Rate what you know about medicines, alcohol, and drugs by taking the Chapter 11 Health Inventory at health.glencoe.com.

**Foldables Study Organizer**

Make this Foldable to help you organize the main ideas on using medicines safely in Lesson 1. Begin with four circles of paper—one large (8” across), one medium (7” across), and two small (each 2 1/2” across).

**Before You Read**

Make this Foldable to help you organize the main ideas on using medicines safely in Lesson 1. Begin with four circles of paper—one large (8” across), one medium (7” across), and two small (each 2 1/2” across).

**Step 1**
Fold the medium circle in half. Glue the top half onto the large circle, making sure that the bottoms of the two circles are aligned. This will create a tab from the unglued part of the medium circle.

**Step 2**
Fold the two small circles in half. Glue the top half of each circle onto the bottom half of the medium circle. This will create two more tabs.

**Step 3**
Label as shown.

**As You Read**
Under the appropriate tab, define key terms and record information on using medicines safely.
CHAPTER 11: DRUGS AND ALCOHOL

Using Medicines Safely

Drugs and Medicines

People sometimes refer to new medicines as “miracle drugs.” However, drugs are also blamed for causing serious problems in society. How can these substances be both helpful and harmful? The effects depend on the type of drug and how it is used. A **drug** is a substance other than food that changes the structure or function of the body or mind. A **medicine** is a drug that prevents or cures illness or eases its symptoms.

What Medicines Do

Medicines can help your body in many ways. They are generally grouped according to their effect on the body. The various kinds of medicines can do the following:

- **Prevent diseases.** Vaccines (also called immunizations) are medicines that protect against diseases that can spread such as measles and mumps. Vaccines cause the immune system to produce substances that destroy specific germs before they can cause disease. Immunizations are an important part of disease prevention.

Quick Write

Do you read the label on an over-the-counter medicine before you take it? Why or why not?

Learn About...

- different types of medicines.
- the proper use of medicines.
- how to avoid misusing medicines.

Vocabulary

- drug
- medicine
- prescription medicine
- over-the-counter (OTC) medicine
- side effect

Medicines come in many forms. Why do you think this is so?
• **Fight germs.** Antibiotics (an-tee-by-AH-tiks) are a type of medicine used to fight disease-causing germs. They kill harmful bacteria that can cause infections.

• **Relieve pain.** Many medicines, including ibuprofen (EYE-byoo-PROH-fen) and acetaminophen (uh-SEE-tuh-MI-nuh-fen), are used to relieve pain and reduce fever and inflammation.

• **Treat other conditions.** When you have a cold, you can use a decongestant (dee-kuhn-JES-tuhnt) to help you breathe more easily. Medicines containing antihistamines (an-tee-HIS-tuh-meenz) can relieve allergy symptoms. Certain health problems or conditions such as diabetes can be treated or controlled with medicine.

### Types of Medicines

When you are sick, you might take either prescription or over-the-counter medicine. A **prescription medicine** is a medicine that can be used safely only with a doctor’s written permission. **Over-the-counter (OTC) medicines** are medicines that you can buy **without a doctor’s prescription.** Both kinds of medicines can have side effects and should be used with caution.

### Prescription Medicines

The doctor’s order, or prescription, shows how much of the medicine is needed and how often it should be taken. **Figure 11.1** shows a sample prescription label. Only licensed pharmacists are authorized to fill prescriptions and give you the medicine to take home.

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**FIGURE 11.1**

**PRESCRIPTION MEDICINE LABEL**

To make sure that you are interpreting the instructions on a medicine label correctly, ask your doctor or pharmacist to explain it to you.

- Name of prescribing doctor
- Directions from the doctor
- Name of the medicine
- Strength and/or amount per container
- Number of refills allowed
- Expiration date
- Special instructions
- Date prescription was filled
- Name and address of patient
- Pharmacy name, address, and telephone number
- Name of pharmacist
- Prescription number

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![Image of a prescription medicine label](image-url)
Over-the-Counter Medicines

OTC medicines are generally safe when used as directed. When choosing an OTC medicine, check the label to find the product’s active ingredients. This will help you select a product that contains only the medicine you need. If you think you need to take more than one OTC medicine at the same time, ask a pharmacist if the medicines can be combined safely.

Guidelines for the Safe Use of Medicines

Medicines may cause side effects, reactions to medicines other than the ones intended. Make sure that you are aware of any side effects that may lead to injury, such as drowsiness. Here are some other guidelines for using medicines safely.

- **Read the label.** Take all medicine exactly as instructed. Make sure you understand the instructions on prescription and OTC medicine labels. Ask a doctor or pharmacist if you need help interpreting the information or have questions about listed side effects. Check the expiration dates on medicines and discard any that have expired. Some medicines become less effective over time; others can become stronger.

- **Take safety precautions.** Use only medicine that has been prescribed for you. Keep all medicines out of the reach of children. If anyone takes too much medicine (overdoses), or has an allergic reaction to a medicine, get medical help immediately.

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**HEALTH SKILLS ACTIVITY**

**DECISION MAKING**

**Following Doctor’s Orders**

The antibiotic that Mary’s doctor prescribed for her infection worked quickly. After three days of taking the pills every eight hours, Mary feels much better. The doctor told her to keep taking the pills for ten days. The warning label says to finish all medicine. Mary wonders whether she really needs to take the rest of the medicine. The pills make her stomach feel a little upset. What should Mary do?

