

## Teacher's Guide

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# Drug Danger: IN THE BODY



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- Suggested Instructional Procedures
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## **DRUGDANGER: IN**

## **THE BODY**

**Time: 12:00**

### **Consultants:**

**Joyce Traina, M.D. Medical  
East, Braintree, MA**

**Ken Newbury, Ph.D.  
Director, Student Assistance Program  
Toledo, OH Public Schools**

**Barbara A. Weigand, M.A., C.A.A.C.  
Alcohol/Other Drug Prevention Consultant  
and Trainer**

### **PROGRAM OVERVIEW**

*Drug Danger: In the Body* focuses on three gateway drugs ~ tobacco, marijuana, and alcohol (including beer) -- and discusses their effects on various organs in the body.

Tobacco contains nicotine, a powerful and highly addictive drug. Nicotine is a poisonous substance that changes the chemistry of the brain. Tobacco also contains tar, a sticky substance that damages the delicate lining of the lungs. Tar also paralyzes the small hairs that sweep germs out of the lungs, throat, and nose. Moreover, tar triggers cancer growth. Two other diseases cigarette smokers are more likely to get than non-smokers are emphysema and chronic bronchitis. Cigarette smoke also contains carbon monoxide, a gas that can cause heart attacks. Marijuana smoke contains the same dangerous chemicals as cigarette smoke, but generally in larger amounts. In addition, marijuana contains THC, a poison that destroys white blood cells, an important part of a person's ability to fight disease. Marijuana also affects the brain. Frequent users have trouble focusing their

thoughts, and the ability to use their muscles is hampered. Beer and other kinds of alcohol affect a person in similar ways. In addition, alcohol may cause stomach ulcers, and can play a role in the development of stomach cancer. Heavy drinkers generally have higher blood pressure than non-drinkers, and a higher incidence of heart attacks. Alcohol also can destroy the liver, the organ that removes poisonous substances from the body.

## STUDENT OBJECTIVES

After viewing this video and participating in the suggested activities, students should be able to do the following:

- (1) Name the poisonous substances in tobacco, and describe their effects on major organs of the body.
- (2) Name the poisonous substances in marijuana, and describe their effects on major organs of the body.
- (3) Describe their effects of alcohol on the major organs of the body.

## SUGGESTED LESSON PLAN 1.

### Introduction

Show the class a chart of the various organs of the body and discuss the function of the heart (as well as veins and arteries), the lungs, the liver, the brain, and the stomach. Make certain that your

students realize that each organ is vital to good health. Ask if drugs can affect these organs. Help students understand that physicians can prescribe certain drugs to help those organs get better if they don't work correctly.

Conversely, certain drugs can destroy the organs or impede their function. They are found in cigarettes, marijuana, and alcohol - the three "gateway drugs."

## 2. Pre-Viewing Activities

Although the following terms are defined in context in the video, student comprehension of the material may be enhanced if you write and define them on the chalkboard. They are *nicotine, cocaine, heroin, tar, paralyze, emphysema, chronic bronchitis, windpipe, carbon monoxide, blood vessels, cholesterol, stroke, "joints," THC, marijuana, distort, intoxicated, ulcers, hepatitis, cirrhosis, "gateway drug."*

Explain to your students that they are now going to see a video called ***Drug Danger: In the Body***. Tell them that there is a great deal of information given in the program, so they will have to give the presentation their undivided attention.

List the three student objectives on the board. Tell the class that after viewing the program and after participating in the follow-up activities, they will be expected to be able to meet those objectives.

Present the video. A transcript of the narration is found on pages 8-16.

### 3. Post-Viewing Activities

Discuss the video based on student objectives, then quiz the students to determine their level of comprehension. Repeat explanations of any material your class does not understand.

Invite a physician, your school nurse, or another health professional, to further discuss the effects of gateway drugs on the various organs of the body.

Divide your class into committees, and have each committee give an oral presentation on gateway drugs and their effects on the various parts of the body.

#### TRANSCRIPT OF THE VIDEO

*Note: Many of the biological phenomena discussed in this video take place at the molecular level. Because intermediate grade students do not have the background to fully understand the biochemistry involved, concepts have been simplified in the animated sequences by taking some license with scale and illustrative methodology.*

There was a time when cigarette smoking was considered stylish and glamorous.

