

**SCIENCE DAYBOOKS © 2005**

correlated to

**Mississippi**

**Science Framework**

**Competencies and Objectives**

**Grades 4-8**



**YOUR MISSISSIPPI GREAT SOURCE REPRESENTATIVE**

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**Competencies and Objectives**  
**Fourth Grade**

**COMPETENCY 1**

**Investigate the ability of living things to adapt to their environment. (L)**

Objectives, Fourth Grade	Science Daybook, Grade 4
a. Compare food chains and food webs.	<b>Student Book:</b> 38, 39
b. Compare and contrast adaptations necessary for animals and plants to survive in different habitats.	<b>Student Book:</b> 14-15, 40, 41

**COMPETENCY 2**

**Explore the interactions of components in living systems. (L)**

Objectives, Fourth Grade	Science Daybook, Grade 4
a. Identify parts and basic functions of various body systems (circulatory, respiratory, digestive, skeletal and nervous systems).	<b>Student Book:</b> 20, 21, 22, 23
b. Analyze the circulatory system.	<b>Student Book:</b> 22, 23
e. Compare and contrast flowering and non-flowering plants.	<b>Student Book:</b> 34

**COMPETENCY 3**

**Communicate an understanding of the interaction of bodies in the solar system. (E, P)**

Objectives, Fourth Grade	Science Daybook, Grade 4
a. Explain why the apparent size of an object depends on its distance from the observer.	<b>Student Book:</b> 83

## COMPETENCY 5

Discover the effects of external forces on the Earth's surface. (E)

Objectives, Fourth Grade	Science Daybook, Grade 4
a. Describe how external forces including heat, wind and water affect the Earth's surface.	<b>Student Book:</b> 51-56, 57-62, 66, 75-77
c. Group landform examples by the forces that may have created them.	<b>Student Book:</b> 66

## COMPETENCY 6

Explore changes that occur in the Earth's atmosphere. (E)

Objectives, Fourth Grade	Science Daybook, Grade 4
a. Analyze and predict the weather using the thermometer, anemometer, rain gauge, barometer and hygrometer.	<b>Student Book:</b> 71, 72, 73, 74

## COMPETENCY 7

Discover how environmental concerns relate to the hydrosphere, lithosphere, and atmosphere. (E, L)

Objectives, Fourth Grade	Science Daybook, Grade 4
c. Discuss the ways man can protect and manage organisms in the environment.	<b>Student Book:</b> 130-138

## COMPETENCY 8

Investigate the changes in the states of matter. (P)

Objectives, Fourth Grade	Science Daybook, Grade 4
b. Demonstrate transformations of the states of matter.	<b>Student Book:</b> 116
c. Explore and classify physical and chemical changes.	<b>Student Book:</b> 98, 99, 100

## COMPETENCY 9

Examine the different forms of energy. (E, L, P)

Objectives, Fourth Grade	Science Daybook, Grade 4
b. Identify and explore forms of energy such as heat, sound, light, or electricity.	<b>Student Book:</b> 104-105, 120-124
c. Demonstrate the use of the sun as an energy source.	<b>Student Book:</b> 120, 121, 131

## COMPETENCY 10

Develop the process of measurement and the concepts related to units of measurement. (L, E, P)

Objectives, Fourth Grade	Science Daybook, Grade 4
a. Measure a given object using specified scientific measurement (English and/or metric).	<b>Student Book:</b> 94
b. Select, use, compare and convert within the appropriate standard (English and metric) system of measurement.	<b>Student Book:</b> 86
c. Identify the attributes of length, weight, capacity/volume, mass, time and temperature using English and metric units of measurement.	<b>Student Book:</b> 86



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**Fifth Grade**

**COMPETENCY 1**

**Identify and describe structures and functions in living systems. (L, E)**

Objectives, Fifth Grade	Science Daybook, Grade 5
a. Investigate levels of organization in organisms including cells, tissues, organs, organ systems, whole organisms, and ecosystems.	<b>Student Book:</b> 43, 44, 45, 46, 47, 48
b. Explore ecosystems and biomes.	<b>Student Book:</b> 43, 44, 45, 46, 47, 48

**COMPETENCY 2**

**Identify and describe reproduction and heredity of organisms. (L, P)**

Objectives, Fifth Grade	Science Daybook, Grade 5
b. Explore how traits are used to classify individual inheritance patterns.	<b>Student Book:</b> 37, 40, 41

