

# Chihuahuan Desert Ecosystem

## Investigation Information and Standards Alignment

**Subject**

Science

**Discipline**

Life Science

**Grade band**

3-5

**Description of Investigation**

Students figure out changes in the plants or animals in ecosystem affect the other members of the food web and how it affects the flow of energy in a food web.

**Core Idea(s)**

ELS6: Interactions and Relationships in Ecosystems

ELS4: Matter and Energy Cycles and Processes

**Practices**

SEP1: Asking questions and defining problems

SEP2: Developing and using models

SEP3: Planning and carrying out investigations

SEP6: Constructing explanations and designing solutions

SEP7: Engaging in argument from evidence

SEP8: Obtaining, evaluating, and communicating information

**Crosscutting Concepts**

CC2: Cause and effect

CC7: Stability and change

**Alignment with Academic Standards for Science**

Teachers can use this investigation to help students reach any of the performance expectations for science that are listed in the table below.

Source	Code	Performance Expectation, Benchmark or Standard
NGSS (and state standards based on the NGSS)	5-LS2-1	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
Alabama	5.11	Create a model to illustrate the transfer of matter among producers; consumers, including scavengers and decomposers; and the environment.
Arizona	3.L2U1.7	Develop and use system models to describe the flow of energy from the Sun to and among living organisms.
Colorado	5-LS2-1	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
Florida	SC.4.L.17.3C	Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.
Georgia	S4L1.b	Develop simple models to illustrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers.
Indiana	4.5	Compare and contrast how plants and animals meet their energy needs. Describe how all animals are directly or indirectly dependent upon plants for their food.

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Minnesota	5.4.2.1.2	Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.
Mississippi	L.5.3B.3	Design and interpret models of food webs to justify what effects the removal or the addition of a species (i.e., introduced or invasive) would have on a specific population and/or the ecosystem as a whole
Missouri	5. LS2.B.1	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
Montana	5-LS1.C	develop and critique a model to describe the movement of matter among plants, animals, decomposers, and the environment
Nebraska	SC.5.8.2.C	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
North Carolina	5.L.2.3	Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.
Ohio	5.LS.2	All of the processes that take place within organisms require energy.
South Carolina	5.L.4B.2 5.L.4B.3	Develop and use models of food chains and food webs to describe the flow of energy in an ecosystem. Construct explanations for how organisms interact with each other in an ecosystem (including predators and prey, and parasites and hosts).
Texas	5.12B	Predict how changes in the ecosystem affect the cycling of matter and flow of energy in a food web
Utah	5.3.3	Develop and use a model to describe the movement of matter among plants, animals, decomposers, and the environment.
Virginia	4.5.c	The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. c) flow of energy through food webs;
Wyoming	3-LS4-4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change

### Alignment with Common Core State Standards for English Language Arts

Teachers can use this investigation to help students reach any of the performance expectations for reading, writing, or speaking and listening that are listed in the table below. For this investigation, we list the grade 5 standards, as these are the targets for students in the grade range this investigation is intended to be used.

Strand	Code	Standard
Reading	RI.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
	RI.5.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

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	RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
	RI.5.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
	RI.5.8	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
	RI.5.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.
Writing	W.5.2.	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
	W.5.2.A	Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
	W.5.2.B	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
	W.5.2.C	Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).
	W.5.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.
	W.5.2.E	Provide a concluding statement or section related to the information or explanation presented.
	W.5.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
	W.5.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
	W.5.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.
	W.5.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
Speaking and Listening	SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
	SL.5.1.A	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
	SL.5.1.B	Follow agreed-upon rules for discussions and carry out assigned roles.

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	SL.5.1.C	Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
	SL.5.1.D	Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
	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.
	SL.5.6	Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation.

### Alignment with English Language Proficiency Standards

Teachers can use this investigation to help emerging multilingual students reach the performance expectations for English language proficiency listed in the table below.

Modality	Code	Standard
Receptive	ELP 1	Construct meaning from oral presentations and literary and informational text through grade-appropriate listening, reading, and viewing.
	ELP 8	Determine the meaning of words and phrases in oral presentations and literary and informational text.
	ELP 3	Speak and write about grade-appropriate complex literary and informational texts and topics.
Productive	ELP 4	Construct grade-appropriate oral and written claims and support them with reasoning and evidence.
	ELP 7	Adapt language choices to purpose, task, and audience when speaking and writing.
	ELP 9	Create clear and coherent grade-appropriate speech and text.
	ELP 10	Make accurate use of standard English to communicate in grade-appropriate speech and writing.
	ELP 2	Participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions.
Interactive	ELP 5	Conduct research and evaluate and communicate findings to answer questions or solve problems.
	ELP 6	Analyze and critique the arguments of others orally and in writing.