Drugs + SOCIETY: Emergency Room Visits

In the following graph, compare the number of emergency room visits due to drug poisoning in 2004 and 2009, as based on data from the Substance Abuse and Mental Health Services Administration (SAMHSA). Examine the graph to answer the questions on the bottom of the page.

ACTIVITY 4
Drugs + SOCIETY: Emergency Room Visits

For which drugs did emergency room visits increase from 2004 to 2009? For which drugs did emergency room visits decrease from 2004 to 2009? Which two drugs showed no significant change in emergency room visits from 2004 to 2009? (Use separate paper as necessary.)

Looking at the Big Picture (Your separate paper as necessary)

1. What are some reasons why drug abuse can cause someone to visit the emergency room? Those reasons might include
   a. drug overdose
   b. drug-related injury
   c. drug-related illness
   d. drug withdrawal

2. What are some possible outcomes or costs to society that may result from drug and alcohol-related emergency room visits?

ACTIVITY 3:
Drugs + SOCIETY: The Brain–Body Connection

Drugs can affect the central nervous system (CNS), which controls the body. The CNS consists of the brain and spinal cord. The CNS is made up of two parts: the brain and the spinal cord. The brain controls the body's voluntary movements and receives sensory stimuli. The spinal cord controls the body's involuntary movements.

Activities:
1. Have students do research on how drugs can affect the brain and the body. They should choose a drug and write a report on how it affects the body. They should also discuss the effects of drugs on the brain.
2. Ask students if they know how drugs can affect the body. They should research their drug of choice and write a report on how it affects the body.
3. Have students research how drugs can affect the brain. They should write a report on how their drug of choice affects the brain.

Looking at the Big Picture (Your separate paper as necessary)

1. What do students know about their drug of choice? What do they know about how it affects the body?
2. What do students know about their drug of choice? What do they know about how it affects the brain?
3. What do students know about their drug of choice? What do they know about how it affects the CNS?

ACTIVITY 2:
Drugs + SOCIETY: The Brain–Body Connection

ACTIVITY 1:
Drugs + SOCIETY: The Brain–Body Connection

ACTIVITY 3:
Drugs + SOCIETY: The Brain–Body Connection

ACTIVITY 4:
Drugs + SOCIETY: The Brain–Body Connection

Dear Teacher,

Thank you for sharing this valuable information with your students.

As an educator, you are aware of how important it is for teens to have accurate information about drugs and drug abuse. Scholastic and the scientists at the National Institute on Drug Abuse (NIDA) have developed the prepublication copy of this book, "Drugs + Your Body: It Isn't Pretty," to provide students with important scientific facts about the adverse effects of drugs on their developing brains and bodies. The presenter and activities included under this fact sheet are designed to help students understand the personal and social consequences of drug abuse.

Thank you for sharing this valuable information with

drugs and health, visit

scholastic.com/kidshealth

The following graph compares the number of emergency room visits due to drug poisoning in 2004 and 2009. Examine the graph to answer the questions on the bottom of the page.

1. For which drugs did emergency room visits increase from 2004 to 2009? For which drugs did emergency room visits decrease from 2004 to 2009? Which two drugs showed no significant change in emergency room visits from 2004 to 2009? (Use separate paper as necessary)

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2. What are some possible outcomes or costs to society that may result from drug and alcohol-related emergency room visits?
Drugs + Your Body: It Isn’t Pretty
Science and Critical-Thinking Program for Grades 7–12

Dear Teacher,

Thank you for sharing this valuable information with your students.

Sincerely,

[Signature]

Nore D. Volkow, MD
Director
National Institute on Drug Abuse

About Drugs and Your Body

Drugs + Your Body (NIDA) have created this poster/teaching guide, designed to provide students with reliable information to answer their questions about drugs and drug abuse.

Materials:

Before displaying the poster, copy the activities and worksheets to teach in sequence in the order that follows:

1. Activity 1: “Drugs + Life: It Can Happen to You”
2. Activity 2: “Drugs + Your Body: It Isn’t Pretty”

Activities Discussion Topics:

Instruct students to study the illustrations on the poster. Then, discuss these questions with students:

1. Are these consequences of drug abuse? What do these images show? What do these words mean? Do students understand that some consequences are immediate and others are long-term?
2. What are the possible outcomes of drugs on organs? What can happen to the lungs if someone smokes cigarettes regularly? What can happen to the kidneys if someone takes pain relievers over a long period of time?

