

Seventh Grade Science Curriculum Bundle #2



Title	Suggested Dates
The Habitable Earth	Sept 13–Oct 1, 2010 (14.5 days)

Big Idea/Enduring Understanding	Guiding Questions
Earth has unique properties that support life.	<p>What conditions allow Earth to support and maintain life?</p> <p>What conditions are necessary to support life outside of Earth?</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	Specificity & Examples	Suggested Resources (Read the note above)
<p>Reminder: The state <i>requires</i> 40% of instructional time be spent conducting lab and field investigations. (approximately 2 investigations per week)</p> <p>Safety equipment should be used throughout the entire school year.</p> <p>Process skills (TEKS 7.1, 7.2, 7.3, and 7.4) should be used throughout the school year.</p>		
<p>9 Earth and space. The student knows components of our solar system. The student is expected to:</p> <p>9A analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere</p>	<p><u>Teacher Note:</u> The emphasis of this unit is to focus on the aspects of Earth support the biosphere.</p> <p>Characteristics of Earth that enable life:</p> <ul style="list-style-type: none"> • Chemical composition of atmosphere (carbon, hydrogen, oxygen, nitrogen, phosphorus, sulfur) • Presence of water (in oceans, rivers, lakes, atmosphere) • Proximity to sun (radiant energy) • Temperate weather that allows for life • Plate Tectonics <p>Benchmarks (National Standards):</p> <ul style="list-style-type: none"> • Earth is the only body in the solar system that appears able to support life. The other planets have compositions and conditions very different from the earth's. • The atmosphere is a mixture of nitrogen, oxygen, and trace amounts of water vapor, carbon dioxide, and other gases. • The atmosphere has different properties at different elevations. 	<p>Vocabulary: proximity, composition, atmosphere, characteristics, exploration</p> <p>Power Point:</p> <ul style="list-style-type: none"> • Habitable Planet.ppt <p>Activities:</p> <ul style="list-style-type: none"> • Exploring the Solar System (folder) • Developing a Habitable Planet.pdf • Spacing Out.pdf • Vernier CBL lab 04 Relative Humidity.doc <p>PreAP Activities:</p> <ul style="list-style-type: none"> • LTF #34 How Wet is Our Planet • LTF #36 A Bug's Life <p>Reading Supplement:</p> <ul style="list-style-type: none"> • Textbook: pp 606-607 (Earth-Sun relationship, seasons) • PreAP: Mercury's Magnetic Twisters.pdf (contrast this with Earth's atmosphere) • PreAP – Methane on Mars.pdf

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	<p><u>Teacher Note:</u> Students have some prior knowledge from 6th grade about Earth, plate tectonics, and the solar system (Bundle 4, 10 and 12). Plate tectonics though will be covered in greater detail in 8th grade, but the students should be able to apply the following SEs towards their understanding about its impact on the biosphere.</p> <ul style="list-style-type: none"> • 6.5B recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter oceans, and the atmosphere • 6.11A describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids and comets. • 6.11B understands that gravity is the force that governs the motion of our solar system • 6.10A build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere. <p>Basic meteorology, oceanography, and astronomy will be taught in 8th grade.</p>	<p>Teacher Resources:</p> <ul style="list-style-type: none"> • Habitable Zone.pdf • Planetary Habitability.pdf • The interior of the Earth.pdf
<p>9 Earth and space. The student knows components of our solar system. The student is expected to:</p> <p>9B identify the accommodations, considering the characteristics of our solar system, that enabled manned space explorations</p>	<p>What is necessary for life in space:</p> <ul style="list-style-type: none"> • Air supply • Fresh (potable) water supply • Food supply • Waste management • Insulation: heat, UV radiation • Anti-gravity adaptations • Communication <p><u>Teacher Note:</u> Students have prior knowledge about space travel from 6th grade (Bundle 12).</p> <ul style="list-style-type: none"> • 6.11C describe the history and future of space exploration, including the types of equipment and transportation needed for space travel. 	<p>Activities:</p> <ul style="list-style-type: none"> • *Spaceship Earth (folder, includes PPT) • Water Management in Space.pdf (includes teacher resource) • Lunch in Outer Space (folder) • Life on the Moon (folder, includes My Moon Colony activity) <p>Reading Supplement:</p> <ul style="list-style-type: none"> • What is a spacesuit.pdf • Planning for Mars.pdf • PreAP – Moon Crash, Splash.pdf (evidence of water on moon) <p>Teacher Resource:</p> <ul style="list-style-type: none"> • <u>History of Manned Lunar Spacecraft</u>

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<p>6 Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:</p> <p>6A identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur</p>	<p><u>Teacher Note:</u> The same elements found in the Earth’s atmosphere are also the ones, which form the basic building blocks for the compounds found in living organisms.</p> <p><u>Teacher Note:</u> Students have prior knowledge from 6th grade about elements and compounds (Bundle 4).</p> <ul style="list-style-type: none"> • 6.5A know that an element is a pure substance represented by chemical symbols • 6.5C differentiate between elements and compounds on the most basic level <p><u>Teacher Note:</u> It is not necessary for students to learn specific chemical formulas. This will be covered in 8th grade (Bundle 4, SE 8.5D). This SE will again be touched on with respect to digestion.</p>	<p>Power Point:</p> <ul style="list-style-type: none"> • Intro to Organic Chemistry.ppt
<p>7 Force, motion, and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:</p> <p>7A contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still</p>	<p><u>Teacher Note:</u> Just for context, the teacher may consider introducing the concept of “work” in this unit where work is the mechanical displacement of an object due to a force. Relating to SE 7.9B, when the space ship launches, this is work. The chemical propellant (fuel), which produces gases, push on the rocket that launches the rocket through space. A spaceship, which sits at the launch pad, is not doing work.</p> <p><u>Teacher Note:</u> Work will be further explored in Bundle 11 in context with the human body. (See Power Point in Bundle 11 and Bundle 2 assessment for examples of work.)</p>	