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**Grades 4-5**

correlated to

**Arkansas**

**Science Curriculum  
Framework**

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**YOUR ARKANSAS GREAT SOURCE REPRESENTATIVES**

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**correlated to**  
**Arkansas Science Curriculum Framework**  
**Grade 4**

**Strand 1: Nature of Science**

**Standard 1: Characteristics and Processes of Science**

**Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.**

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<p><b>Inquiry and Process Skills</b>                      NS.1.4.1                      Communicate observations orally, in writing, and in graphic organizers:</p> <ul style="list-style-type: none"> <li>• T-charts</li> <li>• pictographs</li> <li>• Venn diagrams</li> <li>• bar graphs</li> <li>• frequency tables</li> <li>• line graphs</li> </ul>	<p><b>Student Handbook:</b> 4, 10-14, 16, 18, 24, 25, 27, 60-73, 375</p>
<p>NS.1.4.2                      Refine questions that guide scientific inquiry</p>	<p><b>Student Handbook:</b> 4, 5, 14, 20, 22, 23</p>
<p>NS.1.4.3                      Conduct scientific investigations individually and in teams:</p> <ul style="list-style-type: none"> <li>• lab activities</li> <li>• field studies</li> </ul>	<p><b>Student Handbook:</b> 4, 22, 28-37</p>
<p>NS.1.4.5                      Communicate the designs, procedures, and results of scientific investigations (e.g., age-appropriate graphs, charts, and writings)</p>	<p><b>Student Handbook:</b> 4, 7, 10-14, 16, 18-27, 60-73, 375</p>
<p>NS.1.4.6                      Estimate and measure length, mass, temperature, capacity/volume, and elapsed time using International System of Units (SI)</p>	<p><b>Student Handbook:</b> 9, 13, 16, 39-50, 244-245</p>

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
NS.1.4.7 Collect and interpret measurable empirical evidence in teams and as individuals	<b>Student Handbook:</b> 4, 10-19, 21-27
NS.1.4.8 Develop a hypothesis based on prior knowledge and observations	<b>Student Handbook:</b> 4, 6, 17-27
NS.1.4.9 Identify variables that affect investigations	<b>Student Handbook:</b> 8, 15
NS.1.4.10 Identify patterns and trends in data	<b>Student Handbook:</b> 16, 70
NS.1.4.11 Generate conclusions based on evidence	<b>Student Handbook:</b> 4, 7, 13, 18-27
NS.1.4.12 Evaluate the quality and feasibility of an idea or project	<b>Student Handbook:</b> 5
<b>Scientific Equipment and Technology</b> NS.1.4.13 Use simple equipment, age appropriate tools, technology, and mathematics in scientific investigations (e.g., balances, hand lenses, microscopes, rulers, thermometers, calculators, computers)	<b>Student Handbook:</b> 5, 7-11, 13, 15, 22-25, 38-55
NS.1.4.14 Apply lab safety rules as they relate to specific science lab activities (see Arkansas Lab Safety Guide)	<b>Student Handbook:</b> 5, 28-37, 54-59

## Strand 2: Life Science

### Standard 2: Living Systems: Characteristics, Structure, and Function

Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology.

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<p><b>Characteristics</b>                      LS.2.4.1                      Classify vertebrates into major subgroups:</p> <ul style="list-style-type: none"> <li>• mammals</li> <li>• birds</li> <li>• fish</li> <li>• amphibians</li> <li>• reptiles</li> </ul>	<p><b>Student Handbook:</b> 149-155</p>
<p>LS.2.4.2                      Classify some invertebrates according to their structure:</p> <ul style="list-style-type: none"> <li>• mollusks</li> <li>• segmented worms</li> <li>• arthropods</li> </ul>	<p><b>Student Handbook:</b> 146-148</p>
<p><b>Structure and Function</b>                      LS.2.4.3                      Identify major parts and functions of the following systems:</p> <ul style="list-style-type: none"> <li>• digestive</li> <li>• circulatory</li> <li>• nervous</li> </ul>	<p><b>Student Handbook:</b> 108-109, 116-117, 122-125</p>

### Standard 4: Populations and Ecosystems

Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<p>LS.4.4.1                      Recognize environmental adaptations of plants and animals</p>	<p><b>Student Handbook:</b> 96-97</p>
<p>LS.4.4.2                      Illustrate the interdependence of organisms in an ecosystem</p>	<p><b>Student Handbook:</b> 130-138</p>

## Strand 3: Physical Science

### Standard 5: Matter and Changes

Students shall demonstrate and apply knowledge of matter, including properties and changes, using appropriate safety procedures, equipment, and technology.

