

CHAPTER

Alcohol

SOMETIMES IT TAKES A FAMILY OF TO STOP A DRUNK DRIVER.

Chapter Preview

Lesson 1	Alcohol Use and Abuse	. 264
Lesson 2	The Nervous System	272
Lesson 3	Alcohol Use and Teens	278

Lesson 4 Alcohol Use and Society ..282

Building Health Skills29)(
--------------------------	----

TIME health news292

Chapter Reading Review.....293

Chapter Assessment 294

▲ Working with the Photo

Thousands of people die each year in crashes related to drunk driving. Do you think billboard messages like this one help keep people from drinking and driving?

Start-Up Activities



What do you already know about alcohol use? Take the short guiz below. Keep a record of your answers.

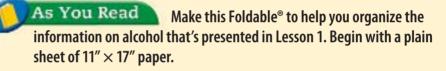
HEALTH QUIZ Choose the best answer for each of the following guestions:

- 1. It is legal to drink alcohol at age 17.
 - a. always
 - **b.** sometimes
 - c. never
- 2. Alcohol affects the brain soon after it is consumed.
 - a. always
 - **b.** sometimes
 - c. never

- 3. It is okay to get a ride with someone who has only had one drink.
 - a. always
 - **b.** sometimes
 - c. never
- 4. At parties, teens should avoid alcohol.
 - **a.** always
 - **b.** sometimes
 - c. never

ANSWERS: 1. c.; 2. a.; 3. c.; 4. a.

FOLDABLES® Study Organizer



Fold the short sides of a sheet of paper inward so that they meet in the middle.

MADD

- Fold the top to the bottom.



Unfold and cut along the inside fold lines to form four tabs.



Label the tabs as shown.

Under the appropriate tab, record what you learn about these four topics.

Short- term Effects	Long- term Effects
Alcohol Abuse	Alcoholish

Ge Online

Visit **glencoe.com** and complete the Chapter 9 crossword puzzle.

Lesson 1



Alcohol Use and Abuse



Guide to Reading

Building Vocabulary

As you read this lesson, make a flashcard for each new term.

- alcohol (p. 264)
- intoxicated (p. 265)
- blood alcohol concentration (p. 265)
- cirrhosis (p. 269)
- ulcer (p. 269)
- alcohol abuse (p. 270)
- alcoholism (p. 271)

Focusing on the Main Ideas

In this lesson, you will be able to

- **identify** the dangers of using alcohol.
- **describe** the short-term effects of alcohol use.
- **explain** ways that alcohol use can damage body systems.
- **apply** accessing-information skills to find facts about alcohol abuse.

Reading Strategy

Organizing Information Using the diagram below as a guide, create a chart that lists the reasons why using alcohol is dangerous.

Reasons	Why Using Alcohol is Dangerous
Reason 1	Alcohol can affect your control of your body.

FOLDABLES Study Organizer Use the Foldable on p. 263 as you read this lesson.



Write a few sentences describing what you already know about alcohol.

Alcohol: What Is It?

Alcohol is a drug. In fact, it is one of the most widely used and abused drugs in the United States. **Alcohol** is a drug created by a chemical reaction in some foods, especially fruits and grains. Alcohol is addictive. It affects a person physically, mentally, emotionally, and socially. Alcohol use can greatly harm a person's health. It is against the law for any person under the age of 21 to purchase it.

Alcohol abuse can lead to a wide range of physical, mental/emotional, and social problems. Name two social problems caused by alcohol use.







The Forms of Alcohol

By this point in your life, you have likely seen many TV commercials for alcohol. You may know that the three main forms of alcohol are beer, wine, and liquor. These drinks contain ethanol, a kind of alcohol that forms when the sugars from fruits, grains, or vegetables are fermented with yeast.



Identify What are the three main forms of alcohol?

The Dangers of Alcohol Use

Using alcohol is a dangerous behavior. It affects your ability to make good decisions and harms your physical health. Alcohol is a depressant, a drug that can slow down the activity of the brain and nervous system. A person may feel the effects of using alcohol right away. Judgment gets worse, making it more likely that a person will make bad decisions. Using alcohol can cause loss of control of motor skills, such as walking. If a person uses alcohol for a long time, he or she may develop many diseases. In fact, a person can die from drinking alcohol just once if he or she consumes too much in a short amount of time.



Alcohol is a kind of drug known as a depressant. What are some other depressants?

Do research to find out how alcohol acts as a depressant. Show what you learned in a pamphlet or on a poster.

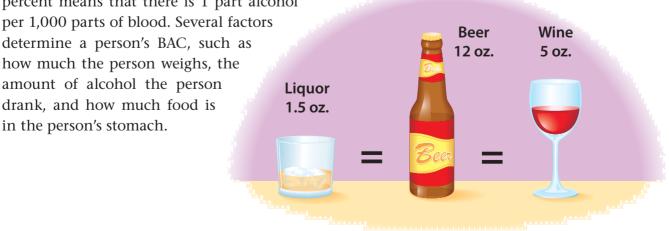
How Alcohol Affects Individuals

Not all people are affected by alcohol in the same way. A person is intoxicated (in·TAHK·suh·kav·tuhd) when he or she feels the effects of drinking alcohol. Being very **intoxicated** is also called being drunk. Some people can drink more alcohol than others before they become intoxicated. However, the amount of alcohol a person drinks is only one factor in understanding how drinking affects a person. **Figure 9.1** on the next page shows some other factors.

The more alcohol that is put into the body, the more the body is affected. The **blood alcohol concentration**, or BAC, is the amount of alcohol in the blood. A BAC of 0.10 percent means that there is 1 part alcohol per 1,000 parts of blood. Several factors determine a person's BAC, such as

amount of alcohol the person drank, and how much food is in the person's stomach.

A 12-ounce bottle of beer contains about the same amount of alcohol as a 5-ounce glass of wine or 1.5 ounces of liquor. Why might the same amount of alcohol affect two people differently?









ALCOHOL: DIFFERENT EFFECTS ON DIFFERENT PEOPLE

A person's body size helps determine how he or she will be affected by alcohol. What are some other factors that explain how a person will be affected by alcohol?

Factor	Description
Size and gender	Males can usually consume more alcohol before being affected by it than females. Also, the less a person weighs, the more easily and quickly he or she will be affected by alcohol.
Food in the stomach	If there is food in the stomach, the body will absorb the alcohol more slowly.
How fast a person drinks	Drinking quickly raises the level of alcohol in the blood because the body has less time to process it.
Other substances in the body	Drinking alcohol while taking certain medications and other drugs may have dangerous effects and can even be fatal.

In most states, a person is legally intoxicated when the BAC is greater than 0.08 percent, while in a few states, it is 0.01 percent. In most states, anyone under 21 is legally intoxicated if the BAC is greater than 0.02 percent. Police officers can measure the BAC in a person's body if they think that the person is driving drunk.

Over time, alcohol can damage the brain, heart, liver, and kidneys. It can also change how some medications act in the body. Consuming alcohol can also cause weight gain. It dehydrates the body, making your skin look older.



