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correlated to

Mississippi Science
Framework Competencies
and Objectives

Grades 2-3



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correlated to
Mississippi Science Framework
Competencies and Objectives
Second Grade

C O M P E T E N C Y 1

Develop abilities necessary to conduct scientific investigations.

Objectives, Second Grade	ScienceSaurus, Grade 2-3
a. Formulate questions about objects and organisms and predict outcomes in order to conduct a simple investigation.	Student Book: “Ask a Question” pg. 10, “Make a Hypothesis” pg. 11, “Make a Prediction” pg. 360
b. Compare, sort, and group objects according to two or more attributes.	Student Book: “Science is Observing” pg. 2-5, “Kinds of Living Things” pg. 83, “Classifying Plants” pg. 96-97, “Animals with Backbones” pg. 100-101, “Animals Without Backbones” pg. 112-115
c. Use simple tools (e.g., rulers, thermometers, scales, hand lenses, microscopes, calculators, balances, clocks) to gather information. <ul style="list-style-type: none"> • Length, to the nearest inch, foot, yard, centimeter, and meter • Capacity, to the nearest ounce, cup, pint, quart, gallon, and liter • Weight, to the nearest ounce, pound, gram, and kilogram • Time, to the nearest hour, half-hour, quarter-hour, and five-minute intervals (using digital and analog clocks) 	Student Book: “Using Tools to Observe” pg. 6, “Using Science Tools” pg. 50-67, “Measuring Temperature” pg. 277, “Units of Measure” pg. 386-388 <ul style="list-style-type: none"> • “Measuring Length” pg. 54-57, “Measuring Matter” pg. 242-243 • “Measuring Liquids” pg. 58-61, “Measuring Matter” pg. 242-243 • “Using a Balance” pg. 62-63, “Measuring Matter” pg. 242-243 • “Measuring Time” pg. 64-67, “Time” pg. 288, “1582” pg. 392
d. Collect and display technological products (e.g., zipper, coat hook, ceiling fan pull chain, can opener, bridge, apple peeler, wheel barrow, nut cracker, etc.) to determine their function.	Student Book: <i>opportunity exists</i> “Technology Helps All People” pg. 72-73
e. Create line graphs, bar graphs, and pictographs to communicate data.	Student Book: “Graphs” pg. 30-33

Objectives, Second Grade	ScienceSaurus, Grade 2-3
f. Infer that science investigations generally work the same way in different places.	Student Book: “Doing an Investigation” pg. 8-25

C O M P E T E N C Y 2

Apply an understanding of properties of objects and materials, position and motion of objects, and properties of magnetism.

Objectives, Second Grade	ScienceSaurus, Grade 2-3
a. Investigate to conclude that when water changes to ice and then melts, the amount of water is the same as it was before freezing.	Student Book: “States of Matter” pg. 245, “Changing States” pg. 247
b. Investigate and describe properties and changes of matter. <ul style="list-style-type: none"> • Unique properties of states of matter (Gases are easily compressed while solids and liquids are not; the shape of a solid is independent of its container; liquids and gases take the shape of their containers.) • Physical changes (e.g., boiling liquids, freezing ice, tearing paper) • Chemical changes (e.g., burning wood, making ice cream, cooking an egg) 	Student Book: “Matter” pg. 236-253 <ul style="list-style-type: none"> • “States of Matter” pg. 245 • “Physical Changes” pg. 244 • “Chemical Changes” pg. 249, “Energy” pg. 255
c. Describe observable effects of forces, including buoyancy, gravity, and magnetism.	Student Book: “Motion and Forces” pg. 280-284, “Magnetism” pg. 298-299
d. Classify materials that are or are not attracted to magnets and cite examples of useful magnetic tools in everyday living (e.g., can opener, compass, refrigerator door seal).	Student Book: “Magnetic Objects” pg. 300-301, “How People Use Magnets” pg. 305
e. Recognize that an object can be seen only if either light falls on it or it emits light, and that color is a property of light.	Student Book: “Light Energy” pg. 266-269
f. Compare and classify solids, liquids, and gasses.	Student Book: “States of Matter” pg. 245, “Changing States” pg. 246
g. Identify vibration as the source of sound and categorize different types of media (e.g., wood, plastic, water, air, metal, glass) according to how easily vibrations travel.	Student Book: “Sound Energy” pg. 260-265

COMPETENCY 3

Develop and demonstrate an understanding of the characteristics, structures, life cycles, and environments of organisms.

