

2nd Grade - Elementary Science Bundle # 7

Title	Suggested Dates
Animals	1/5/10 – 1/29/10 (16 days)



Big Idea/Enduring Understanding	Guiding Questions
Animals have characteristics that help them meet their needs and survive in their environment.	<p>How do the parts of an animal help it to survive?</p> <p>How does an animal use its environment to meet its basic needs?</p> <p>Does the absence or loss of an animal part affect the animal's health and survival?</p> <p>How can you use your knowledge of life cycles to predict what a young animal will look like compared to an adult?</p>

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>Health2.3b identify the major organs of the body such as the heart, lungs, and brain and describe their primary function</p> <p>Health2.3c identify major systems of the body</p>	<p>These Health TEKS are owned through science, but supported throughout the year in Physical Education. This <u>should not</u> be a major or lengthy separate unit of study.</p> <p>Bundle 5 discusses plant parts and function to help it meet its need as well as limitation, such as not being able to move on own as a purposeful decision. These TEKS bridge and highlight a major difference between plants and animals. It also introduces the remaining “animal” TEKS.</p> <p>Organs: including heart, lungs, brain Systems: skeletal, muscular</p>	
<p>2.5 Science concepts. The student knows that organisms, objects, and events have properties and patterns.</p> <p>2.5a classify and sequence organisms, objects, and events based on properties and patterns</p>	<p>REVIEW: The focus is reviewing these 1st grade skills as a means to connect this learning to the 2nd grade TEKS (2.9a and 2.10b) where a connection is shown between animals characteristics, behaviors and how these characteristics (structures) and behaviors help survival.</p> <p>Including classify and sequence by: types and number of limbs color and number of eyes hands / no hands (claws, etc) feet / no feet (hooves, etc)</p>	<p>Resources listed here apply to the entire bundle.</p> <p>Science Notebooks</p> <p>IF I TRY (Intranet)</p> <p>KLEW/ Claims & Evidence</p> <p>PISD Elem Science Homepage</p>

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	<p>tails: types of , or existence of wings: types of, number of, use of method of eating (beak, teeth, tongue) body coverings ears / no ears / size of ears</p> <p>Health connection: do all have hearts, brains, and lungs?</p> <p>TEACHER NOTE: Use a variety of animal types (live, videos, pictures, models, etc) aquatic, land, air; mammal, fish, amphibian, bird, reptile, insect (these are not by labeled group – but by animals that have similar characteristics – which puts them into these categories.</p> <p>The lesson is not on animal kingdom categories. Inquiry provides the opportunity to sort/group animals based on similar features. This provides conceptual foundation of animal characteristics for future application. Category names can be used during instruction, but are not explicitly taught until kingdom TEKS in middle school.</p> <p>Record in science notebooks</p>	<p><u>AIMS 2nd Grade Texas Core Curriculum</u> Life Science Book Parts An Arm and a Leg Creature Creations Teeth That Cut, Tear, and Grind Teeth That Cut, Tear, and Grind – Part 2 Under Cover Fish and Their Fins Sensational Ears The Life and Times of the Ladybug</p>
<p>NEW TEKS: 2.9 Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment.</p> <p>2.9a identify the basic needs of plants and animals</p> <p>2.10 Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments.</p> <p>2.10a observe, record and compare how the physical characteristics of animals help them meet their basic needs such as fins help fish move and balance in the water</p> <p>(supports new 2.9b in Interdependence Unit – which relates these behaviors to environmental factors)</p> <p>2.6 Science concepts. The student knows that systems have parts and are composed of organisms and objects.</p>	<p>2.9a Basic Needs: Nutrients (food), shelter, water, air (teacher note: oxygen) It is important to include a variety of animals as examples to show basic needs: Big idea is to show that all types of animals (tigers, turtles, mosquitoes, sharks and eagles) have related basic needs.</p> <p>Including</p> <p>2.10a</p> <p>Review <u>characteristics</u> that help an animal meet its need (building from 1st grade): Including:</p> <ul style="list-style-type: none"> ▪ External characteristics of animals (focus on parts like teeth, claws) <ul style="list-style-type: none"> ○ Types of mouths ○ Ways to move ○ Outer covering ▪ How characteristics (structures) help survival: <ul style="list-style-type: none"> ○ protection: quills for porcupines – connect to other types of structures, functions and processes that protect – such as skunks scent and camouflage 	<p><u>TAKScopes</u> for entire bundle</p> <p>FOSS: Insects – Focus on: Butterfly/Moth Delta Education</p> <p>www.FOSSweb.com</p> <p>United Streaming Animals Around Us Animal Features and Their Functions Animal Adaptations</p> <p><u>NetTrekker</u> What’s my class? www.funschool.kaboose.com/formula-fusion/games/game_whats_my_class_html?g=class1_ds2</p> <p>A Touch of Class http://www.sciencenetlinks.com/interactives/class.html</p> <p>www.sandiego.org/animalbytes/index.html</p>

