


2nd Grade - Elementary Science Bundle # 3

Title		Suggested Dates
Weather & Water Cycle		10/5/09 – 10/23/09 (13 days)

Big Idea/Enduring Understanding	Guiding Questions
Weather occurs in predictable patterns and impacts our everyday life.	<p>How does the weather affect your choices in activities and clothing?</p> <p>How does water change due to temperature?</p> <p>How do patterns in seasons help me make future plans?</p> <p>What is the relationship between weather and the water cycle?</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>NEW TEKS: 2.5 Matter and energy. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used.</p> <p>2.5a classify matter by physical properties, including shape, relative mass, relative temperature, texture, flexibility, and whether material is a solid or liquid</p> <p>2.5b compare changes in materials caused by heating and cooling</p> <p>CURRENT TEKS 2.5 Science concepts. The student knows that organisms, objects, and events have properties and patterns. 2.5a classify and sequence organisms, objects, and events based on properties and patterns</p>	<p>Use data from Bundles 1 & 2, continue collecting data here</p> <p>Water cycle through weather simultaneously teaching not linearly</p> <p>modeling vocabulary</p> <p>mixture of outdoor data collection and indoor/outdoor investigations modeling each step of water cycle</p> <p>2.5 shape (patterns) clouds, raindrops, temperature and patterns of temperature, NOT solid and liquid</p> <p>Heating as it relates and naturally connects to water cycle (connection to sun / heat / weather), motion as evidence of air movement (wind), very windy, windy, breezy, calm (no wind).</p>	<p>Resources listed here apply to the entire bundle.</p> <p>Science Notebooks</p> <p>IF I TRY – on intranet and in Sci Curr Info folder on each Campus Share folder</p> <p>KLEW/ Claims & Evidence</p> <p>PISD Elem Science Homepage</p> <p>PISD Safety Website</p> <p>DuPont Science Safety Zone website</p> <p>Texas Science Safety Standards</p> <p>PISD K-5 Equipment Alignment – part of Vertical Alignment Document found on curriculum page</p> <p>AIMS 2nd Grade Texas Core Curriculum “Watching the Weather” “Air Temperature” “The Wind Blows” “Which Way”</p>

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		<p>“Round and Round It Goes” “Station Precipitation” “A Snap of Time” “Weather Windows”</p> <p>United Streaming “A First Look: Weather” “Weather Smart: Weather” “Weather Smart: The Water Cycle” “Weather: Changes and Measurement” “Water Smart: The Sun, Water Cycle and Climate” “Magical Mother Nature: The Four Seasons” “The Four Seasons” “The Magic School Bus: Wet All Over” “The Magic School Bus: Kicks up a Storm”</p> <p>BrainPop Jr “Seasons” “Fall” “Winter “ “Water Cycle”</p> <p>TAKScopes Seasons</p> <p>Foss Kit Air</p> <p>NetTrekker Use search term: Weather and Climate Link: Rain Select website: Weather Dude: Precipitation</p> <p>Weather Underground www.wunderground.com</p>
<p>NEW TEKS: 2.5 Matter and energy. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used.</p> <p>2.5b compare changes in materials caused by heating and cooling</p>	<p>Temperature, change of position to sun as it relates to patterns of objects in the sky and relationship to temperature / weather. The focus here is <u>not</u> MATTER .</p> <p>Movement of the water though the water cycle (point out it is not a big circle, that is a representation (model) easier to see – it happens everywhere. 2nd Grade</p>	

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<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>CURRENT TEKS 2.7 Science concepts. The student knows that many types of change occur. 2.7a observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement 2.7b identify, predict, and test uses of heat to cause change such as melting and evaporation 2.7d observe, measure, and record changes in weather, the night sky, and seasons</p>	<p>identifies the pieces but is not responsible for the underlying process and “changing of state”.</p> <p>Physical properties have to do with describing the weather, describing the clouds, describing the wind, etc.</p>	
<p>NEW TEKS: 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>2.8c explore the processes of the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions</p> <p>CURRENT TEKS 2.10 Science concepts. The student knows that the natural world includes rocks, soil, water, and gases of the atmosphere.</p> <p>2.10a describe and illustrate the water cycle</p>	<p>Do this in a variety of ways, including but not limited to the way typically depicted on posters.</p> <p>INCLUDE THE SUN (do not need to go into sun as providing the energy – that is 3rd. They need to understand it as part of the process with these pieces)</p> <p>Movement of the water though the water cycle (point out it is not a big circle, that is a representation (model) easier to see – it happens everywhere. 2nd Grade identifies the pieces but is not responsible for the underlying process and “changing of state”.</p>	
<p>NEW TEKS: 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</p>	<p>2.8a – see 2.5b (New 2.2d) precipitation – rain gauge</p> <p>Wind Conditions: weather vane (for general direction), wind sock, anemometer (for wind speed – but not reading it specifically or knowing the categories of wind speed)</p>	