Objectives, Second Grade	ScienceSaurus, Grade 2-3
<p>a. Describe and categorize the characteristics of plants and animals.</p> <ul style="list-style-type: none"> • Plant parts (leaves, stems, roots, and flowers) • Animals (vertebrates or invertebrates, cold-blooded or warm-blooded) 	<p>Student Book: “Kinds of Living Things” pg. 83-84, “Plants” pg. 85-97, “Animals” pg. 98-127</p> <ul style="list-style-type: none"> • “Plant Parts” pg. 88-91, “Classifying Plants” pg. 96-97 • “Animals with Backbones” pg. 100-111, “Animals Without Backbones” 112-115
<p>b. Describe the human body systems with their basic functions and major organs (e.g., brain-nervous, bones-skeletal, muscles-muscular).</p>	N/A
<p>c. Identify the cause/effect relationships when basic needs of plants and animals are met and when they are not met.</p>	<p>Student Book: “What Do Plants Need?” pg. 86-87, “What Do Animals Need?” pg. 99, “Extinct Animals” pg. 116-117, “Endangered Animals” pg. 118, “Environments and Ecosystems” pg. 128-155</p>
<p>d. Compare the life cycles of plants and animals.</p>	<p>Student Book: “Plant Life Cycles” pg. 93-95, “Animal Life Cycles” pg. 119-125</p>
<p>e. Investigate and explain the interdependence of plants and animals.</p> <ul style="list-style-type: none"> • Herbivore, carnivore, or omnivore • Predator-prey relationships 	<p>Student Book: “Energy in Ecosystems” pg. 148-150, “Living Things Need Each Other” pg. 151, “Food Chains” pg. 152-153, “Food Webs” pg. 154-155</p>

COMPETENCY 4

Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

Objectives, Second Grade	ScienceSaurus, Grade 2-3
<p>a. Categorize different types of Earth materials, (e.g., rocks, minerals, soils, water, atmospheric gases).</p>	<p>Student Book: “Minerals” pg. 176-177, “Rocks” pg. 178”, “Kinds of Rocks” pg. 179-181, “Soil” pg. 182-185, “Weather” pg. 189, “Rocks and Minerals” pg. 312-313, “Land and Soil” pg. 314, “Water” pg. 315</p>
<p>b. Describe the three layers of the Earth.</p>	<p>Student Book: “Structure of Earth” pg. 159</p>
<p>c. Collect, organize, and graph weather data obtained by using simple weather instruments (wind vane, rain gauge, thermometer) and explain the components of the water cycle.</p>	<p>Student Book: “Organizing Data” pg. 26-37, “Water Moves Around Earth” pg. 162-165, “Weather” pg. 189, “Temperature” pg. 190, “Precipitation” pg. 192, “Wind” pg. 193</p>

Objectives, Second Grade	ScienceSaurus, Grade 2-3
<p>d. Distinguish how actions or events related to the Earth's environment may be harmful or helpful.</p>	<p>Student Book: "Nature Changes Habitats" pg. 144-145, "People Change Habitats" pg. 146-147, "Energy Resources" pg. 316-324, "Pollution" pg. 325-331</p>
<p>e. Model and explain the concept of Earth's rotation as it relates to day and night and infer why it is usually cooler at night than in the day.</p>	<p>Student Book: "How Earth Moves in Space" pg. 215, "What Causes Day and Night" pg. 216-217</p>
<p>f. Describe characteristics and effects of objects in the universe.</p> <ul style="list-style-type: none"> • Position of the sun in relation to a fixed object on Earth at various times (day and night) • The major characteristics of planets (revolution and rotation periods, size, number of moons) • Changes in the appearance of the moon 	<p>Student Book: "Space" pg. 202-233</p> <ul style="list-style-type: none"> • "What Causes Day and Night" pg. 216-217, "Nicolaus Copernicus, 1543" pg. 392 • "Planets Around the Sun" pg. 204-214 • "The Moon" pg. 220-221, "The Moon Seems to Change Shape" pg. 222-223



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Mississippi Science Framework
Competencies and Objectives
Third Grade

C O M P E T E N C Y 1

Apply concepts involved in a scientific investigation.

