

# WORD KNOWLEDGE **SAMPLE LESSON**

## Semantic Feature Analysis

### ACKNOWLEDGMENTS

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Based on Anders, P. L., & Boss, C. S. (1986). Semantic feature analysis: An interactive strategy for vocabulary development and text comprehension. *Journal of Reading, 29*, 610–161.

### INTRODUCTION

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Semantic feature analysis is very similar to semantic mapping in that it draws upon students' prior knowledge, teaches the relationships between words in a visual way, and incorporates discussion as a key element.

Instead of a map, semantic feature analysis uses a grid to organize connections between words. The grid is based on a subject or concept. Down the left side, the teacher writes several words related to the concept. Across the top, the teacher writes several features or characteristics that each word may or may not exhibit.

*Discussion* is a key element in the effectiveness of this strategy. Encourage students to talk about *how* they decided whether a certain feature applies to a word.

The following sample lesson is based on a typical textbook chapter about the digestive system.

### OBJECTIVE

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The students will complete a semantic feature analysis grid by drawing from prior knowledge to discuss and identify important features and/or characteristics of words.

### MATERIALS

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- Textbook chapter or passage.
- Transparency of a blank semantic feature analysis grid (see Appendix).
- Blank semantic feature analysis grids—a teacher copy and student copies (one for each pair/group).

## PREPARATION

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Preview the chapter, looking for academic words, or challenging words students are likely to see and use often.

Identify content-specific words that students must know in order to comprehend the text.

FIGURE 64. SAMPLE WORD LIST FROM A CHAPTER ON THE DIGESTIVE SYSTEM.

<b>Digestion</b>	The body's process of breaking down food
<b>Mouth</b>	Opening where food is taken in
<b>Saliva</b>	Clear liquid in the mouth that moistens food and starts the breakdown of starches
<b>Esophagus</b>	Muscular tube where food moves from the mouth to the stomach
<b>Liver</b>	The organ that makes bile and filters blood
<b>Stomach</b>	Muscular organ between esophagus and small intestine where food is broken down and partially digested
<b>Pancreas</b>	Organ near the stomach that produces enzymes that help break down starches, proteins, and fats
<b>Enzyme</b>	A protein that causes a chemical reaction in the body. Our bodies make several different types of enzymes
<b>Mucus</b>	A clear, slimy substance that coats and protects the linings of body passages
<b>Peristalsis</b>	Waves of muscle contractions in the esophagus and intestines that push food through
<b>Small Intestine</b>	Part of the intestine between the stomach and the large intestine. Most chemical digestion takes place here.
<b>Large Intestine</b>	The end section of the digestive system. This intestine is larger in diameter than the small intestine. Its job is to absorb water and form waste to be eliminated from the body.

*Encarta World English Dictionary (Online); Prentice Hall Science Explorer: Grade 7, 2002*

## DAILY REVIEW

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**Teacher:**

Yesterday we read Chapter 4: The Digestive System. Who can remember an organ in our digestive system and its important function?

*Accept responses and briefly review the main ideas of the chapter.*

## STATE OBJECTIVE/PURPOSE

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**Teacher:**

Today we are going to complete a semantic feature analysis grid using some of the words we learned reading the chapter. I know this is a long title, but it is easy to remember when you know what the title means. Semantic means the meaning of words, a feature is a characteristic, and analysis (or analyze) means to study or examine. So, we are going to analyze or examine the words we learned by looking at their features, or characteristics. This will help you understand more fully the words and concepts in our reading.

*It may be helpful to point to the words of the title—“Semantic,” “Feature,” and “Analysis”—as you explain the meaning.*

## MODEL AND TEACH

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**Genre:** Expository or narrative

**Grouping:** Whole class

**Teacher:**

Before we look at the words from our chapter, I want to show you how a semantic feature analysis grid works. First of all, we have to figure out what idea or concept we will discuss. Let's say our concept is mammals. Raise your hand if you can give me an example of a mammal.

*Accept responses and write the examples down the left side of the grid.*

Your grid may look like the following:

FIGURE 65. CREATING A SEMANTIC FEATURE ANALYSIS GRID: STEP 1.

CONCEPT: MAMMALS

FEATURES										
EXAMPLES										
Bear										
Bat										
Lion										
Seal										
Kangaroo										
Whale										
Ferret										
Human										

**Teacher:**

Now across the top, we are going to write features, or characteristics, that any or all mammals have. For example, I know that all mammals have hair. I also know that mammals are vertebrates and that some mammals live on land while others live at sea. So I will write these features across the top. Raise you hand if you can give me another characteristic of mammals.

*Accept and guide responses as necessary. Ask guiding questions such as, “What do mammals eat?” or “How do mammals move around?”*

Your grid may now look something like the sample grid below:

FIGURE 66. CREATING A SEMANTIC FEATURE ANALYSIS GRID: STEP 2.