**COMPETENCY 3**

**Determine the factors that influence the regulation and behavior of organisms. (L, E)**

Objectives, Fifth Grade	Science Daybook, Grade 5
a. Identify and describe resources needed to grow, reproduce, maintain, and survive in a changing environment.	<b>Student Book:</b> 28, 33
b. Investigate ways organisms adapt to their environment.	<b>Student Book:</b> 25, 26, 27, 36

## COMPETENCY 4

Examine the physical factors of populations as they relate to the formation of an ecosystem. (L, E)

Objectives, Fifth Grade	Science Daybook, Grade 5
a. Identify, describe, and illustrate the roles among producers, consumers, and decomposers in a food web.	<b>Student Book:</b> 46, 47, 48
b. Investigate resources and other factors (living and nonliving) that promote and limit growth of populations in an ecosystem.	<b>Student Book:</b> 43, 44, 45, 46, 47, 48

## COMPETENCY 5

Explore the diversity and adaptations of organisms. (L, E)

Objectives, Fifth Grade	Science Daybook, Grade 5
a. Classify organisms by their similarities.	<b>Student Book:</b> 13, 14, 15, 16, 17, 18
b. Explore and explain biological adaptations in a particular environment.	<b>Student Book:</b> 25, 26, 27, 136, 137
c. Research and investigate environmental changes and the inability of a species to adapt.	<b>Student Book:</b> 134, 135, 136, 137

## COMPETENCY 6

Investigate the structure of the Earth. (E)

Objectives, Fifth Grade	Science Daybook, Grade 5
c. Analyze processes that cause changes on Earth.	<b>Student Book:</b> 62, 66
d. Explore fossils as indicators of how life and environmental conditions have changed.	<b>Student Book:</b> 69, 70, 71, 72, 73, 74

## COMPETENCY 7

Investigate the Earth as a part of the solar system. (E, P)

Objectives, Fifth Grade	Science Daybook, Grade 5
a. Explore how the Earth's motion defines the day and the year and influences the phases of the moon and eclipses.	<b>Student Book:</b> 81, 82, 83, 84, 85

## COMPETENCY 8

Identify properties and changes of matter. (E, P)

Objectives, Fifth Grade	Science Daybook, Grade 5
a. Observe and explore physical and chemical properties such as density, boiling/freezing point, and solubility of a substance.	<b>Student Book:</b> 93-94, 95-99
b. Explore, observe, discuss, and record physical and chemical changes using everyday substances.	<b>Student Book:</b> 93, 94
c. Recognize elements that combine chemically to produce compounds.	<b>Student Book:</b> 89, 93-94
d. Demonstrate the ability to use simple measuring devices using metric and English units.	<b>Student Book:</b> 94

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**Sixth Grade**

**COMPETENCY 1**

**Investigate structure and functions in living systems. (L, E)**

Objectives, Sixth Grade	Science Daybooks
a. Identify, compare, and contrast levels of organization including cells, tissues, organs, organ systems, and organisms.	<b>Life Science Daybook Student Book:</b> 8-19, 40, 44, 48-49
b. Compare and contrast patterns and interactions of ecosystems and biomes.	<b>Life Science Daybook Student Book:</b> 188-191, 192-195, 196-197, 202-205, 206-207

**COMPETENCY 2**

**Compare and classify the reproduction and heredity of organisms. (L)**

Objectives, Sixth Grade	Science Daybooks
b. Determine how traits are used to classify individual inherited patterns.	<b>Life Science Daybook Student Book:</b> 54, 56-57, 62-67, 68-71

**COMPETENCY 3**

**Explore how changing resources will influence the regulation and behavior of organisms. (L, E)**

Objectives, Sixth Grade	Science Daybooks
a. Evaluate the significance of resources required by organisms.	<b>Life Science Daybook Student Book:</b> 72, 96, 191-195
b. Investigate, compare/contrast ways organisms adapt to their environment.	<b>Life Science Daybook Student Book:</b> 72-75, 80-85, 108-109, 112, 128-131

## COMPETENCY 4

Explore how different populations determine the formation of an ecosystem. (L, E)

Objectives, Sixth Grade	Science Daybooks
a. Compare/contrast the roles among producers, consumers, and decomposers in a food web.	<b>Life Science Daybook Student Book:</b> 96, 188-191
b. Manipulate resources and other factors (living and nonliving) that promote and limit growth of populations in an ecosystem.	<b>Life Science Daybook Student Book:</b> 196, 197

## COMPETENCY 5

Explore the unique characteristics and adaptations of organisms. (L, E)