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<b>Physical Properties</b> PS.5.4.1 Demonstrate multiple ways to classify objects	<b>Student Handbook:</b> 242-247
PS.5.4.2 Demonstrate chemical changes in matter	<b>Student Handbook:</b> 266-267
<b>States of Matter</b> PS.5.4.3 Compare and contrast gases to solids and liquids	<b>Student Handbook:</b> 261-263

### Standard 6: Motion and Forces

Students shall demonstrate and apply knowledge motion and forces using appropriate safety procedures, equipment, and technology.

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<b>Motions and Forces</b> PS.6.4.1 Investigate the relationship between force and direction	<b>Student Handbook:</b> 268, 269, 272, 277, 278
PS.6.4.2 Investigate the relationship between force and mass	<b>Student Handbook:</b> 270-271, 272, 278

### Standard 7: Energy and Transfer of Energy

Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology.

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<b>Heat</b> PS.7.4.1 Interpret trends in temperature over time using the Celsius scale	<b>Student Handbook:</b> 49
<b>Electricity</b> PS.7.4.2 Classify electrical conductors and electrical insulators	<b>Student Handbook:</b> 247, 299

<b>Student Learning Expectations, Grade 4</b>	<b>ScienceSaurus, Grades 4-5</b>
PS.7.4.3 Construct simple circuits from circuit diagrams	<b>Student Handbook:</b> 300-301

## Strand 4: Earth and Space Systems

### Standard 8: Earth Systems

**Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 4</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Natural Resources</b> ESS.8.4.2 Analyze the impact of using natural resources	<b>Student Handbook:</b> 319-333
ESS.8.4.3 Differentiate between renewable and non-renewable resources	<b>Student Handbook:</b> 320-333, 345
ESS.8.4.4 Evaluate the impact of water pollution	<b>Student Handbook:</b> 342-343
<b>Weather</b> ESS.8.4.7 Describe the processes of the water cycle: <ul style="list-style-type: none"> <li>• precipitation</li> <li>• evaporation</li> <li>• condensation</li> </ul>	<b>Student Handbook:</b> 158, 188-189, 399
ESS.8.4.8 Organize weather data into tables or charts to identify trends and patterns	<b>Student Handbook:</b> 13
ESS.8.4.9 Demonstrate safety procedures related to severe weather	<b>Student Handbook:</b> 212-215
ESS.8.4.10 Describe weather-related natural disasters	<b>Student Handbook:</b> 178-183, 213-215
ESS.8.4.11 Construct and read instruments to collect weather data: <ul style="list-style-type: none"> <li>• barometer</li> <li>• weather vane</li> <li>• anemometer</li> </ul>	<b>Student Handbook:</b> 202-205

## Standard 9: Earth's History: Changes in Earth and Sky

Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.

Student Learning Expectations, Grade 4	ScienceSaurus, Grades 4-5
<p><b>Weather</b> ESS.9.4.1 Analyze changes to Earth's surface:</p> <ul style="list-style-type: none"><li>• erosion</li><li>• glaciation</li><li>• weathering</li><li>• earthquakes</li><li>• volcanic activity</li></ul>	<p><b>Student Handbook:</b> 165, 168, 171-173, 176, 178-182, 184</p>
<p>ESS.9.4.2 Refine questions that guide scientific inquiry</p>	<p><b>Student Handbook:</b> 20</p>