CONCEPT: MAMMALS

EXAMPLES	Has hair	Vertebrate	Lives on land (terrestrial)	Lives at sea (aquatic)	Able to fly	Herbivore (primary consumer)	Carnivore (secondary consumer)	Omnivore	Marsupial	Produces milk
Bear										
Bat										
Lion										
Seal										
Kangaroo										
Whale										
Ferret										
Human										

**Teacher:**

Now I am going to look at each animal and place a plus sign if the animal exhibits the feature, a minus sign if the animal does not exhibit the feature, and a question mark if I'm not sure (Stahl, 1999). Watch as I think through the first mammal on our list. The first mammal is a bear. I know that bears have hair and are vertebrates. I also know they live on land, not in the sea. Bears definitely don't fly. I know that bears eat meat, but they also eat plants and berries, so I am going to put a plus sign under "Omnivore". Bears don't have pouches, so they are not marsupials. But they do produce milk to feed their young.

FIGURE 67. CREATING A SEMANTIC FEATURE ANALYSIS GRID: STEP 3.

CONCEPT: MAMMALS

EXAMPLES	FEATURES									
	Has hair	Vertebrate	Lives on land (terrestrial)	Lives at sea (aquatic)	Able to fly	Herbivore (primary consumer)	Carnivore (secondary consumer)	Omnivore	Marsupial	Produces milk
Bear	+	+	+	-	-	-	-	+	-	+
Bat										
Lion										
Seal										
Kangaroo										
Whale										
Ferret										
Human										

*Call on students individually to come up to the board or overhead and fill in one animal at a time. Discuss answers with the whole class.*

A finished chart may look like the following:

FIGURE 68. SEMANTIC FEATURE ANALYSIS GRID: COMPLETED EXAMPLE.

CONCEPT: MAMMALS

EXAMPLES	FEATURES									
	Has hair	Vertebrate	Lives on land (terrestrial)	Lives at sea (aquatic)	Able to fly	Herbivore (primary consumer)	Carnivore (secondary consumer)	Omnivore	Marsupial	Produces milk
Bear	+	+	+	-	-	-	-	+	-	+
Bat	+	+	+	-	+	+	+	-	-	+
Lion	+	+	+	-	-	-	+	-	-	+
Seal	+	+	-	+	-	-	+	-	-	+
Kangaroo	+	+	+	-	-	+	-	-	+	+
Whale	+	+	-	+	-	-	+	-	-	+
Ferret	+	+	+	-	-	-	+	-	-	+
Human	+	+	+	-	-	-	-	+	-	+

## GUIDED PRACTICE

Grouping: Whole class, sitting with partners

Ask students to open their textbooks to the chapter on the digestive system.

**Teacher:**

We are going to complete a grid for the concept: the digestive system. Skim through the chapter and raise your hand if you can tell me a very important word we learned about when reading this chapter. Remember, important words or concepts are often bold, in italics, or found in illustrations. Also, don't forget to look at titles and headings.

*Accept responses and then show students the following blank grid on an overhead.*

FIGURE 69. CREATING A SEMANTIC FEATURE ANALYSIS GRID: EXAMPLE 2A.

CONCEPT: THE DIGESTIVE SYSTEM

EXAMPLES	FEATURES	A process	An organ	A substance	Part of chemical digestion	Part of mechanical digestion	Breaks down starch	Breaks down protein	Breaks down fat
Digestion									
Mouth									
Saliva									
Esophagus									
Liver									
Stomach									
Pancreas									
Enzyme									
Mucus									
Peristalsis									
Small Intestine									
Large Intestine									

**Teacher:**

Listen as I think through the first item on our list. Is digestion a process? Yes, I know that digestion is the process of breaking down food, absorbing nutrients, and eliminating waste. Raise your hand if you can tell me what I need to put in this box. That's right, Lucia, I need to put a plus sign because digestion is a process.

*Continue to think aloud through the rest of the features. Remember, discussion is a key element of this strategy.*

**Teacher:**

Now let's look at *mouth*. Working with your partner, put a plus sign if a mouth displays the feature, a minus sign if it does not display the feature, and put a question mark in the square if you are not sure.



Allow students to look at their chapter and give them 3–4 minutes to complete the row for “mouth”. Circulate around the room and be available for guidance.

Return to the overhead and ask for a volunteer to share their answers. Take time to discuss each answer with the class.

Continue the process above for the next 5–6 terms.

Below is an example of a completed chart. Remember, your class chart may look a little different depending on the discussion with your students. For example, some students may say that mucus is a part of chemical digestion because it lines the stomach and protects it from being burned by the strong acids. Therefore, mucus plays a role in chemical digestion. Other students may say that mucus is not a part of chemical digestion because the substance itself does not chemically break down food. Discussion is the key element of this type of activity. It is OK for students to disagree, as long as they are presenting arguments based on accurate information.

FIGURE 70. CREATING A SEMANTIC FEATURE ANALYSIS GRID: EXAMPLE 2B.

