

Chapter 1 • Understanding and Analysis Across Genres

Lesson 1 Use Roots and Affixes to Determine the Meaning of Academic Language



UNDERSTAND THE TEKS

Many words are made up of **word parts**. Often, you can determine the meaning of a multisyllabic word by adding together the meaning of the word parts.

The **root** of the word contains its basic meaning. Many roots are derived from Latin and Greek words. The meaning of the original Latin or Greek word forms the basic meaning of the root.

For example, the Latin word *scribere* means “to write.” It gives us the root *scrib* or *script*. When you see this root in a word, you know it has something to do with writing.

The Greek word *graphos*, which means “writing or drawing,” gives us the root *graph*. When you see this root in a word, you know it has something to do with writing or drawing.

Affixes (prefixes and suffixes) are also word parts. A **prefix** is added to the beginning of a root or word to change its meaning. For example, the prefix *post-* means “after or later.” If you read the word *postscript*, you can tell that it means “something written afterward or at the end of a letter.”

A **suffix** is added to the end of a word or root to change its meaning or part of speech. For example, the suffix *-ic* means “having the characteristics of.” It turns a word into an adjective. If you read the word *graphic* in an article about the arts, you know the word refers to the characteristics of writing or drawing.

To determine the meaning of longer words:

- add together the meaning of the word parts
- check the meaning you come up with against the context

Sometimes, you can find the meaning of a word that has a prefix and/or suffix added as a **dictionary entry**. Sometimes, the derivative is included at the end of the entry for the base word.

For example, you can find an entry for *graphology* in most dictionaries. It is the study of handwriting. At the end of the entry, you will find the word *graphologist*, a noun form that means “a person who studies graphology.”



GUIDED PRACTICE

DIRECTIONS Read the selection below. Follow the instructions and answer the questions in the side column. They will help you understand how to read to master the TEKS.

Bloody Spectacles

by Kenneth G. Holum

A Roman spectacle wasn't complete without a little blood.

- 1** (a) What's a spectacle?" you ask. (b) It can be a sport such as football, basketball, baseball, and track, played in an amphitheater or hippodrome (stadium for horse races). It can also be an artistic performance staged in a theater or cinema. Spectacles are not a modern phenomenon, but date back thousands of years. Yet, there are two major differences between those held today and those held in Caesarea Maritima.

Trained Hunters

- 2** First, in the sports arena at Caesarea, as in other Roman cities, the athletes were expected to draw blood. (c) Gladiators fought one another to the death with swords, and trained hunters, called bestiarii, tried to kill wild beasts with swords. All was for the entertainment of the audience, but, for some participants, the performance ended in death. Even horse racing was expected to produce collisions and other mishaps, with resulting dismemberment and even death. The spectators loved violence and blood.

- 3** (d) The second difference was that the emperor, governor, or a prominent citizen (man or woman) paid for the contests. It was that person who hired the actors, actresses, jockeys, and gladiators or bought them as slaves. That person also imported the wild animals from Africa or Europe. And he, or she, did all to win the affection of the citizens. Can you imagine a candidate for the U.S. Senate or presidency sponsoring a football game or a Hollywood film in order to win an election?

Olive Oil As Lamp Fuel

- 4** (e) Evidence of the popularity of these spectacles can be found in excavated oil lamps. Made of baked clay in molds of soft stone, each had a nozzle with a wick hole for the flame. The nozzle was attached to a body that had upper and lower parts fastened together. Within was a reservoir of lamp fuel, olive oil of the same kind that we put on our salads today. The top of the reservoir, called the discus, was decorated, in many cases, with images of competitors in the spectacles. Thus, the

Guided Questions

Read sentence (a) in paragraph **1**. The root *spec* means "sight." What is a *spectacle*?

Read sentence (b) in paragraph **1**. The Greek word for horse is *hippo*. What do you think happened in a *hippodrome*? What context clue also tells you this?

Look at the Latin word *bestiary* in sentence (c) in paragraph **2**. What English word do you see in this sentence that is related to this Latin word?

Look at sentence (d) in paragraph **3**. What prefix in *prominent* tells you that a *prominent* citizen was important or noticeable?

Based on the word parts, what word in sentence (e) in paragraph **4** do you think means "dug out of a hole"?

lamp reminded the owner, as he lighted it every night, of the pleasures of the amphitheater, hippodrome, or theater.

