

### 3rd Grade - Elementary Science Bundle #7

Title	Suggested Dates
Structures & Functions of Organisms	1/5/10 – 1/29/10 (16 days)



Big Idea/Enduring Understanding	Guiding Questions
An organism has developed characteristics adapted to its environment to help it survive.	Why do plants and animals go through changes during their lifecycle? How can you compare the lifecycles of plants and animals? How are animals adapted for the environment in which they live?

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)
<p><b>NEW TEKS:</b>  <b>3.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments.</b></p> <p>3.10a explore how structures and functions of plants and animals allow them to survive in a particular environment</p> <p><b>CURRENT TEKS</b>  <b>3.9 Science concepts. The student knows that species have different adaptations that help them survive and reproduce in their environment.</b>                      3.9a observe and identify characteristics among species that allow each to survive and reproduce                      3.9b analyze how adaptive characteristics help individuals within a species to survive and reproduce</p>	<p>2<sup>nd</sup> Grade will look at specific parts of plants and animals that help them meet their basic needs</p> <p>3<sup>rd</sup> will look at those structures of both plants and animals and see how those structures function to maintain survival.</p> <p>Rather than focusing on specific environments – look at a specific structure as it is used in many different organisms in various environments.                      EX: comparing similar structures/functions</p> <ul style="list-style-type: none"> <li>• Claws: in a lizard, tiger, hawk –                             <ul style="list-style-type: none"> <li>○ can be used for climbing, catching prey, defense</li> </ul> </li> <li>• Tails: monkeys, alligators, sharks                             <ul style="list-style-type: none"> <li>○ used for balance, movement</li> </ul> </li> </ul> <p>OR comparing different structures with the same function</p> <ul style="list-style-type: none"> <li>• Gizzard, teeth and baleen plates – used for grinding food</li> <li>• Rose thorn, cactus spine, bee stinger and porcupine quill – used for protection</li> </ul> <p>Look at their function in survival and compare the examples from multiple areas to see what is alike and what is different.</p>	<p>Resources listed here apply to the entire bundle.</p> <p><a href="#">Science Notebooks</a></p> <p>IF I TRY (Intranet)</p> <p><a href="#">KLEW/ Claims &amp; Evidence</a></p> <p><a href="#">PISD Elem Science Homepage</a></p> <p>PISD K-5 Equipment Alignment</p> <p><a href="#">TAKScopes</a> Adaptation</p> <p><a href="#">FOSS – Structures of Life</a>                      Modules 1 and 2                      Modules 3 and 4 can be used as an extension</p> <p>Extension Activity  <a href="#">Growing Clean Air Neck Plant, Junior Master Gardener</a></p> <p>AIMS 3rd Grade Texas Core Curriculum                      Life Science Book                      Animals:                      “Just Between Bats” pp. 147-154</p>

### 3rd Grade - Elementary Science Bundle #7

		<p>“Click, Click. Who’s There?” pp. 163-170          “Inside a Bat” pp. 171-177          “I’m Stuck on You” pp. 198-208          “Wonderful Webbed Feet” pp. 209-216          “Beat the Heat” pp. 258-268          “Animals All Year” pp. 281-290</p> <p>Plants:          “Saguaro Study” pp. 239-247          “Noses for Nectar” pp. 192-197          “Attracted to Color” pp. 228-238          “Gone Fishing” pp 251-257</p> <p>Extension Activity about Bats:  <u>Elementary Science with Vernier</u>:          “Batty About Science” 22</p> <p>Wildlife Gardener          Activity 13, “Beak Tool” p. 46  <a href="#">Resources</a></p>
<p><b>NEW TEKS:</b>  <b>3.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments.</b></p> <p>3.10b explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food</p> <p><b>CURRENT TEKS</b>  <b>3.10 Science concepts. The student knows that many likenesses between offspring and parents are inherited from the parents.</b>          3.10a identify some inherited traits of plants          3.10b identify some inherited traits of animals</p>	<p>The new TEKS look at both inherited characteristics and learned behaviors, but focus on their function – how do these traits or behaviors impact the ability to survive in a given environment</p>	<p><a href="#">TAKScopes</a>          Inherited Traits</p> <p>AIMS 3rd Grade Texas Core Curriculum          Life Science Book          “Find the Family” pp. 291-297          “Meet the Guppy Family” pp. 307-314</p>
<p><b>NEW TEKS:</b>  <b>3.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments.</b></p>	<p>Make connections between life cycle and inherited traits – organisms inherit traits from their “parents”.          Also, look at how the traits of the organism at each step in their life cycle support their ability to survive – their parts change as their needs change.</p>	

