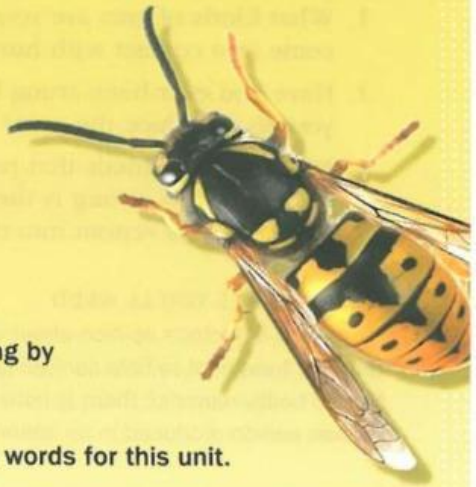
UNIT 10

Bites and Stings



In this unit, you will

- read about the consequences of being bitten or stung by certain insects or spiders.
- review outlining.
- increase your understanding of the target academic words for this unit.

READING SKILLS Recording Processes with Flow Charts

Self-Assessment

Think about how well you know each target word, and check (✓) the appropriate column. I have...

TARGET WORDS	never seen the word before	seen the word but am not sure what it means	seen the word and understand what it means	used the word, but am not sure if correctly	used the word confidently in *either* speaking *or* writing	used the word confidently in *both* speaking *and* writing
AWL						
append						
chemical						
circumstance						
contact						
estimate						
external						
initiate						
minimal						
neutral						
percent						
regime						
sufficient						
summary						
virtual						

Oxford 3000™ keywords

Outside the Reading What do you know about dangerous insects? Watch the video on the student website to find out more.

Before You Read

Read these questions. Discuss your answers in a small group.

1. What kinds of ants are you familiar with? Where do they live? How do they come into contact with humans?
2. Have you ever been stung by an ant, bee, or wasp? How did it feel? What did you do to reduce the pain? How long did the effects last?
3. Name some animals that produce a poison to help protect them against enemies. How strong is their venom? Is it harmful to humans? How does the animal get its venom into the enemy's body?

MORE WORDS YOU'LL NEED

diagnosis: a doctor's opinion about what illness a person has
therapy: treatment to help cure an illness or injury
tissue: bodily material; there is bone tissue, muscle tissue, nerve tissue, etc.
venom: poison produced in an animal's body for self-defense or to kill prey

Read

This excerpt is from a book on insects in everyday life. It discusses a type of insect that is a growing threat in the United States.

Attack of the Fire Ants

The red fire ant, *Solenopsis invicta,* is one of over eighty thousand species of ants worldwide. Like their close relatives, the bees, many species of ant have a sharp **appendage**, called a stinger, at the end of their body. Most bees can sting only once, and then they die. An ant's stinger can be used repeatedly.

A red fire ant

The red fire ant is not native to North America. It arrived on ships from South America in the 1930s through the port of Mobile, Alabama. That landing in Alabama **initiated** a full-scale invasion. Since then, fire ants from this invasion have spread throughout the southern United States and Puerto Rico. The ants have also made their way to Australia, New Zealand, and China.

ANT ZONES

Following World War II, **circumstances** in the U.S. worked in the ants' favor. The fire ant is known as a "tramp" or "weed" species because it thrives (like a weed) in recently cleared or disturbed areas. After the war there was rapid population growth in the "Sunbelt" of America's south and southwest. Land cleared for new homes, parks, and factories was a perfect habitat for fire ants. Now, similar conditions in

rapidly developing areas of Asia may prove inviting to the ants.

By 1950, the ants in the U.S. had made it halfway up the border between Mississippi and Alabama. Since then, they have become firmly established in Texas, and they are relatively common in Arizona. A few have shown up in California. They may eventually move into some milder parts of Oregon and Washington.

Public health experts **estimate** that, in any given year, from 30 to 60 **percent** of people living in *Solenopsis* zones in the United States are stung. The ant grasps the skin with its tiny, powerful jaws, arches its body, injects the stinger into the skin, and releases venom. If not stopped, the ant will rotate itself around and create a whole circle of stings. There's an immediate burning sensation, followed by hours to days of intense itching. **Virtually** everyone who is stung by a fire ant develops a red welt that stays painful for several days. Up to half of the victims will experience larger reactions near the location of the bite.