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<p>cloud coverage, in order to identify patterns in the data</p> <p>2.8b identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation</p> <p>2.8c explore the processes of the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions</p> <p>2.8d observe, describe, and record patterns of objects in the sky, including the appearance of the moon</p> <p>CURRENT TEKS 2.5 Science concepts. The student knows that organisms, objects, and events have properties and patterns. 2.5b identify, predict, replicate, and create patterns including those seen in charts, graphs, and numbers</p>	<p>Cloud coverage – amount of coverage – NOT the names EX: cloudy, partly cloudy, clear – darker clouds typically mean threat of rain. Note relationships or any emerging patterns of cloud shape and/or color to weather conditions.</p> <p>2.8b – safety (lightning, adhering to weather alerts) appropriate clothing (including shoes and accessories such as a hat) for weather conditions (and planning for weather conditions later in the day) activities: water / lightning, decisions about picnics (planning ahead or noticing the patterns in the sky on your own and deciding the best ...) Recognizing weather predicting is difficult and things can change so much be observant</p> <p>Students do need to learn precipitation, condensation, evaporation</p> <p>TOOL: add authentic use in authentic settings about tools (keeping all safety precautions in mind) Students can make and use models of weather tools but need to actually use real tools</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>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</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 with soap and water; supplement with classroom hand sanitizer</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>	

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<p>materials</p> <p>Health2.2 Health Behaviors. The student understands that safe, unsafe, and/or harmful behaviors result in positive and negative consequences throughout the life span.</p> <p>Health2.2b identify ways to avoid deliberate and accidental injuries</p> <p>Health2.2c explain the need to use protective equipment when engaging in certain recreational activities such as skateboarding, rollerblading, cycling, and swimming</p> <p>2.2d explain the importance of avoiding dangerous substances</p> <p>Health2.3 Health Information. The student understands the basic structures and functions of the human body and how they relate to personal health throughout the life span.</p> <p>Health2.3a describe behaviors that protect the body structure and organs such as wearing a seat belt and wearing a bicycle helmet</p> <p>Health2.5 Health information. The student recognizes factors that influence the health of an individual.</p> <p>Health2.5a identify hazards in the environment that affect health and safety such as having loaded guns in the home and drinking untreated water</p> <p>Health2.8 Influencing factors. The student understands how relationships influence personal health.</p> <p>Health2.8b recognize unsafe requests made by friends such as playing in the street</p>	<p>Health</p> <ul style="list-style-type: none"> -avoid injuries by being safe in investigations -protective equipment including goggles and other safety equipment -avoiding unknown and dangerous substances during investigations -behaviors include wearing goggles to protect eyes, wearing ear plugs to protect ears, wearing gloves to protect hands, etc -hazards include various materials, equipment, and unknown substances; potential hazards in investigations with tools and surroundings -unsafe requests such as behaviors during a science investigation 	
<p>NEW TEKS: 2.1 Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures.</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</p>	

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<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>resource.</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>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.</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>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 EX: How can I make water evaporate more quickly? OR Where does the water on the outside of a glass of iced tea come from?</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</p>	

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	and enter into science notebooks	
<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>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.</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>Health2.11 Personal/interpersonal. The student comprehends the skills necessary for building and maintaining healthy relationships.</p> <p>Health2.11a explain the steps in the decision-making process and the importance of following the steps</p> <p>Health2.11c list the steps and describe the importance of task completion and goal setting</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 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,</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.</p> <p>Linear measurement using non-standard units of</p>	

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<p>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 balances 2.4b measure and compare organisms and objects and parts of organisms and objects, using standard and nonstandard units</p>	<p>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>	
<p>NEW TEKS: 2.8 Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. 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>CURRENT TEKS 2.7 Science concepts. The student knows that many types of change occur. 2.7d observe, measure, and record changes in weather, the night sky, and seasons</p>	<p><i>Keep 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>	