding the Rain Forest” pg. 205, “Finding Answers” pg. 207, “Compare and Contrast” pg. 211</li> </ul>  |

| Objectives, Eighth Grade  | Science Daybook, Grade 8   |
|---|--|
| <p>c. Summarize data to show the cause and effect relationship between qualitative and quantitative observations (using standard, metric, and non-standard units of measurement).</p> <ul style="list-style-type: none"> <li>• Tools (e.g., English rulers [to the nearest one-sixteenth of an inch], metric rulers [to the nearest millimeter], thermometers, scales, hand lenses, microscopes, balances, clocks, calculators, anemometers, rain gauges, barometers, hygrometers, telescopes, compasses, spring scales, pH indicators, stopwatches, graduated cylinders, medicine droppers)</li> <li>• Types of data (e.g., linear measures, mass, volume, temperature, area, perimeter)</li> <li>• Resources (e.g., Internet, electronic encyclopedias, journals, community resources, etc.)</li> </ul> | <p><b>Physical Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• “Going the Distance” pg. 18-19, “Your Own Magnet Train” pg. 81, “Keeping Warm” pg. 133, “It’s Freezing!” pg. 148, “It’s Boiling!” pg. 150, “Making a Snow Globe” pg. 156, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Making a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207</li> <li>• acceleration calculations on pg. 25, scientific notation pg. 144</li> <li>• “Machines Then and Now” pg. 39, “Find Out More” pg. 49, “Research Other Magnetic Personalities” pg. 77, “That’s Disturbing!” pg. 97, “Conduct an Interview” pg. 101, “Research How Glass is Made” pg. 154, “Find Examples” pg. 203</li> </ul> <p><b>Earth Science Daybook Student Book:</b></p> <ul style="list-style-type: none"> <li>• “Draw a Map” pg. 11, “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Analyze Air Pressure Data” pg. 149, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, <i>Opportunity exists</i> “Get Air” pg. 137</li> <li>• “Draw a Map” pg. 11, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Build a Desalination Device” pg. 120-121, “Read a Data Table” pg. 139, “Make Graph” pg. 140, “Analyze Air Pressure Data” pg. 149, “Hailstone Sizes” pg. 162, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, <i>Opportunity exists</i> “Get Air” pg. 137, “Interpreting a Modified H-R Diagram” pg. 200-201</li> <li>• “Consider Your Options” pg. 39, “Conduct an Interview” pg. 43, “Research Folk Songs” pg. 59, “Do Research” pg. 113, “Investigate Your Local Winds” pg. 145, “Communicate Tornado Safety” pg. 159, “Do Research” pg. 169, “Write a Research Proposal” pg. 175, “Do Online Research” pg. 205, “Freefalling” pg. 213</li> </ul> |