### 3rd Grade - Elementary Science Bundle #7

<p>3.10c investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady bugs</p>		
<p><b>NEW TEKS:</b>  <b>3.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate practices.</b></p> <p>3.1a demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat</p> <p><b>CURRENT TEKS</b>  <b>3.1 Scientific processes. The student conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</b>          3.1a demonstrate safe practices during field and laboratory investigations</p>	<p>No tasting or touching unless instructed          Safe smelling – wafting          Goggles          Wait for teacher directions          No glassware          Students do not handle hot water, hot plates or burners.          Washing hands after science activities</p> <p>Review investigation safety procedures [directly point out precautions, possible safety risks, specific guidelines for the lesson] for both indoor and outdoor activities, as applicable. In addition, encourage students to identify these on their own throughout the year [document in science notebooks via words and/or pictures]</p>	<p><a href="#">PISD Safety Website</a>          -Safety Contracts, games, etc          -Science Safety is Elementary (for teachers)          -Safety in the Elementary Classroom (for teachers)</p> <p><a href="#">DuPont Science Safety Zone website</a></p> <p><a href="#">Texas Science Safety Standards</a></p>
<p><b>NEW TEKS:</b>  <b>3.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate practices.</b></p> <p>3.1b make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics</p> <p><b>CURRENT TEKS</b>  <b>3.1 Scientific processes. The student conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</b>          3.1b make wise choices in the use and conservation of resources and the disposal or recycling of materials</p>	<p>Proper handling of soils (sand):</p> <p>During the school year:</p> <ul style="list-style-type: none"> <li>• How can we reuse the sand? Dry the samples and have another class use them?</li> </ul> <p>End of year</p> <ul style="list-style-type: none"> <li>• Dispose of sand– recycle sand into proper area of environment – do not need to throw away</li> </ul>	
<p><b>NEW TEKS:</b>  <b>3.2 Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations.</b></p>	<p>These should be guided by / modeled by, and conducted as a group rather than independently.</p> <p>Teacher model the investigative / decision making process using the Think-Aloud technique</p>	

### 3rd Grade - Elementary Science Bundle #7

<p>3.2a plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a particular problem in the natural world</p> <p><b>CURRENT TEKS</b>  <b>3.2 Scientific processes. The student uses scientific methods during field and laboratory investigations.</b>          3.2a plan and implement descriptive and simple experimental investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology</p>	<p>The New TEKS do not hold students accountable for “experimental” investigations in 3<sup>rd</sup> grade, so they do not need to learn the specific terms of the Scientific Method, such as “hypothesis”, although the teacher can use them during investigations to introduce/model the vocabulary.</p> <p>Formal and informal terms in all areas of science should be used interchangeably for exposure.</p> <p>The emphasis in all types of investigations is the <u>systematic approach</u> used: students form questions or define a problem and develop a plan to answer their question or solve the problem using appropriate tools to implement the plan.</p> <p>Develop questions using resources such as Science Notebooks, KLEW charts and students sharing with one another          EX: Why don’t tadpoles need arms and legs?</p> <p>Class discussion is a critical element to allow students to elaborate and build understanding</p> <p>Record their ideas, the process and discussion points in Science Notebooks</p>	
<p><b>NEW TEKS:</b>  <b>3.2 Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations.</b></p> <p>3.2b collect data by observing and measuring using the metric system and recognize differences between observed and measured data</p> <p><b>CURRENT TEKS</b>  <b>3.2 Scientific processes. The student uses scientific methods during field and laboratory investigations.</b>          3.2b collect information by observing and measuring.</p>	<p><b>Connections:</b>          Math TEK 3.11a: linear measurement using standard units (Metric)          Math TEK 3.12 measure temperature using a thermometer (Celsius)</p> <p>Measure to the nearest whole number:          Mass (g.) using double pan balance with gram masses          Volume (ml.) using beakers and/or graduated cylinders</p>	
<p><b>NEW TEKS:</b>  <b>3.2 Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations.</b></p> <p>3.2d analyze and interpret patterns in data to construct reasonable explanations based on evidence from</p>	<ul style="list-style-type: none"> <li>• Student generated explanations with justifications of reasoning.</li> <li>• This can be whole group, small group, partners or individuals</li> <li>• Both verbal and written in Science Notebook</li> </ul> <p>The KLEW format is a graphic organizer that allows students to record learning pieces and show the connection to evidence</p>	