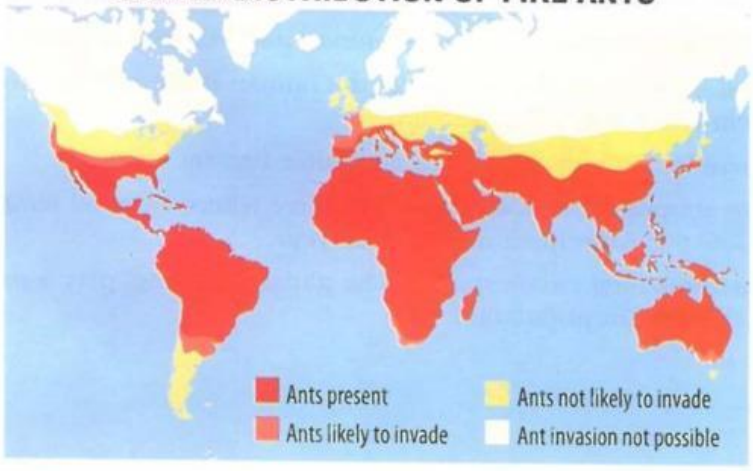
SERIOUS REACTIONS

Fire ant venom may be toxic to the nervous system. One tree cutter in Florida suffered serious fire ant attacks three times within one year. After the third attack, his right hand and forearm became numb[1] and his wrist became weak. This condition lasted for about a month. The venom is also *necrotic*—it kills the tissue that it comes in **contact** with. If this necrosis, or tissue death, happens after a sting, permanent scars may remain on a victim's skin. Terrible sores can result if an infection takes hold near the necrotic tissue. The most dangerous physical response to a *Solenopsis* sting, however, is an anaphylactic reaction. This is the same kind of reaction some people have to bee stings and is similar to an extreme allergy. It begins with weakness, itching, chest tightness, and wheezing[2]. This can bring on a sharp fall in blood pressure and sometimes even death. In some fire-ant zones, fire ant venom causes more fatal reactions than bee stings. In sensitive people, a single sting is usually enough to **initiate** the reaction.

Fire ant venom is a watery solution of toxin that affects human mast cells. These cells are filled with a **chemical** called "histamine." Histamine is the same **chemical** that triggers the sneezing, itching, and other symptoms of an allergy. When an allergy-causing substance enters the body, the walls of the mast cells weaken until they can no longer contain the histamine. The cell explodes, releasing a rush of histamine. If these histamine explosions occur in the lungs, the reaction can be serious—perhaps including a blockage of the passages that deliver air to the lungs. These lung problems are not common, but they are a real threat to anyone extremely sensitive to fire-ant venom.

Nothing can completely **neutralize** the effects of fire-ant venom, but people sensitive to it who live in fire-ant territory have some treatment choices. Immunotherapy is currently the best option for **minimalizing** reactions. It consists of a series of injections, administered on a regular schedule. At first, patients receive very small amounts of fire-ant venom that their bodies can tolerate. With each injection, the amount of venom is increased, which causes the person's body to start building up resistance to it. Eventually, patients have **sufficient** defenses to tolerate a fire-ant sting.

WORLD DISTRIBUTION OF FIRE ANTS



[1] *numb:* not able to feel anything
[2] *wheezing:* difficult, noisy breathing

The immunotherapy **regime** is expensive, and it also requires a long-term commitment. Doctors **estimate** that treatments will take as long as two years.

TEMPERATURE BOUNDARIES

Fire ant populations have not yet established themselves very far north. Many, many studies have tried to discover which temperatures are too cold for them. In **summary**, research shows that, like any insect, a fire ant becomes less active as the weather grows colder. Eventually, it becomes totally motionless. Fire ants hit this temperature boundary at about 50° Fahrenheit (10° Celsius). Above that temperature, ants are active. Below it, the ants slow down and can barely move.