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**Grade 5**

**Strand 1: Nature of Science**

**Standard 1: Characteristics and Processes of Science**

**Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.**

Student Learning Expectations, Grade 5	ScienceSaurus, Grades 4-5
<b>Processes of Science</b> NS.1.5.1 Make accurate observations	<b>Student Handbook:</b> 10-11, 14-15, 18
NS.1.5.2 Identify and define components of experimental design used to produce empirical evidence: <ul style="list-style-type: none"> <li>• hypothesis</li> <li>• replication</li> <li>• sample size</li> <li>• appropriate use of control</li> <li>• use of standardized variables</li> </ul>	<b>Student Handbook:</b> 4, 6, 8, 12, 15, 17, 20, 22-27
NS.1.5.3 Calculate mean, median, mode, and range from scientific data using SI units	<b>Student Handbook:</b> 12, 378-379
NS.1.5.4 Interpret scientific data using <ul style="list-style-type: none"> <li>• data tables/charts</li> <li>• bar graphs</li> <li>• circle graphs</li> <li>• line graphs</li> <li>• stem and leaf plots</li> <li>• Venn diagrams</li> </ul>	<b>Student Handbook:</b> 4, 10-11, 12, 13, 14, 16, 18, 24, 25, 27, 60-73, 375
NS.1.5.5 Communicate results and conclusions from scientific inquiry	<b>Student Handbook:</b> 4, 7, 12, 13, 16, 18-27, 60-73, 375

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
NS.1.5.6 Develop and implement strategies for long-term, accurate data collection	<b>Student Handbook:</b> 4, 10-15, 61
<b>Characteristics of Science</b> NS.1.5.7 Summarize the characteristics of science	<b>Student Handbook:</b> 2-27, 357, 359
NS.1.5.8 Explain the role of observation in the development of a theory	<b>Student Handbook:</b> 2-4, 6, 11, 13, 14, 15, 16, 18, 19, 26, 368
NS.1.5.9 Define and give examples of hypotheses	<b>Student Handbook:</b> 4, 6, 17-27

## Strand 2: Life Science

### Standard 2: Living Systems: Characteristics, Structure, and Function

**Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Structure and Function</b> LS.2.5.2 Examine cells on a microscopic level	<b>Student Handbook:</b> 99-105
LS.2.5.3 Describe the similarities of basic cell functions in all organisms	<b>Student Handbook:</b> 77-81, 98-109
LS.2.5.4 Model and identify the parts of animal cells and plant cells: <ul style="list-style-type: none"> <li>• cell wall</li> <li>• cell membrane</li> <li>• nucleus</li> <li>• cytoplasm</li> <li>• chloroplast</li> </ul>	<b>Student Handbook:</b> 80, 100-103, 142, 145
LS.2.5.5 Compare and contrast plant and animal cells	<b>Student Handbook:</b> 100-103, 141-142

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Structure and Function</b> LS.2.5.7 Identify the role of chlorophyll in the process of photosynthesis	<b>Student Handbook:</b> 80, 103
LS.2.5.8 Explain and illustrate photosynthesis	<b>Student Handbook:</b> 80-81, 132, 142, 144
LS.2.5.9 Explain cellular respiration	<b>Student Handbook:</b> 78-79, 80, 101, 103, 132
LS.2.5.10 Conduct investigations demonstrating the process of cellular respiration	<b>Student Handbook:</b> 78-79, 80, 101, 103, 132
LS.2.5.11 Investigate careers, scientists, and historical breakthroughs related to cells	<b>Student Handbook:</b> 415, 431

**Standard 4: Populations and Ecosystems**

**Students shall demonstrate and apply knowledge of populations and ecosystems using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Populations and Ecosystems</b> LS.4.5.1 Distinguish among and model <ul style="list-style-type: none"> <li>• organisms</li> <li>• populations</li> <li>• communities</li> <li>• ecosystems</li> <li>• biosphere</li> </ul>	<b>Student Handbook:</b> 76-77, 82-83, 98, 126, 128-133, 138-155, 185, 350
LS.4.5.2 Identify the transfer of energy using energy pyramids: <ul style="list-style-type: none"> <li>• terrestrial</li> <li>• aquatic</li> </ul>	<b>Student Handbook:</b> 77, 137
LS.4.5.3 Design food webs in specific habitats to show the flow of energy within communities: <ul style="list-style-type: none"> <li>• terrestrial</li> <li>• aquatic</li> </ul>	<b>Student Handbook:</b> 129, 130-131, 137-138