Now we know better.

There was also a time when marijuana was considered harmless.

We know better about that, too.

Once, comedians told jokes about alcohol, and how funny it was when people got drunk.

Most people aren't laughing any longer.

Some persons, however, still haven't gotten the message. Their minds seem to be stuck somewhere in the past.

Or maybe they just refuse to take the facts seriously ~ that cigarettes, marijuana, and alcohol can do terrible things to a person's body.

People have been smoking tobacco for a long time.

But it wasn't until fairly recently that scientists discovered that the tobacco in cigarettes, pipes, and cigars can have a powerful effect on the brain and other parts of the body.

The reason is that tobacco contains nicotine, a very powerful drug. The nicotine in tobacco smoke is very addictive, which means that once a person smokes on a regular basis, it's extremely hard to stop.

Some people are never able to quit, even though they may very much want to.

Scientists have discovered that nicotine can be even

more addictive than cocaine and heroin, two drugs known to be very addictive.

Nicotine changes the chemistry of the brain so that a smoker craves cigarettes. He or she can't feel normal without smoking.

Scientists have discovered something else about nicotine. It's a poison. In fact, if a person took the amount of nicotine found in less than ten packs of cigarettes at one time, he or she would probably die.

And there are other dangerous poisons in cigarettes. One is called "tar."

When a person inhales cigarette smoke, thousands of tiny tar particles enter his or her lungs. When the tar particles cool, they begin to form a sticky substance that coats the lungs. This coating damages the lungs' delicate lining.

It may also paralyze the millions of tiny hairs in the nose, throat, and lungs -- hairs that would otherwise sweep germs (as well as other disease-causing substances) out of the body.

That's one reason why smokers usually have more illnesses than non-smokers.

The tar in cigarette smoke also can trigger cancer growth. Thousands of smokers die of lung cancer every year.

Lungs must expand and contract in order for a person to breathe normally. But when tar ~ you

could think of it as gooey molasses -- builds up, another disease called emphysema may prevent full expansion and contraction.

So emphysema, which cannot be cured, keeps people from breathing normally, and in severe cases, can cause death.

The tar in cigarette smoke can cause another lung disease, chronic bronchitis. The airways to the lung get smaller in people with this condition, and they become clogged with mucus. Breathing becomes painful and difficult.

By the way, chewing tobacco and snuff -- two products just as dangerous as cigarettes -- also contain tar.

They, too, can cause cancer ~ on the lips, gums, and tongue ... and in the mouth, throat, and windpipe.

And to a lot of people, tobacco chewers and snuff dippers look pretty disgusting.

It would be bad enough if there were only nicotine and tar in tobacco products. But there's another poison in them whenever they're smoked -- carbon monoxide, the same colorless gas that comes out of car exhaust pipes.

The carbon monoxide in cigarette smoke winds up in the brain, heart, and blood vessels, where it can do a lot of damage.

In the bloodstream, for instance, **carbon monoxide**

-- seen in green — takes the place of oxygen, seen in white. But the body needs oxygen to survive.

So the heart, the organ that pumps oxygen-rich blood, must work much harder to get enough oxygen to the various parts of the body. In some cases, that extra work puts such a strain on the heart, that it beats out of control, or simply stops. In other words, the smoker has a heart attack.

It's a well-known fact among scientists and doctors that cigarette smokers are much more likely to have heart attacks than non-smokers.

In addition to affecting the heart, carbon monoxide affects blood vessels, as well. Scientists have discovered that the gas helps build up a fatty substance called cholesterol on blood vessel walls.

In time, the cholesterol may completely block the flow of blood ~ including the oxygen it carries, seen here as white dots.

That can cause a heart attack, also - or a stroke, a condition in which a portion of the brain dies because it doesn't get enough oxygen.

Carbon monoxide in cigarette smoke can affect a person's eyesight, too. Smokers generally do not see at night as well as non-smokers.

In addition, cigarettes can reduce a person's alertness to sounds.