**What Would You Do?**

Apply the six steps of the decision-making process to Mary’s problem. With a classmate, discuss what you would do if you were Mary. Explain how you came to your decision.
Misusing Medicines

Medicines should be taken only when needed. Remember that medicines are drugs, and drug misuse can cause serious health problems.

Doctors and pharmacists provide detailed instructions and information to help you use medicines properly. Follow their instructions and these tips to avoid misusing medicines.

- Take medicine according to directions.
- Take the recommended or prescribed dosage.
- Take the medicine for the length of time prescribed by a doctor, even if you start to feel better before you’ve stopped taking it. Don’t take an OTC medicine for a longer period of time than is recommended on the label.
- Do not give your prescription medicines to others.
- Don’t mix medicines without your doctor’s approval.

Inappropriate use of medicine can sometimes lead to health problems later in life, such as liver or kidney failure. Also, certain medicines can harm a developing fetus. Females who are pregnant or who plan to become pregnant should always check with a doctor before taking any medication.

Lesson 1 Review

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

Reviewing Terms and Facts

1. Vocabulary Define drug and medicine.
2. List What are four ways that medicines can help the body?
3. Recall How do prescription medicines differ from over-the-counter medicines?
4. Restate What is a side effect?

Thinking Critically

5. Hypothesize What might happen if you took a medicine after its expiration date had passed?

6. Describe Explain the role of immunizations and treatment with medicines in disease prevention.

Applying Health Skills

7. Accessing Information Visit a local supermarket or pharmacy and examine the labels of four different types of OTC medicines. On a sheet of paper, write the name of each medicine. Note the purpose of the medicine, any possible dangerous combinations with other medicines, and any possible side effects. Share your findings with the class.
Alcohol Use and Abuse

What Is Alcohol?

Alcohol is a drug created by a chemical reaction in some foods, especially fruits and grains. Found in beer, wine, whiskey, and other beverages, alcohol affects a person physically and mentally.

In the United States, it is illegal for anyone under the age of 21 to drink alcohol. Many people who start drinking in their early teens become dependent on alcohol; they are also likely to try other drugs. Using alcohol may result in chemical dependency on this substance. Being addicted to alcohol is associated with many serious health problems.

Teens may begin drinking to escape from problems or relieve stress, or because of peer pressure. Learning about alcohol’s harmful effects on the body, however, will help you decide not to drink.

Choose friends who enjoy healthy activities and avoid the use of alcohol and other drugs.
How Alcohol Affects the Body

A person can feel the effects of alcohol just a few minutes after taking the first drink. Alcohol can impair a person’s judgment and cause other short-term effects. People who drink large quantities of alcohol also risk serious long-term effects. These include permanent damage to organs and even death. Figure 11.2 details how the body is damaged by the use of alcohol.

**Figure 11.2**

**Harmful Effects of Alcohol**

Alcohol has both short- and long-term effects on many different body systems.

**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.

**Heart**

_Immediate effects:_ Increased heart rate.

_Long-term effects:_ Irregular heartbeat, heart muscle damage.

**Liver**

_Immediate effects:_ Processes of the liver, which filters out over 90% of the alcohol in the body, may become unbalanced.

_Long-term effects:_ **Cirrhosis** (suh•ROH•suhs), or scarring and destruction of liver tissue, and liver cancer. Both can cause death.

**Blood Vessels**

_Immediate effects:_ Enlarged blood vessels, creating false sense of warmth.

_Long-term effects:_ High blood pressure; stroke.

**Stomach**

_Immediate effects:_ Vomiting, which can lead to choking and death.

_Long-term effects:_ Ulcers (open sores) in the stomach lining; stomach cancer.

**Kidneys**

_Immediate effects:_ Increased urination, which can result in dehydration, headache, and dizziness.

_Long-term effects:_ Kidney failure resulting from high blood pressure.

**Reading Check**

Make your own web. Write *Effects of Alcohol* in the center of your paper inside an oval. Add two ovals connecting to the center oval, titled **Short-term Effects** and **Long-term Effects**. Write examples branching from these ovals.
**Differing Effects**

*Figure 11.3* shows three common types of alcoholic beverages. The more alcohol a person drinks, the more he or she will be affected. However, the amount of alcohol is only one factor in determining how drinking affects a person. Below are other factors to consider:

- **Size and gender.** Generally, females can tolerate less alcohol than males. In addition, the less a person weighs, the more easily he or she will be affected by alcohol.
- **Food in the stomach.** The body’s absorption of alcohol will be slower if there is food in the stomach.
- **How fast a person drinks.** Gulping down a drink 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 drugs may have dangerous effects and can even be fatal.

In the United States, warnings about the health risks of drinking have been required on alcoholic beverages since late 1989.
Drinking and Driving

Drunk drivers are said to be driving under the influence (DUI) of alcohol or driving while intoxicated (DWI). A person who is intoxicated (in·TAHK·suh·kay·tuhd) is drunk. Driving drunk is illegal.

Even one alcoholic beverage begins to impair coordination and can make driving unsafe. When a driver has been drinking, the chances that she or he will be involved in an accident are very high. The more alcohol a person drinks, the more dangerous she or he is behind the wheel. Slower reaction times and impaired judgment make drunk drivers dangerous to other drivers and pedestrians. Alcohol use contributes to almost half of all motor-vehicle–related deaths, the most frequent cause of death among Americans ages 15 to 20.

Police officers test drivers to determine whether they are intoxicated. What behaviors might signal that a person is intoxicated?