Student Learning Expectations, Grade 5	ScienceSaurus, Grades 4-5
LS.4.5.4 Evaluate food webs under conditions of stress: <ul style="list-style-type: none"> <li>• overgrazing</li> <li>• overpopulation</li> <li>• natural disaster</li> <li>• introduction of non-native species</li> <li>• human impact/urban development</li> </ul>	<b>Student Handbook:</b> 137-138, 341, 351
LS.4.5.5 Examine the role of limiting factors on the carrying capacity of an ecosystem: <ul style="list-style-type: none"> <li>• food</li> <li>• space</li> <li>• water</li> <li>• shelter</li> </ul>	<b>Student Handbook:</b> 91, 127
LS.4.5.6 Describe and diagram the nitrogen cycle in ecosystems	<b>Student Handbook:</b> 253
LS.4.5.7 Describe and diagram the carbon cycle in ecosystems	<b>Student Handbook:</b> 252
LS.4.5.8 Describe and diagram the carbon dioxide-oxygen cycle in ecosystems	<b>Student Handbook:</b> 132
LS.4.5.9 Conduct investigations demonstrating the role of the carbon dioxide-oxygen cycle in ecosystems	<b>Student Handbook:</b> 132
LS.4.5.12 Conduct investigations in which plants are encouraged to thrive	<b>Student Handbook:</b> 8, 96-97
LS.4.5.14 Categorize organisms by the function they serve in ecosystems and food webs: <ul style="list-style-type: none"> <li>• predator/prey</li> <li>• parasitism</li> <li>• producer/consumer/decomposer</li> <li>• scavenger</li> <li>• herbivore/carnivore/omnivore</li> </ul>	<b>Student Handbook:</b> 133-138, 399
LS.4.5.15 Conduct field studies identifying and categorizing organisms in a given area of an ecosystem	<b>Student Handbook:</b> 7, 139-155

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
LS.4.5.16 Evaluate positive and negative human effects on ecosystems	<b>Student Handbook:</b> 334-343
LS.4.5.17 Describe and illustrate various symbiotic relationships: <ul style="list-style-type: none"> <li>• parasitism</li> <li>• mutualism</li> <li>• commensalism</li> </ul>	<b>Student Handbook:</b> 140-145
LS.4.5.18 Investigate careers, scientists, and historical breakthroughs related to populations and ecosystems	<b>Student Handbook:</b> 416, 427

## Strand 3: Physical Science

### Standard 5: Matter and Changes

**Students shall demonstrate and apply knowledge of matter, including properties and changes, using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Properties of Matter</b> PS.5.5.1 Identify the relationship of atoms to all matter	<b>Student Handbook:</b> 248-259
PS.5.5.2 Conduct scientific investigations on physical properties of objects	<b>Student Handbook:</b> 5, 9, 10, 11, 16, 244-247
PS.5.5.3 Identify common examples of physical properties: <ul style="list-style-type: none"> <li>• length</li> <li>• mass</li> <li>• area</li> <li>• perimeter</li> <li>• texture</li> <li>• taste</li> <li>• odor</li> <li>• color</li> <li>• elasticity</li> </ul>	<b>Student Handbook:</b> 9, 38-39, 41-43, 46-48, 244-247, 385
PS.5.5.4 State characteristics of physical changes	<b>Student Handbook:</b> 260, 261-265