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<p>2.6d observe and record the functions of animal parts</p> <p>2.9 The student knows that living organisms have basic needs.</p> <p>2.9a identify the external characteristics of different kinds of plants and animals that allow their needs to be met</p>	<ul style="list-style-type: none"> ▪ Animal behaviors that help meet their needs <ul style="list-style-type: none"> ○ Migration: allows an animal to move to a more suitable climate and obtain food sources (migration is not limited to flying) ○ Hibernation: allows an animal to remain in current environment during portions of the year when less food is available typically due to a change in climate conditions. Focus is not on all of the processes involved in hibernation, just what it is and why it occurs <p>Connect structures and processes: point out that physical characteristics enable these behaviors in order to meet their needs</p> <p>Good opportunity to compare / contrast migration and hibernation (different means of meeting similar needs)</p>	<p>Enchanted Learning</p> <p>Life Cycle of a Mealworm Life Cycle of a Ladybug Life Cycle of a Butterfly</p>
<p>2.6 Science concepts. The student knows that systems have parts and are composed of organisms and objects.</p> <p>2.6a manipulate, predict, and identify parts that, when separated from the whole, may result in the part or the whole not working, such as flashlights without batteries and plants without leaves</p> <p>2.6b manipulate, predict, and identify parts that, when put together, can do things they cannot do by themselves, such as a guitar and guitar strings</p>	<p>Discuss the animal as a system – look at each characteristic (structure and behavior) as a part of that system. Then, critically question how an animal would survive without certain specific characteristics or behaviors. Note current and NEW 2.3 TEKS below.</p> <p>This idea can connect to a human raising a “wild” animal in captivity and then releasing it. What behaviors does it lack to survive? Also, looking critically at how an animal would live without one of its structures helps students understand the structures in a different way.</p>	
<p>2.7 Science concepts. The student knows that many types of change occur.</p> <p>2.7a observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement</p>	<p>Refer to Math Measurement TEKS 2.9a,b,and c as to measurement units</p> <p>In order to accomplish a broader study of changes in different types of animals, pictures, models and actual preserved/prepared animal structures (shells, teeth, claws, etc.) can be used for measurement and observation.</p> <ul style="list-style-type: none"> • Length – bridge from nonstandard units such as cubes, paper clips, and hands to reading a ruler to the nearest centimeter (compare non standard items directly to ruler to build conceptual understanding of length and function of a ruler) First semester is teacher modeled and guided through direct instruction giving students ample opportunity to apply and practice this skill. 2nd semester is an independent skill. • Color –for example: shading, bright / dull color, color combinations, color patterns • Sound – types of sounds (barks, growls, purring, wings rubbing together, buzzing, tweeting; loud and soft sounds (why are there 	

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	<p style="text-align: center;">changes in sounds and are they noticeable) (connect with music teacher about the idea of “pitch”)</p> <p>Movement – types of movement, speed, range of movement, reasons for movement</p>	
<p>NEW TEKS: 2.10 Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments.</p> <p>2.10c investigate and record some of the unique stages that insects undergo during their life cycle</p>	<p>Focus on the structures, behaviors and processes that the insect goes through in each stage of its life cycle</p>	
<p>NEW TEKS: 2.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures.</p> <p>2.1a identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately</p> <p>2.1b describe the importance of safe practices</p> <p>2.1 Scientific processes. The student conducts classroom and field investigations following home and school safety procedures.</p> <p>2.1a demonstrate safe practices during classroom and field investigations</p> <p>2.1b learn how to use and conserve resources and dispose of materials</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>PISD Safety Website -Safety Contracts, games, etc -Science Safety is Elementary (for teachers) -Safety in the Elementary Classroom (for teachers)</p> <p>DuPont Science Safety Zone website</p> <p>Texas Science Safety Standards</p>
<p>NEW TEKS: 2.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures.</p> <p>2.1c identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal</p>	<p>TEACHER NOTE: When possible, return natural items to their environment (i.e. rocks back to garden)</p> <p>Make note of and teach use of district-wide recycling resource.</p>	

