

<b>Grade:</b> Kindergarten <b>Subject:</b> Science	<b>Unit of Study: Earth and Space Science</b>
<b>Big Idea/Rationale</b>	<p>Kindergarten students have a natural curiosity about the world around them. We will use that sense of curiosity and wonder as we begin to study the world around us, starting with the most fundamental workings of our own planet Earth. By studying the Earth, Moon and Sun relationship we can answer fundamental questions such as “Why day and night exist?”, “What is the sun?”, “Why is the sky blue?” and many more. From there we can explore how the relationship between the Earth and Sun causes daily weather and the seasons and how those seasons in turn affect us and all life on the planet. Finally, having studied the most fundamental workings of our planet, we can celebrate its richness and promote good stewardship by exploring the everyday materials we get from the Earth and how waste recycling can help protect the miracle that is planet Earth. In doing all these things, students will also engage in science formally for the first time. They will begin to ask questions, gather data, formulate hypotheses and conduct tests. In doing so, they begin a journey that will last through their graduation from high school.</p>
<b>Enduring Understanding (Mastery Objective)</b>	<p><b>Space Science</b></p> <ul style="list-style-type: none"> <li>• A relationship exists among the sun, earth, and moon</li> <li>• Objects in the sky follow various patterns or cycles</li> <li>• The sun is important because it supplies light and heat to the Earth</li> <li>• The earth’s rotation causes change in day and night</li> <li>• The earth is composed of air, land, and water</li> </ul> <p><b>Weather &amp; Seasons</b></p> <ul style="list-style-type: none"> <li>• The sun affects weather</li> <li>• Weather changes affect our lives</li> <li>• Patterns help predict what happens next</li> <li>• Weather changes day to day</li> <li>• Weather can be measured</li> <li>• Seasons occur in patterns and change slowly</li> <li>• The seasons cause change in our life and environment</li> </ul> <p><b>Environmental Science</b></p> <ul style="list-style-type: none"> <li>• Some materials can be reused or recycled</li> </ul>
<b>Essential Questions (Instructional Objective)</b>	<p><b>Space Science</b></p> <ul style="list-style-type: none"> <li>• How can objects in the sky be classified?</li> <li>• What is the moon?</li> <li>• How do the sun and the moon differ?</li> <li>• How can you predict when you will see the sun or the moon in the sky?</li> <li>• What is the sun?</li> <li>• Why is the sun important to life on earth?</li> <li>• Why do we only see the sun in the daytime?</li> <li>• What can be observed about the sun, moon, and stars?</li> </ul>

	<p><b>Weather &amp; Seasons</b></p> <ul style="list-style-type: none"> <li>• What is weather?</li> <li>• How does the sun affect weather?</li> <li>• How can weather changes be recorded?</li> <li>• Why is it important to know about weather changes?</li> <li>• How does weather affect your daily activities?</li> <li>• What type of organizational tool can we use to help us remember and compare weather changes?</li> <li>• What makes each season different?</li> <li>• What is the weather usually like in the Fall, Winter, Spring, and Summer?</li> </ul> <p><b>Environmental Science</b></p> <ul style="list-style-type: none"> <li>• How can materials be reused or recycled?</li> <li>• Why is it important to recycle materials?</li> </ul>
<p><b>Content (Subject Matter)</b></p>	<ul style="list-style-type: none"> <li>• <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>○ Distinguish between celestial bodies and other objects in the sky.</li> <li>○ Using the globe and flashlight students will observe a demonstration of how the earth, sun and moon rotate and orbit to create day and night and stages of the moon.</li> <li>○ Students will create a mobile by making cut and paste models of the earth, moon and stars.</li> </ul> </li> <li>• <b>Read and discuss the following non-fiction texts:</b> <ul style="list-style-type: none"> <li>○ <u>Out in Space (big book)</u></li> <li>○ <u>Exploring Space</u></li> <li>○ <u>The Solar System</u></li> <li>○ And other related non-fiction</li> </ul> </li> <li>• Read and discuss Scholastic Newspaper “Let’s Find Out”</li> <li>• Music/Movement activities: “Countdown to Blastoff”, “Planet Song”</li> <li>• Recognize that objects in the sky follow various patterns or cycles</li> <li>• Explain that the sun can be seen only in the daytime, but the moon can be seen sometimes at night and sometimes during the day.</li> <li>• Describe changes that occur in the sky, as day turns into night, during the night, and as night turns into day.</li> <li>• Students will observe a daytime moon.</li> <li>• Draw and measure shadows at various time of the day.</li> <li>• Students will match pictures to the phrases “It is day”, “It is night” to complete a mini-book.</li> <li>• Students will draw a picture to match the words “This is day”, “This is Night”</li> <li>• Read and discuss various fiction and non-fiction books</li> <li>• Explain what the sun is and why the sun’s heat and light are important to living things</li> <li>• Read and discuss <u>The Sun</u></li> </ul>