ON YOUR OWN
Find out if your community has a chapter of Alateen or a similar group for teens who have friends or relatives who have problems with alcohol. How does this organization help teens cope with the challenges of this situation?

HEALTH SKILLS ACTIVITY

Accessing Information

Helping Someone with a Drinking Problem

You may suspect that someone close to you has a problem with alcohol. Alcohol addiction is an illness, and a person who is drunk sometimes cannot control his or her behavior. Here are some strategies for helping someone with a drinking problem.

- Learn about alcohol addiction and sources of treatment.
- Talk to the person about the problem only when she or he is sober.
- Encourage the person to learn about the damage that drinking does to the body and to seek help from a health care professional or a support group.

- Contact Alcoholics Anonymous and learn about the group’s 12-step program.
- Show concern and sympathy.
- Join a support group such as Al-Anon for people who have friends or relatives who are addicted to alcohol.
- Do not cover up or make excuses for the person.
Alcoholism

Alcoholism is an illness characterized by a physical and psychological need for alcohol. People who become addicted to alcohol are not able to limit the amount they drink. Alcoholics develop a tolerance for alcohol. They need to drink more and more alcohol to experience its effects. A person may be an alcoholic if he or she

- becomes drunk often.
- drinks alone.
- stops participating in other activities so that he or she can drink.
- acts like a different person when drinking alcohol.
- makes excuses for drinking.
- promises to quit but does not.
- refuses to admit how much he or she drinks.
- experiences blackouts—periods when he or she cannot remember what he or she said or did while drinking.

If you suspect that a friend or relative has a problem with alcohol, you can seek help from a trusted adult. Who are some of the people in your community to whom you could turn for help?

Lesson Review

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

Reviewing Terms and Facts

1. **Vocabulary** Define the term alcohol. Give two examples of beverages that contain alcohol.

2. **Recall** Name three long-term effects of alcohol on the body.

3. **Explain** Why is it dangerous for people to drive when they are intoxicated?

4. **List** What are three signs of alcoholism?

Thinking Critically

5. **Evaluate** Explain how a chemical dependency on alcohol negatively impacts health.

6. **Analyze** Do you think that warning labels on alcohol are necessary? Explain your answer.

Applying Health Skills

7. **Refusal Skills** If someone were pressuring you to use alcohol, how could you use S.T.O.P. to refuse? Would your response to a friend be different from your response to an acquaintance? Predict the consequences of refusing in each situation.
Lesson 3: Drug Use and Abuse

What Is Drug Abuse?

Some drugs have no medical use. These illegal drugs are substances it is against the law for people of any age to manufacture, possess, buy, or sell. Illegal drugs damage the user’s mind and body.

Drug abuse is the use of a drug for nonmedical purposes. When people use illegal drugs, or when they intentionally misuse legal drugs for nonmedical purposes, they are abusing drugs. When people drink alcohol with the intention to get drunk, they are abusing alcohol.

Marijuana

Marijuana (mar-uh-WAH-nuh) is a drug made from the hemp plant. It is usually smoked, and it is often the first illegal drug that teens use. This mood-altering drug is also called “pot” or “weed.” Figure 11.4 lists some of the effects of marijuana use.

**Figure 11.4**

**Effects of Marijuana Use**

Marijuana has many immediate and long-term effects on the body.

**Immediate Effects of Marijuana Use**
- Inability to think or speak clearly
- Difficulty paying attention
- Loss of short-term memory
- Lack of coordination, slowed reaction time
- Increased heart rate and appetite
- Unusual sensitivity to sights and sounds
- Sadness or fearfulness

**Long-Term Effects of Marijuana Use**
- Problems with normal body development in young users
- Damage to lung tissue and the immune cells that fight cancer
- Feelings of anxiety and panic
- Possible psychological dependence
- Possible inability to have children

Quick Write

Make a list of illegal drugs that you have heard about. Jot down what you have heard about them.

Learn About...
- what drug abuse is.
- how different drugs affect the body.

Vocabulary
- illegal drugs
- drug abuse
- stimulant
- amphetamine
- depressant
- narcotic
- hallucinogen
- inhalant
Stimulants

**Stimulants** (STIM-yuh-luhnts) are drugs that speed up the body's functions. They cause an increase in heart rate, breathing rate, and blood pressure and provide a false sense of energy and power. As the effects wear off, the user feels exhausted and emotionally unbalanced. Stimulants can affect the body in unpredictable ways and can lead to addiction or even death.

Amphetamines

**Amphetamines** (am-FE-tuh-meenz) are strong stimulant drugs that speed up the nervous system. For this reason amphetamines are commonly called “speed.” They come in many forms and can be swallowed, inhaled, smoked, or injected. **Figure 11.5** lists the harmful effects of amphetamine abuse.

Cocaine and Crack Cocaine

Cocaine (koh-KAYN) is an illegal stimulant made from the coca plant. It can be inhaled, smoked, or injected. Street names for cocaine include “blow,” “snow,” and “coke.” At first the user gets a brief, powerful feeling of well-being and confidence. When the feeling wears off, the user becomes anxious and depressed. In a matter of days a cocaine user can become addicted to the drug.

Because cocaine affects the heart rate, even first-time users run the risk of a fatal heart attack. Repeated use can damage nasal membranes and cause lung problems. Users may act aggressively or deny responsibility for their actions.
Crack is a concentrated form of cocaine. After smoking crack, a person may feel more energetic and alert for a few minutes. Then the user feels depressed and craves more of the drug. Crack users can become dependent on the drug even faster than cocaine users. The side effects of crack are similar to those of cocaine, including possible heart attack and death.

