

Science Vocabulary Lesson

Level

4th Grade

Abstract

This lesson will help students to build their vocabulary and their vocabulary building skills. Students will need to look up scientific and related definitions. These definitions will be used in a game for the entire class. Finally, students will compile the definitions and word origin knowledge they have gained into a graphic presentation.

Objectives

Students will be able to:

- ✓ Define producer, consumer, omnivore, herbivore, carnivore, decomposer and scavenger
- ✓ Describe how words can be broken down into parts that are derived from root words and affixes
- ✓ Identify simple vocabulary building patterns of the English language
- ✓ Predict the meaning of root words and affixes based on understanding the definition of complete words
- ✓ Organize words by their roots
- ✓ Work as part of a team to achieve common goals
- ✓ Use a dictionary to look up and copy definitions of words with their parts of speech.

Targeted Standard

California English-Language Arts Standards, Grade 4

Reading 1 *Students understand the basic features of reading. They select letter patterns and know how to translate them into spoken language by using phonics, syllabication, and word parts. They apply this knowledge to achieve fluent oral and silent reading*

Vocabulary and Concept Development

- 1.2** *Apply knowledge of word origins, derivations, synonyms, antonyms, and idioms to determine the meaning of words and phrases.*
- 1.3** *Use knowledge of root words to determine the meaning of unknown words within a passage.*
- 1.4** *Know common roots and affixes derived from Greek and Latin and use this knowledge to analyze the meaning of complex words (e.g. international).*

California Science Standards, Grade 4

Life Sciences 2 *All organisms need energy and matter to live and grow. As a basis for understanding this concept:*

- b.** *Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.*
- c.** *Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.*

Materials

- ☐ Definition Discovery Worksheet - one for every student or every student pair
- ☐ Dictionaries - one for every student pair, if done in class
- ☐ Vocabulary Challenge Scoring Sheet - one for the game
- ☐ Buzzers or bells for game (optional)
- ☐ Hat, bowl, bag, or bucket to pull words out of
- ☐ Final Jeopardy Sheet
- ☐ Large Sheets of Paper or Posterboard
- ☐ Self adhesive sticky notes (Post-Its) - 4 pads per class
- ☐ Pens, pencils, crayons, or markers - enough for entire class

Implementation Overview

Time Allotment: 1 hour and 15 minutes

This lesson consists of three related activities: 1) Definition Discovery, 2) Vocabulary Challenge, and 3) Etymology Explanation. The class will need to be divided into two teams for the Vocabulary Challenge

and Etymology Explanation, with the students remaining in the same group for each activity.

Part 1: Definition Discovery

Time Allotment: 15 minutes (in class) or as homework

This exercise can be done individually or in pairs, as an in-class assignment or for homework. It is best assigned as homework if you know your students will have access to a good dictionary or to a computer at home, otherwise, Definition Discovery will need to be done in class.

1. You will need to divide your class into the two teams, and assign members from each team to look up the words on the Definition Discovery Worksheet. Each team looks up all of the words. (If your students are unfamiliar with how to do so, you will need to demonstrate how to use a dictionary which will add an additional 15-20 minutes for the activity.)
2. Students will need to look up their assigned words, and write their definitions on the Definition Discovery Worksheet.
3. Have each team come together to share their definitions, so that all members of both teams have all of the definitions.
4. Ask if students have any questions before you proceed to the Vocabulary Challenge.

Part 2: Vocabulary Challenge

Time Allotment: 30 minutes

The goal of this game is to reinforce the definitions students looked up in the Definition Discovery component of the lesson. Each student will be in charge of knowing the definitions of the words they were assigned to look up.

Preparation for the game:

1. Copy the Definition Discovery Worksheet so that you have a complete single-sided copy of the sheet.
2. Cut the words into strips so that each word is on its own piece of paper.
3. Place the words into a hat/bowl/bag, etc.

To play the game:

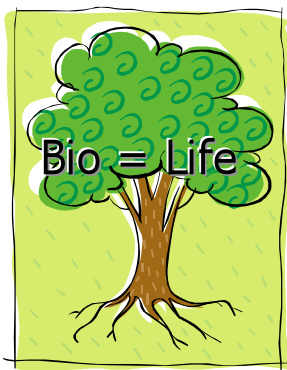
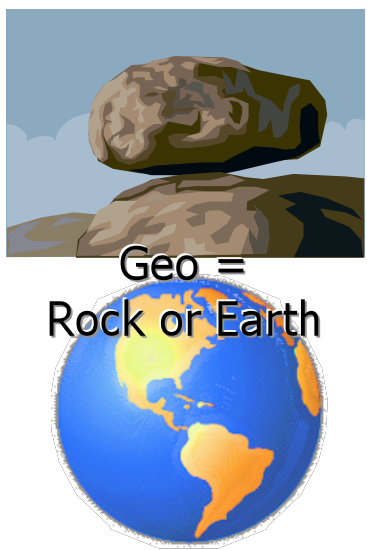
1. Divide students into their two previously decided teams.
2. Explain to them that words will be picked out of a hat/bowl/bag, etc. at random. Each team will need to buzz (or raise their hand if a buzzer is unavailable), in with the answer. The first team to buzz will need to answer immediately. If they are unable to begin their answer within two (2) seconds, they will lose a point (to discourage buzzing just to be first). If the team buzzes and provides the wrong definition, the second team has three (3) seconds to begin their answer (use your judgment if stammering is genuine or just a stall tactic).
3. Also explain that grading for this activity is not solely knowledge-based and that they are being graded on their behavior during the game too. You might want to share the grading rubric included at the end of the lesson with your students.
4. Begin the game, keeping track of the two team's scores. (You can also allow children who missed the Definition Discovery component of the lesson to keep track of correct/incorrect definitions and scoring).
5. When all words have been defined, move on to Final Jeopardy: based on their research, as well as looking at all of the words they have defined this day, students will need to decide the meaning of the following root words/affixes: omni-, de-, carn-, herb, compose, vore, produce, consume, -er
6. Students will need to bet the points they have earned during the rest of the game against how sure they are they got the root words/affixes correct. For example, students can bet 1-3 points

