

ALCOHOL, MARIJUANA AND INHALANTS



MODULE 5

◆ National Institute on Drug Abuse ◆

MODULE 5: ALCOHOL, MARIJUANA, AND INHALANTS

Introduction

In Module 4, students learned about stimulants, which make up one group of drugs. During this module, they focus on three other drugs—alcohol, marijuana, and inhalants. Students find out how these drugs affect the brain and the nervous system.

Learning Objectives

- ★ Students learn about alcohol, marijuana, and inhalants.
- ★ Students find out how alcohol, marijuana, and inhalants affect the brain and the nervous system.
- ★ Students examine how alcohol, marijuana, and inhalants affect the body.

Relationship to the *National Science Education Standards*

This mission aligns with the following standard identified in the NSES: science in personal and social perspectives. The chart that follows identifies how the mission aligns with this standard.

Science in Personal and Social Perspectives

Levels K-4	How Mission is Aligned
Personal health	Students observe the effects that these three drugs have on the brain and the nervous system. They discuss the impact this information has on their lives and how they can use it to make wise decisions about their own health.



Background

Alcohol, marijuana, and inhalants are drugs that have a major impact on the brain and the nervous system. Alcohol and marijuana abuse can result in memory loss, impaired motor coordination, impaired thinking and problem solving, and changes in emotional behavior. Inhalant abuse can cause damage to nerves throughout the body and structural changes in the brain.

Below are descriptions of alcohol, marijuana, and inhalants.

Drug	Other Terms	How the Drug is Used	Effects of the Drug	Negative Effects on the Body	How the Drug Works
Alcohol	Ethyl alcohol or ethanol; found in beer, wine, and liquor	Consumed by drinking	Causes relaxation and euphoria	Causes decreased coordination and attention, impaired concentration and reaction time, drowsiness, memory problems, and mood changes. Long-term use can result in diseases like alcoholism or Wernicke-Korsakoff Syndrome, which adversely affects memory. Also can severely damage the liver.	Affects GABA, which normally decreases the activity of other neurons. Increases the level of dopamine in the brain, causing the pleasurable effects of the drug. Also affects brain structures that influence breathing and heart rate, which can make overdoses fatal. Depresses the central nervous system and can kill brain cells when used in excess.
Marijuana	Pot, weed, grass, and reefer	Usually smoked like a cigarette (called a "joint"), but can be baked into brownies or cookies or brewed like tea	Causes euphoria	Can adversely affect the limbic system, impairing perception, learning, and memory, as well as altering emotions. Can adversely affect reaction time and damage the lungs. Also acts on receptors in the brain causing increased blood pressure, heart rate, and sleepiness.	THC, the active chemical in marijuana, attaches to neuron receptors that are normally used by the neurotransmitter anandamide. Areas of the brain with high concentrations of these receptors are affected, including the limbic system, basal ganglia, and cerebellum.



Drug	Other Terms	How the Drug is Used	Effects of the Drug	Negative Effects on the Body	How the Drug Works
Inhalants	Turpentine, acetone, fluorinated hydrocarbons; some slang names include highball, hippie crack, and huff	Fumes are sniffed or inhaled	Causes euphoria	Can decrease coordination, and cause hearing loss, nerve damage, liver failure, muscle weakness, and aplastic anemia, which is a result of decreased red blood cell production. Can adversely affect thinking, memory, and learning. Fumes can replace oxygen in the lungs, leading to suffocation (called "sudden sniffing death"), or interfere with normal heart rhythm, leading to cardiac arrest.	Inhalants suppress nerve action, kill neurons, and change the structure of the brain. They can damage myelin, the insulation that covers neurons. They affect many areas of the brain, including the frontal cortex, cerebellum, hippocampus, and brain stem.



Materials

- ✓ DVD and DVD player
- ✓ Alcohol, Marijuana, and Inhalants Fact Sheet (Found in the back of the Module 5 Teacher's Guide)
- ✓ Web sites for brain images (listed below in Preparation section)
- ✓ Paper and pencils
- ✓ Poster board and markers

Preparation

- ★ Divide the class into groups of three for this activity.
- ★ Make one copy of the Fact Sheet for each student.
- ★ Make a list of the Web sites that show different brain images:
 - www.addictionrecoverycenteroftemecula.com/browse-2074/Brain_scan_images.html
 - www.amenclinics.com/brain-science/spect-image-gallery/spect-atlas/images-of-alcohol-and-drug-abuse
 - www.Faculty.washington.edu/chudler/image.html
- ★ Preview the DVD before showing it to the class.