| Objectives, Eighth Grade   | Science Daybook, Grade 8   |
|--|--|
| <p>d. Analyze evidence that is used to form explanations and draw conclusions.</p> | <p><b>Life Science Daybook Student Book:</b> “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Do Research” pg. 33, “The Great Divide” pg. 36-37, “State Your Trait” pg. 63, “Who’s in Control?” pg. 70-71, “Elephant Walk” pg. 78-79, “Compare Orders” pg. 84-85, “Identifying Families” pg. 87-89, “Shake a Leg” pg. 105-107, “Navigation Under Water” pg. 116-117, “A Formidable Foe” pg. 120-121, “Whale Identification” pg. 123, “Make Inferences” pg. 130-131, “What Attracts Insects to Flowers?” pg. 132-133, 138-139, “Fooling Your Sense of Balance” pg. 141, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 148-149, “Thinking About Thinking” pg. 157, “Sleep Stages” pg. 160-161, “Where Do Cane Toads Live?” pg. 180-181, “Interactions Within a Community” pg. 184-185, 190-191, 193-195, “Tapir Tracks” pg. 204-205, “Compare Easter Island and Your Community” pg. 210-211, “Biodiversity in Your World” pg. 216-217, “Draw Conclusions” pg. 22, 149, 194, “Analyze Data” pg. 56-57, 193, “Analyze a Graph” pg. 138, 152, “Interpret a Diagram” pg. 42-43, 46-47, 66-67, 171, “Propose Explanations” pg. 49, 153, 187, 197, “Using Graphs” pg. 126-127, 213</p> <p><b>Physical Science Daybook Student Book:</b> ”Going the Distance” pg. 18-19, “Watch it Fly” pg. 29, “Zapping Static” pg. 55, “Your Own Magnetic Train” pg. 81, “Create a Model” pg. 107, Analyze Data 110, “Color Constancy” pg. 118, “Before and After” pg. 119, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “It’s Freezing!” pg. 148-149, “It’s Boiling!” pg. 150-151, “Make a Snow Globe” pg. 156-157, “A Recipe for Disaster” pg. 161, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217, “Propose Explanations” pg. 23, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 111, 123, 141, 171, 175, 181, 195, 211, 215</p> <p><b>Earth Science Daybook Student Book:</b> “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Identify Your Watershed” pg. 105, “Build a Desalination Device” pg. 120-121, “Make a Graph” pg. 140-141, “Analyze Air Pressure Data” pg. 149, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, <i>opportunity exists</i> “Find the Coal” pg. 31, “Interpreting a Map” pg. 36, 54, 104, 126, 152, “Interpreting Graphs” pg. 116, “Get Air” pg. 137, “Read a Data Table” pg. 139, “Reading Air Pressure Maps” pg. 148, “Heading Home” pg. 155, “Interpret a Tornado Map” pg. 158, “Hailstone Size” pg. 162, “Distinguishing Data From Conclusions” pg. 174, “Interpret a Diagram” pg. 186, “Interpret a Scientific Image” pg. 194-195, “Interpret a Modified H-R Diagram” pg. 200-201</p> |

| Objectives, Eighth Grade  | Science Daybook, Grade 8   |
|---|--|
| <p>e. Develop a logical argument defending conclusions of an experimental method.</p> | <p><b>Life Science Daybook Student Book:</b> “Make Comparisons” pg. 12-13, “A Lot O’ Stomata” pg. 26-27, “Design a Model” pg. 32, “Do Research” pg. 33, “The Great Divide” pg. 36-37, “State Your Trait” pg. 63, “Who’s in Control?” pg. 70-71, “Elephant Walk” pg. 78-79, “Compare Orders” pg. 84-85, “Identifying Families” pg. 87-89, “How the Plague Travels” pg. 100, “Shake a Leg” pg. 105-107, “Navigation Under Water” pg. 116-117, “A Formidable Foe” pg. 120-121, “Whale Identification” pg. 123, “Make Inferences” pg. 130-131, 200-201, “What Attracts Insects to Flowers?” pg. 132-133, 138-139, “Fooling Your Sense of Balance” pg. 141, “Getting in Touch With Touch” pg. 144-145, “Create a Model” pg. 148-149, “Thinking About Thinking” pg. 157, “Sleep Stages” pg. 160-161, “Draw a Diagram” pg. 168, “Make a Poster” pg. 175, “Where Do Cane Toads Live?” pg. 180-181, “Interactions Within a Community” pg. 184-185, “Draw a Food Chain” pg. 188, 190-191, 193-195, “Diagram Your Ecosystem” pg. 196, “Tapir Tracks” pg. 204-205, “Compare Easter Island and Your Community” pg. 210-211, “Biodiversity in Your World” pg. 216-217, “Draw Conclusions” pg. 22, 149, 194, “Analyze Data” pg. 56-57, 193, “Analyze a Graph” pg. 138, 152, “Interpret a Diagram” pg. 42-43, 46-47, 66-67, 171, “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, “Using Graphs” pg. 126-127, 213</p> <p><b>Physical Science Daybook Student Book:</b> “Apply the Concept” pg. 17, “Going the Distance” pg. 18-19, “Watch it Fly” pg. 29, “Sketch a Gadget” pg. 34-35, “Zapping Static” pg. 55, “On the Fast Track” pg. 78, “Your Own Magnetic Train” pg. 81, “How a Telephone Works” pg. 87, “Create a Model” pg. 107, Analyze Data 110, “Color Constancy” pg. 118, “Before and After” pg. 119, “Check the Angle” pg. 122-123, “Interpret an Engineering Diagram” pg. 126-127, “Keeping Warm” pg. 133, “Dividing Atoms” pg. 136-137, “It’s Freezing!” pg. 148-149, “It’s Boiling!” pg. 150-151, “Make a Snow Globe” pg. 156-157, “Milky Mixtures” pg. 160, “A Recipe for Disaster” pg. 161, “What’s That Smell?” pg. 170, “Organizing Information” pg. 180, “Compare and Contrast” pg. 181, “Making a Gelatin Dessert” pg. 184-185, “Bubble, Bubble” pg. 190-191, “Make a Potato Mummy” pg. 197, “Step by Step” pg. 202, “Find Examples” pg. 203, “Making Toe Warmers” pg. 206-207, “Let’s Stick Together” pg. 217, “Propose Explanations” pg. 23, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 111, 123, 141, 171, 175, 181, 195, 211, 215</p> |

