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ABSTRACT

The primary bulletin outlines a teaching program for seventh-grade students on drugs and drug abuse, and is designed to supplement the school science curriculum. The program is directed towards providing factual information about various drugs and appropriate techniques that the teacher needs. It also provides appropriate learning experiences for the student. Stress is placed on the physical nature of the drugs and their physiological effects on the human body. It is hoped that this approach will ensure that students will become aware of the effects of drug abuse on the individual, his family, his community and society as a whole. Suggestions are offered as to potential community resources that could be utilized as consultants and guest speakers. The guide is organized into two sections for each drug: a teacher information section and a teaching unit. The supplementary bulletin contains a bibliography of drug literature, tests for students, tables of drug characteristics, slang and technical terms, drug abuse symptoms, and Maryland laws on drug abuse. (NG)

DRUGS AND DRUG ABUSE:

ALCOHOL, TOBACCO, AND CONTROLLED DANGEROUS SUBSTANCES

(A Supplement to the Course of Study for Science, Grade 7)

Bulletin No. 278

Montgomery County Public Schools
Rockville, Maryland
Homer O. Elseroad
Superintendent of Schools

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FOREWORD

Recognizing that drug abuse is one of the most serious of those problems which are contributing to the deterioration of our society, the Board of Education of Montgomery County adopted a Policy Statement on Drug Abuse on July 9, 1970, which was revised and adopted on April 30, 1973. To fulfill MCPS's commitment to drug abuse education as outlined in the Policy Statement and the implementation statement which accompanied it, this unit has been developed for Grade 7.

This bulletin stresses the physical nature of drugs and their physiological effects on the human body. Through this approach, it is hoped that students will become aware of the effects of drug abuse on the individual, his family, his community, and society as a whole. On the other hand, the problem of drug abuse will continue until society, the community, and the individual's family can offer our young people viable alternatives to drugs. Hopefully this unit will awaken in both adults and students an awareness of the need for such alternatives.

In view of medical advancements in the areas of alcohol, tobacco, drugs, and drug abuse in the past five years, this document replaces MCPS Bulletin No. 240.

PREFACE

This unit is organized as an integral part of the overall curriculum design from which the Program of Studies generates.

In the existing framework, the major theme of the science program in Grade 7 treats the biology and health of man. Investigation of the meaning of man's relationship to his environment, and the development of wholesome attitudes and values concerning this relationship, lend themselves naturally to this unit on drugs and drug abuse. It is considered vital that attention to this matter be given in the context of scientific inquiry. As the students enter adolescence, objective knowledge of drugs--both their use and misuse--is vital to the future well-being of each individual and of the total society. The present unit is directed toward providing such objective knowledge and provides learning experiences appropriate to this objective.

This teaching unit should represent a challenge to all seventh grade science teachers--experienced and inexperienced alike. There is challenge both in the nature of the subject material and in the presentation of information about the subject of drug abuse. Many people, teachers included, are not aware of the numerous types and properties of the substances discussed, nor of their physiological and psychological effect on the body. Because research is every day uncovering new facts and insights in this area, it is hoped that the teacher will prepare, with the aid of his class, a personal file of current materials.

It is imperative that the teacher become thoroughly acquainted with the information in each of the teaching units; pre- and posttests in the teacher packet will provide a gauge to indicate any areas of weakness.

The resource team who prepared this unit feels that in order to implement specific educational goals the following must be taken into consideration:

1. Information should be presented factually. Great care must be taken to avoid moralizing.

2. The unit provides many different areas of study. It is not intended that all activities be pursued. The teacher, understanding the individual needs of his pupils, should feel free to choose the subject matter and materials which meet his particular situation.

3. Knowledgeable consultants in the school and community should be utilized; e.g., teachers, school nurses, counselors, police, ex-addicts, doctors, and parents.

4. When using speakers, especially ex-addicts, consider the age and sex of the speaker, the topic being discussed, and the age of the student group.

