


2nd Grade - Elementary Science Bundle # 1

Title		Suggested Dates
Safety, Processes, and Notebooks		8/25/09 – 9/11/09 (13 days)

Big Idea/Enduring Understanding	Guiding Questions
<p>Safety should always be considered when exploring, learning, and using various tools and equipment both inside and outside of the classroom.</p> <p>Notebooks help us organize our thoughts, data, and learning.</p> <p>Science is an ongoing cycle of questioning and problem solving.</p>	<p>Why do we need to be careful when we are doing classroom or outdoor investigations?</p> <p>How do we organize our thoughts, information, connections, and other data?</p> <p>What skills and tools do we use as scientists?</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>Participation in learning activities both indoors and outside provides opportunity to be introduced to science process skills as well as appropriate safety behaviors. Shadows, clouds, and objects in the sky are the main vehicles to accomplish this. These are not directly taught as concepts in Bundle 1, but provide connecting points and relevancy to the lessons in Bundle 2.</p> <p>This list of Student Expectations is not linear. Integrating all of these pieces together provides the best learning and application of skills.</p>		
<p>Science Notebooks: As part of Bundle 1, students should be setting up their science notebook. This includes adding all of the components and making an initial entry. Initial entries should be made outside of a regular investigation and should be a lesson itself. Throughout the year, notebooks should be used as a teaching tool for various ELA skills and should be done through teacher modeling and group entries as well as individual entries.</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>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</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> <p>PISD Safety Website</p> <p>-Safety Contracts, games, etc</p>

2nd Grade - Elementary Science Bundle # 1

<p>2.1b – describe the importance of safe practices</p> <p>CURRENT TEKS 2.1 Scientific processes. The student conducts classroom and field investigations following home and school safety procedures. 2.1a Demonstrate safe practices during classroom and field investigations 2.1b Learn how to use and conserve resources and dispose of materials</p>	<p>year [document in science notebooks via words and/or pictures]</p>	<p>-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>PISD K-5 Equipment Alignment</p> <p>AIMS 2nd Grade Texas Core Curriculum – The Nature of Science Book</p>
<p>NEW TEKS: 2.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures 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>	<p>“Scientists at Work” “Dolled Up for Safety” “What’s Wrong With This Picture?” “Reduce, Reuse, Recycle” “Waste Watchers” “Classroom Olympics – measuring and recording data”</p> <p>United Streaming Reduce, Reuse and Recycle</p> <p>BrainPop Jr Making Observations Reduce, Reuse, Recycle</p>
<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>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>As the year progresses, more natural and authentic use of notebooks before, during, and after lessons/investigations/activities should be integrated (in “science” and other applicable connections throughout the day).</p> <p>Develop questions using resources such as Science Notebooks, KLEW charts and students sharing with one another</p>	

2nd Grade - Elementary Science Bundle # 1

<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>CURRENT TEKS 2.2 Scientific processes. The student develops abilities necessary to do scientific inquiry in the field and the classroom. 2.2a Ask questions about organisms, objects, and events 2.2b Plan and conduct simple descriptive investigations 2.2d Gather information using simple equipment and tools to extend the senses 2.2e Construct reasonable explanations and draw conclusions using information and prior knowledge 2.2f Communicate explanations about investigations 2.2c Compare results of investigations with what students and scientists know about the world</p>	<p>EX: Why does my shadow look different at different times of the day?</p> <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>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>Introduce the fact that you can solve a problem or answer a question <u>through a systematic approach</u>. This is not necessarily “the Scientific Method”, but simply an organized approach to problem-solving.</p> <p>Model using the Think-Aloud technique (processes and steps to decision-making)</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. This idea is the same as Claims/Evidence. What is the evidence to</p>	

2nd Grade - Elementary Science Bundle # 1

<p>2.3c – identify what a scientist is and explore what different scientists do</p> <p>CURRENT TEKS 2.3 Scientific processes. The student knows that information and critical thinking are used in making decisions. 2.3c Explain a problem in his/her own words and identify a task and solution related to the problem 2.3a Make decisions using information 2.3b Discuss and justify the merits of decisions</p>	<p>the claim? What was observed? This integrates well with ELA.</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: 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>CURRENT TEKS 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 observed, described, and measured. 2.4a Collect information using tools including rulers, meter sticks, measuring cups, clocks, hand lenses, computers, thermometers, and</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>	

2nd Grade - Elementary Science Bundle # 1

<p>balances 2.4b Measure and compare organisms and objects and parts of organisms and objects, using standard and nonstandard units</p>		
<p><i>NEW TEKS:</i> 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><i>2.8a – measure, record, and graph weather information including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data</i></p> <p><i>CURRENT TEKS</i> 2.7 Science concepts. The student knows that many types of change occur. <i>2.7d Observe, measure, and record changes in weather, the night sky, and seasons</i></p>	<p><i>Keep daily weather log (as part of morning weather / calendar routine).</i></p> <p><i>This models and provides experience gathering and recording data over time. The data will be used during Bundle 3 when there is more of a direct focus on weather.</i></p> <p><i>*Use shadows and objects in the sky to conduct observations. You Do Not need to focus directly on this TEK until bundle 2.</i></p>	