- Observe and record differences in day and night
- Make a class timeline of things that happen during the day and things that happen at night
- Listen to a book about the day sky and/or night sky and draw pictures about the story.

### **Weather & Seasons**

- Describe how the sun affects weather
- Read and discuss :
  - Who Cares About the Weather?
  - The Four Seasons
  - Read and discuss Scholastic Newspaper “Let’s Find Out”
- Record weather changes using words and/or pictures and connect the importance of weather to daily activities
- Record weather indicators daily (sunny, cloudy, partly cloudy, rainy, windy, snowy).
- Graph weather trends on a graph and analyze patterns.
- Students will record the daily weather on a class picture chart.
- Students will analyze the data and develop a monthly pictograph based on the daily graph.
- Students will record daily temperature on a class thermometer and discuss changes
- Read and discuss Scholastic Newspaper “Let’s Find Out”
- Name the four seasons & Place the four seasons in order.
- Describe changes that they encounter in their daily life based on the season.
- Compare and contrast the characteristics of different seasons.
- Read and discuss non-fiction The Four Seasons and other related fiction and non-fiction literature
- Students will make a class mural of Schoenly School and its surroundings in the fall, winter, spring and summer.
- Students will play a relay game and be able to find the appropriate clothing to match the season named
- Read and discuss Scholastic Newspaper “Let’s Find Out”
- There will also be appropriate activities conducted throughout the school year, as follows:
  - **FALL**
    - Sponge paint leaf shapes using fall colors
    - Take a walk outside to observe signs of fall-
    - Collect fall objects (leaves, acorns, pine cones) into a paper bag
    - Complete Fall mini-book “A Walk in The Park”
    - Music/Movement Activities- “Autumn Leaves Are Falling Down”