In places where temperatures stay at least this low for much of the year, ant colonies cannot survive outdoors. In the U.S., at least for the moment, this keeps the fire ants from attacking areas east of the Pacific Coast mountain ranges and north of the Ohio River. Worldwide, *Solenopsis* ranges as far south as the southern tips of South America, Africa, and Australia. In the Northern Hemisphere, it does not generally spread north of 30 degrees north latitude and cannot survive north of 45 degrees north latitude. These statements, however, are based on climate conditions in the early 21st century. What if the climate changes? Some health officials worry that global warming may open the door for the ant armies to march farther north.

A more immediate worry is that ant colonies may take hold inside heated buildings. Under these **circumstances, external** temperatures would make no difference at all, and fire ants would become a much bigger problem for humans. ■

Reading Comprehension

Mark each sentence as *T* (true) or *F* (false) according to the information in Reading 1. Use the dictionary to help you understand new words.

___ 1. Red fire ants, like bees, deliver painful bites with their jaws.

___ 2. *Solenopsis invicta* first entered the United States through Puerto Rico.

___ 3. As the population in the U.S. South grew after World War II, more habitats for *Solenopsis* opened up.

___ 4. Very few people living in fire-ant territory ever come into contact with *Solenopsis*.

___ 5. Most people stung by red fire ants do not realize it until several hours later.

___ 6. *Solenopsis* venom can damage nerves and kill cells it touches.

___ 7. Mast cells are on the outside of the human body, and fire ants hold onto them while they inject venom.

___ 8. There is currently no way to neutralize fire-ant venom.

___ 9. Fire ant populations are unlikely to live where external temperatures go below 50° Fahrenheit much of the year.

___10. Environmental circumstances, like global warming, play a part in the spread of the fire-ant population.

READING SKILL Recording Processes with Flow Charts

LEARN

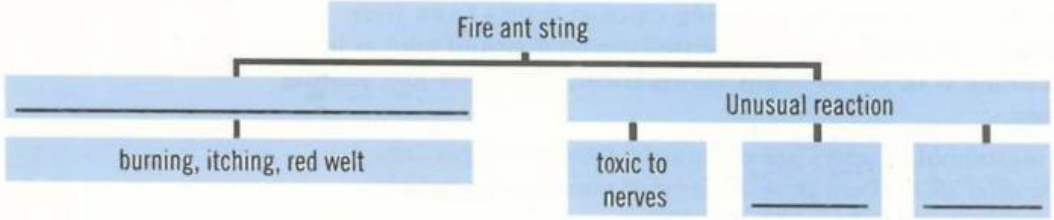
A process described in a reading may be simple and direct, or it could be quite complex. Sometimes, the direction of a process can depend on circumstances. It will take one direction if A happens and another direction if B happens.

A good way to clarify these possibilities in your notes is to use a flow chart. A flow chart shows how one event leads, or flows, into another. It also shows how circumstances might alter the process.

APPLY

Fill in this flow chart that traces the spread of fire ants in the U.S. Refer to Reading 1 for information. Note: The dotted line indicates a future possibility.

Fill in this flow chart showing what can happen as a result of a fire-ant sting. See Reading 1 for information.



In your notebook, create your own flow chart to describe what happens in each "unusual reaction" to a fire-ant sting. See Reading 1 for information. Compare and discuss your flow charts with a partner. Your charts may not be exactly the same.

REVIEW A SKILL **Outlining** (See p. 52)

In Unit 5, you outlined a reading passage. An outline is an alternative to a flow chart. complete the following outline of the main sections in Reading 1.

I. Introduction (Paragraph 1)

II. _____ (Paragraphs 2 and 3)

III. What happens when a fire ant bites (Paragraphs 4 and 5)

IV. _____ (Paragraphs 6 and 7)

V. Geographical range of fire ants (Paragraphs 9 and 10)

Vocabulary Activities STEP I: Word Level

A. **Read these excerpts from an article on an organic gardening website. The author is giving advice on how to get rid of fire ants without using chemicals. For each excerpt, cross out the one word or phrase in parentheses with a different meaning from the other three choices. Compare answers with a partner.**