### 3rd Grade - Elementary Science Bundle #7

<p>evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations so as to encourage critical thinking by the student</p> <p><b>CURRENT TEKS</b>  <b>3.3 Scientific processes. The student knows that information, critical thinking, and scientific problem solving are used in making decisions.</b>          3.3a analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information</p>	<p>Use reflective discussions to develop and answer questions about the scientific concepts studied: EX of Critical Questioning:</p> <p>Based on our investigations, what is the most important structure needed to help any animal survive?</p> <p>Based on our investigations, what is the most important structure needed to help any plant survive?</p> <p>Student should use and reference their Science Notebooks and one another</p>	
<p><b>NEW TEKS:</b>  <b>3.3 Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions.</b></p> <p>3.3c represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials</p> <p><b>CURRENT TEKS</b>  <b>3.3 Scientific processes. The student knows that information, critical thinking, and scientific problem solving are used in making decisions.</b>          3.3c represent the natural world using models and identify their limitations</p>	<p>For every model used during the year, ask the following questions:</p> <ul style="list-style-type: none"> <li>• What is the model for?</li> <li>• What do the parts of the model represent?</li> <li>• How is the model the same as its target – the real thing?</li> <li>• How is the model different from its target – the real thing?</li> <li>• How well does the model represent its target? What can it not show? (limitations)</li> </ul> <p>Use different models of each concept target where each different model is designed to highlight a different important part of the overall concept. The questions allow you to focus on each part of each model so that when all those parts combine, a better mental model is created for students</p>	
<p><b>CURRENT TEKS</b>  <b>3.3 Scientific processes. The student knows that information, critical thinking, and scientific problem solving are used in making decisions.</b>          3.3d evaluate the impact of research on scientific thought, society, and the environment</p>	<p>Consider this through each unit of the year...it is an open discussion. There is an opportunity during Bundle 12 to focus more directly on this S.E.</p>	
<p><b>NEW TEKS:</b>  <b>3.4 Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry.</b></p> <p>3.4a collect, record, and analyze information using tools including microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers,</p>	<p>Metric units of measurement only          Double pan balance with and without weights, platform scale, beakers, graduated cylinders, hand lenses, magnets, notebooks</p> <p>Can include microscopes for further study.</p> <p><b>TEACHER NOTE:</b> Teaching the proper use of tools should be scaffolded:          1. Tools are modeled</p>	

### 3rd Grade - Elementary Science Bundle #7

<p>spring scales, hot plates, meter sticks, compasses, magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models, timing devices including clocks and stopwatches and materials to support observation of habitats of organisms such as terrariums and aquariums</p> <p>3.4b use safety equipment as appropriate, including safety goggles and gloves</p> <p><b>CURRENT TEKS</b>  <b>3.4 Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry.</b>          3.4a collect and analyze information using tools including calculators, microscopes, cameras, safety goggles, sound recorders, clocks, computers, thermometers, hand lenses, meter sticks, rulers, balances, magnets, and compasses</p>	<p>2. Students are exposed through group interaction and then,          3. Individuals develop skills through multiple opportunities for practice during the year.</p> <p>Tools and equipment, including senses, should be used in authentic learning settings including during an outside field investigation</p>	
<p><b>NEW TEKS:</b>  <b>3.2 Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations.</b></p> <p>3.2e demonstrate the repeated investigations may increase the reliability of results</p> <p><b>CURRENT TEKS</b>  <b>3.4 Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry.</b>          3.4b demonstrate that repeated investigations may increase the reliability of results</p>	<p>Repeated trials will not need to be done on every hands-on/ minds-on investigation during the year.</p> <p>There should be an opportunity to discuss or have a mini-lesson on the reason for repeating investigations during each bundle.</p> <p>It is good to remember that many demonstrations and investigations in science do not work in the classroom on a particular day – however, that is a great time to discuss repeating a test to get a more valid result – even if there is no time to actually try the demonstration or investigation again that day.</p>	
<p><b>NEW TEKS:</b>  <b>3.8 Earth and Space. The student knows there are recognizable patterns in the natural world and among objects in the sky.</b></p> <p>3.8a observe, measure, record, and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction, and precipitation</p>	<p>Compile the data from the weather logs that have been kept during the year.</p> <p>Use the data in this bundle to make seasonal comparisons.</p> <p>Also connect seasonal weather changes to possible inherited traits or learned behaviors that help animals and plants survive during these seasonal changes</p>	<p><a href="#">Weatherbug</a></p> <p><a href="#">TAKScopes</a>          Topic: Earth Science  <a href="#">4<sup>th</sup> – Patterns of Change: Weather Student Journal pp. 2-3 – Weather Data Chart (eliminate Cloud Type)</a></p>