Objectives, Sixth Grade	Science Daybooks
a. Evaluate and chart the similarities of organisms.	<b>Life Science Daybook Student Book:</b> 82-85, 86-91
b. Propose and relate environmental changes and the adaptive characteristics that influence the extinction of a species.	<b>Life Science Daybook Student Book:</b> 72-75, 76-79, 80-81, 124-127, 188-191, 196-197, 202-205

## COMPETENCY 6

Model the structure of the Earth system past and present. (E)

Objectives, Sixth Grade	Science Daybooks
b. Examine the changes and processes that alter the Earth's system.	<b>Earth Science Daybook Student Book:</b> 51, 52, 53, 54
c. Analyze fossils as indicators of how life and environmental conditions have changed.	<b>Earth Science Daybook Student Book:</b> 43, 44, 45, 46, 47

## COMPETENCY 8

Investigate structure, properties, and changes of matter. (E, P)

Objectives, Sixth Grade	Science Daybooks
a. Analyze properties such as density, boiling point, and solubility of a substance.	<b>Physical Science Daybook Student Book:</b> 124-127, 139, 146-149, 150-155, 170-171, 182-185, 188
b. Record and interpret physical and chemical changes using everyday substances.	<b>Physical Science Daybook Student Book:</b> 152, 153, 188, 190

<b>Objectives, Sixth Grade</b>	<b>Science Daybooks</b>
c. Differentiate between common elements that combine chemically to produce compounds.	<b>Physical Science Daybook Student Book:</b> 166, 167, 168, 169
d. Demonstrate the ability to use simple measuring devices using metric and English units.	<b>Earth Science Daybook Student Book:</b> 84 <b>Life Science Daybook Student Book:</b> 144-145, 216 <b>Physical Science Daybook Student Book:</b> 18, 133, 197

## **COMPETENCY 9**

**Evaluate the effect of force on the motion of an object. (E, L, P)**

<b>Objectives, Sixth Grade</b>	<b>Science Daybooks</b>
a. Analyze, measure, and graph the motion of an object.	<b>Physical Science Daybook Student Book:</b> 18, 19
b. Experiment and measure the effect of force on an object.	<b>Physical Science Daybook Student Book:</b> 20-23, 24-26, 28-29

## **COMPETENCY 10**

**Examine the transfer of energy in many different forms. (E, L, P)**

<b>Objectives, Sixth Grade</b>	<b>Science Daybooks</b>
a. Observe and manipulate energy as potential or kinetic.	<b>Physical Science Daybook Student Book:</b> 14, 15, 16, 17, 18, 19
b. Investigate forms of energy such as heat, sound, light, or electricity.	<b>Physical Science Daybook Student Book:</b> 113-118, 119-124
c. Recognize the sun as a major source of energy.	<b>Life Science Daybook Student Book:</b> 24, 25 <b>Physical Science Daybook Student Book:</b> 98

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**Seventh Grade**

**COMPETENCY 1**

**Compare and contrast structure and function in living systems. (L)**

Objectives, Seventh Grade	Science Daybooks
a. Compare and contrast plant and animal cells through investigations.	<b>Life Science Daybook Student Book:</b> 18-19, 20-23, 24-27, 28-29,
b. Describe the process of respiration and the use of its products.	<b>Life Science Daybook Student Book:</b> 22-23, 24-27, 28-29
c. Illustrate the parts of the digestive system and the interaction of each part.	<b>Life Science Daybook Student Book:</b> 146, 147, 148, 149
d. Illustrate the parts of and interaction between the respiratory and circulatory system.	<b>Life Science Daybook Student Book:</b> 146, 147, 148, 149

**COMPETENCY 2**

**Explore the processes of the reproduction and heredity of organisms. (L)**

Objectives, Seventh Grade	Science Daybooks
a. Distinguish genes as sections of DNA molecules that carry the genetic code for inherited traits.	<b>Life Science Daybook Student Book:</b> 52-53, 54-57, 62-64, 68-71
c. Explain mitosis and relate it to an organism's growth and repair processes.	<b>Life Science Daybook Student Book:</b> 30, 31

### COMPENTENCY 3

Determine how organisms co-exist in their environment. (L)

Objectives, Seventh Grade	Science Daybooks
a. Demonstrate that cells interact with their environment.	Life Science Daybook Student Book: 44, 45, 46, 47

### COMPENTENCY 4

Explore how environmental factors of population influence the formation of an ecosystem. (L, E)