- 5** An example is a first-century A.D. lamp found at Caesarea. **(f)** The design shows a charioteer driving a chariot pulled by two horses. Below the horses' bellies is the filler hole for inserting the olive oil fuel. More striking is a similar lamp showing two horses being ridden by one jockey. We know that such jockeys leaped from one horse to the other during the race. What an exciting and dangerous spectacle that must have been! No wonder the lamp owner wanted to remember it.

Guided Questions

Read sentence **(f)** in paragraph **5**. What two words are related, or based on the same root? What do they mean?

ADDITIONAL PRACTICE

DIRECTIONS Reread the selection. Mark it up as you like. Then answer the following questions.

1. Read the sentence below paying attention to the word *phenomenon*.

Spectacles are not a modern phenomenon, but date back thousands of years.

The word *phenomenon* is based on a Greek word that means “something that appears or is seen.” Eventually, after it moved into English, it came to mean “an extraordinary occurrence.” Use your dictionary to tell how *phenomenon* is related to the word *fantasy*.

2. Read the sentence below paying attention to the Latin word *maritima*.

Yet, there are two major differences between those held today and those held in Caesarea Maritima.

Caesarea Maritima is a city and harbor built in ancient times and named after Caesar. The root *mar, mari, mer* means “sea.” List at least five other words built from this root.

3. Read the sentence below.

Even horse racing was expected to produce collisions and other mishaps, with resulting dismemberment and even death.

- a. What prefix in *collision* tells you that this word involves things coming together? _____
What is another word with the same prefix? _____
- b. What prefix in *mishaps* tells you that this word involves something unfortunate? _____
What is another word with the same prefix? _____
- c. What prefix in *dismemberment* tells you that this word involves taking something away or removing? _____
What is another word with the same prefix? _____
4. Read the sentence below, paying attention to the word *evidence*.

Evidence of the popularity of these spectacles can be found in excavated oil lamps.

Explain the connection between the root *vid* or *vis*, which means “see,” and *evidence*.

 ★ PRACTICE

DIRECTIONS Read the selection below. Then answer the questions that follow.

Blood: There Is No Substitute

by Mary Beth Cox

1 The mythical witch Medea had a great recipe for artificial blood. It called for thousands of ingredients like screech owl wings, water snake skins, crow eggs, stag livers, and werewolf innards. Medea's specially blended blood substitute was reportedly quite effective. She drained an elderly patient's tired, old blood and replaced it with a fresh batch of her brew. The gentleman's health and youthful vigor were magically restored.

2 Medea's method is not prescribed by modern doctors. It's too drastic, too complicated, and, well, just a myth. However, Medea's myth does illustrate an important medical truth: Some patients need a replenishment of blood. Some need blood during surgery. Some need to replace blood loss due to traumatic injury or hemorrhage. Some need an influx of healthy blood to relieve the symptoms of disorders like hemophilia¹ or anemia².

3 We all know there's no such thing as werewolf innards. But several real substances have been tried as substitutes for human blood. Salt water, animal bloods, ale, wine, and milk have all been pumped into human veins in hopes of finding a stand-in for blood. None of these substances was satisfactory. To date, the only acceptable replacement for human blood is more human blood.

The Need for a Blood Stand-in

Human blood is given to patients who need it via blood transfusions. A *blood transfusion* is a medical procedure that transfers a unit of blood from one person (a donor) to another (a recipient). Blood transfusions are usually well tolerated and safe. They've been used to save many lives and to improve the quality of many, many more. As a replacement for human blood, donated blood has been an unmatched success. Yet even blood is limited as a substitute for blood. Any two people cannot necessarily share blood. Special care must be taken to match the blood types of a donor and a recipient. Donated blood must also be screened to guarantee it's free of transmittable diseases like HIV and hepatitis. Packets of human blood have a limited shelf life. Even with refrigeration, blood lasts only about a month. Donors are continually needed to replenish stores of blood. Sometimes there are too few donors. This is particularly true in remote areas, during natural disasters, and on battlefields. In such situations, the demand for donated blood can exceed the supply.

These limitations are the reason why some researchers want to develop an artificial substitute for blood. It's a bit audacious³ to try to make an artificial blood that's better at replacing blood than blood.