| Objectives, Eighth Grade   | Science Daybook, Grade 8  |
|--|---|
| <p>e. Develop a logical argument defending conclusions of an experimental method.</p>  | <p><b>Earth Science Daybook Student Book:</b> “Get to Know a Pebble” pg. 29, “Stuck Inside” pg. 84-85, “Cleaning Water” pg. 103, “Identify Your Watershed” pg. 105, “Build a Desalination Device” pg. 120-121, “Make a Graph” pg. 140-141, “Analyze Air Pressure Data” pg. 149, “Draw a Diagram” pg. 181, “Determine Rock-Ice Percentages” pg. 196-197, “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, <i>opportunity exists</i> “Find the Coal” pg. 31, “Interpreting a Map” pg. 36, 54, 104, 126, 152, “Interpreting Graphs” pg. 116, “Get Air” pg. 137, “Read a Data Table” pg. 139, “Reading Air Pressure Maps” pg. 148, “Heading Home” pg. 155, “Interpret a Tornado Map” pg. 158, “Hailstone Size” pg. 162, “Distinguishing Data From Conclusions” pg. 174, “Interpret a Diagram” pg. 186, “Interpret a Scientific Image” pg. 194-195, “Interpret a Modified H-R Diagram” pg. 200-201</p> |
| <p>g. Justify a scientist’s need to revise conclusions after encountering new experimental evidence that does not match existing explanations.</p> | <p><b>Life Science Daybook Student Book:</b> “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, “Make Inferences” pg. 130-131, 200-201</p> <p><b>Physical Science Daybook Student Book:</b> “Propose Explanations” pg. 23, 29, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 107, 111, 119, 123, 137, 141, 151, 165, 171, 175, 181, 185, 191, 195, 197, 211, 215, 217, “Make Inferences” pg. 16, 19, 23, 106, 110, 113, 170, 199</p> <p><b>Earth Science Daybook Student Book:</b> “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, “Make Inferences” pg. 18, 42, 47, 49, 58, 126, 195</p>   |
| <p>h. Analyze different ideas and recognize the skepticism of others as part of the scientific process in considering alternative conclusions.</p> | <p><b>Life Science Daybook Student Book:</b> “Propose Explanations” pg. 13, 43, 47, 49, 57, 60-61, 67, 71, 75, 85, 96-97, 101, 103, 106-107, 109, 117, 121, 139, 145, 149, 153, 155, 161, 181, 185, 187, 191, 194, 197, 204-205, 211, “Make a Prediction” pg. 98, 127, 169, 195, “Form a Hypothesis” pg. 26, 190, “Explain Your Model” pg. 32, “Before You Read” pg. 40, 44, 64, 94, 108, 110, 114, 150, 162, 166, 188, 208, <i>opportunity exists</i> “What Attracts Insects to Flowers?” question #7 on pg. 133, “Fooling Your Sense of Balance” pg. 141</p> <p><b>Physical Science Daybook Student Book:</b> “Propose Explanations” pg. 17, 19, 23, 29, 35, 49, 59, 61, 65, 71, 77, 91, 97, 101, 107, 111, 119, 123, 137, 141, 151, 165, 171, 175, 181, 185, 191, 195, 197, 211, 215, 217 “Before You Read” pg. 78, 212, “Debate the Issue” pg. 45, “An Inventor’s Workshop” pg. 67, “Where Does Your Power Come From?” pg. 71, “It’s Boiling!” pg. 150</p>  |

