

## Highland Park Science Curriculum Third Grade 2<sup>nd</sup> 9 Weeks

| Components |  |
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| Unit Name  | Earth and Space  |
| TEKS       | <p>(1) Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following school and home safety procedures and environmentally appropriate practices. The student is expected to:<br/>           (A) demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including observing a schoolyard habitat; and<br/>           (B) 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>(2) Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:<br/>           (A) plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;<br/>           (B) collect data by observing and measuring using the metric system and recognize differences between observed and measured data;<br/>           (C) construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;<br/>           (D) analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;<br/>           (E) demonstrate that repeated investigations may increase the reliability of results; and<br/>           (F) Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.</p> <p>(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. The student is expected to:<br/>           (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical 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;<br/>           (B) draw inferences and evaluate accuracy of product claims found in advertisements and labels such as for toys and food;<br/>           (C) represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and<br/>           (D) Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.</p> <p>(4) Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:<br/>           (A) 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, spring scales, hot plates, meter</p> |

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|  | <p>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; and<br/>         (B) Use safety equipment as appropriate, including safety goggles and gloves.</p> <p>(7) Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:<br/>         (A) explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;<br/>         (B) investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides;<br/>         (C) identify and compare different landforms, including mountains, hills, valleys, and plains; and<br/>         (D) Explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture and how resources may be conserved.</p> <p>(8) Earth and space. The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:<br/>         (A) 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;<br/>         (B) describe and illustrate the Sun as a star composed of gases that provides light and heat energy for the water cycle;<br/>         (C) construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions; and<br/>         (D) Identify the planets in Earth's solar system and their position in relation to the Sun.</p> |
| <p><b>Generalizations/<br/>Enduring<br/>Understandings</b></p> | <p>The students will understand how soils are formed (weathering, decomposition of plants and animals)</p> <p>The students will understand the sun is a star that will provide light, energy, and heat for the water cycle.</p> <p>The students will know the order of the planets and their relationship to the sun.</p> <p>The students will identify and compare landforms.</p> <p>The students will understand rapid changes and their impact on the earth.</p> <p>The students will understand that natural resources make useful products. Such as clothing, furniture, etc.</p> <p>The students will be able to observe, measure, and record day- to- day weather changes.</p> <p>Students can make models that show the relationships between the earth, sun, and moon including orbits and positions.</p>  |

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| <b>Concepts</b>                    | <p><b>Earth's Surface</b><br/>Earth, earthquake, erupt, fault, geology, geyser, landform, lava, molten, mountain, structure, tectonic plate, volcanic dome, volcano, fault, geology, ocean, repetition, seismic, seismograph, tectonic plate, tsunami, canyon, coastal plain, desert, elevation, erosion, fault, landform, lava, map, mountain, ocean, plain, plateau, ridge, rock layer, stream, tectonic plate, valley, volcanic dome, bedrock, deposit, energy, humus, natural resources, nitrogen cycle, nutrients, plant, soil</p> <p><b>Solar System</b><br/>Kuiper Belt, Venus, asteroid, circumference, comet, crater, diameter, equator, light, meteor, meteorite, meteoroid, orbit, planet, planetoid, pole, position, predict, radiant energy, radiation, rotate, satellite, space, star, system, telescope, transmit,</p> <p><b>Sun's Effect on Weather and Water Cycle</b><br/>air pressure, analyze, barometer, Celsius, climate, data, degree, detect, dew point, energy (physical), evidence, Fahrenheit, flood, forecast, front, hypothesis, map, measure, meteorology, observe, predict, pressure, temperate, temperature (weather), thermometer (weather), tides, weather, wind, condense, evaporation, groundwater, infiltration, precipitation, solar energy, sun</p> |  |  |
| <b>Guiding/Essential Questions</b> | <ol style="list-style-type: none"> <li>1. Why are rocks and soil important?</li> <li>2. What are some of the different kinds of soil?</li> <li>3. What happens to weathered materials?</li> <li>4. How do landforms change the Earth's surface?</li> <li>5. How does the sun effect the water cycle?</li> <li>6. What are some natural resources?</li> <li>7. How can land change quickly?</li> <li>8. How does an earthquake change the Earth?</li> <li>9. How can we reduce our use of Earth's materials?</li> </ol>   |  |  |
| <b>Learning Targets</b>            | <b>Target</b>  | <b>Learning Progressions/**Decision Point</b>  |  |
|                                    | <p>Students will be to identify how the earth's surfaces are formed and changed.</p> <p><b><u>Learning Target:</u></b><br/><b><i>Students will be able to investigate and compare different landforms, and how the earth's surfaces are formed and changed.</i></b></p>  | <p>*explore how soils are formed<br/>*investigate rapid changes in Earth's surface<br/>***12 Word Summary<br/>*identify and compare different landforms<br/>***Illustrate the changes of soil layers change over time to create landforms using plastic bottles and sand/rocks/dirt/water; write explanation based upon scientific process<br/>***Student Conference</p> |  |