1. There are several ways to kill a colony of fire ants without using poisonous (*chemicals / substances / appendages / compounds*) that could harm you or the environment.
2. An effective method that requires (*minimal / no / very little / minor*) effort is to "bucket" the colony. After shoveling a mound of ants into a large bucket, simply drown them by mixing soapy water into the sand in the bucket.
3. You could also pour hot water onto the ant mound. Because the water is chemically (*safe / neutral / harmless / virtual*), it does not damage the soil.
4. Unfortunately, a single treatment with hot water is usually not (*desirable / sufficient / satisfactory / enough*) to kill all the ants in a colony. You'll probably have to repeat the application at least three times.
5. Introducing some (*outside / external / local / exotic*) predator, such as straw mites, can kill ants. Unfortunately, then you have to find a way to get rid of *them*.
6. You probably could kill a colony by pumping exhaust fumes from your car into the mound. I (*estimate / argue / figure / guess*) it would take at least 45 minutes of running your car to begin killing them, instead of just making them unconscious.
7. Remember that household cleaners are chemicals. (*Almost / Especially / Virtually / Practically*) all of them pose a threat to you or your garden. Pouring them on an ant mound is not a good idea.

The word *contact* comes from a Latin word meaning "touch." In today's English, the verb *contact* usually means "to reach someone for the purpose of communicating."

They were finally able to ***contact*** *their daughter four days after the storm.*

For less important or shorter-term connections, people often use the phrase *come into contact with* or *come in contact with*.

She works in a language school, so she ***comes into contact with*** *people from all over the world.*

B. Check (✓) the people or things you have come into contact with. Then discuss your experiences with a partner.

___ 1. the headmaster or principal of your school
___ 2. a dangerous animal
___ 3. a celebrity
___ 4. people from another part of the world
___ 5. a gangster or dangerous person
___ 6. something mysterious or hard to explain
___ 7. serious illness
___ 8. an extremely rich person

Vocabulary Activities STEP II: Sentence Level

Word Form Chart			
Noun	**Verb**	**Adjective**	**Adverb**
estimate estimation	estimate overestimate underestimate	estimated overestimated underestimated	_____

C. Answer these questions in your notebook, using the word in parentheses in your answer. Refer to Reading 1 for information. Compare sentences with a partner.

1. About how long does an immunotherapy regime last? (*estimate,* noun)

   A typical ***estimate*** *is that it can last two years.*

2. About how many species of ant are there? (*estimate*, verb)
3. About what percentage of the population will get stung in ant territory, according to experts? (*estimated*, adjective)
4. If someone told you that he planned to complete an immunotherapy regime in a month or two, what would you say to him? (*underestimate*)
5. What would you say to a state official who wanted to require everyone in fire-ant territory to get immunotherapy? (*overestimate*)
6. In your opinion, should someone who is sensitive to ant stings live in Arizona? (*estimation*)

Word Form Chart			
Noun	**Verb**	**Adjective**	**Adverb**
circumstance	_____	circumstantial	circumstantially
initiation initiative initiator	initiate	_____	_____
minimalization	minimalize	minimal	minimally
neutralization	neutralize	neutral	_____
sufficiency insufficiency	suffice	sufficient insufficient	sufficiently insufficiently

D. Read another account related to insect bites and stings. Then restate the information in your notebook, using the word in parentheses. Concentrate on main ideas and leave out the less important details. Be prepared to read aloud or discuss your sentences in class.

1. Staying away from venomous insects will not entirely protect us. (*sufficient* or *insufficient*).

   Avoiding venomous insects is ***insufficient****.*

2. The bites of non-venomous insects can produce many more serious illnesses than the bites of venomous ones. (*initiate*)
3. For one thing, venomous insects account for only a tiny percentage of the insect species on the planet. (*minimal*)
4. Also, the bacteria and other microorganisms carried by insects can do much more damage to a human body than most venoms can. The insect bite itself is not damaging enough to cause a problem. (*sufficiently* or *insufficiently*)
5. For some diseases, like malaria or Lyme disease, the insect is not the dangerous organism but just a carrier. Such carrier insects—including flies, ticks, and mosquitoes—are called "vectors." (*neutral*)
6. Mosquitoes are the most dangerous vectors. About 40 percent of the world's people live in conditions that expose them almost constantly to mosquitoes, including the type that carries malaria. (*circumstance*)
7. Most insect venoms and their effects can be counteracted by simple medicines. This is not the case with diseases carried by vectors. (*neutralize*)
8. Governments and nonprofit groups have launched several earnest efforts to reduce the effects of malaria, especially in tropical Africa, Southeast Asia, and Central America. (*initiative*)
9. Although these programs are important and somewhat effective, it is doubtful whether anything humans do could make a big difference in the threat that malaria poses. (*sufficient* or *insufficient*)

READING 2

Before You Read

Read these questions. Discuss your answers in a small group.