Activities Answer Key/Evaluations

Evaluation: Did students understand the cause and effect relationship between drugs and a biological/consequence pair? Do students understand the effects of drug abuse on the body?

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Please go to the bottom of the page to download the reproducibles.

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ACTIVITY 4
Drugs + SOCIETY: Emergency Room Visits

In the following graph compare the number of emergency room visits due to drug abuse. How does drug abuse contribute to healthcare costs? Do you think drug abuse is a public health problem? How are communities affected by the drug abuse?

Overview and Objectives:
To present the information on how drugs affect different parts of the body, including the brain and body, possibly causing lasting physical or mental damage and a change in behavior. Students will be engaged in critical thinking and asking questions about drug-related activities that arise from increased drug abuse.

Science and Critical-Thinking Program for Grades 7–12

Looking at the Big Picture
1. What are some reasons why drug abuse can cause problems to the emergency room? How would you describe these effects?
2. What are some possible outcomes or costs to society that may result from drug- and alcohol-related emergency room visits?

ACTIVITY 3: “Drugs + Your Life”

Students participate as knowledgeable, reflective, creative, and critical members of various literacy communities. Students discuss drug-related activities presented.

ACTIVITY 2: “Drugs + Your Body”

The brain and body, including the lungs, are involved in drug abuse and have reactions to it. Students explore the activities of the brain and body in relation to the effects drugs have on the body and how they might affect the development of brain cells and organs.

Activities Answer Key / Evaluations

Did students make the connection between drug abuse and the body?
Did students understand the material and were they able to apply the facts presented to their conclusions?

Science and Critical-Thinking Program for Grades 7–12

Contents

Overview

• Critical thinking
• Decision-making
• Graphs

Science and Critical-Thinking Program for Grades 7–12

Alignment with National Standards

Life Science
• Personal and Social Perspectives
• Risks and benefits
• Personal and community health

Campus Arts 2009 (M禮):
• Students apply a wide range of strategies to comprehending, analyzing, and appreciating texts.
• Students participate as knowledgeable, reflective, critical members of a variety of literate communities.
Drugs + Your BODY: It Isn't Pretty

Avoiding drugs interferes with the body’s normal functioning. The activities in this section illustrate what drugs can do to the human body and mind. Use the information to answer the questions and complete the table.

**Activity 1**

**The Brain–Body Connection**

- **Think It Through:** Try to imagine what it would be like if you could not think, feel, learn, move, or breathe. What would it feel like to have your body do things without your conscious control? Would you still be able to experience your environment? Would you be able to function under all conditions?

**Activity 2**

**Drugs + Your LIFE: It Isn't Pretty**

In addition to the harm to the body and brain, abusing drugs can alter people’s behavior and decisions. For example, abusing stimulants can create a sexually transmitted disease (such as gonorrhea and syphilis) in normal people. This can happen because the drug user often neglects good health habits and does not engage in safe sexual practices.

**Think It Through:** A causal diagram is a tool to help chart possible outcomes that could reside within a chosen scenario. The girl’s friends have just gotten their driver’s licenses. Her friends and she decide to go out and drink for the first time. A causal diagram has been completed. On separate paper, answer the A, B, and C questions in the context of where the girls’ friends (or the girls themselves) were when the events occurred. Then use your answers to predict the final outcomes.

**ACTIVITY 1**

**The Brain–Body Connection**

- **Know Before You Go:** The brain has a central nervous system (CNS) made up of the brain, spinal cord, and nerves. The brain contains billions of nerve cells called neurons that help control the body’s voluntary and involuntary functions. Neurons work together to control breathing, heart movement, muscle movements, and other vital activities. The CNS controls the primary life support systems of the body: the cardiovascular (heart and blood vessels), the respiratory (lungs), the integumentary (skin), the endocrine (hormones) and nervous systems. It also monitors information from the body and makes the adjustments necessary to keep you healthy.

- **Think It Through:** Imagine a situation that might make your heart beat fast. What drugs cause a similar reaction?

<table>
<thead>
<tr>
<th>What are some actions that include both voluntary and involuntary responses?</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITE</td>
</tr>
</tbody>
</table>

**ACTIVITY 2**

**Drugs + Your BODY: It Isn't Pretty**

- **Know Before You Go:** Assuming drugs interfere with the body’s normal functioning. The activities in this section illustrate what drugs can do to the human body and mind. Use the information to answer the questions and complete the table.