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
PS.5.5.5 Identify characteristics and common examples of physical changes	<b>Student Handbook:</b> 260, 261-265
PS.5.5.6 Explain how heat influences the states of matter of a substance: <ul style="list-style-type: none"> <li>• solid</li> <li>• liquid</li> <li>• gas</li> <li>• plasma</li> </ul>	<b>Student Handbook:</b> 261-265
PS.5.5.7 Demonstrate the effect of changes in the physical properties of matter	<b>Student Handbook:</b> 244-247, 260, 261-265
PS.5.5.8 Model the motion and position of molecules in solids, liquids, and gases in terms of kinetic energy	<b>Student Handbook:</b> 262-263
PS.5.5.9 Conduct investigations demonstrating expansion and contraction	<b>Student Handbook:</b> 262-263, 288
PS.5.5.10 Investigate scientists, careers, and historical breakthroughs related to physical properties, physical changes, and states of matter	<b>Student Handbook:</b> 434

## **S t a n d a r d 6 : M o t i o n a n d F o r c e s**

**Students shall demonstrate and apply knowledge motion and forces using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Motions and Forces</b> PS.6.5.1 Classify simple machines	<b>Student Handbook:</b> 280-283
PS.6.5.2 Conduct investigations using <ul style="list-style-type: none"> <li>• levers (e.g., toothbrush)</li> <li>• pulleys</li> <li>• inclined planes-ramps, wedges, and screws</li> <li>• wheels and axles</li> </ul>	<b>Student Handbook:</b> 280-283

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
PS.6.5.3 Relate simple machines to inventions and discoveries	<b>Student Handbook:</b> 280-283
PS.6.5.4 Compare and contrast potential energy and kinetic energy as applied to motion	<b>Student Handbook:</b> 284-286
PS.6.5.5 Classify real world examples as potential energy or kinetic energy as applied to motion	<b>Student Handbook:</b> 284-286
PS.6.5.6 Conduct investigations using potential energy and kinetic energy	<b>Student Handbook:</b> 284-286
PS.6.5.7 Investigate careers, scientists, and historical breakthroughs related to simple machines and potential and kinetic energy	<b>Student Handbook:</b> 415, 420, 428, 433

## **Standard 7: Energy and Transfer of Energy**

**Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Energy</b> PS.7.5.1 Summarize how light can interact with matter through absorption, refraction, and reflection	<b>Student Handbook:</b> 312-314
PS.7.5.2 Investigate how light travels and interacts with an object or material	<b>Student Handbook:</b> 309, 312-314
PS.7.5.3 Conduct investigations demonstrating how an object can be seen	<b>Student Handbook:</b> 310-314
PS.7.5.5 Investigate physical interactions of light and matter and the effect on color perception: <ul style="list-style-type: none"> <li>• refraction</li> <li>• absorption</li> <li>• transmission</li> <li>• scattering</li> </ul>	<b>Student Handbook:</b> 312-314

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
PS.7.5.6 Investigate careers, scientists, and historical breakthroughs related to light energy	<b>Student Handbook:</b> 415, 419, 428, 433

## S t r a n d 4 : E a r t h a n d S p a c e S y s t e m s

### S t a n d a r d 8 : E a r t h S y s t e m s

**Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology.**

<b>Student Learning Expectations, Grade 5</b>	<b>ScienceSaurus, Grades 4-5</b>
<b>Structure and Properties</b> ESS.8.5.1 Identify some basic elements composing minerals: <ul style="list-style-type: none"> <li>• silicon</li> <li>• oxygen</li> <li>• iron</li> <li>• sodium</li> <li>• chlorine</li> <li>• calcium</li> <li>• carbon</li> <li>• hydrogen</li> <li>• aluminum</li> </ul>	<b>Student Handbook:</b> 160, 250-251, 252
ESS.8.5.2 Investigate the growth of crystals	<b>Student Handbook:</b> 83, 160
ESS.8.5.3 Identify characteristics of minerals	<b>Student Handbook:</b> 160-163
ESS.8.5.4 Conduct investigations on mineral properties: <ul style="list-style-type: none"> <li>• luster</li> <li>• hardness</li> <li>• streak</li> <li>• acid test for calcite</li> <li>• fluorescence</li> </ul>	<b>Student Handbook:</b> 160-163