1. Think about an incident in which you got insect or spider bites. Where were you when you were bitten? How did you react?
2. In your home town or home region, which insects are a problem? Do they bite? What happens to someone bitten by them?
3. Have you ever been bitten by an insect or spider you did not see? Why didn't you see it?

Read

This article from a popular online health magazine focuses on the importance of proper diagnosis and treatment of bites.

You Wouldn't Know It If It Bit You

The young woman had been looking forward to her nice new apartment in Manhattan. **Circumstances** turned out to be less comfortable than she expected, as this posting to an online forum about insect bites shows:

> I just moved into a newly renovated apartment and got 10 huge, itchy bug bites on my arms, legs, and hip. I thought it was my mattress, so I got rid of it and bought a new one. Still got bites and could not find bugs anywhere. I even tried freezing out my apartment by leaving the door open during the winter chill since I heard the bugs can't survive in temps less than 25 degrees. No luck. I went to a dermatologist who said the bite pattern isn't like any of the usual apartment pests, and he didn't know what it was. I am miserable. My immune system has reacted to the bites, and I have prickly itching ALL over my body, not just where the bites are, all day long. I called my landlord who is sending an exterminator over. Will post to let you know how it goes. If anyone has found the solution, please email me. Thank you!

Bedbugs, shown at 4× actual size

UNSEEN BITERS

Every night, countless people crawl into bed knowing exactly how the writer feels. Instead of a peaceful night's sleep, they will get a new round of bites by some mysterious pest. Because they don't know what's plaguing them, they have no idea how to stop it. In extreme cases, a concern becomes an obsession. Weakened by a lack of sleep, a victim develops a feeling that biting creatures are everywhere. Bites and the fear of them establish a cruel **regime,** ruling the victim's daytime thoughts and nighttime dreams.

Bites by arachnids—such as spiders and ticks— and by insects such as horseflies,

mosquitoes, or bedbugs are extremely common. **Virtually** all humans who survive past infancy are bitten at some point in their lives. A bite, which involves a creature's mouth parts, is different from a sting, which is made with a sharp structure **appended** to a creature's rear end. Most insect bites cause only **minimal** discomfort, if any at all. The bite might cause a little swelling because **chemicals** in the bug's saliva[1] irritate the skin. More serious problems are rare. When they do happen, the bite victim's own behavior might be to blame. Your parents **summarized** it for you when you were young: "Don't scratch those bites!" Scratching can open the skin and allow bacterial infections to get started.

Insects and arachnids account for almost all the bites people suffer, but they are identified less easily than any others. If a dog, a rodent, a horse, or even a snake bites you, you know that it has happened and which creature did it. If an insect or spider bites you, you may not even feel the **contact** of its mouth parts with your skin. You may realize you've been bitten only after an itchy bump develops a few hours later. Even if you did feel a bite, you probably could not identify the biter. Bugs are small. They move quickly. They have evolved excellent methods of staying hidden. Only a small minority of biting pests are even seen, much less swatted or captured. More often, the victims are left to wonder what bit them.

Brown recluse spider

LOOK-ALIKE MARKS

The body's reaction to a bite may not help narrow down the suspects. Different biters can cause the same symptoms. For example, many Australians who develop puffy red spots on an arm or leg blame white-tail spiders, mostly because white-tails are extremely common. However, the sore spot may be caused by the bite of an insect or another spider, or even by **contact** with a fungus. Another confusing situation involves two arachnids common in the eastern United States—the deer tick, which can spread a serious sickness called Lyme disease, and the brown recluse spider, whose venom is strong enough to make human victims quite sick. Deer tick and brown recluse bites leave similar **external** marks on a victim: a rash that looks like a bull's-eye target, with alternating rings of dark and light skin.