<table>
<thead>
<tr>
<th>Organs</th>
<th>Drugs</th>
<th>Effects</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart</td>
<td>Stimulants</td>
<td>Heart attack</td>
<td>Infarct (blockage of blood to the heart)</td>
</tr>
<tr>
<td>Lungs</td>
<td>Tobacco</td>
<td>Cancer</td>
<td>Bronchitis</td>
</tr>
<tr>
<td>Skin</td>
<td>Tobacco</td>
<td>Wrinkles</td>
<td>Respiratory infections</td>
</tr>
<tr>
<td>Bones</td>
<td>Steroids</td>
<td>Cancer</td>
<td>Hair loss</td>
</tr>
<tr>
<td>ENDOCRINE SYSTEM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Drugs + Your BODY: It Isn’t Pretty

Drugs can have numerous effects on a person’s body. Many of these happen because of how the Brain–Body Connection works. This connection is what allows drugs to change how you think and feel, and how your body responds.

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

In addition to the harm to the brain and body, abusing drugs can affect other people too. These effects can happen to family members, friends, or even total strangers. Consider the effects of the drug(s) on the following individuals. These effects are based on actual research and test results. Teenagers or other drug users.

Think It Through:

A. What is a possible negative outcome from this decision? Why?
B. What kind of damage could happen to the girls and their families or even a total stranger if your outcome happened?
C. Could there be a situation where this could happen?

The girls decide that before a night out, they should always have a plan to get home safely when they aren’t the drivers. They decide not to take away the car keys, even if they are the passengers. Each of them is glad they did not drive.

The girls decide that Penny doesn’t seem to be affected by the alcohol so they continue to drink. They decide to try a different alcohol. They decide not to take away the car keys, even if they are the passengers. They are glad they did not drive.

The girls’ parents realize why they drank alcohol and are glad they did not drive.

The girls decide that Penny doesn’t seem to be affected by the alcohol so they continue to drink. They decide to try a different alcohol. The girls decide not to take away the car keys, even if they are the passengers. They are glad they did not drive.

The girls’ parents realize why they drank alcohol and are glad they did not drive.

The girls decide that Penny doesn’t seem to be affected by the alcohol so they continue to drink. They decide to try a different alcohol. The girls decide not to take away the car keys, even if they are the passengers. They are glad they did not drive.
Drugs + Your BODY: It Isn't Pretty

Abusing drugs interferes with the body’s normal functioning. The alterations in structure and function that drugs can induce in the human body and brain. Use the information to answer the questions on the right.

Effects of Drug Abuse:
- Drugs directly affect many parts of the brain and body, changing the way the brain works and altering chemical balances in the body.
- Drugs interfere with normal brain function and can change the way the brain’s communication systems work, leading to a loss of control over behavior, judgment, and decision-making.
- Drugs can affect the voluntary system, the system that controls conscious actions such as thinking, speaking, and moving.
- Drugs can affect the involuntary system, the system that controls unconscious actions such as breathing, blood pressure, and heart rate.
- Drugs can affect the endocrine system, the system that regulates hormones and other chemical messengers in the body.
- Drugs can affect the immune system, the system that protects the body from disease and infection.
- Drugs can affect the nervous system, the system that controls sensation, movement, and communication throughout the body.

Think It Through: Several pages away, answer the question below based on the passage above.

1. What are some actions that affect both voluntary and involuntary responses?
   - Drugs can affect both voluntary and involuntary responses. An example is drugs that affect the autonomic nervous system, which controls involuntary functions such as heart rate, blood pressure, and digestion.

ACTIVITY 1

ACTIVITY 2 (page 1)

ACTIVITY 2 (page 2)

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

In addition to the harmful effects on the body, drug abuse can also affect a person’s relationships with others. Drug abuse can lead to problems in relationships, such as emotional and physical harm, as well as problems with family and friends. Drug abuse can also lead to legal problems, such as drug-related arrests and convictions. Drug abuse can also affect a person’s future prospects, such as job opportunities and educational opportunities.

ACTIVITY 3
Drugs + Your BODY: It Isn’t Pretty

Drugs affect the central nervous system (CNS). Drugs of abuse can have numerous effects on a person’s body. Many of these happen because of how the brain controls voluntary system movements and involuntary system responses. The CNS is a collection of brain structures and nerves that run throughout your body. It controls voluntary movements and involuntary responses to the rest of the body. These involuntary responses are the things you can’t control, such as your heartbeat, breathing, or sweating. The CNS consists of the spinal cord, brain, and nerves that run from the brain to the rest of your body. There are two main parts of the nervous system: voluntary system and involuntary system.