Explain What does intoxicated mean?

Short-Term Effects of Alcohol Use

Alcohol has both short- and long-term effects on the body. Some of the harmful short-term effects of alcohol are listed in Figure 9.2.

Alcohol Use and the Brain

Alcohol is absorbed into the bloodstream and reaches the brain almost as soon as it is consumed. Immediately, the brain and nervous system slow down. Even after only one drink, it becomes difficult to think. That's because alcohol blocks messages trying to get to the brain. After more drinks, it becomes harder to **concentrate** and remember. It is also hard to speak clearly or walk in a straight line. People who are drunk may also feel dizzy, have blurred vision, and lose their balance.

Academic Vocabulary

concentrate (KON suhn treyt) (verb) to focus on a thought; gather together; strengthen or thicken. It is difficult for Reiko to concentrate on her homework because her neighbors are listening to loud music.



Different parts of the brain have different functions. One part of the brain helps a person make decisions. When alcohol reaches that part of the brain, it becomes more difficult for the person to make good decisions. Because of this, a person who drinks alcohol can cause arguments, physical fights, and vehicle accidents. The person may also engage in risky behavior, such as using illegal drugs or engaging in sexual activity.



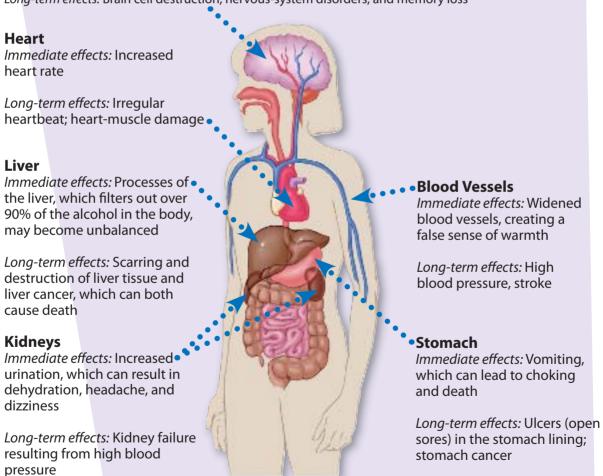
How Alcohol Harms the Body

Alcohol has both short- and long-term effects on body systems. What effect does alcohol have on the blood vessels?

Brain

Immediate effects: Impaired judgment, reasoning, memory, and concentration; slowed reaction time; decreased coordination; slurred speech; distorted vision and hearing; reduced inhibitions; alcohol poisoning, causing unconsciousness and even death

Long-term effects: Brain cell destruction, nervous-system disorders, and memory loss





Alcohol and the Heart

Alcohol affects the way the heart pumps blood through the body. It makes the blood vessels wider, bringing the blood closer to the surface of the skin. This makes the person drinking alcohol feel warm, even though his or her body temperature is actually dropping. Alcohol also slows down a person's heart rate.

Alcohol and the Liver and Kidneys

Short-term use of alcohol affects the liver and kidneys. The liver acts like a filter, taking alcohol from the bloodstream and removing it from the body. However, the liver can only do this for about half an ounce of alcohol each hour. The extra alcohol stays in the bloodstream and affects the body.

Alcohol causes the kidneys to make more urine. This can lead to dehydration, which is the loss of important body fluids. This is why people who drink too much often feel thirsty the next day.



Identify What is one short-term effect of alcohol on the kidneys?

Long-Term Effects of Alcohol Use

Drinking over a long period of time can lead to major health problems and even death. Long-term alcohol use can cause cirrhosis of the liver and ulcers in the stomach. Drinking alcohol while pregnant can also cause harm to the unborn child.



The picture on the left shows a normal liver. The one on the right shows a liver affected by cirrhosis, a disease often caused by alcohol use. What other organs are affected by alcohol?



Health Skills Activity

Accessing Information

Alcoholism

People who are addicted to alcohol are called alcoholics. There are various ways for alcoholics to get help for their addiction. To find valid information about overcoming alcoholism, follow these steps:

- 1. Research alcohol addiction.
- 2. Learn about local organizations that provide help to alcoholics.
- 3. Contact Alcoholics Anonymous (AA) and learn about their 12-step program for dealing with this addiction.

With a Group

Find out if your community has a chapter of Al-Anon or Alateen. These organizations support people whose friends or relatives have problems with alcohol. Al-Anon and Alateen can provide you with more information about alcoholism. Once you and your group have gathered your information, create a poster to present your findings to the class. As a class, organize an Alcoholism Awareness Day at your school. Put up your posters and hand out flyers containing the information you found about this disease and stating how people can get help for alcoholism.

Cirrhosis

Using alcohol can severely damage the liver. If used over a long period of time, it can cause **cirrhosis** (suh-ROH-suhs), which is the scarring and destruction of liver tissue. If a person keeps abusing alcohol, the normal liver cells turn into scar tissue. This scar tissue keeps blood from flowing normally through the liver. This can make it very difficult for the liver to carry out its important functions, which can cause serious health problems.

Symptoms of cirrhosis may include nausea, weight loss, yellowing of the eyes and skin, bleeding in the digestive system, itching, and swelling of the legs and feet. Although liver damage cannot be reversed, treatment can help prevent further damage and control the symptoms. In some cases where the damage to the liver is too severe, a liver transplant may be the only option.

Ulcers

When a person uses too much alcohol over time, the lining of the stomach becomes irritated. This causes ulcers to form. An **ulcer** (UHL·ser) is an open sore in the stomach lining. When an ulcer



This support group was formed to help families of people who suffer from alcoholism. What are some support groups for alcoholism in your area?



forms, the acid in the stomach can damage the intestine or stomach tissue. It is very painful. Ulcers can be treated with medication. Ulcers left untreated can cause life-threatening problems.

Fetal Alcohol Syndrome

Even babies who aren't born yet can be harmed by alcohol. Suppose a pregnant female drinks alcohol. It goes through her bloodstream to the umbilical cord, the tube that brings blood and oxygen to her unborn baby. This can cause fetal alcohol syndrome (FAS). An FAS baby may have birth defects such as a small head and small brain. As these babies grow, they may also have major speech and learning problems.

Alcohol Is Addictive

Like many other drugs, alcohol is addictive. An addiction is a psychological or physical need for a drug or other substance. Over time, the need for alcohol may become so strong that a person may feel sick without it. Using alcohol becomes the most important part of that person's life. A person who is addicted to alcohol is called an alcoholic.

Alcohol Abuse

Alcohol abuse is using alcohol in ways that are unhealthy, illegal, or both. People may abuse alcohol because they are worried about something or because they feel insecure. They may also drink to deal with their problems. However, alcohol doesn't make the problems go away. Alcohol abuse can lead to a disease known as alcoholism.



Substance Abuse Counselor

A substance abuse counselor helps individuals and families deal with substance abuse. Substance abuse can be alcohol or drug abuse or both. **Counselors perform many** activities, including diagnosing the addiction, managing treatment, counseling, and prevention strategies. If you want to be a substance abuse counselor, you should take classes in biology and psychology.