¹**Hemophilia** — Any of several hereditary disorders in which the blood fails to clot normally

²**Anemia** — A deficiency in the oxygen-carrying component of the blood

³**Audacious** — Fearlessly daring

Given the track record of ale, wine, and milk, it isn't an easy thing to accomplish, either. Artificial blood must be able to do what blood can, but milk can't. Artificial blood must have the ability to push oxygen around.

6 Blood has many functions, but its single most critical job is to move oxygen around the body. Blood picks up inhaled oxygen in the lungs and takes it through the circulatory system. Blood drops off oxygen at the body's various organs and tissues. The importance of blood's oxygen delivery service cannot be overstated. If organs and tissues don't get enough oxygen, they cannot work properly. If organs and tissues are deprived of oxygen for too long, they cease to function and die.

7 Blood is able to move oxygen because of a special ingredient called hemoglobin.

Will Hemoglobin Do the Job?

8 *Hemoglobin* is a protein. It is the component of blood that catches and releases oxygen. Hemoglobin grabs oxygen where there's a lot of it, like in the lungs. Hemoglobin lets go of oxygen where there isn't much of it, like in hard-working organs and tissues. Milk, like blood, has lots of protein. But milk cannot substitute for blood, because milk doesn't have hemoglobin.

9 So why not give patients who need blood a whopping injection of hemoglobin? The reason is that hemoglobin does not float loose in the bloodstream. Hemoglobin is kept inside red blood cells. When red blood cells occasionally burst, the hemoglobin they release is broken up by the liver. This is part of the body's natural process for disposing of old red blood cells. If hemoglobin is directly injected as a blood substitute, it overwhelms the disposal process. The condition can be fatal.

10 Even so, some researchers think injected hemoglobin is the key to an artificial blood substitute. The idea is to alter the hemoglobin so that the liver doesn't break it up. The hemoglobin used in these experiments comes from cow's blood

or from donated human blood that's past its expiration date. The hemoglobin is altered in one of two ways: A few hemoglobin proteins are joined together to make a multi-hemoglobin polymer, or small guard units are attached to hemoglobin. This is like building the protein a suit of armor.

Artificial hemoglobin was tested in human patients. Unfortunately, there were problems. The altered protein was associated with an increased risk of heart attack and death. It was argued that artificial hemoglobin could still be used to rescue critically injured patients who might otherwise die without immediate blood replacement. Such patients, however, are not in a position to give informed consent for an experimental procedure. They cannot judge for themselves whether they want to risk using artificial hemoglobin. The U.S. Food and Drug Administration (FDA) has decided that, at least for the time being, no artificial hemoglobin will be given to human patients. 11

Future improvements to artificial hemoglobin may reduce the risk. Artificial hemoglobin may eventually be a useful blood substitute. As with any new drug or medical procedure, a balance must be struck between effective treatment and potentially harmful side effects. 12

The benefits of an artificial blood substitute based on hemoglobin would be many. Blood type matching and disease screening would be unnecessary. Blood substitute could be mass-produced and stored indefinitely. There would be plenty of artificial blood on hand for any, and every, emergency. 13

For the time being, the only help for patients who need blood comes from some very important individuals. These individuals are certainly not witches or werewolves. They are not (yet) the researchers working to come up with an artificial blood substitute. They are the generous donors who contribute blood to their local blood banks. For them, there also is no substitute. 14

1 In paragraph 1, if vigor is restored, it is —

- A made weaker
- B brought back
- C tripled
- D not changed

2 In paragraph 2, the root in the words hemorrhage and hemophilia means —

- A man
- B red
- C blood
- D disease

3 In paragraph 4, a recipient is —

- A someone who receives something
- B someone who is ill
- C someone who gives something
- D someone who takes something by force

4 What does the word transmittable mean in paragraph 4?

- A Not sent on
- B Causing healing
- C Capable of being seen
- D Able to be passed from person to person

5 In paragraph 11, the word artificial means —

- A natural
- B sketched
- C created by humans
- D authentic

6 The following words all appear in this article: *unfortunate*, *overstated*, *satisfactory*, *acceptable*, *unmatched*, and *inhaled*. Explain how to use prefixes to turn each word into its opposite.