	<ul style="list-style-type: none"> <li>○ <b>WINTER</b> <ul style="list-style-type: none"> <li>▪ Observe how water freezes</li> <li>▪ Using chalk/white crayons students will create a snow scene</li> <li>▪ Read, discuss, sequence on flannel board <u>The Jacket I wear in the Snow</u>”</li> <li>▪ Read <u>The Snow, Going to School, Winter</u></li> <li>▪ Music/Movement Activities- “Snow on My Forehead” Five Little Snowmen”</li> </ul> </li> <li>○ <b>SPRING</b> <ul style="list-style-type: none"> <li>▪ Using q-tips and tissue paper create a spring scene with pussy willows and forsythias</li> <li>▪ Take a walk outside to observe signs of spring and illustrate what they observed</li> <li>▪ Read and discuss related literature/poems</li> </ul> </li> <li>○ <b>SUMMER</b> <ul style="list-style-type: none"> <li>▪ Read and discuss Scholastic Newspapers about summer</li> <li>▪ Read and discuss books about summer</li> <li>▪ Write about what they will be doing in the summer (“On the first day of summer I will...”)</li> </ul> </li> <li>● <b><u>Environmental Sciences</u></b> <ul style="list-style-type: none"> <li>○ Sort items according to environmental guidelines for recycling</li> <li>○ Read <u>Where Does All the Garbage Go?</u></li> <li>○ Students will read and recite various Earth Day poems</li> <li>○ Students will be able to sort pictures based on how they are recycled (paper, aluminum, glass, plastic)</li> <li>○ Students will complete writing project “On Earth Day I will _____”.</li> </ul> </li> <li>● <b>Unit Vocabulary:</b> seasons, winter, predicting, snow, fog, measurement, temperature, fall, spring, winter, summer, wind, change, observing, autumn, rain, clouds, hot, cold, warm, record, data, recycle, reuse, environment, sun, moon, stars, planets, rotation, day, night</li> </ul>
<p><b>Skills/ Benchmarks (CCSS Standards)</b></p>	<ul style="list-style-type: none"> <li>● 5.1.P.A.1 Display curiosity about science objects, materials, activities, and longer-term investigations in progress.</li> <li>● 5.1.P.B.2 Use basic science terms and topic-related science vocabulary.</li> <li>● 5.1.P.C.1 Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions.</li> <li>● 5.1.P.D.1 Represent observations and work through drawing, recording data, and “writing.”</li> <li>● 5.2.P.E.1 Investigate how and why things move (e.g., slide blocks, balance structures, push structures over, use ramps to explore how far and how fast different objects move or roll).</li> <li>● 5.4.2.A.1 Determine a set of general rules describing when the Sun and Moon are visible based on actual sky observations.</li> </ul>

	<ul style="list-style-type: none"> <li>• 5.4.4.A.1 Formulate a general description of the daily motion of the Sun across the sky based on shadow observations. Explain how shadows could be used to tell the time of day.</li> <li>• 5.4.4.A.2 Identify patterns of the Moon’s appearance and make predictions about its future appearance based observational data.</li> <li>• 5.4.P.F.1 Observe and record weather.</li> <li>• 5.4.2.F.1 Observe and document daily weather conditions and discuss how the weather influences your activities for the day.</li> </ul>
<p><b>Materials and Resources</b></p>	<ul style="list-style-type: none"> <li>• This curriculum is primarily based on Full Option Science System (FOSS) Magnetism and Electricity curriculum, with multiple supplementary resources.</li> <li>• Teacher Guides: The following guides are aligned with the state standards and accompany the modules. <ul style="list-style-type: none"> <li>○ Magnetism and Electricity Teacher’s Guide</li> </ul> </li> <li>• The Following Books will also be utilized: <ul style="list-style-type: none"> <li>○ Stars and Planets by Angela Royston (Code: 520 Roy)</li> <li>○ The Planets by Jenny Tesar (Code: 523.4 Tes)</li> <li>○ Space Travel by Jenny Tesar (Code: 629.45 Tes)</li> <li>○ Earth by David Bennett (Code: 551.5 Ben)</li> <li>○ Phases of the Moon by Gillia M. Olson (523.3 Ols)</li> <li>○ Postcards from Pluto: A Tour of the Solar System by Loreen Leedy (Code: 523.2 Lee)</li> <li>○ You’re Aboard Spaceship Earth by Patricia Lauber (Code: 550 Lau)</li> <li>○ Flash, Crash, Rumble and Roll by Franklin M. Branley (Code: 551.4 Bra)</li> <li>○ What Will the Weather Be? by Lynda DeWitt (Code: DeW)</li> <li>○ When Winter Comes by Nancy Van Laan (Code: E Van)</li> </ul> </li> <li>• <b>Web Resources:</b> <ul style="list-style-type: none"> <li>○ <a href="http://www.wxdude.com/">http://www.wxdude.com/</a></li> <li>○ <a href="http://earthsky.com/Kids">http://earthsky.com/Kids</a></li> <li>○ Use KidPix to draw the daytime sky and nighttime sky.</li> <li>○ Use Sammy’s Science House, “Make-A-Movie”, to show day and night.</li> <li>○ Use Thinkin’ Science, “Day and Night”, to view the day and nighttime sky.</li> </ul> </li> </ul>
<p><b>Notes</b></p>	