Procedure

1. Begin the mission by reviewing with students what they learned in the previous module about the effects of stimulants on the brain and the nervous system. Suggest that the students take a few moments to review their notes from Module 4.
2. Tell students that during this module, they are going to learn about the effects of alcohol, marijuana, and inhalants on the brain, the nervous system, and the body.
3. Pass out the Alcohol, Marijuana, and Inhalants Fact Sheet. Give the students a few moments to read it over. Then divide them into their working groups.
4. Have the students watch the first segment of the DVD. Stop the DVD at the break.



5. Tell the students that their mission is to draw a picture of the human body and indicate how stimulants, alcohol, marijuana, and inhalants affect the brain, the nervous system, and the body. The challenge is to figure out how to show all the effects of these drugs on the multiple systems in the body. Before beginning this activity, spend some time brainstorming ways to show all the effects of these drugs on one poster. The students may want to develop a color-coded key to represent different drugs. They also may want to draw a close-up of the brain to highlight the parts of the brain and the neurotransmitters affected.
6. When the picture is completed, conduct a discussion on what the drawing shows.
7. Conclude the mission by watching the remainder of the video or DVD. Discuss the many ways that drugs affect the body and the nervous system, resulting in major impairments.

Discussion Questions

- ? Show the students the *Brain Power!* DVD. It depicts the other science club working on this activity, but they are having trouble. Ask the students why that is the case. Then ask them to consider whether the kids in the DVD have all the information they need to complete the activity.
- ? Ask the students what collaboration is. Discuss what role collaboration plays in science. Ask them if they think there is any value to collaborating with the other science club working on this module.
- ? Ask the students what the differences were between the SPECT brain image of a person with 12 years of marijuana use and the SPECT brain images of healthy people. Ask them if brain activity was increased or decreased in the brain of the person who had used marijuana. (The following Web site includes various SPECT scans: www.amenclinics.com/brain-science/spect-image-gallery/spect-atlas/images-of-alcohol-and-drug-abuse/)



Extensions

The activities listed below provide a link to other areas of the curriculum.



Language
arts



Math



Drama



Art




Science



Social
Studies



Reading

	<p>Have the students make a series of posters illustrating why inhalants are dangerous. Suggest that they include as much information as possible. The students can hang up their posters in the halls at school if this is acceptable.</p>
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Assessment



As the students work on this activity, observe whether they have mastered the following:

1. Can the students explain the effects of alcohol on the brain, the nervous system, and the body?
2. Can the students explain the effects of marijuana on the brain, the nervous system, and the body?
3. Can the students explain the effects of inhalants on the brain, the nervous system, and the body?
4. Were the students able to develop accurate drawings that included the necessary information?
5. Were the students able to write explanations of their drawings that reflected what they learned?



Additional Activities

Below are some additional activities that can be done after completion of the third mission. These activities are extensions to many areas of the curriculum.

	<p>Suggest that the students write a play summarizing what they learned about drugs during these last two modules. They may want to perform for other students in the school.</p>
	<p>Tell the students to write a poem explaining how drugs affect the brain and the body. They may want to include many drugs or just one specific type.</p>

Notes:



Resources for Teachers

National Institute on Drug Abuse (NIDA)

www.drugabuse.gov, 301-443-1124

This Web site contains information about drug abuse and a section designed specifically for parents, teachers, and students. Publications and other materials are available free of charge at drugpubs.drugabuse.com.

National Institute on Drug Abuse (NIDA): Mind Over Matter

teens.drugabuse.gov/MOM/TG_intro.php, 301-443-1124

This Web site was developed to educate children about the biological effects of drug abuse on the body and brain.

National Clearinghouse for Alcohol and Drug Information (NCADI)

<http://store.samhsa.gov>, 1-800-729-6686

NCADI provides information and materials on substance abuse. Many free publications are available here.

Drug Abuse Sourcebook. Health Reference Series, Shannon, JB, ed. Detroit, MI: Omnigraphics, Inc., 2010.