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|   | Formative Assessment  | <ol style="list-style-type: none"> <li>1. 12 Word Summary</li> <li>2. Student Conference</li> </ol>   |   |
|   | <p>Students will be able to recall examples of natural resources, and define the steps of conservation and recycling.</p> <p><b><u>Learning Target:</u></b><br/><b><i>Students will be able to explore what makes natural resources useful in products, and make informed choices of conservation and recycling.</i></b></p> <p><b>ELA Connection: create graphic organizer to compare/contrast types of natural resources (renewable, nonrenewable, inexhaustible)</b></p> | <p>*define and list examples of natural resources</p> <p>***four corners</p> <p>*determine what resources derive from other natural resources</p> <p>***crystal ball</p> <p>*explore how different products derive from natural resources</p> <p>*review information about conservation and recycling</p> <p>***turn to your partner</p> <p>***decide and develop a plan to conserve or recycle within classroom</p>  |   |
| <b>Formative Assessments (FOR Learning)</b> | Formative Assessment  |   | <ol style="list-style-type: none"> <li>1. Four Corners</li> <li>2. Crystal Ball</li> <li>3. Turn to your Partner</li> </ol> |
| <b>Learning Targets</b>                     | <p>Students will be able to identify the planets and their position in the solar system.</p> <p><b><u>Learning Target:</u></b><br/><b><i>Students will be able to construct models that demonstrate the relationship of the Sun, Earth, Moon, and planets.</i></b></p>  | <p>*identify names of planets and their order in the solar system</p> <p>***cross the line</p> <p>*memorize acronym: my very eager mother just served us nachos</p> <p>*review rotation and revolution of planets around Sun, and moon in relation to Earth</p> <p>*create sentence strip illustrating the distance and relationship of each planet from the Sun</p> <p>***observation</p> <p>***set up a literacy station that allows students to order models of planets and the moon in relation to the Sun; write</p> |   |

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|  |  | facts and opinions about each planet, including facts that elaborate proof they understand their relationships to the Sun<br>***make up own acronym for the order of the planets from the Sun  |                                     |
|  | Formative Assessment   |  | 1. Cross the Line<br>2. Observation |
|  | Students will be able to identify characteristics of the Sun.<br><b><u>Learning Target:</u></b><br><b><i>Students will be able to describe and illustrate the Sun and its composition</i></b>                | *share trade books about the Sun<br>*develop flip books with table mates that illustrate the Sun and facts as they learn<br>***create sticky notes of 3 facts they recall from learning about the Sun; share with class and stick on Sun |                                     |
|  | Formative Assessment   |  | 1. Sticky Notes                     |
|  | Students will understand weather changes.<br><b><u>Learning Target:</u></b><br><b><i>Students will able to observe, measure, record, and compare day-to-day weather changes and how they are caused.</i></b> | *observe temperature over time in the classroom<br>*assess and predict weather and its changes/patterns from day-to-day based on the newspaper<br>***graph temperature changes from day-to-day; summarize trends and patterns found in a |                                     |
|  | Formative Assessment   |  | ***12 Word Summary                  |
| <b>Formative Assessments</b>                     | Summer Talk page 177 (Teacher Notes-page 178-184)  |  |                                     |
| <b>Student Investigations/ Student Products/</b> | Wet Jeans page 155 (Teacher Notes- page156-161)  |  |                                     |
|  | Beach Sand page 163 (Teacher Notes page 164-168)   |  |                                     |
|  | List of Projects- <a href="http://www.mysciencebox.org/explore/results/taxonomy%3A50">http://www.mysciencebox.org/explore/results/taxonomy%3A50</a>  |  |                                     |