5. It is important that a variety of media be selected in order to maintain an effective, well-balanced program. (filmstrips, speakers, films, investigative activities, etc.)

6. Objectivity in discussion must be maintained.

7. Generally one week each should be devoted to the units on alcohol and tobacco, two weeks to the study of controlled dangerous substances.

8. This unit is more relevant if incorporated with the study of the nervous, respiratory, and digestive systems in the seventh grade science curriculum or after these systems have been completed.

9. Even though the resource team has provided a summary of each film and filmstrip, these should be previewed by the teacher. It is recommended that a class discussion follow the showing of each film.

ACKNOWLEDGMENTS

This teaching unit for Grade 7 was developed by the following workshop members during the summer of 1970:

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OVERVIEW

The inventiveness of man has always been aimed at relieving the burdens which man must endure. This can be seen not only in the historical development of tools but also in the quest for drugs to cure the ills of mankind. The treatment and cure of many illnesses both physical and mental have been attempted with a consequent increase in the development and use of drugs. As a result, the use of some types of drugs is accepted as a part of our modern way of dealing with many of these ills.

Man has unfortunately shown a tendency to overuse drugs to improve his mental state. Most drugs which cure temporary physical affliction have little danger of being over used, but a problem stems from use of those that make us happy when we are sad, wide awake when our body is tired, or able to sleep when we are worried and nervous. Many of these drugs have harmful side effects (addiction - physical and psychological; lasting physical damage).

Currently, community concern regarding drug misuse is centered on our youth. They are growing up in a world full of problems for which they see no immediate solutions. Adolescents undergo bodily changes with related emotional pressures. Superimposed on this is peer pressure accompanied by the "fad syndrome." It is not surprising, therefore, that many young people turn to drug experimentation.

This supplement to the course of study for science Grade 7 includes teacher information and units on alcohol, tobacco, and those drugs known legally as "Controlled Dangerous Substances"--(stimulants, depressants, hallucinogens, and those drugs with mixed actions)--the use or abuse of which is creating additional problems for a society that is already crying out for solutions to existing ones.

MAJOR CONCEPTS

1. A drug is a substance other than air, water, or food nutrients taken into the body to produce an effect on the body or mind.

2. Drugs which effect the mind can be grouped into the following categories: stimulants, depressants, hallucinogens, and those with mixed actions.

3. Drug abuse is a problem in our society, and concrete steps will be required to curb this problem.

4. The misuse of alcohol and other drugs is a major cause of the trials and sufferings of many people in our society.

5. There are no specifically recognized medical values in the use of tobacco; yet its harmful effects are being documented with increasingly clear evidence.

6. Drug abuse appears to be strongly related to personality problems.

7. There is high correlation between drug abuse and crime.

8. Substances assimilated by the body can modify human growth and development.

9. Every drug is capable of having a variety of reactions.

10. Reactions of one drug in a general group (stimulants, depressants, hallucinogens, and those with mixed actions) can be related to the physiological and psychological reactions of any drug in that group.

11. All drugs can produce a psychological dependency but only depressants can produce a physiological dependency.

PERFORMANCE OBJECTIVES

Each student will be able to:

1. Identify those substances which are classified as mind-altering drugs and those which are not

2. Differentiate between drugs that are classified as stimulants, depressants, hallucinogens, and those with mixed actions

3. Present objective scientific information concerning alcohol, tobacco, and controlled dangerous substances, and their uses and effects on individuals and society

4. Describe the process by which each force operates (such as family, community, peer pressure, fad syndrome), given an assimilated substance such as tobacco, alcohol, or controlled dangerous substance and social forces

5. Recognize the difference between physiological dependence and psychological dependence on drugs

6. Discriminate between those which are based upon verifiable evidence and those which have no factual basis at this time when given a list of statements concerning the physical appearance, action, use, and misuse of drugs

7. List or name some of the various facilities available to help drug users

8. Identify those peer group practices relative to the use of an assimilated substance which are beneficial and those which are detrimental to health, and explain why

9. Recognize constructive and satisfying alternatives to drug abuse

CLASSIFICATION OF DRUGS

Drugs are taken to mean any substance other than air, water, or food taken into the body to produce an effect on the human body or mind. The definition is so broad that frenquently alcohol and tobacco are specifically excluded. In this teaching unit, however, alcohol and tobacco are discussed. They are, however, treated separately from those other drugs which are legally known as "controlled dangerous substances." Mind-altering drugs may be classified into four major categories: stimulants, depressants, hallucinogens, and mixed actions. The following classification does not imply relative strength but is listed alphabetically.