Basic health-related information about the abuse of legal and illegal substances, such as alcohol, marijuana, and inhalants.

National Institute on Drug Abuse (NIDA): NIDA for Teens

<http://teens.drugabuse.gov>

This site is developed specifically for teens. It provides information on drugs.



Resources for Students

Focus on Drugs and the Brain. [Friedman, D. & Neuhaus, D.] Frederick, MD: Twenty-First Century Books, 1990.

This book, part of the "Drug-Alert Book" series, describes the function of the brain and nervous system, and how drugs affect the body.

Inhalant Drug Dangers (Drug Dangers Series). [Monroe, J.] Berkley Heights, NJ: Enslow Publishers, Inc., 2002.

This book explains the serious risks associated with abusing chemical substances, including sections on how these chemicals work on the human body and sections on societal pressures put on children that lead to abuse.

Bottled Up. [Murray, J.] New York: Dial Books for Young Readers, 2004

This book is the story of a 16-year-old boy who has experienced problems with alcohol and marijuana. The book describes the issues he faces as a result of substance abuse.

The Encyclopedia of Drugs and Alcohol (Reference). [Roza, G.] New York: Franklin Watts, Inc., 2001.

Written for ages 9 through 12, this book covers more than 250 commonly used and abused, legal and illegal drugs, including prescription, over-the-counter, and illegal drugs.

National Institution Drug Abuse (NIDA): Mind over Matter
<http://teens.drugabuse.gov/MOM>.

This series is designed to encourage students in grades 5-9 to learn about the effects of drug abuse on the brain and body.

National Institute on Drug Abuse (NIDA): NIDA for Teens
<http://teens.drugabuse.gov>

This site was developed specifically for teens. It provides information on drugs.



Alcohol, Marijuana, and Inhalant Fact Sheet

Drug	Source	How the Drug is Used	Negative Effects on the Body	How the Drug Works
Marijuana	From the dried leaves and flowers of the cannabis plant	Smoked, baked into brownies or cookies, or brewed like tea	Impairs memory, concentration, perception, and movement	Acts on receptors in the brain, causing increased blood pressure and heart rate, sleepiness, and disruption in attention
Alcohol	Found in beer, wine, and liquor	Consumed by drinking	Impairs concentration, slows reflexes (impaired reaction time), reduces coordination, and causes drowsiness when used in excess	Impacts many neurotransmitters in the brain. Alcohol increases turnover of the neurotransmitters dopamine and norepinephrine and alters the function of other neurotransmitters. Long-term use can lead to a reduction in brain size and numerous neurological problems
Inhalants	Found in rubber cement, paint thinner, fingernail polish remover, and pressurized cans of hair spray and whipped cream	Fumes are either sniffed or inhaled	Decrease coordination and cause a kind of stupor; thinking, memory, and the ability to learn are affected. Can cause fatal heart failure within minutes of using. This is known as "sudden sniffing death."	Inhalants can damage the myelin sheath - the covering of neurons that help nerve impulses travel. This can result in problems in nerve cell communication and death of nerve cells. Inhalants can also activate the dopamine system, which is involved in feelings of reward.

Introductory Story for Module 5:
ALCOHOL, MARIJUANA, AND INHALANTS

Jay and Latisha are snooping around the *Brain Power!* Clubhouse. Latisha asks Jay, "So, how do you think we're doing in the competition, so far?"

Jay responds, "I think we're doing really well. That board game we made up was way cool." Latisha agrees.

"If we get one more good mission, we can pull ahead of the *Brain Power!* kids and win the competition. I know they think they'll win, but I don't think so," says Jay. "Maybe we can even get to be Junior Scientists."

"No doubt about it. In fact, we should probably go ahead and have the T-shirts made up right now: 'Spectacular Scientists Rule!'" Latisha smiles and takes a book off a shelf and finds - Corty!

Corty is hiding behind the book she pulls out. Jay jumps back in surprise. Corty laughs. He's wearing a T-shirt that says "Teamwork Rules!" Corty says, "Hi, kids! I've got the perfect mission for you to work on with the Junior Scientists. How 'bout it?"

Jay says, "No way! We're gonna beat them at their own game. We can solve this without any help from them."