per term they get correct. So, if going into Final Jeopardy, the team has 15 points, and they get five of the Final Jeopardy terms wrong, and have bet 3 points each, the team would end up with no points at the end of the game, therefore, strategy is important.

Evaluation – Etymology Explanation (Part 3)

Time Allotment: 30 minutes

Students will need to create a poster summarizing the definitions and the meaning of their root words. Each student will need to write the definition for the words they looked up on post-it notes, one word and definition per post it. Then students will need to group the post-its for similar words together on a bigger sheet. The root word or term should also be added to the grouping. Those students more artistically inclined should be encouraged to represent the information pictorially as well as in words. (See example below)

Biology: (n) the study of life and living things	Biome: (n) a major ecologi- cal community	
Biologist: (n) someone who studies biology	Biography: (n) a written history of a person's life	
	Geology: (n) the study of the earth and rocks	Geode: (n) a nodule of stone having a cavity lined with crystals
	Geologist: (n) someone who studies the earth and rocks	Geometry: (n) a branch of math dealing with shapes and surfaces

Root Words

Producer – from Latin produco or productus = to make

Consumer – from Latin consume or consumptus = to take in or eat

Decomposer – from Latin compono or compositus = to put together; de = opposite of (Latin)

Herbivore – from Latin herba = plant; from voro or voratus = to eat

Omnivore – from Latin omnis = all; from voro or voratus = to eat

Carnivore – from Latin carnis = flesh; from voro or voratus = to eat

Scavenger – from Middle English skawager = street collector



Definition Discovery Worksheet

Name: _____

Team: _____

Word	Part of Speech	Definition
Carnage		
Carnal		
Carnival		
Carnivora		
Carnivore		
Carnivorous		
Compose		
Composite		
Composition		
Compost		
Composure		
Decompose		
Decomposer		
Decongestant		
Decontaminate		
Decrease		
Deduce		
Deduct		
Default		
Dehydrate		

Herb		
Herbaceous		
Herbal		
Herbalist		
Herbarium		
Herbicide		
Herbivore		
Herbivorous		
Omnibus		
Omnifarious		
Omnificent		
Omnipotence		
Omnipotent		
Omnipresence		
Omnipresent		
Omniscience		
Omniscient		
Omnivore		
Omnivorous		
Scavenge		
Scavenger		
Scavenger Hunt		
Voracious		
Voracity		



Science Vocabulary Lesson Sample Grading Rubric

	Categories	1	2	3	4
Definition Discovery	Assignment Completion	Student did not look up his/her words, or did not record them at all	Student did not look up all of his/her words or did but provided inadequate definitions for them	Student looked up definitions for all his/her words and provided adequate definitions for all of them	Student looked up definitions for all his/her words and provided thorough definitions for all of them
	Written Presentation	Student's definitions are illegible	Student's definitions are somewhat understandable	Student's definitions are legibly written	Student's definitions are neatly and very legibly written
	Team Work	Student refused to cooperate or share definitions with his/her team	Student was reluctant to share definitions or difficult to work with his/her team	Student shared definitions easily with his/her group and worked well as a part of the team	Student was a group leader in facilitating definition sharing, and readily contributed his/her own definitions
Vocabulary Challenge	Sportsmanship	Student discouraged other team members	Student did not interact with other team members	Student allowed other members to participate	Student encouraged fellow team members to participate
	Attitude	Student did not participate in the activity	Student was reluctant to participate in the activity	Student participated freely in the activity	Student enthusiastically participated in the activity
	Team Work	Student did not contribute to Final Jeopardy discussion	Student reluctantly participated in Final Jeopardy discussion	Student participated in the Final Jeopardy discussion	Student actively participated in the Final Jeopardy discussion and deliberation
	Preparation	Student was unable or unwilling to provide definitions for his/her words	Student needed assistance from team members in providing definitions for his/her words	Student provided an adequate definition for his/her words	Student provided an accurate definition for his/her words
	Oral Presentation	Student mumbled words or was incomprehensible	Student was difficult to understand	Student spoke clearly but quietly	Student spoke clearly and could be easily heard
Etymology Explanation	Written Presentation	Student wrote definitions illegibly on post-its	Student wrote definitions in a somewhat understandable manner	Student wrote definitions legibly on post-its	Student wrote definitions neatly and legibly on post-its
	Team Work	Student did not work as a part of the team	Student was reluctant to work with the team	Student worked with the team to complete the project	Student worked well with the team to complete the project
	Assignment Completion	Student did not provide /contribute to root word/term group discussion	Student did not provide all of their words, or did but provided inadequate definitions for his/her words	Student provided adequate definitions for all of his/her words and grouped most of them properly	Student provided thorough definitions for all of his/her words and grouped all of them properly