What skills does a substance abuse counselor need? Go to Career Corner at glencoe.com to find out.



Alcoholism

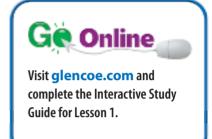
Alcoholism is a disease in which a person has a physical and psychological need for alcohol. It is a curable disease that requires treatment like counseling or even spending time in a hospital.

People may be alcoholics if they frequently drink alone or get drunk. Alcohol becomes more important to them than any other part of their lives—more important than family, friends, and work. In fact, alcoholics may stop participating in other activities just so they can drink. They often make excuses for drinking or refuse to admit how much they drink. Also, alcoholics may have blackouts, or periods when they cannot remember what they said or did while drinking. They might hurt themselves or hurt others.

Alcoholics can recover from their addiction. Organizations and support groups, such as Alcoholics Anonymous (AA), can help people who are addicted to alcohol. These groups can also help friends and families of alcoholics.



Identify What are two symptoms of alcoholism?





Lesson 1 Review



Review this lesson for new terms, major headings, and Reading Checks.

What I Learned

- **1.** *Vocabulary* Define *alcohol*.
- **2.** *Identify* What is alcohol abuse?
- **3.** *Explain* What are some short-term effects of alcohol on the body?
- **4. Describe** What kinds of long-term damage can alcohol use cause?

Thinking Critically

5. Evaluate Explain how being addicted to alcohol can be harmful to your health.

6. Analyze Why is it risky for a pregnant female to drink alcohol?

Applying Health Skills

7. *Advocacy* Design a T-shirt that influences teens to lead an alcohol-free lifestyle. Use information about the short-term and long-term effects of alcohol to think of a catchy slogan and message that can be displayed on the T-shirt. What are some other facts you can add to your product to encourage teens to choose the positive health practice of being alcohol free?

Lesson 2



The Nervous System



Guide to Reading

Building Vocabulary

Write down each term below. As you come across it in your reading, write down the definition.

- neurons (p. 272)
- central nervous system (p. 272)
- peripheral nervous system (p. 272)
- brain (p. 273)
- spinal cord (p. 273)

Focusing on the Main Ideas

In this lesson, you will be able to

- **list** the parts of the nervous system.
- **describe** problems of the nervous system.
- **explain** how you can keep your nervous system healthy.
- **practice** decision-making skills to protect the nervous system.

Reading Strategy

Predicting Look at the headings in this lesson. Write a question that you think the lesson will answer. After reading, check to see if your question was answered.



Write a short paragraph describing how you can protect your nervous system.

The Control Center of the Body

Your nervous system is your body's control center. It carries messages back and forth between your brain and the rest of your body. It controls your senses: your ability to smell, touch, hear, taste, and see. It controls your breathing and the flow of blood throughout your body. It also controls your thoughts and movements. Your nervous system can be harmed or even permanently damaged by alcohol use.

Neurons are cells that make up the nervous system. Neurons are also called nerve cells. They send and receive messages to and from the brain. This information is sent in the form of tiny electrical charges. You can see how neurons communicate in Figure 9.3.



Name What is another name for neurons?

The Parts of the Nervous System

Your nervous system can be divided into two parts. The **central nervous system** (CNS) is made up of the brain and the spinal cord. The **peripheral nervous system** (PNS) is made up of the nerves that connect the central nervous system to all parts of the body.

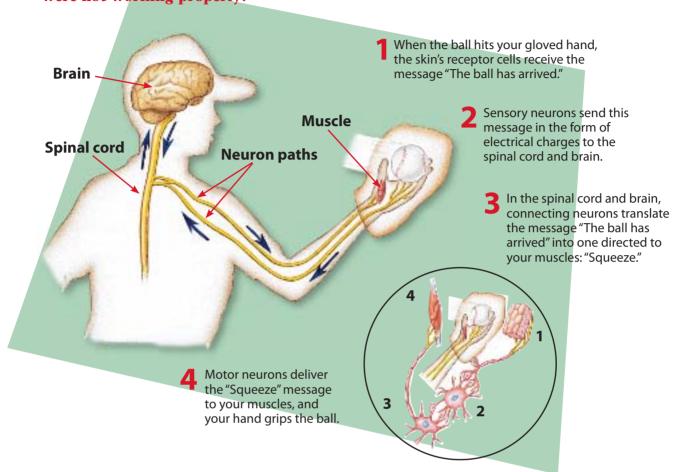






NEURONS: YOUR MESSAGE CARRIERS

When you want to catch a ball, your neurons send messages to your muscles. What might happen if your nervous system were not working properly?



Your brain is the most important part of these systems. The **brain** is the command center, or coordinator, of the nervous system. It receives information and sends messages to the other parts of the body. It works with the **spinal cord**, a long bundle of neurons that sends messages to and from the brain and all parts of the body. **Figure 9.4** shows the different parts of the nervous system.



Describe What is the function of the brain?

Problems of the Nervous System

The nervous system can become injured, or it may be affected by diseases and disorders.

Injuries

One of the most common causes of damage to the nervous system is physical injury. If you injure your head, neck, or back, it can be very harmful to your nervous system and your overall health.

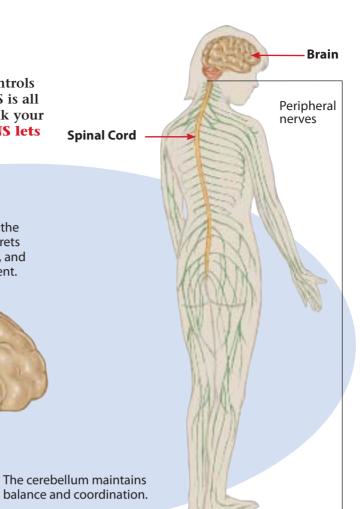


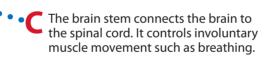


Your Nervous System

Your CNS is your brain and spinal cord. It controls heart rate, breathing, and digestion. Your PNS is all your other nerves. The nerves of your PNS link your CNS to your muscles. What part of your CNS lets you ride a bicycle?

> The cerebrum is the largest part of the brain. It processes thoughts, interprets information from the sense organs, and controls voluntary muscle movement.







Finding a Cure

Advances in science can help people who suffer from diseases such as multiple sclerosis (MS) and cerebral palsy. Many organizations work to help medical researchers find cures for these disorders.

Find out what these organizations do and how a person can help them. Report your findings to the class.

For example, a spinal cord injury can lead to paralysis. This means that a person loses feeling in, and often cannot move, some parts of the body. A brain injury can cause brain damage, loss of memory, and the loss of some physical abilities, such as being able to tie vour shoes.