STIMULANTS

Amphetamines (speed)
- Benzedrine
- Dexedrine

Caffeine
Cocaine
Methamphetamine
- Desoxyn
- Methedrine

Nicotine
Phenmetrazine
- Preludin

HALLUCINOGENS

Psychedelics
- DET (Diethyltryptamine)
- DMT (Dimethyltryptamine)
- LSD (Lysergic Saure Diethylamide)
- Mescaline
- Peyote
- Psilocyn
- Psilocybin
- STP (DOM)

Delirants
- Ditran
- Phencyclidine (Seryol, PCP)
- Scopolamine

DEPRESSANTS

Alcohol
Antihistamines
Aspirin
Barbiturates
- Amobarbital (Amytal)
- Pentobarbital (Nembutal)
- Secobarbital (Seconal)
- Tuinal

Bromides
Narcotics
- Codeine
- Heroin
- Morphine
- Opium
- Paregoric

Narcotics (Synthetic)
- Demerol (Meperidine)
- Methadone

Quaalude (soper)
Tranquilizers
- Equanil
- Librium
- Miltown
- Valium

Volatile Chemicals (solvents)
- Acetone
- Aerosol spray
- Benzene
- Carbon Tetrachloride
- Ether
- Freon
- Gasoline
- Glue
- Lacquer thinner
- Laughing gas (nitrous oxide)
- Lighter fluid
- Marking pencil fluid
- Naptha
- Toluene
- Xylene

MIXED ACTIONS

Hashish
Marijuana
THC (Tetrohydrocannabinol)

TEACHER INFORMATION ON ALCOHOL

A. History of Alcohol

B. What is Alcohol?

C. Uses of Alcohol

D. Effects of Alcohol on the Body

E. Effects of Alcohol on Behavior

F. Alcoholism: Disease and Treatment

G. Motivational Factors Concerning Alcohol Consumption

H. Traffic Safety and Alcohol

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TEACHING UNIT ON ALCOHOL

A. HISTORY OF ALCOHOL

Since the earliest days of recorded history (and probably before that), man has known how to make some forms of fermented beverages in which alcohol was the potent ingredient. The discovery of Stone Age beer jugs, carvings in the tombs of Ben Hassen which illustrate the Egyptian's drinking customs, the records of ancient China, the sacred books and laws of India, and the literature of Greece and Rome all confirm this. However, the process of distillation through which stronger concentrations of alcohol may be obtained is said to have been discovered by the famous Arabian physician Rhazes only about a thousand years ago.

The earliest men who undertook to store grape juice for the winter discovered the results of fermentation. Although they neither knew nor understood what happened to the juice, they came to realize the peculiar effect it had upon human behavior. Primitive man attributed the effects of alcohol to the benevolence of the gods, and thus alcohol became associated with religious ceremonies and other special occasions.

Through the centuries, alcoholic beverages continued to play a part in man's history. In 1607, with the founding of Jamestown colony, drinking customs were introduced into this country. Drinking was widespread in the colony; and within twelve short years, the governing body found it necessary to pass laws curtailing the use of alcoholic beverages. Since this period in early America, the alcoholic beverage industry has flourished in the United States.