| Objectives, Eighth Grade  | Science Daybook, Grade 8  |
|---|---|
| h. Analyze different ideas and recognize the skepticism of others as part of the scientific process in considering alternative conclusions. | <b>Earth Science Daybook Student Book:</b> “Propose Explanations” 15, 19, 23, 27, 33, 37, 47, 55, 59, 61, 65, 75, 78, 99, 109, 123, 129, 132-133, 145, 149, 153, 163, 165, 174-175, 181, 183, 187, 191, 195, 197, 201, 207, “Why Explore Space?” pg. 214-216, “Hold a Debate” pg. 217 |

## C O M P E T E N C Y 2

**Apply concepts relating to an understanding of chemical and physical changes, interactions involving energy, and forces that affect motion of objects.**

| Objectives, Eighth Grade  | Science Daybook, Grade 8   |
|---|--|
| a. Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass. <ul style="list-style-type: none"> <li>Chemical symbols and chemical formulas of common substances such as NaCl (table salt), H<sub>2</sub>O (water), C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> (sugar), O<sub>2</sub> (oxygen gas), CO<sub>2</sub> (carbon dioxide), and N<sub>2</sub> (nitrogen gas)</li> <li>Mass of reactants before a change and products after a change</li> <li>Balanced chemical equations such as photosynthesis and respiration</li> </ul> | <b>Physical Science Daybook Student Book:</b> Ch 13 L 37 “What’s an Atom?” pg. 136-137, Ch 13 L 38 “Building Blocks” pg. 138-141, Ch 16 L 46-48 “Properties of Elements” pg. 166-175                           |
| b. Predict the properties and interactions of given elements using the periodic table of the elements. <ul style="list-style-type: none"> <li>Metals and nonmetals</li> <li>Acids and bases</li> <li>Chemical changes in matter (e.g., rusting [slow oxidation], combustion [fast oxidation], food spoilage)</li> </ul>   | <b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 13 L 37 “What’s an Atom?” pg. 136-137, Ch 13 L 38 “Building Blocks” pg. 138-141, Ch 16 L 46-48 “Properties of Elements” pg. 166-175 |
| c. Distinguish the motion of an object by its position, direction of motion, speed, and acceleration and represent resulting data in graphic form in order to make a prediction.  | <b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 2 L 4-6 “May the Force Be With You” pg. 20-29                                      |
| e. Contrast various components of the electromagnetic spectrum (e.g., infrared, visible light, ultraviolet) and predict their impacts on living things.   | <b>Physical Science Daybook Student Book:</b> Ch 9 L 26-27 “The Energy of Waves” pg. 98-103  |
| f. Recognize Newton’s Three Laws of Motion and identify situations that illustrate each law (e.g., inertia, acceleration, action, reaction forces).   | <b>Physical Science Daybook Student Book:</b> Ch 1 L 1-3 “Up, Down, and All Around” pg. 10-19, Ch 2 L 4-6 “May the Force Be With You” pg. 20-29  |