The voluntary nervous system is your body’s command center. It consists of your brain and spinal cord. It provides voluntary control over your voluntary system’s movement. Voluntary system controls movement and are the things you can control, such as opening your eyes and picking up an object. Voluntary system and involuntary system are connected. The voluntary nervous system sends messages to the involuntary nervous system that control your autonomic nervous system functions and involuntary body actions, such as your heartbeat and breathing. The involuntary nervous system responds to those messages.

An involuntary nervous system is a part of your body’s automatic pilot. It controls autonomic nervous system functions that you can’t control, such as breathing, heart rate, and digestion. The involuntary nervous system is divided into two parts: the sympathetic nervous system and the parasympathetic nervous system. The sympathetic nervous system controls the body’s “fight or flight” reactions. These reactions can be dangerous if they are too strong or long-lasting. This nervous system responds when you are frightened or stressed. In stressful situations, the sympathetic nervous system prepares your body to respond to the stress. It increases your heart rate, breathing, and blood sugar levels to increase muscle strength. It decreases other body activities, such as digestion. Over time, too much stress can cause problems in your body.

The parasympathetic nervous system is the “calm and relax” part of your body’s automatic pilot. It takes over while you are resting or doing things you enjoy, such as reading or watching a movie. The parasympathetic nervous system normalizes your body’s functions that the sympathetic nervous system increased. This system can also turn off the sympathetic nervous system.

Drugs can affect both the voluntary nervous system and involuntary nervous system. They can turn your voluntary nervous system into a compulsive one (not being in control of your actions). Drugs can also cause your involuntary nervous system to work in ways that can cause health problems. When using drugs, your CNS becomes confused because it doesn’t know whether the message is coming from you or the drug. Drugs can cause the voluntary nervous system to send messages to the involuntary nervous system. Drugs also cause the involuntary nervous system to send messages to the voluntary nervous system. Drugs can cause the voluntary nervous system to send messages to the involuntary nervous system.

ACTIVITY 1

The Brain–Body Connection

Drugs can affect the brain and body. They can cause changes in how you think, feel, and act. Drugs can affect the brain and body by changing the way the brain works. They can change the way the brain signals to the body and vice versa. They can also change how the body signals to the brain.

Drugs can also cause changes in how the brain works. They can change the way the brain signals to the body and vice versa. They can also change how the body signals to the brain. They can cause changes in how the brain signals to the body and vice versa. They can also change how the body signals to the brain.

ACTIVITY 2

Drugs + Your BODY: It Isn’t Pretty

Drugs can cause serious problems for your body. They can cause problems with your brain and body. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles.

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

Drugs affect your life. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles.

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

Drugs affect your life. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles.

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

Drugs affect your life. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles.

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

Drugs affect your life. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles.

ACTIVITY 3

Drugs + Your LIFE: It Isn’t Pretty

Drugs affect your life. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles. They can cause problems with your organs and muscles.
ACTIVITY 4
Drugs + SOCIETY: Emergency Room Visits

In the following graph compare the number of emergency room visits due to drug and alcohol use for people under 21 in the years 2004 and 2009. Then answer the questions at the bottom of the page.

Drug- and Alcohol-Related Emergency Department Visits by Drug Type

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Visits 2004</th>
<th>Visits 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td>60,000</td>
<td>50,000</td>
<td>decrease</td>
</tr>
<tr>
<td>Drinking</td>
<td>70,000</td>
<td>60,000</td>
<td>decrease</td>
</tr>
<tr>
<td>Cocaine</td>
<td>40,000</td>
<td>30,000</td>
<td>decrease</td>
</tr>
<tr>
<td>Heroin</td>
<td>20,000</td>
<td>10,000</td>
<td>decrease</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>10,000</td>
<td>20,000</td>
<td>increase</td>
</tr>
</tbody>
</table>

1. In both 2004 and 2009, which drug contributed to the most emergency room visits by people under 21?
2. For which drugs did emergency room visits decrease from 2004 to 2009?
3. For which drugs did emergency room visits increase from 2004 to 2009?
4. Which two drugs showed the largest increase in emergency room visits from 2004 to 2009?
5. Overall, did drug-related visits to the emergency room increase or decrease from 2004 to 2009?

Leaving the Big Picture (your separate paper as necessary)

1. What are some reasons why drug use can cause concern to the emergency room? How would you react?
2. What are some possible outcomes or costs to society that may result from drug and alcohol-related emergency room visits?