

### Unit Lesson Plan – Earth’s Systems

<b>Teacher:</b>		<b>Time Frame:</b>	16 days
<b>Grade:</b>	5	<b>School:</b>	
<b>Subject:</b>	PSI Middle School Science		

<p><b>NGSS/DCI</b></p> <p><b>5-ESS2-A: Earth Materials and Systems</b></p> <p><b>5-ESS2.C: The Roles of Water in Earth’s Surface Processes</b></p>	<p>Earth’s major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans).</p> <p>These systems interact in multiple ways to affect Earth’s surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)</p> <p>Nearly all of Earth’s available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)</p> <p><a href="http://www.nextgenscience.org/5ess2-earth-systems">http://www.nextgenscience.org/5ess2-earth-systems</a></p>
<p><b>Instructional Objective:</b> 5-ESS2-1:</p>	<p><b>Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</b></p>
<p><b>Instructional Objective:</b> 5-ESS2-2:</p>	<p><b>Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.</b></p>

### Essential Questions

**(What questions will the student be able to answer as a result of the instruction?)**

1. What are the four major systems that make up our Earth and how do they interact?
2. What are the four layers of the Earth and what are the characteristics of each?
3. What are the components of our atmosphere and how is the atmosphere affected by animals and plants?
4. Where is the water on Earth located? How much of this water is usable by humans?
5. What effect does ocean water have on the nearby land?

### Knowledge & Skills

**(What skills are needed to achieve the desired results?)**

<p>By the end of this unit, students will know:</p> <ul style="list-style-type: none"> <li>• Earth is a nonliving object that is made up of four major systems.</li> <li>• The Earth’s geosphere is composed of four distinct layers.</li> <li>• Animals and plants rely on each other to create the gases needed for survival.</li> <li>• The ozone layer protects us from the Earth’s harmful UV rays.</li> </ul>	<p>By the end of this unit, students will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the four major systems of the Earth.</li> <li>• Differentiate between the different layers of the Earth based on distinct characteristics.</li> <li>• Explain the relationship between plants and animals when it comes to the production of oxygen and carbon dioxide.</li> <li>• Describe how life on Earth would be different if the ozone layer continues to be depleted.</li> <li>• Interpret and create graphs that represent the location of both salt and fresh water on Earth.</li> </ul>
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<ul style="list-style-type: none"> <li>The vast majority of water on Earth is salt water and unusable. Most of the water that is usable is trapped in glaciers.</li> <li>Areas that are near water will have milder climate changes because the ocean will slowly absorb and release heat.</li> </ul>	<ul style="list-style-type: none"> <li>Analyze lab results that suggest that areas near water will see milder temperature fluctuations than areas that are further inland.</li> </ul>
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**Assessment**

**(What is acceptable evidence to show desired results (rubrics, exam, etc.)? Attach Copy**

During the Smart Notebook lesson designed to introduce concepts, students will be continually questioned on these concepts using a combination of class work/homework questions and the SMART Response system. Classwork and Homework questions will be discussed as a class.

Quiz 1 – Geosphere  
 Quiz 2 – Atmosphere  
 Activity – Graphing Water  
 Lab – Water’s Effect on the Environment  
 Quiz 3 – Hydrosphere  
 Activity – Sphere Interactions  
 Quiz 4 - Biosphere  
 Unit Test

**(What is the sequence of activities, learning experiences, etc, that will lead to desired results (the plan)?**

Day	Topic	Classwork	Homework
1	Geosphere	Slides #1-19	N/A
2	Geosphere	Slides #20-28 Questions #1-5	Questions #6-10
3	Atmosphere	Slides #29-47	Study for quiz
4	Geosphere	Quiz #1 Geosphere; Questions #11-15	Questions #16-20
5	Atmosphere	Slides #48-61 Questions #21-23	Study for quiz

6	Atmosphere	Quiz #2 Atmosphere; Slide #62 Begin Activity – Graphing Water	Questions #26-27
7	Hydrosphere	Slide #62; Continue Activity – Graphing Water	Finish Activity
8	Hydrosphere	Slides #63 - 75 Questions #24-25	Questions #28-30
9	Hydrosphere	Slides #76-78; Lab: Water’s Effect on the Environment	Finish Activity
10	Biosphere	Slides #79-98	Study for quiz
11	Hydrosphere; Biosphere	Quiz #3 Hydrosphere; Question #31	Question #34-35
12	Biosphere	Slide #99 Activity – Sphere Interactions	Finish Activity
13	Biosphere	Review Sphere Interactions; Question #32-33	Study for quiz
14	Biosphere	Quiz #4 Biosphere; Study Guide	Study Guide
15	Review	Study Guide; Review Game	Study for test
16	Unit Test	Unit Test	N/A

\*While there are many slides for each topic, several slides within the notebook are hidden and won't be used during instructional time.

\*\*HW Problems are currently not scaffolded from least to most difficult, but are instead listed in order of topic. Teacher should pay special attention at the end of each class period when assigning HW so that only problems related to the topic that was taught are being assigned.

\*\*\*Pacing guide is based on 40 minute class periods, you may need to adjust based on your school's schedule.