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| <b>Summative Assessments (OF Learning)</b> | <p><b>Discovery Education Unit Assessments:</b></p> <p>Earth's Surface: <a href="http://tools.discoveryeducation.com/assessment/viewAssessment.cfm?guidAssetID=8d24ae96-c671-4e02-812c-e1ab6289eb2e&amp;blnPopup=1">http://tools.discoveryeducation.com/assessment/viewAssessment.cfm?guidAssetID=8d24ae96-c671-4e02-812c-e1ab6289eb2e&amp;blnPopup=1</a></p> <p>Objects in the Sky: <a href="http://tools.discoveryeducation.com/assessment/viewAssessment.cfm?guidAssetID=579065f6-f1e8-4ee0-b57f-77423236fd2a&amp;blnPopup=1">http://tools.discoveryeducation.com/assessment/viewAssessment.cfm?guidAssetID=579065f6-f1e8-4ee0-b57f-77423236fd2a&amp;blnPopup=1</a></p> <p>The Sun's Effect on Earth: <a href="http://tools.discoveryeducation.com/assessment/viewAssessment.cfm?guidAssetID=1a5a211b-665e-423a-9f3c-c9fd995b11aa&amp;blnPopup=1">http://tools.discoveryeducation.com/assessment/viewAssessment.cfm?guidAssetID=1a5a211b-665e-423a-9f3c-c9fd995b11aa&amp;blnPopup=1</a></p>   |
| <b>Facts</b>                               | <p>Soil is a mixture of weathered minerals, organic material, water, and air.</p> <p>There are different kinds of soil.</p> <p>Weathering is the breaking up of rocks by the movement of water, chemicals, temperature changes, wind, and/or plant systems.</p> <p>Erosion is the carrying away of weathered materials which often from the forces of ice, water, gravity, and wind.</p> <p>Landforms are the result of a combination of constructive and destructive forces.</p> <p>Most of Earth's water is in its oceans.</p> <p>A natural resource is any material found on or in the Earth that can be used by people.</p> <p>Some natural resources take a long time to form and may be difficult to extract.</p> <p>Earth is the only planet that has water, air and minerals.</p> <p>Sudden changes on the earth are caused by hurricanes, earthquakes, landslides, and volcanoes.</p> <p>Technology helps meteorologists and scientists predict hurricane and earthquake behavior.</p> <p>Pollution is mostly the result of human actions.</p> <p>Reducing wastes and recycling saves energy and resources.</p> |
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| <b>Language of Instruction</b>      | Mineral, landform, plain, valley, plateau, weathering, erosion, glacier, process, Hurricane, earthquake, volcano, natural gas, gases, water, air, natural resource, soil, pollution, reduce, reuse, recycle, conserve  |
| <b>Resources</b>                    |  |
| <b>Interactive Science Notebook</b> | KWL Chart  |
| <b>Booklist</b>                     | <p><b>Solar System:</b><br/>           Postcards from Pluto: A Tour of the Solar System – by Loreen Leedy<br/>           There’s No Place like Space – by Tish Rabe<br/>           The Sun: Our Nearest Star – by Franklyn M Branley</p> <p><b>Soil:</b><br/>           Jump into Science – by Steve Tomecek<br/>           A Handful of Dirt – by Raymond Bial</p> <p><b>Landforms:</b><br/>           Mountains – by Seymour Simon<br/>           The Little Island – by Margaret Wise Brown Fast Changes:<br/>           River Friendly River Wild – by Jane Kurtz Volcanoes– by Franklyn M Branley Tsunami! – by Kimiko Kajikawa Natural Resources:<br/>           The Lorax – by Dr. Seuss<br/>           Where Does the Garbage Go? – by Paul Showers</p>  |
| <b>Textbook Correlation</b>         | Discovery Education Textbook:<br><b>Unit: Earth’s Surface</b> <ul style="list-style-type: none"> <li>• <b>Volcanoes-</b> Did you know that Mount Vesuvius is still active? Many people live near this active volcano. Orchards are planted on its slopes. Grape vines grow there, too. The soil after a volcano erupts can be great for growing crops. In this concept, you’ll learn how volcanoes are made and why they erupt. (Sessions 1-4)</li> <li>• <b>Earthquakes-</b> You might live in a place where feeling an earthquake is rare. Or, perhaps, you live in a place where earthquakes are common. In either case, you probably know that an earthquake makes the ground shake. In this concept, you’ll discover why earthquakes happen. (Sessions 1-5)</li> <li>• <b>Landforms-</b> The different shapes that make up Earth’s surface are called landforms. In this concept, you’ll learn the</li> </ul> |