Corty sighs and says, "All right. Your mission today is to learn about drugs. The drugs we're going to talk about affect a person's brain and nervous system. They can even change the brain."

Latisha asks, "Are they legal?"

"One is. Here's a hint. It was in the ad you kids were looking at a few missions ago," says Corty.

"Alcohol? But that's only legal for adults, not for kids," says Jay.

"Exactly. Another one is marijuana," says Corty.

"That's illegal for everyone," says Latisha.

"Right. The third is inhalants - those are chemical fumes that people sniff or inhale. Inhalants can be very dangerous. Now, your mission is to learn more about the drugs we talked about. You're going to draw a picture of the body and show how those drugs affect our brains, bodies, and nervous systems."

Jay says, "Let's see. So that's alcohol, marijuana, and inhalants. Wow! That sounds like a challenge. But we're up to it!" Corty leaves as Latisha and Jay begin work on their drawings.



Corty comes back as the kids are putting the final touches on their body outlines, labeling them with the major effects of the drugs. Corty says, "Wow! Great job! Tell me about them."

Latisha says, "Well, marijuana goes by a lot of names. It's the most commonly used illegal drug in the United States." As Latisha talks, she points to parts of the body outline. She continues, "In the brain, marijuana mostly affects the basal ganglia and cerebellum, which help us move, and the cerebral cortex, which helps us think and communicate. So when people smoke marijuana, they can seem uncoordinated, and they may not make much sense when they talk."

Jay says, "Alcohol is found in beer, wine, and liquor. It affects your brain and almost every other organ of your body." Jay also points to the body outline as he talks. He says, "In the brain, alcohol mostly affects the cerebral cortex, so heavy drinkers have slurred speech and sometimes they don't make sense. It also affects the limbic system, which controls our emotions, and the brain stem, which is in charge of the basics—like breathing! But alcohol also interferes with the way messages are carried by neurotransmitters. So, basically, it affects everything a person does."

Jay adds, "People who are dependent on alcohol may have a disease called alcoholism."

"Inhalants are also really scary," says Latisha. "They seem harmless because you can find them in everyday household items like paint thinner, nail polish remover, and rubber cement. They won't hurt you if you use them for what they're supposed to be used for, but some people breathe in inhalants on purpose. And when the chemicals enter the bloodstream directly through the lungs, they get to the brain fast and can do a lot of damage."

Latisha points to the brain area of the body outline and continues, "Inhalants affect the structure of the brain, including the cerebral cortex, the cerebellum, and the brain stem. They also affect the frontal cortex, which is important for solving complex problems, and the hippocampus, which helps us remember things." Latisha adds, "Inhalants can also cause nerve damage, hearing loss, and liver problems. They can even kill a person from a heart attack or suffocation."

Corty says, "That is pretty scary stuff."

Jay says, "It is, and it makes me wonder about something: If these drugs are so bad for you, then why do people try them at all? For those who do, why do they continue to use them after they cause problems?"

Corty says, "Great question!"

Latisha says, "Maybe people don't know about the problems drugs can cause and by the time they find out for themselves, they're hooked."

"They get addicted," says Jay.

"Good work!! That's exactly what we're going to cover in our next mission," says Corty.



Brain Power!



NIDA

Junior Scientists

Brain Power!



NIDA

Junior Scientists

Marijuana

NIDA



Marijuana can be smoked or eaten after being cooked into foods. The active drug in marijuana is a chemical known as tetrahydrocannabinol or THC. THC increases heart rate, which can cause a feeling of panic. Marijuana can cause problems with thinking and problem solving, as well as problems with learning and memory. Marijuana can also increase risk of lung infections.

Alcohol

NIDA



Alcohol is a drug found in drinks like beer and wine. Drinking too much alcohol makes a person drunk, which can cause memory, concentration, and coordination problems. It is illegal for people under 21 years of age to drink, and for a person of any age to drive a car drunk. Long-term alcohol abuse can cause addiction and damage many of the body's organs.