Student Learning Expectations, Grade 5	ScienceSaurus, Grades 4-5
<p>ESS.8.5.5 Identify the following minerals:</p> <ul style="list-style-type: none"> <li>• halite (salt)</li> <li>• feldspar</li> <li>• sulfur</li> <li>• quartz</li> <li>• diamonds</li> <li>• gypsum</li> <li>• calcite</li> <li>• talc</li> <li>• hematite (iron)</li> <li>• precious metals (gold, silver)</li> </ul>	<p><b>Student Handbook:</b> 160-163</p>
<p>ESS.8.5.6 Identify minerals found in Arkansas:</p> <ul style="list-style-type: none"> <li>• bauxite</li> <li>• diamonds</li> <li>• quartz</li> <li>• galena</li> </ul>	<p><b>Student Handbook:</b> 160-163</p>
<p>ESS.8.5.7 Identify characteristics of sedimentary, igneous, and metamorphic rocks</p>	<p><b>Student Handbook:</b> 164, 166-167</p>
<p>ESS.8.5.8 Compare and contrast by investigation characteristics of the three basic types of rocks:</p> <ul style="list-style-type: none"> <li>• sedimentary</li> <li>• igneous</li> <li>• metamorphic</li> </ul>	<p><b>Student Handbook:</b> 164, 166-167</p>
<p>ESS.8.5.9 Classify the three basic types of rocks</p>	<p><b>Student Handbook:</b> 164, 166-167</p>
<p>ESS.8.5.10 Investigate careers, scientists, and historical breakthroughs related to minerals and rocks</p>	<p><b>Student Handbook:</b> 424</p>
<p><b>Cycles</b> ESS.8.5.11 Investigate the formation of soil</p>	<p><b>Student Handbook:</b> 168-169, 329</p>
<p>ESS.8.5.12 Conduct investigations on sedimentation</p>	<p><b>Student Handbook:</b> 164, 167, 184-185, 342</p>
<p>ESS.8.5.13 Describe and illustrate the rock cycle</p>	<p><b>Student Handbook:</b> 165</p>

## Standard 9: Earth's History: Changes in Earth and Sky

**Students shall demonstrate and apply knowledge of Earth's history using appropriate safety procedures, equipment, and technology.**

Student Learning Expectations, Grade 5	ScienceSaurus, Grades 4-5
<b>Earth's History</b> ESS.9.5.1 Explain and give examples of how physical evidence from fossils supports the theory that Earth has changed over time	<b>Student Handbook:</b> 177, 184-186
ESS.9.5.2 Analyze fossil record evidence about plants and animals that lived long ago	<b>Student Handbook:</b> 177, 184-186
ESS.9.5.3 Infer the nature of ancient environments based on fossil record evidence	<b>Student Handbook:</b> 177, 184-186

## Standard 10: Objects in the Universe

**Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.**

Student Learning Expectations, Grade 5	ScienceSaurus, Grades 4-5
<b>Solar system: Sun, Earth, Moons, Planets, Galaxies</b> ESNS.10.5.1 Compare the physical characteristics of the sun to other stars: <ul style="list-style-type: none"> <li>• size</li> <li>• color</li> <li>• brightness</li> </ul>	<b>Student Handbook:</b> 226, 234
ESNS.10.5.2 Demonstrate the order of planets and other space objects in our solar system	<b>Student Handbook:</b> 228-237
ESNS.10.5.3 Compare the properties of planets in our solar system: <ul style="list-style-type: none"> <li>• size</li> <li>• shape</li> <li>• density</li> <li>• atmosphere</li> <li>• distance from the sun</li> <li>• orbital path</li> <li>• moons</li> <li>• surface</li> <li>• composition</li> </ul>	<b>Student Handbook:</b> 228-233

Student Learning Expectations, Grade 5	ScienceSaurus, Grades 4-5
ESNS.10.5.4 Distinguish between mass and weight	<b>Student Handbook:</b> 271
ESNS.10.5.5 Compare the human body's mass to weight on Earth, the moon, and other planets in our solar system	<b>Student Handbook:</b> 271
ESNS.10.5.6 Investigate careers, scientists, and historical breakthroughs related to planets	<b>Student Handbook:</b> 422, 423, 430, 432, 433, 434



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