Disorders

There are also some medical disorders that can harm the nervous system. Multiple sclerosis, or MS, is a disorder that attacks the central nervous system. This disease damages the outer part of some nerves. Because of this, the nerves can't send messages properly. MS can cause problems with thinking and memory. Some people aren't able to walk because of MS. Another disease of the nervous system is cerebral palsy, which is caused by damage to the brain as it is growing. At this time, there is no cure for either of these diseases.



Alzheimer's disease, Parkinson's disease, and epilepsy also harm the nervous system. Alzheimer's disease, which normally affects older adults. harms the brain and causes a loss of memory. Alzheimer's eventually causes mental deterioration and death. People with Parkinson's disease often have shaking and stiffness of the arms and legs. Epilepsy is a nervous system disorder that occurs when the signals in the brain aren't sent in the normal way. A person with epilepsy experiences seizures, which are strong muscle twitches caused by abnormal electrical activity in the brain. A person having a seizure may lose control of his or her muscles, may not be able to speak for a short time, or may lose consciousness for a short time.

Infections

Some viruses cause illnesses that can harm the nervous system. Some examples are polio, rabies (RAY-beez), and meningitis (meh·nhn·JY·tuhs). Today, there are vaccines that help protect people from some of these illnesses. Other illnesses may be treated with medicine.

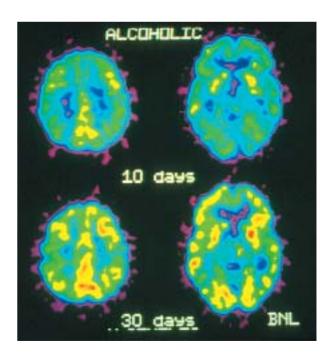
Alcohol and Drug Abuse

You know that alcohol can affect your brain. It can destroy millions of brain cells, which can never be replaced. Alcohol use can also affect your thinking and how your body moves. Other drugs can also harm your nervous system. Some drugs harm the part of the brain that helps control your heart rate, breathing, and sleeping. Other drugs affect the way your nervous system sends and receives messages. In fact, some drugs harm the nervous system so much that people using them may imagine objects or lights that aren't really there. This is called hallucinating.

Reading Check Name What are three viruses that can harm the nervous system?



▲ Mark has cerebral palsy, a nervous system disorder. He is an honor student and active in his community. Name two other nervous system disorders.



▲ Alcohol affects the activity of the brain, as this CAT scan shows. What other substances or factors might affect brain activity?





Health Skills Activity

Decision Making

Skateboard Safety

Jason is on his way home after picking up his skateboard from the repair shop. He does not have his helmet. He sees his friends Michael and Beth, who both have their skateboards. They ask Jason if he wants to skateboard with them. Jason wants to hang out with his friends, but he feels a lot safer when he wears his helmet. He's also thinking about his parents. He wants them to always know where he is and if he might be getting home late.

What Would You Do?

Suppose you were in Jason's situation. Use the six steps of the decisionmaking process to make a healthful choice.

- **1.** State the situation.
- 2. List the options.
- **3.** Weigh the possible outcomes.
- **4.** Consider your values.
- 5. Make a decision and act on it.
- **6.** Evaluate the decision.

Taking Care of Your Nervous System

Remember, your nervous system is your body's control center. Any damage to it can directly affect your other body systems. Therefore, it is very important to take good care of your nervous system.

One way to take care of your nervous system is to follow positive health practices by leading a healthy lifestyle. Be sure to eat nutritious foods and get enough rest. Also, do your best to protect yourself from disease. Even though you have already been vaccinated against some harmful diseases, you can take steps to avoid others. For example, to protect yourself from rabies, stay away from unfamiliar or wild animals.

If you participate in sports and other physical activities, it is important to protect yourself from physical injury. A good way to start is by wearing protective gear, such as a helmet, to protect your brain when skateboarding, in-line skating, riding a bicycle, or playing contact sports. If you enjoy indoor or outdoor water sports, never dive into shallow water. If you participate in gymnastics, make sure you always have someone to spot you. If you're thinking of adding weight lifting to your physical activities, be sure to protect your back and spinal cord by lifting properly.



Visit glencoe.com and complete the Interactive Study Guide for Lesson 2.





These teens know that wearing a helmet is a good way to protect their nervous systems. Name two other actions you can take to protect your nervous system.

Another way to keep your nervous system safe is to follow basic safety rules. For example, follow the traffic laws when you are riding your bicycle. Wear your safety belt anytime you're in a car. You can also use positive health behaviors, such as deciding to never use alcohol or other drugs. Think about it: You need healthy brain cells for your whole life. Why damage them with alcohol and drug use? If you stay away from alcohol and drugs, you can protect yourself from permanent damage to your nervous system.



Identify What is one way you can prevent physical damage to your nervous system?

Lesson 2 Review



After You Read

Review this lesson for new terms, major headings, and Reading Checks.

What I Learned

- **1.** *Vocabulary* Define *neuron*.
- **2.** *Name* List the two parts of the nervous system.
- **3.** *Explain* Describe how multiple sclerosis affects the nervous system.
- **4. Describe** How can alcohol damage the nervous system?

Thinking Critically

5. Hypothesize If the PNS stopped working, what would happen to the CNS?

6. Apply What decisions can you make to keep your nervous system healthy?

Applying Health Skills

7. Accessing Information Epilepsy is a nervous system disorder in which a person has seizures. During a seizure, the person may lose consciousness, twitch, and shake. Use library and Internet resources to investigate what happens in the brain of a person who has epilepsy. Write a paragraph describing what you find.



Lesson 3



Alcohol Use and Teens



Guide to Reading

Building Vocabulary

In vour notebook, use each term below in a sentence that shows its meaning.

- binge drinking (p. 279)
- minor (p. 281)

Focusing on the Main Ideas

In this lesson, you will be able to

- **describe** reasons why some teens may choose to use alcohol.
- **explain** why alcohol is harmful to teens.
- **demonstrate** positive ways to handle difficult emotions.

Reading Strategy

Predicting Look at the main headings, figures, and captions before you read this lesson. Predict the kinds of information you might learn from the lesson. Write down three items you think might be covered in this lesson.



Write a few sentences describing why you think a teen might choose to drink alcohol.

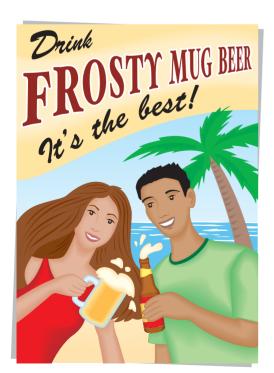
Why Do Some Teens Use Alcohol?

Studies show that most teens do not use alcohol. Then why do some teens try alcohol, even when they know it is harmful to their health and is also illegal? They may try alcohol for several reasons.

> One reason is curiosity. Another is that they think it will make them more popular. Some teens think that alcohol use makes them feel relaxed or more grown-up. Others use it to feel some relief from confusing or painful emotions that they don't know how to handle.