The first distilled liquors were regarded as medicines not as beverages. They were thought to have extraordinary healing powers, and the list of ailments for which they were prescribed became so long that alcohol could have been called the proverbial "cure-all." But as their supply increased and their price decreased, distilled liquors began to have widespread use as beverages as well as medicines. In the past, alcohol did have some value as a useful drug but it also had many dangerous applications. Today new discoveries in the medical field have satisfactorily replaced alcohol in many of its earlier uses. Today, as a consequence, alcohol is not so widely used in internal medicine.

B. WHAT IS ALCOHOL?

Ethyl alcohol or ethanol is a colorless, volatile, flammable liquid at standard temperature and pressure. The chemical formula is C_2H_5OH. It is often called grain alcohol since it comes largely from the processing of grains; however, it can also be gotten from fruits and starchy vegetables as well. This intoxicating substance is formed from the sugars and starches by fermentation. This involves the breakdown of the sugars and starches by enzymes produced by certain bacteria, yeasts, or molds. One very common example of fermentation is the formation of cider from apple juice. When the juice of the apple is forced out in a cider press, it is sweet because of the presence of sugars. There are always yeasts on the apples which cause the juices to ferment, especially when the liquid is kept in a warm place. The yeasts break down the sugars forming alcohol and carbon dioxide. This gas bubbles to the top while the alcohol is dissolved in the water of the

apple juice. Gradually, as the sugar is changed to alcohol and carbon dioxide, the yeast plants increase in number until groups of them become large enough to be visible; and the apple juice, which was once clear, becomes cloudy. As the alcohol is formed, the amount becomes sufficiently great so that the yeast can no longer grow. The process of fermentation stops, thus limiting the concentration of alcohol formed.

Cereal grains are also used as a basis for alcoholic fermentation. The starch of wheat, rye, barley, corn, or the potato is changed to sugar while malting takes place through the action of the enzyme, diastase. Yeast is used in the fermentation of alcohol. If fermentation continues after the liquid has been placed in a sealed container, the carbon dioxide will be held in solution under pressure (as in that of champagne and beer).

Other alcohols and related substances which are called fusel oils are also formed during the process of fermentation and in the later maturation of beverages. Some of these may be changed to less irritating compounds of more pleasant taste by aging. They, along with other substances in the original juices, give the beverage its characteristic flavor but are present in such small amounts that their action on the body is probably insignificant in comparison with that of ethyl alcohol.

There are three common forms of beverage alcohol consumed in the United States today. These types vary in alcoholic content from about two to fifty percent. The alcoholic content of beer is approximately two to five percent. Wines contain about twelve to twenty percent. Hard liquors vary in alcoholic content from forty to fifty percent. The percentage of alcohol in liquors is usually expressed in terms of "proof." The proof of a beverage is approximately twice the percentage of alcohol contained. For example, ninety proof is about forty-five percent alcohol.

Beverage alcohol of high alcoholic content requires a process called distillation. This process separates ethyl alcohol from the other substances present at the end of the fermentation process. Distillation utilizes heat in the isolation of ethyl alcohol, since the boiling point of alcohol (172.6 degrees F.) is lower than that of water (212 degrees F.) and many other substances present in the fermenting liquid. (Only if the temperature is maintained at precisely 172.6 degrees F. can pure ethyl alcohol be obtained.)

C. USES OF ALCOHOL

Alcohol was utilized as an anesthetic prior to the discovery of ether; consequently, patients were intoxicated intentionally to deaden the feeling of pain during an operation. Today the medical uses of ethyl alcohol are primarily as an antiseptic and as a solvent for pharmaceutical drugs.

Another type of alcohol is methyl alcohol or wood alcohol which is gotten from the distillation of wood. The chemical formula is CH_3OH. Medically it is used for rubbing and massaging the body because it has a cool and soothing effect. If taken internally wood alcohol can become poisonous to the body.

There are many other members of the alcohol family which are essential in or useful in the production of preservatives, paints, plastics, perfumes, soaps, photographic supplies. Alcohol also has a very low freezing point and is used in cold climates as a base for antifreeze solutions.