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<p>NEW TEKS: 2.2 Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations.</p> <p>2.2a ask questions about organisms, objects, and events during observations and investigations</p> <p>2.2b plan and conduct descriptive investigations such as how organisms grow</p> <p>2.2c collect data from observations using simple equipment such as hand lenses, primary balances, thermometers, and non-standard measurement tools</p> <p>2.2d record and organize data using pictures, numbers, and words</p> <p>2.2e communicate observations and justify explanations using student-generated data from simple descriptive investigations</p> <p>2.2f compare results of investigations with what students and scientists know about the world</p> <p>2.2 Scientific processes. The student develops abilities necessary to do scientific inquiry in the field and the classroom.</p> <p>2.2a ask questions about organisms, objects, and events</p> <p>2.2b plan and conduct simple descriptive investigations</p> <p>2.2d gather information using simple equipment and tools to extend the senses</p> <p>2.2e construct reasonable explanations and draw conclusions using information and prior knowledge</p> <p>2.2f communicate explanations about investigations</p> <p>2.2c compare results of investigations with what students and scientists know about the world</p>	<p>Should be modeled and guided by teacher – Think-Aloud technique Should be oral and/or written Should occur both indoors and outdoors.</p> <p>Tools and equipment, including senses, should be used in authentic learning settings including during an outside field investigation</p> <p>Communicate both verbally and in science notebook (pictures, words, copying information from class discussion and teacher modeled big book science notebook entry)</p> <p>Develop questions using resources such as Science Notebooks, KLEW charts and students sharing with one another</p> <p>EX:</p> <ul style="list-style-type: none"> • How are the wings of an insect important to its survival? • Are wings used in the same way by all insects? • What other characteristics/structures/behaviors are important for survival of all insects (or wolves, sharks, etc.)? <p>Class discussion of observations is a critical element to allow students to elaborate and build understanding</p> <p>Model student recording of data (pictures, words) – with more support initially as students copy information compiled in class discussion by the teacher on a chart.</p> <p>Include a mini-lesson, as appropriate to model the use of a chosen graphic organizer as a tool to record data and enter into science notebooks</p>	
<p>NEW TEKS: 2.3 Scientific investigation and reasoning. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions.</p>	<p>Introduce the fact that you can solve a problem or answer a question <u>through a systematic approach</u></p> <p>Model using the Think-Aloud technique (processes and steps to decision-making)</p>	

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<p>2.3a identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat</p> <p>2.3b make predictions based on observable patterns</p> <p>2.3c identify what a scientist is and explore what different scientists do</p> <p>2.3 Scientific processes. The student knows that information and critical thinking are used in making decisions.</p> <p>2.3c explain a problem in his/her own words and identify a task and solution related to the problem</p> <p>2.3a make decisions using information</p> <p>2.3b discuss and justify the merits of decisions</p>	<p>The key here is to support students as they observe the world and the results of their investigations and build their critical thinking by looking at those results as evidence that supports a concept.</p> <p>Use the KLEW graphic organizer to support this process.</p> <p>Use reflective discussions to develop and answer questions about the scientific concepts studied. Student entries should be their elaboration based on class discussion:</p> <p>Student should use their Science Notebooks and one another as a reference, a resource and a place to record ideas, learning, questions, etc.</p>	
<p>NEW TEKS:</p> <p>2.4 Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world.</p> <p>2.4a collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums</p> <p>2.4b measure and compare organisms and objects using non-standard units that approximate metric units</p> <p>2.4 Scientific processes. The student uses age-appropriate tools and models to verify that organisms and objects and parts of organisms and objects can be.</p> <p>2.4a collect information using tools including rulers, meter sticks, measuring cups, clocks, hand lenses, computers, thermometers, and balances</p> <p>2.4b measure and compare organisms and objects and parts of organisms and objects, using standard</p>	<p>Tools that support hands-on investigation must be taught, modeled, guided and used.</p> <p>Students will use science notebooks to record information and draw pictures of shadows, etc. Science notebooks need to be set-up early in the bundle to allow proper use. This should not be the initial lesson on notebook entries.</p> <p>Linear measurement using non-standard units of measure using pictures and shadows of different objects.</p> <p>Additional tools should be utilized as appropriate (i.e. digital cameras for documentation, pictures of primary source (shadows)</p>	

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<p>and nonstandard units</p> <p>NEW TEKS:</p> <p>2.8 Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky.</p> <p>2.8a measure, record, and graph weather information including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data</p> <p>2.7 Science concepts. The student knows that many types of change occur.</p> <p>2.7d observe, measure, and record changes in weather, the night sky, and seasons</p>	<p>Keep daily weather log (as part of morning weather / calendar routine).</p> <p>This models and provides experience gathering and recording data over time.</p> <p>The data will be used again during Bundle 8 – when discussing factors in the environment – such as weather – that affect organisms</p>	
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