Depressants

Depressants (di-PRE-suhts) are drugs that slow down the body’s functions and reactions, including heart and breathing rates. Most come in tablet or capsule form and are swallowed. Doctors sometimes prescribe depressants called tranquilizers (TRANG-kwuh-ly-zuhrz) to treat patients who are experiencing anxiety, muscle spasms, or sleeplessness. Other depressants include barbiturates (bar-BI-chuh-ruhts) and hypnotics (hip-NAH-tiks). Alcohol is also a depressant.

Depressants may make users feel relaxed and less anxious. However, depressants can also impair coordination and judgment and cause sleepiness. Depressant users can become physically and psychologically dependent. They may become depressed and experience mood swings. Depressants can cause coma and death if they are combined with alcohol.

**Figure 11.6**

**Other Types of Drugs and Substances**

There are over 2,000 names for drugs. Which of the names in this chart are familiar to you?

<table>
<thead>
<tr>
<th>Type of Drug or Substance</th>
<th>Examples</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narcotics</td>
<td>heroin, morphine, codeine</td>
<td>Narcotics are drugs that relieve pain and dull the senses. Heroin is an illegal narcotic. Morphine and codeine may be prescribed for certain conditions; they are carefully controlled because they are highly addictive. Abuse of narcotics damages the lungs, liver, kidneys, and brain.</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td>phencyclidine (PCP, angel dust), lysergic acid diethylamide (LSD, acid)</td>
<td>Hallucinogens are drugs that distort moods, thoughts, and senses. Users may become disoriented, less sensitive to pain, and violent. They may also lose control.</td>
</tr>
<tr>
<td>Club Drugs</td>
<td>Ecstasy (X, MDMA), GHB (G, liquid Ecstasy), Rohypnol (Roofie), Ketamine (special K, vitamin K)</td>
<td>Club drugs are illegal drugs that were originally available mostly in nightclubs or at all-night dance parties called raves. They may be used to reduce inhibitions. Because some club drugs are easily slipped into drinks, they are sometimes used in date rape. These drugs can cause disorientation; nausea; unconsciousness; and, at higher doses, even death.</td>
</tr>
<tr>
<td>Inhalants</td>
<td>glue, gasoline, spray paint</td>
<td>Inhalants (in-HAY-luhnts) are substances whose fumes are breathed in to produce mind-altering sensations. Inhaling them can cause nausea, dizziness, mental confusion, and loss of motor skills. Inhaled poisons go directly to the brain, where they can cause permanent damage or even death.</td>
</tr>
</tbody>
</table>
Other Drugs

In addition to marijuana, stimulants, and depressants, many other types of drugs and substances may be abused. Figure 11.6 on the previous page lists and describes these drugs and substances.

The Dangers of Drug Use

Using drugs is very dangerous. Many drugs can cause brain damage, coma, and death. If users share needles when injecting heroin or other drugs, they may contract hepatitis or HIV. A person under the influence of drugs cannot think clearly, increasing the possibility of injury, as well as unplanned pregnancy and exposure to sexually transmitted diseases.

Drug use can destroy lives. Why do you think some teens experiment with drugs even though they know the dangers of drug use?

Lesson Review

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

Reviewing Terms and Facts

1. **Vocabulary**  Define the terms illegal drugs and drug abuse.
2. **Distinguish**  How do stimulants differ from depressants?
3. **Recall**  What is a narcotic?
4. **Restate**  Describe the effects of hallucinogens. Give an example of a drug that falls into this category.

Thinking Critically

5. **Analyze**  In what ways are inhalants different from the other drugs discussed in this lesson?
6. **Suggest**  What advice would you give to a friend who was thinking about taking amphetamines so that she could stay awake to study for a test?
7. **Infer**  Explain how chemical dependency on and addiction to drugs and other substances can negatively impact health.

Applying Health Skills

8. **Analyzing Influences**  Think about how drugs are referred to in song lyrics, on the radio, on television, and in movies. Do these references make drug use seem fun, cool, or normal? How could these kinds of messages from the media—even as jokes—promote illegal drug use?
The Nervous System

The Body’s Control Center

Alcohol and other drugs can permanently damage the nervous system, the body’s control center. The nervous system carries messages to and from the brain. It controls the senses, thoughts, movements, and bodily functions.

_The cells that make up the nervous system_ are called **neurons** (NOO-rahnz), or nerve cells. Neurons send and receive information in the form of tiny electrical charges. **Figure 11.7** shows how neurons work.

**Figure 11.7**

**How Neurons Carry Messages**

These steps show how neurons help you catch a ball.

1. When the ball hits your gloved hand, the skin’s receptor cells receive the message: “The ball has arrived.”

2. Sensory neurons send this message in the form of an electrical charge to the spinal cord and brain.

3. In the spinal cord and brain, connecting neurons translate the message “The ball has arrived” into one directed to your muscles: “Squeeze.”

4. Motor neurons deliver the “Squeeze” message to your muscles, and your hand grips the ball.

Quick Write

Make a list of healthful habits you can develop to take care of your nervous system.

**Learn About...**

- the parts of the nervous system.
- problems of the nervous system.
- how you can keep your nervous system healthy.

**Vocabulary**

- neuron
- central nervous system (CNS)
- peripheral nervous system (PNS)
- brain
- spinal cord
The Nervous System

The nervous system has two main parts. The **central nervous system** (CNS) consists 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.

