Lesson 9 Part 1: Introduction

Analyzing Word Meanings

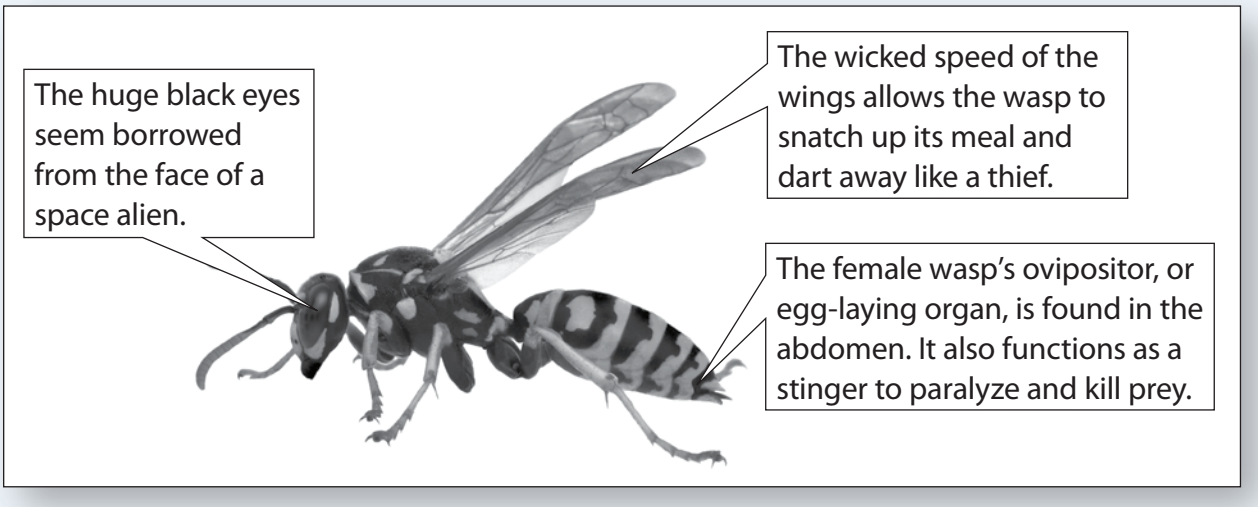
CCSS
RI.7.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.

Theme: *Little Creatures, Big Impact*

Why do authors choose the words they do? This question isn't as simple as it seems.

- Sometimes authors choose words to convey a **technical meaning**. Subject areas in science, math, and engineering express ideas using technical words and phrases.
- At other times, they select words for their **connotative meaning**. A word chosen for its connotation expresses not just an idea but also a feeling.
- And authors can use and combine words to produce a **figurative meaning**. These are words or phrases that express ideas in creative, unusual, or unexpected ways.

Underline words in the diagram below with technical, figurative, or connotative meanings.



The chart shows phrases from the diagram with each type of meaning. Complete the chart.

Example	Type of Meaning	Why the Author Uses It
"snatch up its meal"	connotative	to suggest that the wasp takes the meal suddenly, perhaps rudely
"ovipositor, or egg-laying organ, is found in the abdomen"		to communicate precisely which part of the wasp is being described
"eyes seem borrowed from the face of a space alien"		

Paying attention to the different types of meaning will help you understand how the author thinks and feels about a topic. For example, you might guess that the author of the diagram has some scientific knowledge about wasps—but also finds them rather unnerving!

Read the first three paragraphs of the following scientific account.

Genre: **Scientific Account**

Don't Let the Bedbugs Bite *by Nick Marcus*

Bedbugs are a nuisance that spread quickly, so if you find bedbugs in your home, you owe it to yourself and others to take decisive and immediate action.

The scientific name for these tiny, bloodsucking insects is *Cimex lectularius*. They're called *bedbugs* because they mainly feed on blood at night while their hosts are asleep. They are like an army of minuscule vampires. Places like mattresses, couches, and chairs serve as luxurious havens in which thousands of them can live.

The bedbug inserts a syringe-like proboscis through the host's skin. It takes between three and ten minutes for the bug to drink its fill through this slender appendage. Its bite is small and painless, so the victim rarely wakes during this feeding time. Bedbugs are not known for disseminating disease, but the bumps they leave behind can become infected. Also, the saliva they release into the skin can make you itch so badly you'll want to scratch your skin off.

(continued)

Explore how to respond to this prompt: *"The underlined words and phrases in the passage express technical, connotative, and figurative meanings. Determine the meaning of each word or phrase as it is used in the passage."*

The technical word is *proboscis*. You can use context clues in the passage to figure out and describe what it means. Use the chart below to determine the meaning of *proboscis*.

Word	Context Clues	Meaning
Proboscis	"syringe-like," "through the host's skin," "drink its fill," "slender"	A proboscis is _____ _____.

Next, consider the connotative meaning of the word *victim*, which the author uses to describe the person being bitten. What does the word *victim* suggest about both the person and the bedbug?

The word *victim* suggests that _____.

Finally, the phrase "scratch your skin off" is figurative. What does this phrase help the reader understand about the itch caused by a bedbug's bite?