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|                            | <p>names of different landforms and examine the processes that form them. (Sessions 1-6)</p> <ul style="list-style-type: none"> <li>• <b>Soil Resources-</b> If you dig a hole, you will discover something very important about soil. Can you think of what it is? That's right---soil occurs in layers! In this concept, you'll discover that each layer has different properties and is made up of different materials. (Sessions 1-4)</li> <li>• <b>Sampling Soil-</b> The "dirt" that you often get on your clothes isn't just a problem to be cleaned up. It's a very special material known as soil. In this concept, you'll learn that soil is an important part of life on Earth. (Sessions 1-3)</li> </ul> <p><b>Unit: Objects in the Sky</b></p> <ul style="list-style-type: none"> <li>• <b>Planets in Our Solar System-</b> The other night you and your mother decided to go stargazing together. You sat down and looked at all the stars. But, while the stars are very far away, the planets in our solar system are relatively closer. In this concept, you'll learn about the Sun and all of the objects that orbit around it. (Sessions 1-5)</li> </ul> <p><b>Unit: The Sun's Effect on Earth</b></p> <ul style="list-style-type: none"> <li>• <b>Weather Data-</b> Your family watches the weather report every morning. It helps you prepare for the day's weather. You wonder how people will know what the weather will be like. In this concept, you'll investigate how people can forecast the weather and what tools they use. (Sessions 1-4)</li> <li>• <b>The Sun and the Water Cycle</b> (Sessions 1-3)</li> </ul> |
| <b>Core Labs</b>           | <p>Fred Fish<br/>Cleaning Up Oil<br/>Natural Resources Exploration<br/>Landforms<br/>A Tale of Time and Terrain/Water Shed<br/>Weathering- Sand on Stage/ Sedimentary and Metamorphic<br/>Rapid Change/ Not My Fault/ Igneous Rock<br/>Soil Structure/ Sifting/ Build Adobe Bricks<br/>Solar System Model<br/>Earth, Moon, and Sun Models</p>  |
| <b>Core Lab Extensions</b> | <p><b>Fred, the Fish / Environmental Conservation:</b> In the Fred, the Fish scenario, items such as oil, dirt, trash, salt, fertilizer, and chemicals caused pollution in the stream. <b>Write about the effects these items had on Fred and how he changed throughout the story. Your list of adjectives may be used in your response. Be sure to write your response in complete sentences.</b><br/><a href="http://www.brainpop.com/science/ourfragileenvironment/waterpollution/">http://www.brainpop.com/science/ourfragileenvironment/waterpollution/</a></p> <p><b>Cleaning Up the Oil:</b> In "Cleaning Up the Oil Spill", the problem was to clean up the oil spill. Write in complete sentences about an oil spill. In your response, try to include ways to reduce, reuse and recycle materials, conclude the best ways to clean up an oil spill and tell about where oil spills may occur. We're looking forward to your carefully written and elaborated response.</p>   |

