

KNME K-5 LESSON PLAN
APS @Home
APS Curriculum and Instruction TLN

Title of Lesson: Ecosystem 4-square chart	Submitted by: Vince Case & Steven Henley
Content Area: Science, grades 4-5	
Materials Needed: paper and pencil	
Handouts Attached: four square chart	
Standard Addressed: NGSS 5-LS2 Ecosystems: Interactions, Energy & Dynamics (see attached NGSS standards sheet for full information)	
Skill to be Maintained: Understanding the relationships of essential parts of an ecosystem (abiotic, producers, consumers, decomposers). Observation skills activity.	
Essential Question: How do the main parts of an ecosystem interact with one another?	
Academic Vocabulary/Word Wall words: abiotic, producers, consumers, decomposers	
Brain Drain or Warm Up Activity: N/A	
<p>Basic Lesson Description and Procedure:</p> <ol style="list-style-type: none"> 1. Students will review the definitions of abiotic and biotic things. 2. Students draw a four-square chart and will label the chart during the video. 3. Under the abiotic parts, students will learn the acronym "SAWS" that represent Soil, Air, Water, Sunlight. 4. Students will understand that all energy in the ecosystem begins with energy from the sun in the form of sunlight. 5. Students will connect the four ecosystem components with wavy energy arrows to demonstrate the flow of energy within and among the ecosystem parts. 6. Students will learn about producers (plants that make their own food or energy with the sunlight). 7. Students will learn about consumers (animals that eat food to get energy) and review different kinds of consumers (herbivores, carnivores, and omnivores). 8. Students will learn about decomposers (living things that break down and get their energy from dead things). 9. Students review each of these four main parts (abiotic, producers, consumers, and decomposers) to understand where energy on planet earth comes from. 10. Students will complete an observation activity outside, with grown-up permission, or if not possible to go outside, students look out a window and/or their kitchen, to add observations of abiotic, producers, consumers, and decomposers (all 3 are biotic things) to their four-square chart. 	
Observation activity: With permission of a grown-up, go outside, look out a window, or look in your kitchen-home-apartment to find at least 15-20 more examples (in total) of things that fit in the four categories.	
Lesson Conclusion/Potential Practice at Home: Students keep their 4-square charts for the next segment on ecosystems from the SMNHC to help them in the next lessons.	
Accommodations-Modifications: Just about any grade level can do this lesson and activity	

Essential Parts of Ecosystems

Abiotic Factors, Producers, Consumers & Decomposers

Outdoor-Follow-up Activity

Directions:

- 1 - Watch the Essential Parts of Ecosystems (Abiotic Factors, Producers, Consumers & Decomposers) video lesson
- 2 – Get a grown-up’s permission to do this 15-20 minute activity.
- 3 – Go outside your home-apartment if safe, or look out a window and in your kitchen.
- 4 – Find at least 15-20 more examples of natural abiotic and biotic things to add to your 4-square chart below.
- 5 – You can draw pictures and write words of things that you observe.
- 6 – Remember to look for things that are naturally-occurring and not human-made things that are additional examples of abiotic things, producers (plants), consumers (animals), and decomposers (things that break down dead things).

S A W S	<u>Abiotic</u>	<u>Producers (plants)</u>
	<u>Decomposers</u>	<u>Consumers (animals)</u>

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.]

The performance expectations above were developed using [the following elements from the NRC document *A Framework for K-12 Science Education*](#):

<u>Science and Engineering Practices</u>	<u>Disciplinary Core Ideas</u>	<u>Crosscutting Concepts</u>
<p>Developing and Using Models 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"> Develop a model to describe phenomena. (5-LS2-1) <p><u>Connections to the Nature of Science</u></p> <p>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</p> <ul style="list-style-type: none"> Science explanations describe the mechanisms for natural events. (5-LS2-1) 	<p>LS2.A: Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> 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) <p>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</p> <ul style="list-style-type: none"> 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) 	<p>Systems and System Models</p> <ul style="list-style-type: none"> A system can be described in terms of its components and their interactions. (5-LS2-1)

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)