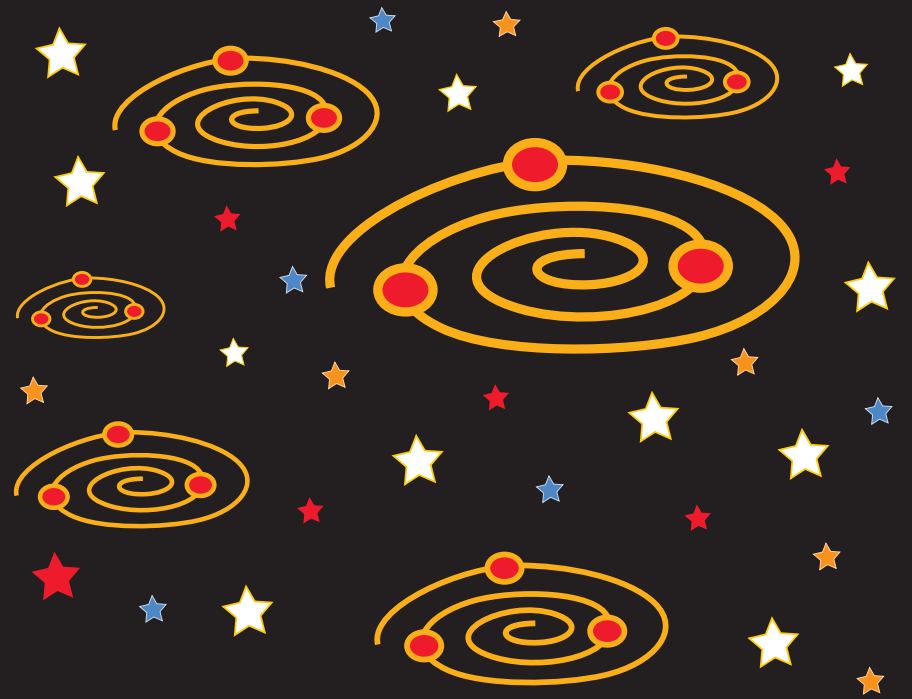
Brain Power!



NIDA

Junior Scientists

Brain Power!

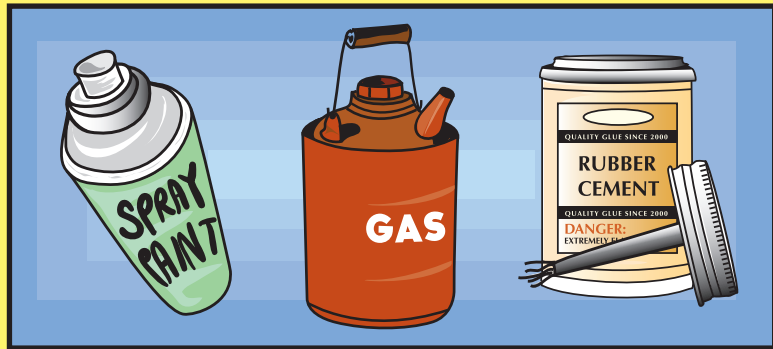


NIDA

Junior Scientists

Inhalants

NIDA



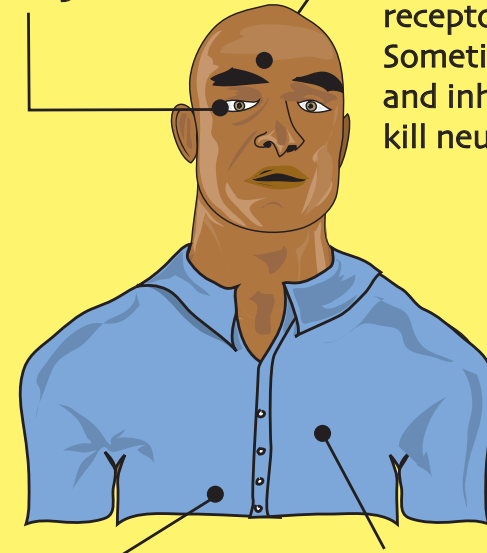
Items with very strong odors, like spray paint, gasoline, and model glue, are examples of inhalants. When the chemicals in these items are inhaled on purpose, they decrease activity in the brain. The chemicals also change the structure of myelin, the insulation that covers the axons in neurons, causing decreased coordination. Inhalants also can prevent oxygen from reaching the brain, which can cause neurons to die. Inhalants can cause a person to have a heart attack, or even suffocate and die.

Effects of Alcohol, Marijuana, and Inhalants

NIDA

EYES: Alcohol, marijuana, and inhalants make a person feel slow and drowsy. This can make it hard to stay alert and do complicated tasks, like driving a car.