In television commercials or movies, using alcohol is often made to look fun and exciting. You have likely seen a commercial for some type of alcoholic drink. The people who appear in the commercials look young and attractive. This is done on purpose. The companies that



Ads are designed to make products look fun and exciting. What elements of this ad might encourage a teen to try alcohol?





make alcohol don't want people to think about or see the negative effects of their product. Because of these media images, many teens feel that drinking alcohol is okay. They also think that by drinking alcohol, they will have fun and excitement in their lives. just like the people in the ads.

Peer Pressure

"I want to be cool, too," thinks Jim. He has decided to try alcohol, even though he doesn't really want to. He has given in to negative peer pressure, one of the main reasons why some teens use alcohol. Some teens may choose to drink in order to fit in or to not be embarrassed in front of their friends. Unfortunately, even one drink can be harmful to a teen's health. Teens run the risk of harming their health if they accept a drink. It is not always easy to say no, but negative peer pressure is not a good reason to choose alcohol.

Binge drinking

Many teens don't realize that using alcohol can kill them. Sometimes teens dare each other to drink a lot of alcohol as quickly as possible. **Binge drinking** is the consumption of several alcoholic drinks in a short period of time. Binge drinking is very dangerous. It can cause the body's systems to fail. The person may stop breathing, or his or her heart rate might fall to a dangerously low level. As you might expect, binge drinking may cause death.



Topic: Teens, the Media, and Alcohol

Visit **glencoe.com** for Student Web Activities where you can learn about how advertising makes drinking alcohol look appealing to teens.

Activity: Using the information provided at the link above, find an ad that you think violates the rules for alcohol advertising. Create a flyer that shows the ad and tells why it is wrong for alcohol companies to use it.

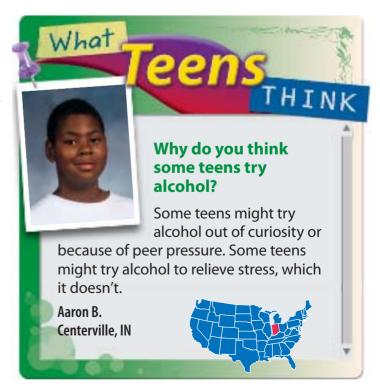


Reading Check

Identify What is binge drinking?

Why Is Alcohol Harmful to Teens?

You know that alcohol can be harmful to anyone. However, it is especially harmful to teens. Teens have to deal with many issues, such as the pressure to succeed and to fit in with others. They also have to learn to handle strong emotions. When teens use alcohol to deal with these issues, it only makes handling them harder. Using alcohol can also damage a teen's physical health. It can also lead to trouble with the law, which can affect a teen's future goals and dreams.





Health Skills Activity

Stress Management

Dealing with Emotions

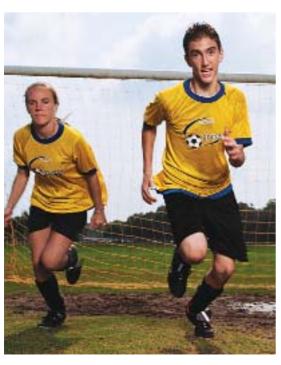
Dealing with difficult emotions is part of life for a teen. Rather than using alcohol, teens can use the following strategies to deal with emotions in healthful ways.

- Get enough sleep. Being well rested can give you the energy you need to deal with difficult feelings and stress.
- Take some deep breaths. This can help you relax.
- Stay active. Physical activity can help you focus your energy and lower your stress level.
- Talk to someone you trust and respect about what you're feeling.

With a Group

Work with a group to make a brochure for your fellow classmates that describes positive ways to deal with difficult emotions. Be sure to point out the negative effects of using alcohol to deal with difficult emotions.

Do you want to reach your goals? Avoid alcohol. How can using alcohol affect a teen's performance in sports?



Teens Are Still Growing

Teens' bodies are still growing and their brains are still developing. Alcohol can greatly harm the body and damage the brain. When teens use alcohol, their bodies do not grow and develop properly. They also run the risk of damaging their nervous systems.

Alcohol Can Affect Emotions

The teen years bring many emotional changes. Sometimes, teens have trouble dealing with their emotions. It is not always easy to handle anger, sadness, boredom, and other quickly changing emotions. Some teens may try alcohol, thinking it will help them deal with emotional changes. However, they will find out that alcohol may change how they feel for a little while, but it won't solve their problems.

Many people who use alcohol often feel bad about themselves. They often have trouble dealing with others. They don't understand that using alcohol to deal with emotions can be harmful, because people



who drink are more likely to create bigger problems for themselves in the long run. Alcohol does not relieve stress. It disrupts sleep and can create even more stress. There are better ways for teens to deal with difficult feelings. One way is to talk to an adult they trust. Another way is to find effective strategies for managing stress.

Underage Drinking Is Illegal

Aside from being harmful, alcohol use is also illegal for minors. A **minor** is a person under the age of adult rights and responsibilities. Teens who use alcohol can get into trouble with the law. If they buy or are found with alcohol, they can be arrested and fined. A minor who is caught driving while intoxicated will lose his or her license. In many states, a teen will lose the privilege to get a license until he or she is 18 or older. Also, teens who drink are more likely to use other drugs or to commit crimes.





Using alcohol is not an effective strategy for dealing with difficult emotions. What are some healthful strategies that teens can use to deal with difficult emotions?



Visit glencoe.com and complete the Interactive Study Guide for Lesson 3.





After You Read

Review this lesson for new terms, major headings, and Reading Checks.

What I Learned

- **1.** *Vocabulary* Define *minor*.
- 2. List Name two reasons why some teens choose to use alcohol.
- **3.** Explain Why is using alcohol an unhealthful way to deal with difficult emotions?
- **4. Describe** How does the media make alcohol use seem appealing?

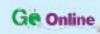
Thinking Critically

5. Apply What's a healthful way for you to deal with your emotions? Give an

- example of a situation in which you would use this strategy to cope with a difficult emotion.
- **6. Predict** How can using alcohol affect a teen's development?

Applying Health Skills

7. Accessing Information Do research to find some alcohol-free events that are taking place in your community. Make a list of these events and share the list with your classmates.





Lesson 4



Alcohol Use and Society



Guide to Reading

- Building Vocabulary In your notebook, use the term below in a sentence that shows its meaning.
- violence (p. 284)
- Focusing on the Main Ideas In this lesson, you will be able to
- **describe** how alcohol may affect the user's decisions.
- **explain** how using alcohol can affect a person's relationships.
- **describe** how using alcohol can lead to violence.
- **apply** decision-making skills to help someone get help for alcohol abuse.

Reading Strategy

Predicting Look over the headings in this lesson. Write a question that you think the lesson will answer. After reading, check to see if your question was answered.



Write a few sentences describing how alcohol can affect a person's behavior.

Other Risks of Alcohol Use

By now, you know how damaging alcohol use can be to your body and mind. However, alcohol can also harm other parts of your life, such as your schoolwork, your decision making, and your relationships.