CONCEPT: THE DIGESTIVE SYSTEM

EXAMPLES	FEATURES	A process	An organ	A substance	Part of chemical digestion	Part of mechanical digestion	Breaks down starch	Breaks down protein	Breaks down fat
Digestion		+	-	-	+	+	+	+	+
Mouth		-	+	-	+	+	+	-	-
Saliva		-	-	+	+	+	+	-	-
Esophagus		-	+	-	-	?	-	-	-
Liver		-	+	-	+	-	-	-	+
Stomach		-	+	-	+	+	-	+	-
Pancreas		-	+	-	+	-	+	+	+
Enzyme		-	-	+	+	-	+	+	+
Mucus		-	-	+	-	+	-	-	-
Peristalsis		+	-	-	-	?	-	-	-
Small Intestine		-	+	-	+	-	-	+	-
Large Intestine		-	+	-	+	-	-	-	-

## INDEPENDENT PRACTICE

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**Grouping:** Partners

1. If after guiding your students through the first half of the terms on the grid your students are ready to move on to independent practice, allow them to continue working with their partners to complete the last half of the semantic feature analysis grid.
2. Continue to circulate around the room and be available for guidance as your students are working.
3. Return to the overhead and ask for volunteers to share their answers for each row. Discuss answers with the class.
4. If students think of any other key terms or features, have them fill in the blank row or column.

## GENERALIZATION

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**Teacher:**

How could you use the semantic feature analysis grid in your other classes?

**Student:**

We could use it to study words in our other classes.

**Teacher:**

Think about your social studies class. How could the grid help you learn new words in social studies?

**Student:**

We could work with a partner to make a grid using words related to the subject we are studying.

**Teacher:**

That's right. When you put words you need to learn in this grid and discuss their characteristics, you are able to see the relationship between those words, which can help you remember what each word means. When learning new words, it always helps to think first about what you already know about the word. Using a semantic feature analysis grid can be helpful when reading new chapters in textbooks and novels. It allows you to keep track of and learn new words. It can also serve as a resource to go back to for a review of the words.

## MONITOR STUDENT LEARNING

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Check grids for completion and accuracy.

Give students a list of the terms along with other key terms from the chapter. Ask students to use the terms in complete sentences. Figure 71 provides a sample format for the assignment.

FIGURE 7I. SAMPLE VOCABULARY WRITING ASSIGNMENT.

<p><b>Writing based on:</b></p> <p>Chapter 4, Section 1</p>
<p><b>Directions:</b></p> <p>Using words from the list below, write 10 complete sentences. Each sentence must:</p> <ul style="list-style-type: none"><li>• Begin with a capital letter and end with a period, question mark, or exclamation point.</li><li>• Make sense.</li><li>• Include two words from the following list.</li></ul>
<p><b>Vocabulary Word List:</b></p> <p>digestion, mouth, saliva, absorption, nutrients, esophagus, liver, bile, churning, function, stomach, pancreas, enzyme, starch, protein, fats, health, mucus, peristalsis, small intestine, large intestine, produce, lining, diameter</p>
<p><b>Your Sentences:</b></p>

This strategy can be used with both expository and narrative text. The following grids are samples of semantic feature analysis grids based on a novel and a social studies text.

FIGURE 72. SEMANTIC FEATURE ANALYSIS GRID: NARRATIVE TEXT EXAMPLE.

SUBJECT: CHARACTERS IN A NOVEL  
 EXAMPLE: *NUMBER THE STARS* BY LOIS LOWRY

EXAMPLES	FEATURES								
	Brave	Soothing	Belligerent	Unwavering	Jewish	Talented	Imaginative	Gentle	Threatening
Annemarie									
Ellen									
Kristi									
Mrs. Johansen									
Mr. Johansen									
Mr. And Mrs. Rosen									
German soldiers									

Lowry, L. (1989). *Number the stars*. New York: Bantam Doubleday Dell Books for Young Readers.

FIGURE 73. SEMANTIC FEATURE ANALYSIS GRID: EXPOSITORY TEXT EXAMPLE.

SUBJECT: HISTORICAL DOCUMENTS

EXAMPLES	FEATURES	Lists grievances of colonists to express dissatisfaction with British rule	Gives government the authority to make, apply, and enforce rules and laws	Written after Constitution was sent to states for ratification	Document continues to be relevant in U.S. society today	Influenced the vote in favor of ratification and shaped future interpretations of the Constitution	Reflects values and principles of American democracy	Precedent for documents that followed	Expresses the right to freedom of assembly	Emphasizes government as a means to securing rights
Magna Carta (1215)										
English Bill of Rights (1689)										
Mayflower Compact (1620)										
Declaration of Independence (1776)										
Federalist Papers (1787)										
Anti-Federalist Writings (1787)										
U.S. Constitution (1787)										
Bill of Rights (1791)										