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|                                   | <p><b>Natural Resources Exploration-Change Over Time:</b> Write about natural resources that are renewable, nonrenewable and inexhaustible. Infer and draw conclusions about how these resources are used. The following video may be helpful.<br/> <a href="http://www.brainpopjr.com/science/conservation/naturalresources/">http://www.brainpopjr.com/science/conservation/naturalresources/</a></p> <p><b>Landforms-Primarily Earth:</b> Choose several landforms and describe them. Write your response using complete sentences. The following educational video may be helpful:<br/> <a href="http://www.brainpopjr.com/science/land/landforms/">http://www.brainpopjr.com/science/land/landforms/</a></p> <p><b>Metamorphic Rock/Sedimentary Rock-Weathering:</b> <u>How are sedimentary rocks and metamorphic rocks formed? Use your lab experience to explain their formation.</u> The educational videos may be helpful.<br/> <a href="http://www.brainpop.com/science/earthsystem/rockcycle/">http://www.brainpop.com/science/earthsystem/rockcycle/</a><br/> <a href="http://www.brainpop.com/science/earthsystem/typesofrocks/">http://www.brainpop.com/science/earthsystem/typesofrocks/</a></p> <p><b>Rapid Change-Earth's Surface-Not My Fault / Igneous Rocks:</b> Our earth changes slowly and rapidly. Using your geology experience with the recent visit to the Perot Museum, your science lab experience and research such as the viewing the attached website and brain pop video (review one), write about how the earth changes both slowly and rapidly.<br/> <a href="http://www.fi.edu/fellows/fellow1/oct98/create/">http://www.fi.edu/fellows/fellow1/oct98/create/</a><br/> <a href="http://www.brainpop.com/science/earthsystem/rockcycle/">http://www.brainpop.com/science/earthsystem/rockcycle/</a></p> <p><b>Soil Structure: House of Pie, Slice of Bricks:</b> Write a paragraph about <u>how soils are formed</u> by the weathering of rock and the decomposition of organic material. Be sure to include the main idea in your paragraph.<br/> <a href="http://www.brainpop.com/science/earthsystem/soil/">http://www.brainpop.com/science/earthsystem/soil/</a></p> <p><b>Solar System Model:</b> We know that there are recognizable patterns among the objects in the sky. In lab your group constructed a model or illustration of our solar system. Name the planets in Earth's solar system and their position in relation to the Sun. Writing about building the model would be very interesting. The links below may be helpful.<br/> <a href="http://www.brainpopjr.com/science/space/solarsystem/">http://www.brainpopjr.com/science/space/solarsystem/</a><br/> <a href="http://safari.hpsid.org/SAFARI/montage/play.php?keyindex=14369&amp;location=local&amp;chapterskeyindex=18116&amp;play=1">http://safari.hpsid.org/SAFARI/montage/play.php?keyindex=14369&amp;location=local&amp;chapterskeyindex=18116&amp;play=1</a></p> <p><b>Earth, Sun, and Models:</b> Using the model and other factual information, write in complete sentences to explain the positions of the Sun, Earth and Earth's moon to each other. Include information about the revolutions (orbits). The educational video may be helpful. <a href="http://www.brainpop.com/science/weather/seasons/">http://www.brainpop.com/science/weather/seasons/</a></p> |
| <b>Challenge/ Extension</b>       | Elaborate Section for each part for Earth's Surface   |
| <b>Health: Coordinated School</b> | <i>Healthy and Wise: Elementary Online;</i> Monthly Newspaper- Sports, Exercise, Food, Health Research/Updates, Body Basics, Safety/Health Awareness, Relationships/Social/ Mental Health <a href="http://www.caprockpress.com">www.caprockpress.com</a>  |

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| <b>Health Program</b> | Grade 3 Health Textbook <a href="http://www.macmillanmh.com/health/2005/student/level1.php?isbn=002280384X&amp;st=tx">http://www.macmillanmh.com/health/2005/student/level1.php?isbn=002280384X&amp;st=tx</a>  |
| <b>Health TEKS</b>    | <p>(6) Influencing factors. The student understands factors that influence individual and community health. The student is expected to:</p> <p>(A) relate how protecting the environment promotes individual and community health;</p> <p>(B) identify common health problems that result from unhealthy environments such as skin cancer, poisoning, and respiratory illness;</p> <p>(D) Describe roles and responsibilities of family members in promoting and practicing health behaviors.</p> <p>(7) Influencing factors. The student comprehends ways in which media and technology influence individual and community health. The student is expected to:</p> <p>(A) describe how the media can influence knowledge and health behaviors; and</p> <p>(B) Identify ways in which health care has improved as a result of technology.</p> <p>(8) Personal/interpersonal skills. The student understands how relationships can positively and negatively influence individual and community health. The student is expected to:</p> <p>(B) Describe ways in which peers and families can work together to build a healthy community.</p> <p>(11) Personal/interpersonal skills. The student recognizes critical-thinking, decision-making, goal-setting, and problem-solving skills for making health-promoting decisions. The student is expected to:</p> <p>(A) practice critical-thinking skills when making health decisions;</p> <p>(B) gather data to help make informed health choices;</p> <p>(C) explain the positive and negative consequences of making a health-related choice;</p> <p>(D) explain the importance of seeking assistance in making decisions about health;</p> |