



Drugs 301: The Good, The Bad, and the Ugly

Description

Ancient remains studied by anthropologists show us that humans have been using plants as medicine for thousands of years. Why are there so many deaths from prescription medications today? Learn the science behind chemical addiction and find out what physical consequences arise from the use of different categories of drugs. Actual medical specimens will impress upon students the powerful effect drugs have on specific organs, and our lives.

Objectives

- Identify specific chemical actions of different drugs (inhalants, stimulants, depressants, hallucinogens, cannabis, narcotics, and steroids)
- List physical effects drugs can have on specific organs of the body
- Describe how drugs interrupt normal brain activity by changing the communication pathways between neurons and affect neurotransmission

Ohio's Learning Standards

Grade 6: Life Science – Cellular to Multicellular

- Cells are the fundamental unit of life
- All cells come from pre-existing cells
- Cells carry on specific functions that sustain life
- Living systems at all levels of organization demonstrate the complementary nature of structure and function

National Health Education Standards

Grades 6-12: Standards 1, 2, 3, 5, 7

- Students will comprehend concepts related to health promotion and disease prevention to enhance health.
- Students will analyze the influence of family, peers, culture, media, technology and other factors on health behaviors.
- Students will demonstrate the ability to access valid information and products and services to enhance health.
- Students will demonstrate the ability to use decision-making skills to enhance health.
- Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.



How You Can Help Us Make This Virtual Program A Success...

- If your students are joining us from your classroom computer, please arrange your room and projection screen so everyone can see us clearly.
- If you and your students are joining us from your homes, we will have an educator monitoring the Chat feature for questions. We request that you or another staff person serve as a Co-Host to help monitor students for any inappropriate Chat or camera behavior.
- If you will have a hybrid class (some at school, some joining from home), our educator will monitor the Chat and camera behavior, and we reserve the right to temporarily move any disruptive students to our Waiting Room so we or school staff can correct the undesired behavior.
- If you prefer, we can turn off all cameras and interact solely via the Chat feature.

Vocabulary

addiction – psychological or physical dependence on a substance, in which unpleasant or life-threatening symptoms of withdrawal are felt if the substance is removed from the body.

alcohol – ethanol, or ethyl alcohol, is the kind that can be ingested and processed by the body. Other types (isopropyl, rubbing alcohol, denatured alcohol, etc.) are poisonous.

barbiturate - a group of drugs in the class of drugs known as sedative-hypnotics, which generally describes their sleep-inducing and anxiety-decreasing effects. They bind to the same receptors as the neurotransmitter GABA.

benzodiazepines - enhance the effect of the neurotransmitter gamma-aminobutyric acid (GABA) resulting in sedative, hypnotic (sleep-inducing), anxiolytic (anti-anxiety), anticonvulsant, and muscle relaxant properties.

cannabis - short for *Cannabis sativa*, the scientific name for marijuana.

depressant – drug that lessens or slows nervous system activity.

dopamine- in the brain, functions as a neurotransmitter. It stimulates happiness, excitability, and can make you feel more content. Many drugs either trigger the release of this neurotransmitter, or match the neuron receptors for it.

drug – any chemical substance that, when put into the body, causes some change to occur. This change may be in mental state or bodily functions.

drug abuse – the use of a drug in a manner not intended by the prescribing doctor or manufacturer. Also a term for using much more of a drug than is recommended, or the use of illegal street drugs.

GABA - *gamma*-Aminobutyric acid, a neurotransmitter that typically has relaxing, anti-anxiety, and anti-convulsive effects, and also regulates muscle tone in humans.



hallucinate – to perceive sights, sounds, or other sensations that are not actually present.

inhalants – drugs that are breathed into the lungs for effect, also other substances not specifically defined as drugs that have drug-like effects when inhaled.

Naloxone – a drug that is administered by injection or as a nasal spray to reverse the effects of opioids, especially in the emergency treatment of opioid overdose. One of the trademarked names of this drug is **Narcan**.

narcotics – addictive drugs, such as opium, that reduce pain, alter moods and behavior, and usually induce sleep or stupor. Natural and synthetic narcotics are used in medicine to control pain.

opium - a bitter brownish addictive narcotic drug that consists of the dried latex obtained from immature seed capsules of the opium poppy.

opiates - a drug (such as morphine or codeine) containing or derived from opium and tending to induce sleep and alleviate pain.

opioids - A substance used to treat moderate to severe pain. Opioids are like opiates, such as morphine and codeine, but are not made from opium. Opioids bind to opioid receptors in the central nervous system. Opioids used to be called **narcotics**.

OTC – Over the Counter drugs. These drugs do not require a doctor’s prescription for purchase, although many have a legal age for buyers.

serotonin- works as a neurotransmitter in the brain, often associated with maintaining mood balance.

steroids - any of a group of synthetic derivatives of testosterone that promote muscle and bone growth. These drugs also have effects on skin, bone, and sexual health.

stimulants – chemicals that cause increased activity of systems of the body.

withdrawal – the process of giving up use of a narcotic drug, typically accompanied by distressing physical and mental effects.

Extension Activities

1) What’s on the KidsHealth.org website?

- a. Pair up or work individually to search the ‘Teens’ section of www.KidsHealth.org for information on drugs and alcohol. If this activity is done at home, please encourage them to do this with their parents or guardians.
- b. Try and locate information on a specific drug or class of drugs and how they affect the body, especially information that is new, and write a brief summary to share with the class. What are some other resources for accurate information on drug use?
- c. Use the information to create a “Real Cost of Drugs” advertisement.

2) Does popular music encourage drug use?

(A CD, mp3, or other music player is required for this activity)

- a. Bring in popular songs on CDs or music files, and/or bring lyrics to songs that mention drug use.
- b. As a class or in small groups, play the music and/or have read the lyrics to these songs. While you listen, discuss the following questions:
 - o Are drugs mentioned directly, indirectly or metaphorically in the song? Give an example.
 - o Does the song suggest or promote drug use in any way? Explain.
 - o What type of message does this song send concerning drug use? Why?
 - o What attitudes do the writers and performers of this music have towards drug use? Does this influence the attitudes of listeners to drug use? Why or why not?

Online Resources for Teachers and Students

Click the link below to find additional online resources for teachers and students. These websites are recommended by our Museum Educators and provide additional content information and some fun, interactive activities to share with your class.

CMNH Educators regularly review these links for quality. Web addresses often change so please notify us if any links have issues.

Cleveland Museum of Natural History <https://cmnh.org/edlinks>