The **brain** is the command center, or coordinator, of the nervous system. It receives and screens information and sends messages to the other parts of the body. The **spinal cord** is a long bundle of neurons that relays messages to and from the brain and all parts of the body. **Figure 11.8** shows the parts of the nervous system and explains how the three main parts of the brain function.

**Figure 11.8**

**PARTS OF THE NERVOUS SYSTEM**

The brain is the largest organ of the central nervous system. The CNS controls heart rate, breathing, and digestion. The peripheral nervous system, which is shown in green, links the CNS to the skeletal muscles.

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

B The cerebellum maintains balance and coordination.

C The brain stem connects the brain to the spinal cord. It controls involuntary muscle movement such as breathing.
Problems of the Nervous System

Several factors can lead to nervous system disorders:

- **Injuries.** The most common cause of nervous system damage is physical injury. The results of head, neck, and back injuries can be severe. A spinal cord injury, for example, can cause paralysis—the loss of feeling and movement in parts of the body.
- **Disorders.** Multiple sclerosis is a disorder that causes damage to the protective outer coating of some nerves. This condition prevents the nerves from transmitting messages and impulses properly. Cerebral palsy is a group of disorders caused by damage or injury to the brain as it develops. Scientists have yet to find ways to prevent or cure multiple sclerosis or cerebral palsy.
- **Infections.** Certain viruses cause illnesses that affect the nervous system, such as polio, rabies, and meningitis (me·nuhn-JY-tuhs). Vaccines against some of these diseases are available. Others can be treated with medicines.
- **Drug abuse.** Misuse and abuse of drugs can damage the nervous system. Some drugs act directly on the brain stem—the part of the brain that helps control heart rate, breathing, appetite, and sleeping. Some drugs affect the way the nervous system sends and receives messages. Drugs can also alter the nervous system’s responses and may cause hallucinations and distorted perceptions of reality.
- **Alcohol use.** Drinking alcohol has an immediate effect on the brain. Alcohol can impair memory, thought processes, perception, judgment, and attention. Prolonged abuse of alcohol can destroy millions of brain cells. Once destroyed, these cells can never be replaced. Women who drink alcohol during pregnancy put their fetuses at risk for fetal alcohol syndrome (FAS). FAS affects several of the fetus’s body systems, including the CNS.

**A Super Man**

Actor Christopher Reeve is known for portraying Superman. Today, however, Reeve is paralyzed from the neck down. In 1995 he injured his spinal cord. Since the accident, the actor has promoted medical research on spinal cord injuries.

Taking the proper safety precautions can help prevent nervous system injuries. **What safety precautions is this teen taking?**
Caring for Your Nervous System

You can prevent or reduce your risk for developing certain problems of the nervous system by making healthful lifestyle choices such as choosing nutritious foods and getting enough sleep. Here are some tips to keep your nervous system healthy.

- **Protect yourself from disease.** You have already been vaccinated against some diseases that affect the nervous system, such as polio and tetanus. To protect yourself from rabies, avoid contact with strange or wild animals. Good hygiene will help protect you from infections such as meningitis.
- **Wear a helmet.** When you are riding a bike, skateboarding, in-line skating, snowboarding, skiing, or playing a contact sport, wear a helmet to protect your head from injury.

**Hands-On Health**

An optical illusion tricks your nervous system by making the eyes see something that isn’t really there.

**WHAT YOU WILL DO**

1. Look at the picture of the two circles within squares. Which circle looks larger—the white or the black? Now measure the two circles.
2. Look at the picture of black squares. Focus your eyes on one of the squares. What do you perceive in the intersections of the white bars? Next, focus on one intersection. What happens?

**IN CONCLUSION**

1. Did the white circle appear to be larger than the black circle? The way your eyes work can make bright objects seem larger than dark ones.
2. Did you see dark spots in the intersections when you were looking at the black squares? Did the spots disappear when you looked directly at the intersections? This happens because the color white appears whiter when it is next to something black. The white bars appear whiter than the intersections because the bars are right next to the black squares. When you look at an intersection, however, you perceive the white as white. Your eye is not comparing it to any other color.
3. How real did these illusions seem?
Lesson 4: The Nervous System

- **Play it safe.** Be careful when you play sports or engage in any physical activity. For example, never dive into shallow water. If you use gymnastics equipment, have spotters watch you.
- **Lift properly.** When lifting heavy objects, use the proper techniques to prevent back injuries. If the object is too heavy, ask someone for help.
- **Observe safety rules.** When you walk or ride a bicycle, follow all traffic safety rules. Always wear a safety belt when riding in a vehicle.
- **Avoid alcohol and other drugs.** Prolonged use of alcohol can permanently damage the central nervous system. Drug use can cause brain damage. Using alcohol or other drugs impairs perception, coordination, judgment, and reaction time. These impairments increase the chances of accidental injury. Avoiding substance abuse will help you protect your nervous system.

**Think about how a safety belt holds you in an upright position when you are riding in a car. How would a safety belt protect your nervous system if you were in a collision?**

**Lesson Review**

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

**Reviewing Terms and Facts**
1. **Vocabulary** Define the term *neurons*.
2. **Recall** What is the difference between the CNS and the PNS?
3. **Identify** Name the three main parts of the brain, and explain the function of each part.
4. **List** Identify five safety measures you can take to protect your nervous system.

**Thinking Critically**
5. **Hypothesize** If the peripheral nervous system stopped functioning, what would happen to the central nervous system?