BRAIN: Alcohol, marijuana, and inhalants attach to receptors in the brain. Sometimes, alcohol and inhalants can kill neurons.



LUNGS: Alcohol and inhalants can cause a person to have breathing difficulties, which can be deadly. Marijuana can also be harmful to the lungs.

HEART: Inhalants can cause the heart to slow down. Marijuana can cause it to speed up.

Marijuana

NIDA



Marijuana can be smoked or eaten after being cooked into foods. The active drug in marijuana is a chemical known as tetrahydrocannabinol or THC. THC increases heart rate, which can cause a feeling of panic. Marijuana can cause problems with thinking and problem solving, as well as problems with learning and memory. Marijuana can also increase risk of lung infections.

Alcohol

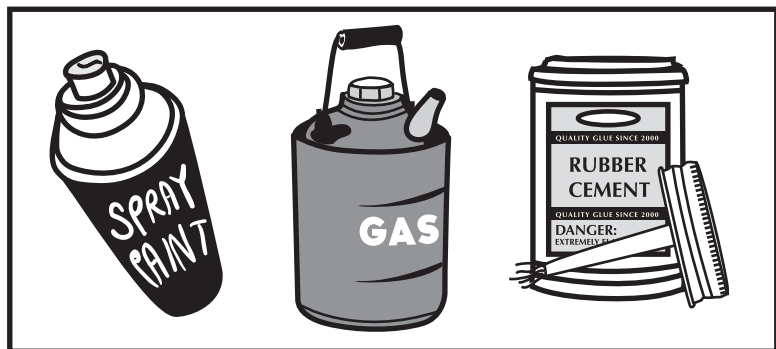
NIDA



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Inhalants

NIDA



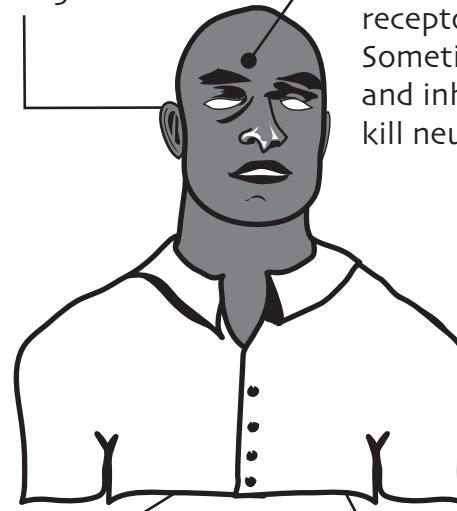
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BRAIN POWER NEWS

PARENT NEWSLETTER

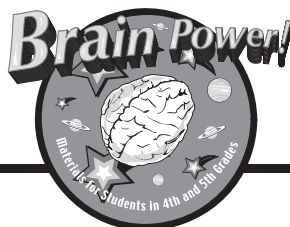
VOLUME 1, NUMBER 5

Alcohol, Marijuana, and Inhalants

In Module 4, your child learned about stimulants, which make up one group of drugs. During this module, he or she will focus on three more drugs—alcohol, marijuana, and inhalants. Students find out how alcohol, marijuana, and inhalants affect the brain and the nervous system. Alcohol and marijuana affect the nervous system in different ways, but both can result in memory loss, impaired motor coordination, impaired thinking and problem solving, and changes in emotional behavior. Inhalants are chemical fumes that are sniffed and have a powerful effect on the brain. They can result in decreases in coordination and alter thinking, memory, and the ability to learn.

Drug	Source	How the Drug is Used	Negative Effects on the Body	How the Drug Works
Alcohol	Found in beer, wine, and liquor	Consumed by drinking	Impairs concentration, slows reflexes (impaired reaction time), reduces coordination, and causes drowsiness when used in excess	Impacts many neurotransmitters in the brain. Alcohol increases turnover of some neurotransmitters and alters the function of others. Long-term use can lead to a reduction in brain size and neurological problems.
Marijuana	From the dried leaves and flowers of the cannabis plant	Smoked, baked into brownies or cookies, or brewed like tea	Impairs memory, concentration, perception, and movement	Acts on receptors in the brain, causing increased blood pressure and heart rate, sleepiness, and disruption in attention
Inhalants	Found in rubber cement, paint thinner, fingernail polish remover, and pressurized cans of hair spray and whipped cream	Fumes are either sniffed or inhaled	Decrease coordination and cause a kind of stupor; thinking, memory, and the ability to learn are affected. Can cause fatal heart failure within minutes of using. This is known as "sudden sniffing death."	Inhalants suppress nerve action, kill neurons, and change the structure of the brain. They can damage myelin, the insulation that covers neurons. They affect many areas of the brain, including the frontal cortex, cerebellum, hippocampus, and brain stem.