Objectives, Third Grade	ScienceSaurus, Grade 2-3
a. Identify questions and predict outcomes that can be examined through scientific investigations.	Student Book: “Science is Observing” pg. 2-7, “Make a Hypothesis” pg. 11, “Making Predictions” pg. 360
b. Describe familiar objects and events using the senses to collect qualitative (e.g., color, size, shape) information.	Student Book: “Science is Observing” pg. 2-5, “Kinds of Living Things” pg. 83
c. Select and use simple tools (e.g., rulers, thermometers, scales, hand lenses, microscopes, calculators, balances, clocks) to gather information.	Student Book: “Using Tools to Observe” pg. 6, “Write Down Your Observations” pg. 18-19, “Using Science Tools” pg. 50-67, “Measuring Temperature” pg. 277, “Units of Measure” pg. 386-388, <i>opportunity exists</i> “1714” pg. 393
d. Draw conclusions and communicate the results of an investigation.	Student Book: “Look at the Data” pg. 20-21, “Draw Conclusions” pg. 22-23, “Share Your Results” pg. 24
e. Communicate data by creating diagrams, charts, tables, and graphs	Student Book: “Organizing Data” pg. 26-37
f. Ask questions and seek answers to explain why different results sometimes occur in repeated investigations.	Student Book: “Ask a Question” pg. 10, “Ask More Questions” pg. 24

COMPETENCY 2

Explain concepts related to objects and materials, position and motion of objects, and properties of magnetism.

Objectives, Third Grade	ScienceSaurus, Grade 2-3
a. Investigate to conclude that the weight of an object is always the sum of its parts, regardless of how it is assembled, (e.g., Lego creation/separate blocks, bucket/cups of sand, roll/stacks of pennies, bag/individual potatoes, etc.)	Student Book: “Matter” pg. 236, “Observing Matter” pg. 240-241
b. Explore and identify physical changes of matter, including melting, freezing, boiling, evaporation, and condensation.	Student Book: “Physical Changes” pg. 244, “States of Matter” pg. 245, “Changing States” pg. 246-247
c. Investigate and describe forces affecting motion in simple machines (lever, wheel and axle, block and tackle, inclined plane, screw.)	Student Book: “Motion and Forces” pg. 280-289, “Simple Machines” pg. 290-297
d. Differentiate between potential and kinetic energy and recognize their conversions. <ul style="list-style-type: none"> • Potential to kinetic (e.g., winding a clock/clock begins ticking) • Kinetic to potential (e.g., roller coaster moving downward/upward to the top of the hill) 	Student Book: “Energy” pg. 254-259
e. Explain how light waves travel (e.g., in a straight line until they strike an object, through transparent and translucent objects, from reflecting and refracting surfaces, at the surface of opaque objects).	Student Book: “Light Energy” pg. 266-270
f. Differentiate the movement of vibrations in waves (e.g., sound and seismic waves), and cite examples to explain that vibrations move through different materials at different speeds.	Student Book: “Sound Energy” pg. 260-265
g. Cite evidence to explain why heating or cooling may change the properties of materials (e.g., boiling an egg, evaporating water, chilling gelatin, making ice cream, etc.)	Student Book: “Physical Properties” pg. 238-239, “Physical Changes” pg. 244-245, “States of Matter” pg. 245, “Changing States” pg. 246-247, “Chemical Properties” pg. 248, “Chemical Changes” pg. 249

COMPETENCY 3

Describe the characteristics, structures, life cycles, and environments of organisms.