**Applying Health Skills**
6. **Describe** How would life change for a person who lost the function of all sensory neurons?
7. **Accessing Information** Epilepsy is a disorder of the nervous system in which a person experiences seizures. During a seizure the person may lose consciousness, twitch, and shake. Using library and Internet resources, investigate what happens in the brain of a person who has epilepsy. Prepare a brief report of your findings.
Avoiding Alcohol and Other Drugs

Understanding the Risks

People who drink alcohol or take other drugs expose themselves to many risks. Most of these risks are serious, and some are even deadly. Alcohol and drugs can be especially dangerous to teens, who are still growing and developing. These substances cause physical, mental/emotional, and social harm.

Being aware of the consequences of alcohol and drug use can help you stay away from risk situations. If you do find yourself in such a situation, knowing the dangers will help you make the right decision. You will feel confident about choosing not to use alcohol or drugs.

Physical Risks

You now know that using alcohol and drugs can have negative effects on physical health. One can never be sure which negative effects might occur. Users can experience short-term effects such as dizziness and vomiting. They may also suffer from long-term effects such as brain damage. Alcohol and drug use may increase the time a teen’s body takes to mature physically. Height, weight, and sexual development may be negatively affected. **Figure 11.9** lists some of the physical effects of alcohol and drug use. These effects make it difficult for people to participate in activities they enjoy.

Choosing not to use alcohol or other drugs will help keep you healthy and ready to enjoy the activities you like to do.
In addition to health problems, people may face other physical consequences from alcohol and drug use. Use of these substances can be a factor in vehicle crashes, pedestrian accidents, drowning, burns, and falls. Under the influence of alcohol or drugs, a person may take risks that he or she would normally avoid. These risks might include sexual activity, which can lead to pregnancy and sexually transmitted diseases, including HIV.

**Risks to the Unborn**

Using alcohol or other drugs during pregnancy can cause serious diseases and birth defects in the fetus. Children whose mothers used drugs during pregnancy often experience delays in development and have learning disabilities. Many are born addicted to drugs themselves. A pregnant woman who injects drugs also risks infecting her fetus with HIV. Women who drink alcohol while pregnant may have babies affected by fetal alcohol syndrome. These babies’ development will be delayed. They will also experience psychological and behavioral problems throughout life.
Mental/Emotional Risks

The changes that you experience during your teen years can be stressful. In trying to relieve this stress, some teens turn to alcohol or drugs. These substances have the opposite effect, making life even more difficult and confusing.

The psychological consequences of alcohol, drug, and substance abuse are very serious. A person’s ability to think and learn is impaired. Drug and alcohol users often feel bad about themselves and have trouble relating to others. **Figure 11.10** lists some of the mental and emotional effects of alcohol, drug, and substance abuse.

**Social Risks**

Drug and alcohol use may cause mood swings and personality changes. Users may lose control of their behavior, which can strain or end relationships.

People who are addicted to a substance become obsessed with it. They may lose interest in family and friends. Some may end friendships or lie to cover up their addiction. Because they push away the people in their lives, those with a chemical dependency on alcohol, drugs, or other substances may be very lonely.
Risks in School

Teens who use alcohol or other drugs cause many problems for themselves—and others—in school. They may

- be late or miss school often.
- do poorly in school because they are unable to pay attention.
- behave in ways that get them suspended or expelled.
- miss the opportunity to be involved in school activities.
- let down classmates or teammates because of poor performance.
- lose chances to learn new skills and develop their abilities.
- fail to meet long-term goals.

Risks to the Family

A family is affected when any member abuses alcohol or other drugs. This family member may

- fail to nurture other family members.
- become violent and hurt other family members.
- spend time away from home and be moody and unpredictable.
- lie or steal to support the habit.
- lose his or her job or fail to fulfill other responsibilities.

Risks with the Law

Teens who use alcohol or other drugs often get into serious trouble with the law. Anyone who buys, sells, or possesses illegal substances can face arrest, fines, and a sentence in a detention center. It is also illegal for anyone under 21 to buy or possess alcohol. An underage person who is caught driving while intoxicated will lose his or her license. Adults who sell alcohol to anyone under 21 are also breaking the law.

Involvement with alcohol or other drugs often leads teens to commit other crimes. A person is more likely to become violent while under the influence of alcohol or other drugs. Teens who use substances are also at risk for becoming victims of crime. Because people are often unable to make responsible decisions when they are under the influence of alcohol or drugs, they risk injury or death.
Getting Help

People who are addicted to alcohol, drugs, or other substances may try to hide the problem or deny that one exists. You can get help for yourself, a friend, or a family member who has an alcohol or drug problem. First, try going to trusted adults: parents, teachers, religious leaders, or counselors. You may feel uncomfortable talking about such a big problem with someone close to you. If so, you can turn to organizations that offer counseling and treatment. Sources of help include support groups, alcohol or drug treatment centers, and toll-free drug hot line counselors.

Reasons to Avoid Alcohol and Drugs

There are no healthful reasons to try alcohol or drugs. However, there are many good reasons to avoid them. Remind yourself:

- I don’t show respect for myself if I use alcohol or drugs.
- My future means too much to me to ruin it.
- I’d rather be in control of what I do.
- Alcohol and drugs can harm my health.
- Using alcohol or drugs means breaking the law.
- My true friends don’t try to convince me to use drugs.
- Alcohol and drugs can take away my energy.