Cigarettes made from marijuana -- they're often called "joints" - have the same poisonous substances

as tobacco cigarettes, but in some cases, in larger amounts.

For example, marijuana has more tar. As a result, marijuana smokers are even more likely than cigarette smokers to get lung cancer, emphysema, and bronchitis.

Moreover, marijuana contains a poisonous chemical called delta-nine tetrahydrocannabinol. That's hard to say, so scientists have shortened it to "THC."

Back in the 1960s, when it became widely used, marijuana contained very little THC. Today, however, there's a lot more - 10 to 15 times as much.

That's important because THC is stored in various organs, including the lungs and kidneys. And the longer a poisonous substance stays in the body, the greater its chances of doing harm.

Even if a person smoked marijuana only once a week -- say, on weekends -- THC would always be in his or her body.

So what can the THC in marijuana do? Well, for one thing, it destroys white blood cells, a very important part of a person's ability to fight disease.

That's one reason why marijuana smokers tend to get sick more often than other people, and why it takes them longer to get better.

Marijuana also affects the brain. It causes some people to have panic attacks.

Moreover, those who use marijuana frequently, and over a long period of time, have trouble focusing their thoughts. And so they don't do well in school, in sports, or in any other activity.

Marijuana also can distort, or change a person's sense of time and space, and it keeps him from using his muscles quickly.

As a result, thousands of marijuana users are killed or injured in auto accidents every year because they weren't able to correctly judge time and distance when driving. Nor were they able to react quickly enough when an accident was about to occur.

The same is true for persons who abuse alcohol, and that includes beer. In fact, about 30,000 people are killed each year due to drunk driving. In the United States, ten teenagers die every day in accidents caused by drunk driving.

So it's easy to see that getting in a car with an intoxicated driver is an extremely dangerous thing to do. You might end up in a hospital; you might have to spend the rest of your life in a wheelchair; you might have to undergo a series of painful operations to patch up your body; you might even wind up in a cemetery.

It's always smart to refuse a ride when the driver is intoxicated.

In addition to causing tens of thousands of deaths in auto accidents each year, alcohol can be destructive in other ways.

Some of that destruction can take place in the stomach. For example, alcohol can cause stomach ulcers, bleeding sores that are usually very painful.

Stomach cancer is also more likely to be seen in heavy drinkers.

The heart is another organ affected by alcohol abuse. Heavy drinkers are more likely than others to have high blood pressure, which means that the heart must work harder to pump blood throughout the body. And that can lead to heart attacks.

But perhaps the organ most commonly damaged by alcohol abuse is the liver, which is responsible for removing poisonous substances from the body.

Inside the liver, those substances ~ including alcohol ~ are changed chemically so they become harmless.

If you find it hard to believe alcohol is a poison, consider that if you drink too much of it -- so much that your liver becomes overloaded with it and can't change it fast enough - you'll die of alcohol poisoning. It happens to thousands of people every year, many of them teenagers.

Too much alcohol in the liver over a period of time causes hepatitis, a disease in which the liver becomes sore, and doesn't work well. People with hepatitis are very sick.

If a person continues to use alcohol, the hepatitis may eventually develop into cirrhosis, a very serious disease in which portions of the liver die and become scarred. If a person with cirrhosis doesn't



stop drinking, the liver eventually will stop working, and he or she will die.

Alcohol, tobacco, and marijuana are dangerous in another way, too.

All three are known as "gateway" drugs, which means that they can lead to the use of other ~ and sometimes, even more dangerous — substances, such as cocaine, crack, heroin, and LSD.

Nobody ever intends to become a drug addict -- it's just too terrible. Everyone who starts on a gateway drug thinks that they can stop anytime they want. Too often, however, they're only fooling themselves.

But even if the use of alcohol, tobacco, or marijuana doesn't lead to other drugs, they're bad enough themselves.

As you've seen, they can be very harmful to the brain, the heart and blood vessels, blood cells that fight disease, the liver, the lungs, and the stomach.

Sure, it can take a long time for all those things to happen. We normally don't see the destruction right away.

But every time a person smokes tobacco or marijuana -- or drinks alcohol - her or his body is put into danger. And as time passes, that danger becomes greater and greater.