Objectives, Seventh Grade	Science Daybooks
a. Describe the process of photosynthesis and the use of its products.	Life Science Daybook Student Book: 24-25, 28-29
c. Investigate and research environmental concerns of the land, water, and air.	Life Science Daybook Student Book: 206-211, 212-213
d. Analyze the importance of biological diversity in communities and ecosystems.	Life Science Daybook Student Book: 214, 215, 216, 217

### COMPENTENCY 5

Examine survival strategies of organisms over many generations. (L)

Objectives, Seventh Grade	Science Daybooks
a. Apply concepts of adaptation by analyzing how organisms are classified into groups and subgroups.	Life Science Daybook Student Book: 82-85, 86-89, 90-91
b. Research animal adaptations and behaviors as related to survival strategies.	Life Science Daybook Student Book: 72-75, 104-107, 108-109
c. Explain how natural and man-made pressures cause extinction.	Life Science Daybook Student Book: 208, 209, 210, 211

### COMPENTENCY 6

Explore the composition and changes of the Earth system. (E, P)

Objectives, Seventh Grade	Science Daybooks
a. Identify minerals by using any or all of the following tests: streak, cleavage, fracture, hardness, specific gravity, and special properties.	Physical Science Daybook Student Book: 168-171

<b>Objectives, Seventh Grade</b>	<b>Science Daybooks</b>
b. Research and explain how crustal movements result in earthquakes, volcanoes, mountain formation, etc.	<b>Earth Science Daybook Student Book: 88</b>
d. Identify how forces such as erosion and deposition create landforms.	<b>Earth Science Daybook Student Book: 62</b>
f. Compare properties and composition of salt water, fresh water, and brackish water.	<b>Earth Science Daybook Student Book: 114, 115</b>
g. Investigate the interactive forces that produce weather to include moisture, temperature, fronts, air masses, and cloud formations.	<b>Earth Science Daybook Student Book: 142-145, 146-149</b>

## **C O M P E N T E N C Y 7**

**Explain the causes of lunar phases, eclipses, and Earth's seasons. (E)**

<b>Objectives, Seventh Grade</b>	<b>Science Daybooks</b>
a. Distinguish between radiating objects (the sun and the stars) and reflecting objects (the planets and their moons).	<b>Earth Science Daybook Student Book: 188-191, 196-197, 198-199</b>

## **C O M P E N T E N C Y 8**

**Investigate chemical and physical properties of matter. (P)**

<b>Objectives, Seventh Grade</b>	<b>Science Daybooks</b>
a. Determine and measure experimentally: boiling point, melting point, density, and solubility.	<b>Physical Science Daybook Student Book: 124-125, 139, 150-155, 170-171, 182-185, 188</b>
b. Demonstrate understanding that chemical and physical properties determine a substance's identity.	<b>Physical Science Daybook Student Book: 168, 169, 170, 171</b>
d. Recognize elements that will combine to form compounds.	<b>Physical Science Daybook Student Book: 166, 167</b>

## COMPETENCY 9

Investigate motions and forces. (P)

Objectives, Seventh Grade	Science Daybooks
b. Investigate Newton's Laws of Motion.	<b>Physical Science Daybook Student Book:</b> 11-13, 16-17, 20-23, 24-26, 28-29
c. Using the scientific method, design an experiment to test how different types of surfaces affect friction.	<b>Physical Science Daybook Student Book:</b> 55

## COMPETENCY 10

Investigate the sources of energy. (P, E)

Objectives, Seventh Grade	Science Daybooks
a. Investigate the sun as a major source of energy.	<b>Life Science Daybook Student Book:</b> 24-25 <b>Physical Science Daybook Student Book:</b> 98
b. Compare and contrast how the three forms of thermal energy flow.	<b>Earth Science Daybook Teacher's Guide:</b> 34-35 <b>Physical Science Daybook Teacher's Guide:</b> 128-129, 132-133, 182-183
c. Research one or more of the sources of energy (nuclear, solar, wind, geothermal, hydro).	<b>Earth Science Daybook Teacher's Guide:</b> 30-33, 34-37, 38-39, 130-133

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**Eighth Grade**

**COMPETENCY 1**

**Analyze and relate structure and function in living systems. (L)**

Objectives, Eighth Grade	Science Daybooks
a. Analyze body systems and their functions.	<b>Life Science Daybook Student Book:</b> 40-43, 134-135, 136-139, 140-141, 142-145, 146-147
b. Relate interactions among body systems.	<b>Life Science Daybook Student Book:</b> 14-17, 40-43
d. Examine diseases that are the result of body system failures or infection by other organisms.	<b>Life Science Daybook Student Book:</b> 38, 39