Alternatives to Substance Use

Many teens turn to substance use because they are already having other problems. Dealing with the issues that are causing the problems—instead of experimenting with alcohol and drugs—is one way to avoid substance use. Don’t give in to feelings of low self-esteem. Instead, find a healthy way to spend time. Learn to do something you’ve always wanted to try. Join an activity at school, or volunteer—hospitals, homeless shelters, childcare centers, and soup kitchens can use your time and enthusiasm. Identify and participate in any alcohol- and drug-free events taking place in your community. Remember that your healthy, successful future depends on your choice to avoid using alcohol, drugs, and other harmful substances.
Refusing to Use Alcohol and Drugs

Many teens name peer pressure as their main reason for using alcohol or drugs. One way to deal with peer pressure is to avoid social situations where substance use might take place. When you can’t avoid these situations, it’s easier to say no if you’re prepared. You need to be assertive, or willing to stand up for yourself in a firm but positive way. You also need effective refusal skills.

HEALTH SKILLS ACTIVITY

REFUSAL SKILLS

Refusing to Use Drugs

Lately, Caitlyn’s friend Beth has become distant. Sometimes she’s barely able to follow a conversation.

One night while Caitlyn and Beth are hanging out at the mall, one of Beth’s new friends comes over and presses something into her hand. Beth shows it to Caitlyn: pills. She tells Caitlyn how good they make her feel and tries to press a pill into her hand.

Caitlyn knows that she doesn’t want to use drugs. However, she wants to stay friends with Beth. What should Caitlyn do?

WHAT WOULD YOU DO?

Role-play how Beth and Caitlyn interact at the moment when Beth tries to put a pill into Caitlyn’s hand. How might Caitlyn use S.T.O.P. in this situation? Predict how Beth might react.

SAY NO IN A FIRM VOICE.
TELL WHY NOT.
OFFER ANOTHER IDEA.
PROMPTLY LEAVE.

Lesson 5 Review

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

Reviewing Terms and Facts

1. List Name five mental/emotional effects of alcohol and drug use.
2. Identify List three problems teens who use alcohol or drugs may have in school.
3. Vocabulary Define the term assertive.
4. List Identify some activities that are healthy alternatives to substance use.

Thinking Critically

5. Apply What is the most important reason for you to stay substance free?
6. Hypothesize How might you be affected if one of your close friends developed a substance use problem?

Applying Health Skills

7. Accessing Information Do some research to identify any alcohol- and drug-free events taking place in your community. Make a list of these events and share them with the class. Choose an upcoming event to participate in. Encourage your peers to attend as well.
Quiz

1. All teens tend to be very moody.
   a. True  b. False

2. Someone may be depressed if
   a. everything gets on that person’s nerves.
   b. he or she keeps having headaches or other health problems that a doctor can’t determine a cause for.
   c. that person’s grades are dropping—and he or she doesn’t care.
   d. All of the above

3. Depression often goes hand in hand with which of the following?
   a. An eating disorder
   b. Obsessive-compulsive disorder
   c. Learning disabilities
   d. All of the above

4. Which of the following can help someone recover from depression?
   a. Winning the lottery
   b. Antidepressant drugs and psychiatric treatment
   c. Getting straight As
   d. All of the above

5. A person who is seriously depressed is at a much higher risk of attempting suicide.
   a. True  b. False

6. If someone is strong enough, he or she can tackle a bout of depression alone.
   a. True  b. False


Check out the explanations on the next page!
Explanations

1. While most adolescents feel sad every now and then, they tend to feel better quickly. However, the medical condition known as depression is disabling, lasting, and requires professional treatment.

2. Irritability, unexplained physical ailments, and slipping grades are key signs of depression. A person may also lose interest in friends and activities.

3. Often, depressed teens will have other mental health issues, says James Chandler, M.D., a psychiatrist in Yarmouth, Nova Scotia, Canada. Sometimes the more obvious emotional distress gets all the attention, but both issues need to be treated.

4. If a person is clinically depressed, no news—no matter how good—will make him or her feel better. What works: counseling and, sometimes, antidepressants. These prescription drugs should be accompanied by psychotherapy. Dr. David Fassler, chair of the American Psychiatric Association’s Council on Children, Adolescents and Their Families, warns that “medication alone is rarely appropriate.”

5. Statistics show that teens who have a mental illness and those who have previously tried to kill themselves are among the most likely to commit suicide.

6. Like diabetes or asthma, depression is an illness that calls for medical treatment. “There’s a misperception that you can just get over this,” says Dr. Fassler. “The tragedy is that [most depressed] teens aren’t getting help.”

About Depression

Use reliable online resources or your school’s media center to learn more about depression. Find statistics on how widespread the disorder is. Research past and present views of and treatments for depression. Summarize your findings in a brief report.
Model

Andie and her friend Donna are watching television at Donna’s house when Donna’s cousin Nick shows up. He lights up a joint and holds it out to Andie. She shakes her head no. He tells her that she should try it. “Smoking pot is no big deal,” he says. “Everybody does it.” Andie is surprised and a little afraid. She thinks quickly and remembers a conversation she had with her older brother about what to do if anyone ever offered her drugs. She uses S.T.O.P.

Say no in a firm voice.

Tell why not.

Offer another idea.

Promptly leave.

No way. I don’t do drugs.

A friend of mine got into serious trouble with drugs. I don’t want that to happen to me.

Let’s go over to Jim’s and see what he’s doing.