Using alcohol is a behavor that is bad for your mental/ emotional and social health. Teens who use alcohol are more likely to do poorly in school. They can be late or even miss school. Since they may have trouble paying attention in class, they may get failing grades. They may get suspended or expelled. Teens who use alcohol often may let their classmates or teammates down because of poor performance.



Alcohol Use Affects Decisions

Have you ever made a really poor decision, perhaps because you were tired or sad? When you're not in a good state

This vehicle was involved in an alcoholrelated crash. A drunk driver is not the only one who may be injured. Who else might be injured as a result of a car crash?



of mind, you can make a bad choice. That's how it is with alcohol: it can cause people to make some really bad decisions. A person under the influence of alcohol might take risks that he or she would not normally take. For example, a normally well-behaved teen under the influence of alcohol may decide to commit a crime. Another may choose to try other drugs. A person may engage in sexual activity, which can lead to unplanned pregnancy or a sexually transmitted disease. Teens may make poor choices like this when they use alcohol.

Fortunately, many schools have programs to help students to be alcohol, drug, and tobacco free. Students Against Destructive Decisions (SADD) **promotes** good decision making among teens. If you get involved with groups such as SADD, you can improve your decision-making skills.

Driving Drunk

One of the most dangerous problems with alcohol is drunk driving. It is very important for your safety that you not ride in a vehicle with a driver who has been using alcohol. A person who uses alcohol experiences a loss of coordination, concentration, and visual awareness. A drunk driver, however, often thinks that his or her abilities have not been affected. In reality, the person will not be able to drive safely, and the chances that he or she will be in an accident are very high. Driving drunk is extremely dangerous for both the driver and the passengers. It can end with a crash, which could result in serious injury or even death.

Alcohol Use Affects Relationships

Dave had been a dependable, happy, outgoing person, but after meeting a new student at school, he decided to try some alcohol. It

was a bad choice. He started to drink more, and his personality began to change. He became irritable and moody. He argued more with his family. Most of his old friends no longer wanted to be around him because of his behavior. In time, almost all of Dave's relationships were harmed by his drinking.

Teens who use alcohol often find that they lose friends. Their interest in alcohol causes them to lose

Academic Vocabulary

promote (pruh MOHT) (verb) to advance, to contribute to the growth of, to present a product to a buyer for acceptance. The students made posters to promote exercise during fitness month.

Using alcohol may lead to violence. How can violence be avoided?





Health Skills Activity

Decision Making

Helping a Friend

Katelyn and Lisa have been best friends for a long time. Lisa recently told Katelyn that her mom drinks alcohol nearly every day and sometimes becomes violent. She also told Katelyn that sometimes she gets very scared. Katelyn wonders what she should do to help Lisa.

What Would You Do?

Apply the six steps of the decision-making process to Katelyn's situation. With a partner, role-play what Katelyn would say to Lisa and how Lisa might respond.

- 1. State the situation.
- 2. List the options
- 3. Weigh the possible outcomes.
- 4. Consider your values.
- 5. Make a decision and act on it.
- **6.** Evaluate the decision.

interest in activities they used to enjoy, such as sports. These teens may end friendships or lie to cover up the alcohol abuse. Because they push away the people in their lives, people who abuse alcohol may become very lonely.

DEVELOPING

Citizenship

Students Against Destructive Decisions (SADD) helps people understand the harmful effects of alcohol on teens.

Do some research on SADD. Find out how you and your classmates can get involved with this organization. Then discuss your findings with your class.

Alcohol Use and the Family

Family relationships can really be hurt by alcohol. Take Mara, for example. She lives with her parents and brothers, and she abuses alcohol. Can Mara be counted on to give emotional support to family members who need it? No. Does she keep her promises? Most of the time, she doesn't. Unfortunately, Mara's actions sometimes hurt other family members. She can be moody and unpredictable. Her whole family has suffered because of her alcohol abuse.

Alcohol Use and Violence

When a person uses alcohol to deal with emotions, he or she may suffer from mood swings. Often, these lead to **violence**, an act of physical force resulting in injury or abuse. People who become violent when they're using alcohol are often covering up difficult



Teens who choose not to use alcohol usually have healthy family relationships. Explain why a teen who abuses alcohol may have difficult relationships with family members.

emotions, such as anger or extreme sadness. Professional health services or a support group can help these people deal with their anger or sadness. After getting this type of help, most people can deal with their feelings without using alcohol.



Describe How can people who use alcohol to deal with their emotions get help?



Visit glencoe.com and complete the Interactive Study Guide for Lesson 4.

Lesson 4 Review



After You Read

Review this lesson for new terms, major headings, and Reading Checks.

What I Learned

- 1. **Describe** How can using alcohol affect a person's decisions?
- **2.** Explain Describe why people who abuse alcohol often lose friends.
- **3.** *Vocabulary* Define *violence*.
- **4. Describe** How can alcohol use result in violence?

Thinking Critically

5. *Apply* Tracy is worried that her aunt might be abusing alcohol. What are two actions that Tracy could take?

6. Evaluate How might a teen's decision to use alcohol have negative long-term effects on his or her life?

Applying Health Skills

7. *Decision Making* Your friend Drew has been irritable and moody lately. One day, Drew asks you to help him get some alcohol. He tells you that he really needs it because he has been feeling upset and that only alcohol will make him feel better. Use the decision-making steps to help you make a responsible choice in this situation.



Lesson 5



Saying No to Alcohol Use



Guide to Reading

Building Vocabulary

As you read this lesson, write down each new highlighted term and its definition.

- refusal skills (p. 286)
- withdrawal (p. 287)

Focusing on the Main Ideas

In this lesson, you will be able to

- identify reasons not to use alcohol.
- explain how to get help for alcohol use.
- **apply** refusal skills to avoid alcohol use.
- list some alternatives to drinking alcohol.

Reading Strategy

Finding the Main Idea Look over the headings in this lesson. For each of the major headings, write one sentence that states the main idea.



Write a couple of sentences describing why it is important for teens to avoid alcohol use.

How to Say No to Alcohol Use

"I wanted to fit in with the group," many teens say when asked why they tried alcohol. It doesn't have to be that way. There are ways to deal with peer pressure. One way is to avoid situations where alcohol use may take place. If you find yourself in one of these situations, you can apply your refusal skills. **Refusal skills** are *strategies that help you say no effectively*. **Figure 9.5** shows some refusal skills you can use to say no to alcohol.



Describe What is one strategy you can use to say no to alcohol?

FIGURE 9.5

Using Refusal Skills

Here are some ways you can say no to using alcohol. List two others.



Say no firmly. Be direct and clearly state how you feel. Use direct eye contact and keep your statement short.

Tell why not. Use "I" messages to give your reasons. You can just say, "No thanks, I don't want to risk getting into trouble."

ffer another idea. Suggest an activity that does not involve alcohol.

Promptly leave. If you have to, just walk away.



Reasons to Refuse Alcohol

There are reasons for refusing alcohol. **Figure 9.6** lists some of the many benefits of making this healthful choice. When you choose not to use alcohol, you are showing respect for yourself and your body and looking ahead to a bright future. You are choosing to remain in control of who you are and what you do. You are also showing that you care about relationships with your family and friends. You are choosing to lead a healthy lifestyle.