_____

_____

Continue reading the account about bedbugs. Use the Close Reading and Hint to help you answer the question.

Close Reading

Reread the paragraphs and **underline** any word or phrase that conveys a figurative meaning.

(continued from page 88)

Bedbug infestations can appear to be a blanket of crawling pinholes that cover the place where you rest. The teensy pests often hitch rides on suitcases left in hotel rooms and travel home with unwitting victims, so keep your luggage off the floor when you travel, and wash your clothes in hot water when you get home.

Use a flashlight and magnifying glass to scrutinize your mattress. If you find any evidence of bedbugs, destroy the mattress immediately and call a professional exterminator. You owe it to neighbors and fellow travelers not to spread the bedbug headache.

Hint

The **tone** of a text is its overall feeling—not just the information it communicates but also the feelings it expresses. Some texts can have more than one tone.

Circle the correct answer.

Which statement best describes the impact of the author's word choice on the overall tone of the account?

A Phrases like *teensy pests* and *hitch rides* give the whole account a humorous tone.

B Words like *rest*, *travel*, and *neighbors* give the account a comforting tone.

C The words *evidence* and *professional exterminator* are used to create a threatening tone.

D Words with technical meanings create an informative tone, but phrases like *crawling pinholes* add a note of disgust.

Show Your Thinking

Explain which words and phrases helped you figure out the intended tone of the account.

With a partner, discuss which words in this part of the account have connotative meanings and how they contribute to establishing the author's attitude toward bedbugs.

Read the scientific account. Use the Study Buddy and the Close Reading to guide your reading.

This science account will probably include many technical words. To be sure I understand the author's meaning, I'll circle words and phrases specifically related to insect biology. I'll also think about other types of word meanings as I read.

Close Reading

Authors often choose words for their strong connotations. Draw a **box** around words that were used instead of "cut," "stab," and "eat."

Underline words and phrases with figurative and connotative meanings that show what the author thinks about Goliath beetles.

Genre: **Scientific Account**

The Goliath Beetle

by Eleanora Inez

1 Named for the biblical giant Goliath, the Goliath beetle is the most colossal, brawniest, and heftiest kind of beetle in the world. Goliath beetles grow to a length of up to eight inches and may weigh as much as three and a half ounces. Most Goliath beetles are as large as a mouse. They have distinct vertical black bands, like the bars of a prison door, on the elytron that cover their wings. Some species may also have bright yellow, red, gray, or brown markings.

2 The Goliath beetle lives in flowers in the tropical rain forests of Africa. Goliath beetles have fearsome jaws that they use to slash, impale, and chomp food. Adult beetles primarily feed on sugary tree sap and fruit. Goliath beetles also have six powerful legs with sharp claws that can grip. The Goliath beetle uses its claws to gather food and to climb. In addition, the Goliath beetle has a pair of front and a pair of rear wings attached to its thorax. When it flies, it sounds like the whirl of a helicopter propeller.

3 Like other kinds of beetles, the Goliath beetle undergoes a metamorphosis—a four-stage process of change. This process takes place as the beetle develops. During the first stage, a female Goliath beetle lays its eggs in rotting wood or decaying plants. Once an egg hatches, the wormlike larva feeds on the wood or plant material until it is fully grown. The larva wraps itself in a cocoon like a suit of armor to protect itself. Then the pupa lives in the cocoon during the third stage. After several months, the cocoon breaks apart. An adult Goliath beetle steps forth to find a mate, and the four steps in the life cycle of a Goliath beetle are repeated.

4 Goliath beetles are truly the giants of the insect world, and their formidable presence leaves a lasting impression on those who view them.

Hints

Think about whether this word is used for its technical, figurative, or connotative meaning

The best way to convey a violent connotation is by describing actions.

What is the author's attitude toward the Goliath beetle itself?

Use the Hints on this page to help you answer the questions.

1 Why has the author chosen to include the word *metamorphosis* in the text?

A It highlights the comparison between the beetle and a helicopter.

B It describes a biological process that the beetle undergoes.

C It expresses the author's objectivity about an unusual insect.

D It explains why scientists are impressed with the beetle's life cycle.

2 Which of the following is an example of the author using words that have a violent connotation?

A She describes the vertical black bands on the elytron that cover Goliath beetles' wings.

B She compares the Goliath beetle cocoons to suits of protective armor.

C The author details the four stages of the Goliath beetle's life cycle.

D She writes that Goliath beetles use their jaws to slash, impale, and chomp food.

3 Describe the overall tone of the account and the word choices the author uses to convey it. Cite at least three specific examples from the text to support your response.

Read the article. Then answer the questions that follow.

from "Prime Time for Cicadas"

by Emily Sohn, Science News for Kids

1 If it hasn't happened yet, it could occur any day now.

2 The first signs are little holes in the ground in yards, orchards, and fields. Then, one warm evening, big, red-eyed bugs start crawling out of the holes.

3 The next morning, thousands upon thousands of these black, winged insects, known as cicadas, cover sidewalks, mailboxes, tree branches, and roofs across certain areas of the United States. The loud throb of their alien-sounding, high-pitched screeches fills the air. . . .