Guessing a biter's identity is no game. Being wrong can be dangerous. Doctors in Australia have developed effective medicines, known as antivenins, to treat bites from some of the continent's many venomous spiders. Each antivenin, though, is specific to the venom from one type of spider. No other antivenin is **sufficient** to **neutralize** the poison. There are risks as well when a North American doctor decides whether a bull's-eye bite mark comes from a deer tick or a brown recluse. If it's a tick bite but is treated as a spider bite, the victim will not get antibiotics to fight Lyme disease, which causes serious heart or nerve conditions in about 10 **percent** of infected people. If it's a brown recluse bite but is treated as a tick bite, the spider's venom will do greater damage. One serious effect of long exposure to strong spider venoms is necrosis, or "tissue death." Full-strength venom kills the skin, nerve, and muscle cells it touches, and the more **contact,** the more necrosis. That's why it's vital to correctly identify any biting spider and **initiate** treatment with the proper antivenin as soon as possible.

The frustrated victim of unknown bugs in her Manhattan apartment did not suffer from either Lyme disease or necrosis. Few people do. That does not mean she had things easy. We can easily understand her confusion—and her discomfort—as itching overtakes us after a day at the beach (sand fleas? spiders?), an hour on the bus (mites? flies?), or a few minutes of strolling through a grassy field (nearly anything).

[1] *saliva:* the liquid that is produced in the mouth

Reading Comprehension

Mark each sentence as *T* (true) or *F* (false) according to the information in Reading 2. Use the dictionary to help you understand new words.

___ 1. The bugs that bit the Manhattan woman lived in her mattress.

___ 2. The fear of being bitten can create emotional problems.

___ 3. Scratching a bite can create health problems.

___ 4. Insects and spiders are the only animals likely to bite humans.

___ 5. Insects and spiders often go away long before a bite victim even discovers the bite.

___ 6. The consequences of failure to identify the source of a bite are mostly emotional, not medical.

___ 7. Most of the spider bites in Australia are caused by white-tailed spiders.

___ 8. Lyme disease is spread to humans through contact with mosquitoes.

___ 9. The venom of a spider can be neutralized by a medicine called an "antivenin."

___10. Necrosis can be prevented by a simple course of antibiotics.

READING SKILL — Recording Processes with Flow Charts

APPLY

Use the information in Reading 2 as a starting point for a flow chart. In your notebook, describe one of these things:

- what happens following a bite by a bedbug
- what happens following the bite of a venomous spider

To expand your chart, do some outside research on the process you choose.

Vocabulary Activities STEP I: Word Level

A. Many academic words are also considered formal words. Which of the target words in this unit (see the chart on page 145) are more formal synonyms for these informal words? Be sure to use the right forms of the target words.

Informal	Formal
1. attach	_____
2. enough	_____
3. guess	_____
4. outside	_____
5. start	_____

B. Complete the sentences about Bee Sting Therapy (BST) using the target vocabulary in the box. Use each item one time. Use the synonyms in parentheses to help you. (Note: The sentences are not yet in the correct order.)

chemicals	initiates	neutral	regime
circumstantial	minimal	percentage	sufficient
in contact with			

___ a. Apitherapy uses _____ (substances) produced by bees—including venom—to promote human health.

___ b. BST's advocates say it is _____ (powerful enough) to reduce the effects of a serious inflammatory disease called multiple sclerosis (MS).

___ c. Scientists struggle to remain _____ (not taking any position) on the subject of apitherapy. On the surface, it just seems like a weird idea.

___ d. It seems to have gained popularity through _____ (situational) evidence, such as that only a small _____ (proportion) of beekeepers develop cancer. That is not enough for most health professionals.

___ e. Many eventually have only _____ (very little) control of some muscles. They may also experience problems with vision, internal organ function, or brain function.

___ f. Perhaps the most controversial form of apitherapy is Bee Sting Therapy (BST). The name says it all. Patients deliberately place bees _____ their skin and wait for the sting.
(against)

___ g. Proponents of BST claim that a steady _____ of treatments provides relief for sufferers of arthritis and other conditions involving inflammation. Exactly how it does so has not been explained.
(regular system)

___ h. The inflammation in MS typically _____ a slow deterioration of the central nervous system as it damages nerve cells.
(starts)

C. Put the sentences in activity B into a logical order to describe BST. (More than one order may be possible.) Read your sequence to a partner.