Are you sure you don’t want to go to Jim’s? Okay, well, it’s getting late. I’ll see you tomorrow.

No way. I don’t do drugs.
Practice

It takes courage to be able to resist negative peer pressure. It also takes a strategy. Read the following scenario about a teen who is offered alcohol.

Ron meets his friend Dennis to play basketball at the park. Before they start, Dennis reaches into his gym bag and takes out two beers. He offers one to Ron with a smile, saying, “It’s going to be hot today—better get some fluids in you.” Ron doesn’t drink alcohol because he knows that it’s illegal and that it can have dangerous effects on the body.

In small groups, discuss how Ron could refuse alcohol. Have members of your group take turns role-playing Ron’s refusal for the class.

Apply/Assess

Think of statements that people use to pressure others to try alcohol or drugs. Create a two-column chart. In the left column write down several of these pressure statements. In the right column write a possible response to each statement. Then use your list to create a short story. The story should show how a teen stands up to peer pressure by using S.T.O.P. and the response items on your list. Don’t forget to include your character’s personal reasons for staying alcohol and drug free. Swap short stories with a classmate. How did your classmate use S.T.O.P. in his or her story?
CHAPTER 11: DRUGS AND ALCOHOL

ASSESSMENT

After You Read

Use your completed Foldable to review the information on the safe use of medicines.

Reviewing Vocabulary and Concepts

On a sheet of paper, write the numbers 1–6. After each number, write the term from the list that best completes each sentence.

- alcohol
- alcoholism
- cirrhosis
- intoxicated
- over-the-counter medicine
- prescription medicine

Lesson 1
1. A cold remedy that you buy at a supermarket is an example of a(n) __________.
2. Medicine that you can get only with a doctor’s written order is a(n) __________.

Lesson 2
3. People who start drinking in their early teen years may become dependent on __________.
4. Long-term drinking may cause __________, a disease that destroys liver tissue.
5. A(n) __________ driver is dangerous to other drivers, pedestrians, passengers, and himself or herself.
6. __________ is an illness characterized by a physical and psychological need for alcohol.

Lesson 3
7. People may take depressants to feel more energetic and powerful.
8. Glue, gasoline, and spray paint are examples of narcotics.

Lesson 4
9. The neuron is the largest organ of the central nervous system.
10. An injury to the spinal cord can cause paralysis.

On a sheet of paper, write the numbers 7–10. Write True or False for each statement below. If the statement is false, change the underlined word or phrase to make it true.

Lesson 3
7. True or False: People may take depressants to feel more energetic and powerful.
8. True or False: Glue, gasoline, and spray paint are examples of narcotics.

Lesson 4
9. The neuron is the largest organ of the central nervous system.
10. An injury to the spinal cord can cause paralysis.

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

11. Teens who use alcohol, drugs, or other substances risk all of the following consequences, except
   a. injury and death.
   b. lying or stealing to support the habit.
   c. getting into serious trouble with the law.
   d. improved relationships with family and friends.

12. You can get help for yourself, a friend, or a family member who has an alcohol or drug problem from
   a. a support group.
   b. an alcohol or drug treatment center.
   c. a drug hot line counselor.
   d. all of the above.

13. If you stand up for yourself in a firm but positive way, you are being
   a. addicted.
   b. intoxicated.
   c. assertive.
   d. drunk.
Thinking Critically

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

14. **Explain** Why is alcohol and drug use considered a preventable cause of nervous system disorders?

15. **Hypothesize** Why might someone ignore the risks of alcohol and drug use?

16. **Apply** How could a teen use positive peer pressure to counteract the negative effects of living with a family member who is abusing alcohol or drugs?

17. **Explain** How can avoiding alcohol and other drugs support a teen’s decision to abstain from sexual activity?

One of the main causes of accidents on the road is drinking alcohol and driving. According to the National Commission Against Drunk Driving, the three age groups that are most likely to drive after drinking include young adults and underage drinkers. Underage drinkers are especially dangerous on the road because they are not experienced drivers. They are more likely to be involved in alcohol-related crashes than any other age group.

Even one drink can impair judgment, coordination, and reflexes. Drinking alcohol and then getting behind the wheel is a potentially lethal combination.

**Career Corner**

**Neurologist** A person who has a nervous system disorder may need treatment from a neurologist. A neurologist is a medical doctor who specializes in diseases and disorders of the brain and nervous system. These professionals complete a four-year college degree, four years of medical school, and one to seven years of residency training. Learn more about this and other health careers by clicking on Career Corner at health.glencoe.com.

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**Standardized Test Practice**

**Math**

Read the paragraph below and then answer the questions.

One of the main causes of accidents on the road is drinking alcohol and driving. According to the National Commission Against Drunk Driving, the three age groups that are most likely to drive after drinking include young adults and underage drinkers. Underage drinkers are especially dangerous on the road because they are not experienced drivers. They are more likely to be involved in alcohol-related crashes than any other age group.

Even one drink can impair judgment, coordination, and reflexes. Drinking alcohol and then getting behind the wheel is a potentially lethal combination.

1. Eight young people die each day in alcohol-related crashes. What does the number “eight” in this statement represent?
   - A) median
   - B) mode
   - C) mean
   - D) first quartile

2. Two out of every five people will, at some time, be involved in an alcohol-related accident. What percent of the population does this number represent?
   - A) 4%
   - B) 10%
   - C) 25%
   - D) 40%

3. Survey your classmates about whether they think drinking and driving is a serious problem in the community. What percent of the class thinks that this is the case?