Objectives, Third Grade	ScienceSaurus, Grade 2-3
a. Research and explain diverse life forms (including vertebrates and invertebrates) that live in different environments and the structures that serve different functions in their survival (e.g., methods of movement, defense, camouflage).	Student Book: “Plants” pg. 85-97, “Animals” pg. 99-127, “Kinds of Ecosystems” pg. 130-131, “Competing for Resources” pg. 132-133, “Adaptations Help Organisms Survive” pg. 134-135, “Body Parts Are Adaptations” pg. 136-139, “Behaviors Are Adaptations” pg. 140-143
b. Identify and describe the purpose of the digestive, nervous, skeletal, and muscular systems of the body.	N/A
c. Investigate the relationships between the basic needs of different organisms and discern how adaptations enable an organism to survive in a particular environment.	Student Book: “Ecosystems” pg. 129, “Kinds of Ecosystems” pg. 130-131, “What Do Plants Need?” pg. 86-87, “What Do Animals Need?” pg. 99, “Adaptations Help Organisms Survive” pg. 134-135, “Body Parts Are Adaptations” pg. 136-139, “Behaviors Are Adaptations” pg. 140-143, <i>opportunity exists</i> “Climate” pg. 198-201
d. Illustrate how the adult animal will look, when given pictures of young animals (e.g., birds, fish, cats, frogs, caterpillars, etc.).	Student Book: “Life Cycle of Mammals” pg. 120, “Life Cycle of Birds” pg. 121, “Life Cycle of Reptiles” pg. 122, “Life Cycle of Amphibians” pg. 123, “Life Cycle of Fish” pg. 124, “Life Cycle of Insects” pg. 125, “Plants and Animals Look Like Their Parents” pg. 126-127
e. Recall that organisms can survive only when in environments (deserts, tundras, forests, grasslands, taigas, wetlands) in which their needs are met and interpret the interdependency of plants and animals within a food chain, including producer, consumer, decomposer, herbivore, carnivore, omnivore, predator, and prey.	Student Book: “Environments and Ecosystems” pg. 128-155, <i>opportunity exists</i> “Climate” pg. 198-201
f. Recognize that cells vary greatly in size, structure, and function, and that some cells and tiny organisms can be seen only with a microscope.	Student Book: <i>opportunity exists</i> “Living Things” pg. 80-84, “1676” pg. 393

COMPETENCY 4

Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.

Objectives, Third Grade	ScienceSaurus, Grade 2-3
a. Recall that soil is made up of various materials (weathered rock, minerals, plant and animal remains, living organisms.)	Student Book: “Soil” pg. 182-185, “Material Resources” pg. 310-315
b. Compare and contrast changes in the Earth’s surface that are due to slow processes (erosion, weathering, mountain building) and rapid processes (landslides, volcanic eruptions, earthquakes, floods, asteroid collisions).	Student Book: “Structure of Earth” pg. 159, “Landforms” pg. 166-167, “Slow Changes to Earth’s Surface” pg. 168-171, “Fast Changes to Earth’s Surface” pg. 172-175
c. Gather and display local weather information such as temperature, precipitation, clouds, etc., on graphs and use graphs of weather patterns to predict weather conditions. <ul style="list-style-type: none"> • Instruments (wind vane, rain gauge, thermometers, anemometers, and barometers) • Cloud types (cirrus, stratus, cumulus) • Water cycle (evaporation, precipitation, condensation) 	Student Book: “Weather and Climate” pg. 188-201 <ul style="list-style-type: none"> • “Using a Thermometer” pg. 52-53, “Temperature” pg. 190, “Humidity” pg. 191, “Precipitation” pg.192-193, “Wind” pg. 193, “1714” pg. 393 • “Clouds” pg. 194-195 • “Water Moves Around Earth” pg. 162-163, “Water Cycle” pg. 164-165
d. Identify the causes and effects of various types of air, land, and water pollution and infer ways to protect the environment.	Student Book: “People Change Habitats” pg. 146-147, “Pollution” pg. 325-331, “Protecting Resources” pg. 332-341
e. Identify patterns in the phases of the moon, describe their sequence, and predict the next phase viewed in the night sky.	Student Book: “The Moon” pg. 220-221, “The Moon Seems to Change Shape” pg. 222-223
f. Describe the different components of the solar system (sun, planets, moon, asteroids, comets.) <ul style="list-style-type: none"> • Gravitational attraction of the sun • Phases of the moon • Constellations 	Student Book: “Space” pg. 202-233 <ul style="list-style-type: none"> • “Planets Around the Sun” pg. 204-214, “How Earth Moves in Space” pg. 215, “The Sun” pg. 226-227 • “The Moon” pg. 220-221, “The Moon Seems to Change Shape” pg. 222-223 • “Constellations” pg. 228-229

Objectives, Third Grade	ScienceSaurus, Grade 2-3
<p>g. Explain how fossil records are used to learn about the past, identify characteristics of selected fossils, and describe why they may be found in many places.</p> <ul style="list-style-type: none"> • The Earth Science Museum at the Petrified Forest in Flora, MS • The Natural Science Museum in Jackson, MS 	<p>Student Book: “Extinct Animals” pg. 116-117, “Fossils” pg. 186-187, “Mary Anning” pg. 398, <i>opportunity exists</i> “Sedimentary Rock” pg. 180, “Fossil Fuels” pg. 317-319</p>