Getting Help for Alcohol Abuse

Alcoholism is a difficult disease to overcome, but it can be done. Some alcoholics may try hiding or deny the problem. Others are afraid of going through **withdrawal**, a series of painful physical and mental symptoms associated with recovery from an addictive substance. You can get help for yourself, a friend, or a family member who has an alcohol problem. Speak with an adult you



Respect

Choosing to be alcohol free shows that you respect yourself. **Create a pledge** that lists your reasons for choosing to avoid alcohol. Sign and date your pledge. Keep it where you'll see it often so you can remember your reasons. Encourage your friends to make a healthful choice by creating and signing their own pledge not to use alcohol.

FIGURE 9.6

BENEFITS OF AVOIDING ALCOHOL

There are many benefits of avoiding alcohol use. How can choosing to avoid alcohol have a positive effect on your future?



Health Skills Activity

Advocacy

Encouraging Teens to Avoid Alcohol

You know how important it is to be alcohol free. It is important to let other teens know, too. You can do this by organizing your own Be Alcohol Free campaign at school.

- Get together with a group of your classmates.
- Make a list of the top ten fun activities you like to do that don't involve alcohol or other drugs.
- Create a slogan and a logo for your campaign that encourage teens to be alcohol free.
- Use your ideas to make a poster, a bumper sticker, a brochure, or another type of handout.
- Role-play to create a skit that you can present to promote your cause.

With a Group

Royalty-free/Stockbyte/SuperStock

Rehearse your skit, then present it to your class as part of your campaign. Hang your posters or share your handouts with other teens.

trust, such as a parent, teacher, religious leader, or school counselor. You can also ask for help from a support group or alcohol treatment center.



Identify What is one place to find help for an alcohol problem?





Healthy Alternatives

Alcohol use is never the answer. It is not going to solve any of your problems or make you feel any better. Many teens use alcohol because they're already having other problems. When you start to deal with whatever is causing your problems, you're on your way to avoiding alcohol abuse. It is normal for teens to go through some emotional difficulties. If you find that you need help dealing with your emotions, talk to someone you trust.

Instead of using alcohol, find a healthful way to spend your time. Do what interests you. Join a club or sports group at school. Volunteer at a local organization, such as a food bank or animal shelter. This can give you a sense of purpose and can make you feel good about yourself. Another idea is to start a hobby that you can share with your friends. Remember: using alcohol will never help you reach your goals.



Explain What can a teen do if he or she needs help dealing with problems?



▲ Volunteering is a positive way to spend your time. What other activities can help teens avoid alcohol use?



Visit glencoe.com and complete the Interactive Study Guide for Lesson 5.



Lesson 5 Review



After You Read

Review this lesson for new terms, major headings, and Reading Checks.

What I Learned

- **1.** *Vocabulary* Define *withdrawal*.
- **2.** *Identify* What are three benefits of avoiding alcohol use?
- **3.** Explain Describe how a person can get help for an alcohol problem.
- **4. Define** What is a refusal skill?

Thinking Critically

5. *Apply* What is the most important reason for a teen to be alcohol free?

- **6.** *Hypothesize* How might you be affected if one of your close friends developed an alcohol problem? Explain your answer.
- **7.** *Analyze* How can healthy alternatives prevent alcohol use?

Applying Health Skills

8. *Refusal Skills* Use the refusal-skill strategies you learned about in this lesson to write a dialogue in which you say no to someone who offers you an alcoholic drink.



Building Health Skills

Accessing Information
Practicing Healthful Behaviors
Stress Management
Analyzing Influences
Communication Skills

Refusal Skills

Conflict Resolution Decision Making Goal Setting Advocacy

What Are Refusal Skills?

Refusal skills are strategies that help you say no effectively. If a peer asks you to engage in risky behavior, like drinking alcohol, remember the S.T.O.P. formula:

- **Say no firmly.** Be direct and clearly state how you feel. Use direct eye contact and keep your statement short.
- **Tell why not.** Use "I" messages to give your reasons. You can just say, "I don't want to risk getting into trouble."
- Offer another idea. Suggest an activity that does not involve alcohol.
- **Promptly leave.** If you have to, just walk away.

Saying No to Alcohol

Follow the Model, Practice, and Apply steps to help you master this important health skill.



🛈 Model

Read how Maura uses the S.T.O.P. formula to resist peer pressure at a party.

Rosa and her friend Maura went to a party. When they got there, they saw that people were drinking alcohol. Maura used the S.T.O.P. strategy to say no to alcohol.

Maura: "What's going on?"

Dennis: "We're having fun. C'mon it's just beer."

Say no in a firm voice.

Maura: "No, I don't drink."

Tell why not.

Maura: "I don't want the trouble that comes with drinking."

Dennis: "No one will find out."

Offer another idea.

Maura: "Come on, Rosa, let's go to a movie."

Promptly leave.

Maura: "See you on Monday, Dennis."



Practice

Help Ron use refusal skills by reading the scenario and answering the questions below.

Ron was hanging out with some classmates. He noticed that they were passing a bottle around. Someone offered him the bottle. Ron looked at the label and saw that it was a beer. Answer the following questions to identify how Ron could use the S.T.O.P. formula to refuse the offer of alcohol.

- **1.** What could Ron say to resist peer pressure to drink?
- **2.** What reasons could Ron give for why he doesn't want to drink the beer?
- **3.** What could Ron offer as another activity?
- **4.** What should Ron do if his friends keep insisting that he try the beer?





3 Apply

Apply what you have learned about refusal skills and complete the activity below.

Working in small groups, brainstorm your "top five reasons to refuse" alcohol. Next, think of different situations in which a teen might be pressured to use alcohol. Write these on a sheet of paper. Choose one of the situations from the list. Write a skit in which a teen in that situation uses the S.T.O.P. formula to say no to alcohol. Include as many of your group's "top reasons to refuse" alcohol as you can in your skit. Perform your skit for the class.

Self-Check

- Did we choose a situation in which a teen might be pressured to use alcohol?
- Did we use the S.T.O.P. formula to refuse alcohol?
- Did the teen in our skit use our "top reasons" to refuse?



TIME health news

News About Teens and ALCOHOL USE

Teen drinking is a serious problem, one that can cause harm to both the drinker and to others. Here is a round-up of three studies that prove the point.

Drinking Danger

A study from the University of Buffalo, New York, has some interesting findings about alcohol use among young people. Researchers surveyed the drinking habits of 2,200 Americans. They found that the younger their subjects were when they had their first drink, the more likely they were to abuse alcohol as adults. The scientists found that for every year earlier that a teen starts drinking alcohol, the chances of becoming a problem drinker increase by 12 percent. Researchers also discovered that people who begin drinking as teens are more likely to become seriously intoxicated during routine drinking episodes later in life.