The word *circumstance* comes from Latin words meaning "around" and "stand." In English, *circumstance* does not mean "standing around," but there is a connection to this idea. Circumstances are the general conditions surrounding a person, thing, event, etc.

CORPUS

D. Read the sample sentences that feature forms of the word *circumstance*. Then answer the questions below in your notebook, using a dictionary as suggested. Compare answers with a partner.

a. The ice storm was an unfortunate **circumstance,** wrecking our plans to have a nice dinner out.
b. Under other **circumstances** I would say "yes," but I have too much work to do.
c. His presence at the store on the night of the robbery is just **circumstantial** evidence.
d. Bob disappeared under suspicious **circumstances.**

1. Check (✓) the word closest in meaning to *circumstances*. Consult your dictionary before you answer.

   ___ periods ___ intricacies ___ commotions ___ conditions

2. In each of these sentences, the circumstances "stand around" something. What is it?
3. Look at the sample sentences in your dictionary for *circumstance* and its forms. In those sentences, what do the circumstances "stand around"?
4. Does *circumstance* have any forms that are not used in the sample sentences in the box above? If so, what are they? Consult your dictionary.

Vocabulary Activities STEP II: Sentence Level

Pesticides are chemicals used to kill insects or other small organisms that cause problems for people. Some pesticides are relatively harmless to humans. Others have been shown to cause great harm.

E. **In each of the situations below, a pesticide is used. For each situation, answer these questions:**

a. What chemical is it?

b. How is it being used?

c. Do the benefits of the pesticide outweigh its risks? Why or why not?

d. Under what circumstances should it and should it not be used?

Refer to the readings in this unit and your personal opinions.

1. Collars for pets often contain pesticides meant to kill fleas and ticks. Some collars contain a class of chemicals called *organophosphates*. In some studies, these chemicals show a connection to brain cancer, paralysis, and nerve damage in humans.

_____

_____

_____

2. DDT is a pesticide that kills mosquitoes and other insects. In the past, DDT was blamed for almost wiping out many species of birds, killing helpful bees on farms, and causing premature births. Its supporters say its ability to kill mosquitoes helps reduce the spread of diseases like malaria. Malaria kills about 1 million people each year and makes about 300 million sick. No human is known to have died from exposure to DDT.

_____

_____

_____

3. In 2011, about 600 cases of West Nile Virus were reported in the United States. Of these, more than 30 resulted in death—a death rate of about 5 percent. DDT is the most effective and affordable pesticide available to kill the mosquitoes that carry it.

_____

_____

_____

F. **Discuss your opinions about the situations in activity E in a small group. Then prepare an oral report that summarizes your discussion of one of the situations. Present your report to the class.**

G. **Look at these arguments for and against a worldwide ban on the use of DDT. Restate each idea in your notebook, using some form of the word in parentheses. Then write a paragraph that expresses your own opinion. Try to use as many target words as possible in your work. Be prepared to read your paragraph or debate this issue in class.**

For	Against
DDT does not poison just the places where it is used. By getting into the water supply, into fish populations, and other cross-border resources, it threatens the entire world. (*chemical*)	Before the U.S. banned DDT in the 1960s, it was sprayed over entire farms. Of course it spread through the environment. Now, DDT is used mostly as a spray for the walls of homes in mosquito-infested areas. (*minimal*)
Big chemical companies are no longer able to sell DDT in rich countries. They are eager to sell it instead to poor countries, regardless of the damage it might cause. Only a worldwide ban can protect relatively powerless citizens from this toxin. (*sufficient*)	Rich countries are able to keep developing nations poor and powerless by making sure malaria rates stay high. A ban on DDT would remove almost the only affordable tool these countries have for becoming healthier and more productive. (*circumstances*)
Widespread use of DDT has led to the emergence of resistant mosquitoes. In a sense, its use has made it ineffective. By stopping the spread of DDT use—and restricting it to true emergencies—we can protect the usefulness of this pesticide. (*neutral*)	DDT does not have to kill mosquitoes to provide protection from malaria. It is also a powerful repellant, effective even with mosquitoes resistant to it. It greatly reduces the chances that a human will be bitten by a mosquito indoors. (*contact*)