This activity aligns with the following standard identified in the NSES: science in personal and social perspectives. The students observe the effects that these three drugs have on the brain and the nervous system. They discuss the impact this information has on their lives and how they can use it to make wise decisions about their own health.



Science at Home

Talk to your child about the different types of drugs and how they affect the brain and body. Revisit the issue regarding the reasons people would use drugs when they know how harmful they can be.

Additional Resources

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www.drugabuse.gov, 301-443-1124

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National Institute on Drug Abuse (NIDA): Mind Over Matter

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This Web site was developed to educate children about the biological effects of drug abuse on the brain and body.

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Inhalant Drug Dangers (Drug Dangers). [Monroe, J.] Berkley Heights, NJ: Enslow Publishers, Inc., 2002. This book explains the serious risks associated with abusing chemical substances, including sections on how these chemicals work on the human body and sections on societal pressures put on children that lead to abuse.

Bottled Up. [Murray, J.] New York: Dial Books for Young Readers, 2004. This book is the story of a 16-year-old boy that has come into problems with alcohol and marijuana. The book describes the issues he faces as a result of substance abuse.

The Encyclopedia of Drugs and Alcohol (Reference). [Roza, G.] New York: Franklin Watts, Inc., 2001. Written for ages 9 through 12, this book covers more than 250 commonly used and abused, legal and illegal drugs, including prescription and over-the-counter drugs.

NOTICIAS SOBRE EL PODER DEL CEREBRO

BOLETÍN INFORMATIVO PARA PADRES

VOLUMEN 1, NÚMERO 5

Alcohol, marihuana e inhalantes

En el Módulo 4, su hijo aprendió acerca de los estimulantes, los cuales conforman un grupo de drogas. Durante este módulo se concentrará en tres drogas más: el alcohol, la marihuana y los inhalantes. Los estudiantes descubren cómo el alcohol, la marihuana y los estimulantes afectan al cerebro y al sistema nervioso. El alcohol y la marihuana afectan el sistema nervioso de distintas maneras, pero ambos pueden resultar en pérdida de memoria, coordinación motriz deteriorada, pensamiento y resolución de problemas deteriorados y cambios en el comportamiento emocional. Los inhalantes son vapores de sustancias químicas que se inhalan y tienen un fuerte efecto en el cerebro. Pueden resultar en disminución de la coordinación y alteración del pensamiento, la memoria y la capacidad de aprendizaje.

Droga	Fuente	¿Cómo se usa la droga?	Efectos sobre el cuerpo	¿Cómo funciona la droga?
Alcohol	Se encuentra en la cerveza, el vino y los licores	Se consume bebiéndolo	Deteriora la concentración, retrasa los reflejos (tiempo de reacción reducido), disminuye la coordinación y causa somnolencia cuando se usa en exceso	Impacta muchos neurotransmisores en el cerebro. El alcohol aumenta la velocidad de recambio de los mismos neurotransmisores y altera la función de los demás. El uso prolongado puede conducir a una reducción en el volumen del cerebro y problemas neurológicos.
Marihuana	Se obtiene de las hojas y flores secas de la planta de cannabis	Se fuma, se hornea en galletas dulces o en bizcochos de chocolate ("brownies"), o se cuele como un té	Deteriora la memoria, la concentración, la percepción y el movimiento	Actúa sobre los receptores en el cerebro, causando aumento de la presión arterial y frecuencia cardíaca, somnolencia y trastornos en la atención.
Inhalantes	Se encuentra en el pegamento a base de caucho, diluyente de pinturas, removedor de esmalte para uñas y latas presurizadas de laca para el cabello y de crema batida	Los vapores se aspiran o se inhalan	Disminuyen la coordinación y causa una especie de estupor; el pensamiento, la memoria y la capacidad de aprendizaje se ven afectados. Puede causar insuficiencia cardíaca mortal unos minutos después de usarse. Esto se conoce como "muerte súbita por inhalación".	Los inhalantes suprimen la acción de los nervios, matan a las neuronas y cambian la estructura del cerebro. Ellos pueden dañar la mielina, el aislamiento que cubre las neuronas, que ayuda al impulso nervioso a viajar entre las neuronas. Esto puede resultar en problemas en la comunicación celular y hasta causar la muerte de las neuronas. Los inhalantes también pueden activar el sistema de dopamina, por lo que pueden ser adictivos. Afectan a muchas áreas del cerebro, incluyendo la corteza frontal, cerebelo, hipocampo y el tallo cerebral.