Favorite Animal Investigation - Pre-visit

Level

4th Grade

Abstract

Every student has an animal that interests and intrigues them. This lesson encourages students to research their favorite animal, engaging their innate curiosity and learn more about the roles of animals in their habitats. Students will also learn more about food chains and food webs by studying their favorite animal. The activity will conclude with an investigation into threats to their animal's survival, and lay the groundwork work for an appreciation of the role their animal plays in its habitat.

Objectives

Students will be able to:

- ✓ Recognize that different animals have different food needs
- ✓ Recognize that different animals live in different places on the planet, and in different habitats
- ✓ Describe the basic natural history and needs of a particular animal species
- ✓ Describe how animals in a food chain interact
- ✓ Recognize that human actions can affect the survival of animals
- ✓ Demonstrate their ability to use a variety of research sources by listing facts from those sources

Targeted Standard

California Science Standard, Grade 4

Life Sciences 2 *All organisms need energy and matter to live and grow. As a basis for understanding this concept:*

- b. Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.*

Life Sciences 3 *Living organisms depend on one another and on their environment for survival, as a basis for understanding this concept:*

- b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.*

California English-Language Arts Standard, Grade 4

Writing 1.0 Writing Strategies *Students write clear, coherent sentences and paragraphs that develop a central idea. Their writing shows they consider the audiences and purpose. Students progress through the writing process (e.g. prewriting, drafting, revising, editing successive versions).*

Research and Technology.

1.5 *Quote or paraphrase information sources, citing them appropriately.*

1.7 *Use various reference materials (e.g., dictionary, thesaurus, card catalogue, encyclopedia, online information) as an aid to writing.*

Writing 2.0 Writing Applications *Students write compositions that describe and explain familiar objects, events, and experiences. Student writing demonstrates a command of standard American English and the drafting, research, and organizational strategies outlined in Writing Standard 1.0*

2.3 Write information reports:

- b. Include facts and details for focus.*
- c. Draw from more than one source of information (e.g. speakers, books, newspapers, other media sources).*

2.4 *Write summaries that contain the main ideas of the reading selection and the most significant details.*

Environmental Principles and Concepts (EEI) corresponding learning objectives:

- Recognize that living things meet their need by using resources (goods and ecosystems services) from the environment around them. **(3b)**
- Recognize that changes to the environment caused by humans and other animals influence the survival of some kinds of plants and animals. **(3b)**
- Identify that some changes to the environment caused by humans and other animals affect the cycles and processes that occur naturally in ecosystems and in turn affect the survival of some kinds of plants and animals. **(3b)**
- Provide examples of how human practices have altered the cycles and process that occur naturally in terrestrial, freshwater, coastal and marine ecosystems. **(3b)**

Materials

- ☐ Favorite Animal Investigation Organizer – one per student
- ☐ Access to research materials or a computer with internet search capabilities

Implementation Overview

Time Allotment: One week if given as homework assignment or 1 ½ to 2 hours total if research is complete in class

Students should pick their favorite animal. The animal can come from any place on the planet. To avoid duplicate animals, give students a day or two to decide on their animal, informing them they will need to tell you the exact species they will research. In other words, a student cannot research dolphins; he or she would need to research a Pacific White-sided Dolphin (*Lagenorhynchus obliquidens*) or an Amazonian River Dolphin (*Inia geoffrensis*), to be specific.

Encourage students to use the graphic organizer provided to aid them in their research. You might also suggest resources available to them at the school that might assist them in their research. To make the project more challenging, you might restrict the research to only books and periodicals found in the school library.

Evaluation

Possible Grading Rubric for Favorite Animal Investigation Organizer

	1	2	3
Assignment Completion	Student answered some questions.	Student answered all questions.	Student answered all questions thoroughly.
Written Presentation	Writing was difficult to decipher	Writing was neat	Writing was very clear, neat, and easy to read
Writing Content	Student gave one word or phrase answers with no attempt at punctuation or capitalization.	Student wrote answers in sentences.	Student wrote answers in complete sentences with correct punctuation and capitalization.
Research	Student did not list his or her sources, or source listings were unclear.	Student listed his or her sources.	Student thoroughly listed his or her sources, with complete and accurate citations.