## COMPENTENCY 3

**Compare and contrast the structure and functions of the cell, levels of organization of living things, basis of heredity, and adaptations that explain variations in populations.**

| Objectives, Eighth Grade  | Science Daybook, Grade 8  |
|---|---|
| <p>a. Analyze how adaptations to a particular environment (e.g., desert, aquatic, high altitude) can increase an organism’s survival and reproduction and relate organisms and their ecological niches to evolutionary change and extinction.</p>   | <p><b>Life Science Daybook Student Book:</b> Ch 7 L19-21 “Most Likely to Survive” pg. 72-81, Ch 12 L 34-36 “Plant Adaptations” pg. 124-133, “Amazon Adaptations” pg. 201</p>  |
| <p>b. Compare and contrast the major components and functions of different types of cells.</p> <ul style="list-style-type: none"> <li>• Differences in plant and animal cells</li> <li>• Structures (nucleus, cytoplasm, cell membrane, cell wall, mitochondrion, and nuclear membrane)</li> <li>• Different types of cells and tissues (e.g., epithelial, nerve, bone, blood, muscle)</li> </ul>   | <p><b>Life Science Daybook Student Book:</b> Ch 1 L 1-4 “Structure of a Cell” pg. 8-23, Ch 2 L 4-6 “Cells at Work” pg. 20-28, Ch 4 L 10-12 “When Cells Get Together” pg. 40-49, Ch 13-15 “Human Body Systems” pg. 134-165</p> |
| <p>c. Describe how viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions.</p>  | <p><b>Life Science Daybook Student Book:</b> Ch 9 L 25-27 “Bacteria” pg. 94-103, Ch 16 L 46-48 “Diseases Through Time” pg. 166-175</p>  |
| <p>d. Describe heredity as the passage of instructions from one generation to another and recognize that hereditary information is contained in genes, located in the chromosomes of each cell.</p> <ul style="list-style-type: none"> <li>• How traits are passed from parents to offspring through pairs of genes</li> <li>• Phenotypes and genotypes</li> <li>• Hierarchy of DNA, genes, and chromosomes and their relationship to phenotype</li> <li>• Punnett square calculations</li> </ul> | <p><b>Life Science Daybook Student Book:</b> Ch 5-6 “Heredity, Diversity, and Change” pg. 50-71</p>   |
| <p>e. Explain energy flow in a specified ecosystem.</p> <ul style="list-style-type: none"> <li>• Populations, communities, and habitats</li> <li>• Niches, ecosystems and biomes</li> <li>• Producers, consumers and decomposers in an ecosystem</li> </ul>   | <p><b>Life Science Daybook Student Book:</b> Ch 17 L 49-51 “Populations, Communities, and Ecosystems” pg. 178-187, Ch 18 L 52-54 “ Under the Grassland Sky” pg. 188-197, Ch 19 L 55-56 “ Rain Forests” pg. 198-205</p>        |

## C O M P E N T E N C Y 4

**Describe the Earth’s System in terms of its position to objects in the universe, structure and composition, climate, and renewable and nonrenewable resources.**