Esta actividad cumple con el siguiente estándar identificado en los Estándares Nacionales de Educación Científica (National Science Education Standards): ciencia desde una perspectiva personal y social. Los estudiantes observan los efectos que estas tres drogas tienen en el cerebro y el sistema nervioso. Comentan sobre el impacto que esta información tiene en su vida y cómo pueden usarla para tomar decisiones inteligentes sobre su propia salud.



La ciencia en el hogar

Hable con su hijo sobre los distintos tipos de drogas y cómo afectan al cerebro y al cuerpo. Vuelva a hablar de los motivos por los cuales las personas usan drogas aun cuando saben lo nocivas que pueden ser.

Recursos adicionales

National Institute on Drug Abuse (NIDA)

www.drugabuse.gov, 301-443-1124

Este sitio Web tiene información acerca del abuso de drogas y una sección destinada específicamente a padres, maestros y estudiantes. Hay publicaciones y otros materiales disponibles sin costo en drugpubs.drugabuse.gov. Muchas publicaciones están disponibles en español.

National Institute on Drug Abuse (NIDA): Mind Over Matter

www.teens.drugabuse.gov/mom

Este sitio Web ha sido elaborado para educar a los niños acerca de los efectos biológicos del abuso de drogas en el cerebro y el cuerpo.

National Clearinghouse for Alcohol and Drug Information (NCADI)

<http://store.samhsa.gov>, 1-800-729-6686

NCADI provee información y materiales relacionados con el abuso de sustancias. Aquí se pueden obtener muchas publicaciones gratuitas.

Drug Abuse Sourcebook. Health Reference Series, [Shannon, JB, ed.] Detroit, MI: Omnigraphics, Inc., 2010. Información básica relacionada con la salud y acerca del abuso de sustancias legales e ilegales, tales como el alcohol, el tabaco, la marihuana y la cocaína.

Focus on Drugs and the Brain. [Friedman, D. & Neuhaus, D.] Frederick, MD: Twenty-First Century Books, 1990. Parte de la serie de libros de alerta sobre las drogas; describe la función del cerebro y del sistema nervioso y cómo las drogas afectan al cuerpo.

Inhalant Drug Dangers (Drug Dangers). [Monroe, J.] Berkley Heights, NJ: Enslow Publishers, Inc., 2002. Este libro explica los graves riesgos asociados con el abuso de sustancias químicas, incluyendo secciones sobre cómo funcionan estas sustancias químicas en el cuerpo humano y otras sobre las presiones sociales a los niños que conducen al abuso.

Bottled Up. [Murray, J.] New York: Dial Books for Young Readers. *Bottled Up* es la historia de un muchacho de 16 años que se metió en problemas por el alcohol y la marihuana. El libro describe los problemas que enfrenta como resultado del abuso de sustancias.

The Encyclopedia of Drugs and Alcohol (Reference). [Roza, G.] New York: Franklin Watts, Inc., 2001. Este libro, escrito para niños de 9 a 12 años, cubre más de 250 drogas usadas habitualmente, tanto legales como ilegales, incluyendo medicamentos recetados y de venta libre, así como drogas recreativas.



Alcohol



Inhalants



Marijuana

Effects of Alcohol, Marijuana, and Inhalants

Change in Heart Rate
Change in Blood Pressure
Decrease in Respiration
Reduced Coordination
Attention Problems
Disrupts Normal Neurotransmission

Impaired Memory
Slurred Speech
Dizziness
Drowsiness
Unconsciousness
Vomiting