**COMPETENCY 2**

**Analyze genetic continuity of organisms. (L)**

Objectives, Eighth Grade	Science Daybooks
c. Explain the advantages and disadvantages of both hybrid and purebred species of plants and animals.	<b>Life Science Daybook Student Book:</b> 58, 59, 60, 61
d. Examine genes as a section of a DNA molecule that carries the genetic code for inherited traits.	<b>Life Science Daybook Student Book:</b> 51, 68-71

### COMPETENCY 3

Determine the economic factors that influence the regulation and behavior of organisms. (L, E)

Objectives, Eighth Grade	Science Daybooks
a. Appraise the economic factors associated with regulations and protection of the environment.	<b>Life Science Daybook Student Book:</b> 205, 206, 207
b. Explain environmental degradation to include overpopulation, biodiversity, sea-level rise, and enhanced greenhouse effect.	<b>Life Science Daybook Student Book:</b> 178-181, 186-187, 214-215, 216-217

### COMPETENCY 4

Examine the physical factors of populations as they relate to the formation of ecosystems. (L, E)

Objectives, Eighth Grade	Science Daybooks
a. Analyze the adaptation of representative organisms to aquatic or terrestrial environments.	<b>Life Science Daybook Student Book:</b> 198, 199, 200, 201
b. Evaluate the effects of urbanization on aquatic or terrestrial ecosystems.	<b>Life Science Daybook Student Book:</b> 206-207, 208-211, 212-213
c. Analyze how predation and food webs help structure communities.	<b>Life Science Daybook Student Book:</b> 178, 179, 182, 184, 185, 188, 189, 192, 193, 194, 196, 197

### COMPETENCY 5

Investigate atmospheric movements that affect the Earth's system. (E, P)

Objectives, Eighth Grade	Science Daybooks
a. Analyze the cycles including nitrogen, water, carbon dioxide, and oxygen cycle.	<b>Earth Science Daybook Student Book:</b> 92-95, 103
b. Use weather maps for analyzing and predicting weather.	<b>Earth Science Daybook Student Book:</b> 148-149, 152, 155, 158

## COMPETENCY 6

Investigate the Earth's geological past. (E, L)

Objectives, Eighth Grade	Science Daybooks
a. Identify the components/stages of a geological timetable and discuss how the environment (including animals and landforms) has changed in each period.	<b>Earth Science Daybook Student Book:</b> 20, 21, 22, 23
b. Describe methods and tools used in dating rocks and fossils.	<b>Earth Science Daybook Student Book:</b> 44, 45

## COMPETENCY 8

Analyze the properties of matter. (P)

Objectives, Eighth Grade	Science Daybooks
a. Determine experimentally physical and chemical properties including density, conductivity, and reactions with water, acids, and bases.	<b>Physical Science Daybook Student Book:</b> 124, 125, 126, 127, 146, 147, 150, 151, 190, 191
b. Interpret information given on the periodic table to predict reactions between elements.	<b>Physical Science Daybook Student Book:</b> 172, 173, 174, 175
d. Distinguish among atoms, ions, and molecules.	<b>Physical Science Daybook Student Book:</b> 138, 139, 140, 141, 142, 187

## COMPETENCY 9

Explore the application of simple and complex machines. (P)

Objectives, Eighth Grade	Science Daybooks
a. Apply and demonstrate Newton's Three Laws of Motion using simple machines.	<b>Physical Science Daybook Student Book:</b> 30, 31, 32, 33
b. Design and construct simple and complex machines.	<b>Physical Science Daybook Student Book:</b> 30, 31, 32, 33, 34, 35

## COMPETENCY 10

### Investigate the transfer of energy. (P)

Objectives, Eighth Grade	Science Daybooks
a. Measure the transfer of heat between two objects using the Celsius scale.	<b>Physical Science Daybook Student Book:</b> 133, 204, 205, 206, 207
b. Illustrate wave motion in different media.	<b>Physical Science Daybook Student Book:</b> 104-107, 108-111, 112-113
c. Research and discuss energy transformation.	<b>Physical Science Daybook Student Book:</b> 128, 129, 132, 133, 182, 183
d. Convert one energy form to another.	<b>Physical Science Daybook Student Book:</b> 59, 98, 99, 133
e. Analyze mechanical waves (sound waves, water waves, earthquake waves, etc.) and electromagnetic waves (light, infrared, x-rays, etc.).	<b>Physical Science Daybook Student Book:</b> 93, 94, 95, 97, 98, 99, 100, 101, 104, 105, 106, 108, 109



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