4 If you don't like bugs, watch out. For anyone who lives in the invasion area, the cicadas are impossible to ignore, says David Marshall. He's an evolutionary biologist and cicada expert. . . .

5 And, if you're caught by surprise, the experience can be pretty overwhelming. Some people find it downright creepy.

Puzzling cycles

6 Even if you don't get to witness the great cicada awakening, it's worth pondering the phenomenon. Despite years of research, the life cycles and habits of cicadas still present puzzles to modern science.

7 Researchers are especially interested in . . . periodical cicadas; these insects live only in this part of the world, and they appear just once every 17 years, on the dot. . . .

8 "This is a really special phenomenon that doesn't happen anywhere else in the world," Marshall says.

9 All cicada eggs hatch into juveniles underground, where they go through five stages of development before emerging as adults, mating, and starting the cycle all over again. Adult periodical cicadas are about 1.5 inches long. They can neither bite nor sting.

10 On average, a population of annual cicadas spends between 2 and 8 years underground before facing the light of day. Different populations stagger their maturation, though, so that a small number hatch each year. They usually appear in the summertime. You might see just a handful in your neighborhood every year. . . .

Prime time

11 One big mystery is why periodical cicadas wait such a long time and a particular number of years before emerging. The answer, some scientists now suggest, appears to involve weather and mathematics.

12 Periodical cicadas belong to a genus called *Magicicada,* which first appeared sometime around 1.8 million years ago. Back then, glaciers covered the land, and the climate of eastern North America was unpredictable. Sometimes summers were warm. Sometimes they were cold.

13 Juvenile *Magicicada* won't even crawl out of the earth until the soil reaches 64 degrees F., Marshall says. After that, they need consistently warm temperatures, usually above 68 degrees F., to survive.

14 By evolving to stay underground as long as possible, some experts say, cicadas reduced their chances of emerging during a particularly cold summer.

15 In one study, researchers from Tennessee and Arkansas looked at what would happen if there were one dangerously cold summer every 50 years for 1,500 years. Their mathematical model showed that cicadas with a life cycle of 7 years had only an 8-percent chance of surviving. With an 11-year cycle, survival jumped to 51 percent. At 17 years, cicadas had a 96-percent chance of living.

16 So, staying underground longer is better. In fact . . . cicadas live longer than almost any other insect.

Multiple breeding

17 Why do periodical cicadas live precisely 13 or 17 years?

18 Both 13 and 17 belong to a special class of numbers called primes. This means that the numbers can be evenly divided only by themselves or the number 1. The first few prime numbers are 2, 3, 5, 7, 11, 13, 17, 19.

19 Mathematicians spend a lot of time trying to understand prime numbers. Cicadas somehow understand primes instinctively. What's more, the insects seem to know how to count.

20 The fact that 17 and 13 are primes reduces the chances of interbreeding among different populations of 17- and 13-year cicadas, Marshall says.

21 Multiples of prime numbers are unlikely to overlap with multiples of other prime numbers. So, a cicada population that hatches every 2 or 5 or 7 years will hardly ever hatch at the same time as a population that hatches every 13 or 17 years. And the 13- and 17-year cicadas will emerge at the same time only once every 221 years.

22 If populations don't hatch at the same time, they can't mate with each other, so their genes remain distinct. That's important because genes help determine the length of the insect's life cycle. If a 5-year cicada were to mate with a 17-year cicada, for example, the length of the cycle would be different every generation. . . .

23 If all of this puzzles you, you're not alone. Scientists have lots of questions, too. "It's so difficult to explain this kind of thing," Marshall says. "It's such a remarkably complex species."

Answer Form

1 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓐ Ⓑ Ⓒ Ⓓ
3 Ⓐ Ⓑ Ⓒ Ⓓ

Number Correct ___/3

1 Read this sentence from paragraph 3.

> The loud throb of their alien-sounding, high-pitched screeches fills the air.

What does the author's word choice suggest about the sound that cicadas make?

A It is so fascinating that everyone should hear it.

B The sound is breathtakingly rhythmic and musical.

C The noise is both awful and annoying.

D The screeches are dangerous enough to lead to hearing loss.

2 Read this sentence from paragraph 7.

> Researchers are especially interested in . . . periodical cicadas; these insects live only in this part of the world, and they appear just once every 17 years, on the dot.

Why has the author chosen to use the figurative phrase *on the dot*?

A to describe the small holes made by cicadas as they hatch

B to highlight their specific and extraordinary life cycles

C to identify the precise location where they may be seen

D to suggest the amazing regularity of when they will emerge

3 Why do you think the author chose to use the words *prime time* in the title?

A to reveal her knowledge about prime numbers and cicada instincts

B to focus on the importance of the insect's well-timed life cycle

C to highlight how researchers solved a puzzling mystery about the insect

D to emphasize that cicadas must emerge in the evening in order to survive

4 Describe the tone of the article and how the author's choice of words creates it. Cite at least **two** specific words and phrases chosen by the author to support your answer.

✓ Self Check *Go back and see what you can check off on the Self Check on page 85.*