The High Cost of Teen Drinking

According to a report from the National Academy of Sciences, drunken behavior and violent crimes that result from adolescent drinking cost the United States \$53 billion a year. This includes \$19 billion from traffic accidents alone. The academy made several recommendations to reduce these costs. These include cracking down on merchants who sell alcohol to kids, making alcohol use look less glamorous in movies, and increasing taxes on liquor.

Danger in the Passenger Seat

According to a study by the National Highway Traffic Safety Administration, 21 percent of teen drivers killed in car crashes were intoxicated. The study, however, suggests that the greater danger for teens is not drinking and driving but riding with a driver who has been drinking. A survey of 1,534 Californians ages 15 to 20 found that nearly 50 percent had ridden in a car with a drunk driver in the previous 12 months. The bottom line: Don't drink. Never get into a car with an intoxicated driver. And take away the car keys if someone wants to drive after drinking. You'll be doing yourself—and them—a life-saving favor.



CHAPTER



Reading Review



FOLDA BLES Study Organizer

Foldables® and Other Study Aids Take out the Foldable® that you created for Lesson 1 and any graphic organizers that you created for Lessons 1–5. Find a partner and guiz each other using these study aids.

Lesson 1 Alcohol Use and Abuse

Main Idea Alcohol is a drug that can cause both short-term and long-term damage to your body.

- Alcohol is a depressant. It slows down activity in the brain and nervous system.
- In all states, it is illegal for anyone under the age of 21 to buy or drink alcohol.
- Several factors determine how drinking alcohol affects you: size and gender, the amount of food in your stomach, and how fast you drink.
- Alcoholism is a disease in which a person is addicted to alcohol.

Lesson 2 The Nervous System

Main Idea The nervous system is your body's control center.

- The central nervous system includes the brain and spinal cord.
- The peripheral nervous system includes the nerves that connect the central nervous system to the rest of the body.
- Injuries to the nervous system include brain damage and paralysis, and loss of bodily functions.
- Alcohol and drug use can severely damage the nervous system.

Lesson 3 Alcohol Use and Teens

Main Idea Alcohol use is harmful to teens because teens' bodies are still growing, their brains are still developing, and they are going through many emotional changes.

- Television or movies often make using alcohol look fun and exciting.
- Binge drinking is the consumption of several alcoholic drinks in a short period of time. A person can die from binge drinking.
- Teens may choose to use alcohol for many reasons, including peer pressure and curiosity.

Lesson 4 Alcohol Use and Society

Main Idea Alcohol use affects the individual. their friends and family, and society.

- Alcohol affects a person's judgment and ability to make good decisions.
- Abusing alcohol can harm a person's relationships with family and friends.

Lesson 5 Saying No to Alcohol Use

Main Idea Saying no to alcohol use means that you respect yourself.

- Refusal skills are strategies that can help you say no to alcohol.
- People addicted to alcohol go through withdrawal when they stop using it.
- Alternatives to alcohol use include doing volunteer work or developing a hobby.





CHAPTER



Assessment



After You Read

HEALTH QUIZ

Now that you have read the chapter, look back at your answers to the Health Quiz on the chapter opener. Would you change any of them? What would your answers be now?

Reviewing Vocabulary and Main Ideas

On a sheet of paper, write the numbers 1–8. After each number, write the term from the list that best completes each statement.

- intoxicated
- cirrhosis
- alcoholism
- blood alcohol concentration
- alcohol
- alcohol abuse
- depressant
- ulcer

Lesson 1 Alcohol Use and Abuse

1.	is a drug created by a chemical
	reaction in some foods, especially fruits
	and grains.

2.	is a disease in which a person
	has a physical and psychological need for
	alcohol.

3. Th	ne amount	of alcoho	l in the	e blood is
als	so known a	as the		

4. A(n)	is an open sore in the
lining o	f the stomach.

5.	is using alcohol in ways tha
	are unhealthy or illegal.

7.	A(n)	is a drug that slows	the
	brain	and the nervous system.	

8.	is the scarring and destruction
	of liver tissue.

Lesson 2 The Nervous System

On a sheet of paper, write the numbers 9–10. Write **True** or **False** for each statement below. If the statement is false, change the underlined word to make it true.

- **9.** Your nervous system is made up of neurons.
- **10.** The peripheral nervous system is made up of the brain and spinal cord.

On a sheet of paper, write the numbers 11–13. After each number, write the letter of the answer that best completes each statement.

Lesson 3 Alcohol Use and Teens

- **11.** Reasons why teens should avoid alcohol include the following:
 - **a.** Alcohol is a harmful way of dealing with emotions.
 - **b.** Underage drinking is illegal.
 - **c.** All of the above

Lesson 4 Alcohol Use and Society

- **12.** Alcohol can affect a teen's life because
 - **a.** it can help a teen at school.
 - **b.** it can make teens take dangerous risks.
 - **c.** All of the above

Lesson 5 Saying No to Alcohol Use

- **13.** A healthy alternative to drinking alcohol is
 - a. doing other drugs.
 - **b.** doing volunteer work.
 - **c.** offering alcohol to someone else.





Thinking Critically

Using complete sentences, answer the following questions on a sheet of paper.

- **14. Interpret** How can binge drinking lead to death? In what way is this connected to blood alcohol concentration?
- **15. Evaluate** Explain how avoiding alcohol can have a positive effect. Be certain to include physical, emotional, and social effects.

Write About It

16. Expository Writing Write a short advertisement encouraging teens to be alcohol free. Be sure to include ways to say no to negative peer influences and stay alcohol free.



Alcohol Podcast

With a partner, use Garage Band™ or Audacity® to record a podcast about alcohol use and refusal skills. Follow the steps below to complete this project.

- Using the textbook as a guide, write a 3-5 minute dialogue that discusses and defines alcohol use.
- Include facts about the effects of alcohol, teens and alcohol use, alcohol use and society, and refusal skills.
- Open a new podcast project with two audio tracks; one for each of you.
- Record your audio tracks. Add lead-in music.
- Edit for content and clarity.
- Save your project and make sure that it is accessible on iTunes®.

Standardized Test Practice

Rachel's Writing Plan

Rachel made the following concept map to organize her ideas for a paper. Review her concept map and then answer questions 1-3.



- 1. Under which subtopic should details about the three types of alcohol be placed?
 - A. Dangers of Alcohol
 - **B.** Alcohol Abuse
 - C. Forms of Alcohol
 - D. Effects of Alcohol

- 2. Which detail below supports the subtopic "Dangers of Alcohol"?
 - **A.** Binge drinking may lead to death.
 - **B.** Alcohol is found in three forms: beer, liquor, and wine.
 - **C.** It is illegal for anyone under the age of 21 to use alcohol.
 - **D.** Alcoholism can be treated.
- **3.** Based on this writing plan, what type of paper is Rachel planning to write?
 - **A.** a persuasive essay to convince adults not to drink alcohol
 - **B.** a paper that describes alcohol use and abuse
 - **C.** a paper that discusses the physical effects of alcohol
 - **D.** none of the above