| Objectives, Eighth Grade   | Science Daybook, Grade 8  |
|--|---|
| <p>a. Compare and contrast the lithosphere and the asthenosphere.</p> <ul style="list-style-type: none"> <li>• Composition, density, and location of continental crust and oceanic crust</li> <li>• Physical nature of the lithosphere (brittle and rigid) with the asthenosphere (plastic and flowing)</li> <li>• How the lithosphere responds to tectonic forces (faulting and folding)</li> </ul>   | <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 7 L 19-21 “The Puzzle of Earth’s Crust” pg. 72-81, Ch 8 L 22-24 “Volcanoes” pg. 82-91</p>  |
| <p>b. Describe the cause and effect relationship between the composition of and movement within the Earth’s lithosphere.</p> <ul style="list-style-type: none"> <li>• Seismic wave velocities of earthquakes and volcanoes to lithospheric plate boundaries using seismic data</li> <li>• Volcanoes formed at mid-ocean ridges, within intra-plate regions, at island arcs, and along some continental edges</li> <li>• Modern distribution of continents to the movement of lithospheric plates since the formation of Pangaea</li> </ul>                       | <p><b>Earth Science Daybook Student Book:</b> Ch 7 L 19-21 “The Puzzle of Earth’s Crust” pg. 72-81, Ch 8 L 22-24 “Volcanoes” pg. 82-91</p>  |
| <p>c. Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather.</p> <ul style="list-style-type: none"> <li>• Temperature, precipitation, wind (speed/direction), dew point, relative humidity, and barometric pressure</li> <li>• How the thermal energy transferred to the air results in vertical and horizontal movement of air masses, Coriolis effect</li> <li>• Global wind patterns (e.g., trade winds, westerlies, jet streams)</li> <li>• Satellites and computer modeling</li> </ul> | <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 7 L 19-20 “It’s Magnetic” pg. 72-77</p> <p><b>Earth Science Daybook Student Book:</b> Ch 13 L 37-39 “The Atmosphere” pg. 136-145, Ch 14 L 40-42 “Stormy Weather” pg. 146-155, Ch 16 L 46-48 “Climate Change” pg. 166-175</p>  |
| <p>d. Research the importance of the conservation of renewable and nonrenewable resources, including (but not limited to) Mississippi, and justify methods that might be useful in decreasing the human impact on global warming.</p> <ul style="list-style-type: none"> <li>• Greenhouse gases</li> <li>• The effects of the human population</li> <li>• Relationships of the cycles of water, carbon, oxygen, and nitrogen</li> </ul>  | <p><b>Life Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 18 L 54 “The Fragile Land” pg. 196-197, Ch 19 L 55-57 “Rain Forest” pg. 198-207, Ch 20 L. 58-60 “Protecting Earth” pg. 208-217</p> <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 3 L 7-9 “Energy Resources” pg. 30-39, Ch 5 L 13-15 “Conserving Soil” pg. 52-61, Ch 9 L 25-27 “The Water Cycle” pg. 94-103</p> |

| Objectives, Eighth Grade   | Science Daybook, Grade 8  |
|--|---|
| <p>f. Describe the hierarchical structure (stars, clusters, galaxies, galactic clusters) of the universe and examine the expanding universe to include its age and history and the modern techniques (e.g., radio, infrared, ultraviolet and X-ray astronomy) used to measure objects and distances in the universe).</p>  | <p><b>Earth Science Daybook Student Book:</b> Ch 17 L 49-51 “Rocks and Ice in Orbit” pg. 178-187, Ch 18 L 52-54 “Solar System News” pg. 188-197, Ch 19 L 55-57 “Picturing the Universe” pg. 198-207</p>                     |
| <p>g. Justify the importance of continued research and use of new technology in the development and commercialization of potentially useful natural products, including, but not limited to research efforts in Mississippi.</p> <ul style="list-style-type: none"> <li>• The Thad Cochran National Center for Natural Products Research, housed at the University of Mississippi</li> <li>• The Jamie Whitten Delta States Research Center in Stoneville, MS,</li> <li>• The Mississippi Polymer Institute, housed at the University of Southern Mississippi</li> </ul> | <p><b>Physical Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 17 L 49-50 “Chemical Bonds” pg. 178-185, Ch 19 L 56-57 “Energy from Chemicals” pg. 200-207, Ch 20 L 58-60 “Materials Science” pg. 208-217</p> |
| <p>h. Justify why an imaginary hurricane might or might not hit a particular area, using important technological resources including (but not limited to) the following:</p> <ul style="list-style-type: none"> <li>• John C. Stennis Space Center Applied Research and Technology Project Office in Hancock County</li> <li>• National Oceanic and Atmospheric Administration (NOAA)</li> <li>• The National Weather Service</li> </ul>   | <p><b>Earth Science Daybook Student Book:</b> <i>opportunity exists</i> Ch 14 L 40-41 “Stormy Weather” pg. 146-153</p>  |