

**KNME K-5 Lesson Plan**  
**APS @Home**  
**APS Curriculum and Instruction TLN**

<b>Title of Lesson: Ecosystems-Biotic/Abiotic</b>	<b>Submitted by: Vince Case &amp; Steven Henley</b>
<b>Content Area: Science, grades 4 &amp; 5</b>	
<b>Materials Needed: Paper and pencil &amp; outdoor area (or window &amp; kitchen)</b>	
<b>Handouts Attached Below: Abiotic-Biotic T-chart</b>	
<b>Standard Addressed: NGSS 5-LS2 Ecosystems: Interactions, Energy &amp; Dynamics (see attached NGSS standards sheet for full information)</b>	
<b>Skill to be Maintained: Understanding that ecosystems are made up of two parts – abiotic (non-living) and biotic (living). Observation skills activity</b>	
<b>Essential Question: <i>What are the main parts of an ecosystem?</i></b>	
<b>Academic Vocabulary/Word Wall words: Ecosystem, abiotic, biotic</b>	
<b>Brain Drain or Warm Up Activity: N/A</b>	
<p><b>Basic Lesson Description and Procedure:</b></p> <ol style="list-style-type: none"> <li>1. Students watch the video at the SMNHC</li> <li>2. Students write down the word “Ecosystem”</li> <li>3. Students learn about different kinds of systems – digestive, solar, computers - that there are parts to all kinds of systems – and human beings exists within systems – every system has multiple parts</li> <li>4. Students draw a T-chart broken into two parts (see attached worksheet)</li> <li>5. Students take a moment to look outside a window and look for natural things within the natural ecosystem (not human-made things)</li> <li>6. Students follow instructor and write down a few living (biotic) and non-living (abiotic) things grouped in categories (e.g., pine trees, sandstone-rocks, grass) and learn the meaning of the prefix “bio” (life, living things, etc.) and “a” (not, non-). Students also learn that dead things came from living things and are different than non-living (never alive) things.</li> <li>7. Students complete an observation activity outside, with grown-ups permission, or if not possible to go outside, students look out a window and/or their kitchen, to add abiotic and biotic things to their t-chart.</li> </ol>	
<b>Observation Activity:</b> With permission from a grown-up, go outside, look out a window, or look in your kitchen-home-apartment to find at least 10 more examples (in total) of abiotic and biotic things.	
<b>Lesson Conclusion/Potential Practice at Home:</b> Students keep their t-charts for the next segment on ecosystems from the SMNHC to help them in the next lesson.	
<b>Accommodations-Modifications:</b> Just about any grade level can do this lesson and activity	

# Abiotic & Biotic Parts of Ecosystems

## Outdoor Activity

### Directions:

- 1 - Watch the Abiotic-Biotic lesson
- 2 – Get a grown-up’s permission to do this 10-15 minute activity.
- 3 – Go outside your home-apartment if safe, or look outside a window and in your kitchen.
- 4 – Find at least 10 more examples of natural abiotic and biotic things to add to your t-chart.
- 5 – You can draw pictures and write words.
- 6 – Remember to look for things that are naturally-occurring and not human-made things.

Abiotic (non-living things)	Biotic (living things; dead too!)
Rocks-Sandstone Air	Pine Tree Grass Crows Dead branch

## 5-LS2 Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

- 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.** [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

5-LS2 Ecosystems: Interactions, Energy, and Dynamics		
<p><b>Science and Engineering Practices</b></p> <p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 models and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model to describe phenomena. (5-LS2-1)</li> </ul> <p><b>Connections to the Nature of Science</b></p> <p><b>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</b></p> <ul style="list-style-type: none"> <li>Science explanations describe the mechanisms for natural events. (5-LS2-1)</li> </ul>	<p><b>Disciplinary Core Ideas</b></p> <p><b>LS2.A: Interdependent Relationships in Ecosystems</b></p> <ul style="list-style-type: none"> <li>The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</li> </ul> <p><b>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</b></p> <ul style="list-style-type: none"> <li>Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)</li> </ul>	<p><b>Crosscutting Concepts</b></p> <p><b>Systems and System Models</b></p> <ul style="list-style-type: none"> <li>A system can be described in terms of its components and their interactions. (5-LS2-1)</li> </ul>

**Connections to other DCIs in fifth grade:**

**5.ESS2.A** (5-LS2-1); **5.PS1.A** (5-LS2-1)

**Articulation of DCIs across grade-levels:**

**2.PS1.A** (5-LS2-1); **2.LS4.D** (5-LS2-1); **4.ESS2.E** (5-LS2-1); **MS.PS3.D** (5-LS2-1); **MS.LS1.C** (5-LS2-1); **MS.LS2.A** (5-LS2-1); **MS.LS2.B** (5-LS2-1)

**Common Core State Standards Connections:**

ELA/Literacy -

**RI.5.7** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. *(5-LS2-1)*

**SL.5.5** Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. *(5-LS2-1)*

Mathematics -

**MP.2** Reason abstractly and quantitatively. *(5-LS2-1)*

**MP.4** Model with mathematics. *(5-LS2-1)*