D. EFFECTS OF ALCOHOL ON THE BODY

Alcoholic beverages enter the body in the same manner as regular food products, but the digestive process differs greatly. Alcohol does not need to be digested; it can be absorbed from the stomach directly into the circulatory system. This absorption begins immediately upon consumption, and traces of alcohol can be detected in the blood within minutes. Most of the absorption of alcohol takes place within the first foot of the small intestine, with about twenty percent being absorbed directly through the walls of the stomach. Some may be absorbed through the lining of the mouth.

After entering the circulatory system, alcohol is quickly transported to all parts of the body tissue. Alcohol is thus stored all over the body and not just in particular places in the manner that fat, sugar, and protein are stored. As the blood containing alcohol enters the liver, it is broken down chemically first into acetaldehyde, then into acetic acid. In a 150-pound man, alcohol is metabolized at approximately the rate of one drink per hour. The typical drink - three-fourths ounce of alcohol - is provided by:

a shot of spirits (1.5 oz. of 40 to 50 percent alcohol)
a glass of wine (5 oz. of 12 percent alcohol)
a pint of beer (16 oz. of 5 percent alcohol).

Consumption at this rate will result in little, if any accumulation of alcohol in the blood.[1] However, at the rate of two drinks per hour, the old blood level will be approximately 0.05 percent. Alcohol remains in the blood until it is either expelled in the form of waste material or recycled through the liver where it is broken down.

While in the blood, alcohol - even in very small quantities - causes clumping of the red blood cells. As the red cells clump together, they begin to grow too large to enter the capillaries. Throughout the body, these plugged capillaries begin to deprive adjoining cells of needed oxygen. This oxygen deprivation has a depressing effect on the cells of the cortex of the brain. As more and more capillaries become plugged, the effects begin to spread to deeper levels of the brain. First outward signs of this are seen as a decrease in memory, judgment, and self-control. The apparent stimulation effect is due to the fact that the part of the brain which restrains the censor's behavior is depressed. A high level of alcoholic content in the blood will impair vision to varying degrees, depending upon the individual. Vision (especially peripheral vision) becomes blurred or indistinct resulting in poor judgment of distance. Reaction time for skilled activities such as driving is increased by the influence of alcohol. Alcohol prevents the muscles from responding to the impulses from the brain, resulting in as much as one full second between the eye stimulus and the subsequent muscle response. The most serious effect is that which occurs when the cells of the medulla cease functioning due to lack of oxygen. The initial result is unconsciousness, but prolonged deprivation can lead to death.

Even though most cells in the body are able to recover from this temporary oxygen deprivation, some sensitive brain cells often die. Unlike the other body cells, brain cells cannot be replaced. Alcohol has, therefore, a cumulative effect over periods of time. This can be seen as an actual shrinkage of brain tissue in the severe, chronic alcoholic.

1. Secretary of Health, Education, and Welfare, First Special Reort to the U.S. Congress on Alcohol and Health. (Washington, D.C., U.S. Government Printing Office, December 1971), p. 37.

Alcohol has a secondary effect on the circulatory system itself. A dilation of blood vessels results in an increased flow of blood near the surface. This gives the drinker a sense of being warm since the temperature at the body surface is increased. Actually, his body temperature is lowered as the heat escapes from the skin at an accelerated rate.

The heart is also a target of the clumped red blood cells. Small areas of the heart are starved of needed oxygen. This can lead to serious results if there is a history of heart disease. Alcohol was once recommended to patients with heart disease because dilation of the vessels in the heart was thought to increase the supply of blood. Now, however, it is believed that the benefit of this dilation is outweighed by the harm done by the plugging of the capillaries.

Behavior of an individual "under the influence" can be associated with the level of alcohol in the blood stream:

Alcohol percentage 0.01%

Feeling of clear head and free breathing

Alcohol percentage 0.02%

Desire to talk freely and a sense of warmth and well-being

Alcohol percentage 0.03%

Depression of the central nervous system, resulting in a feeling of euphoria

Alcohol percentage 0.04%

Excess display of energy and loud talk, together with unskillful movement

Alcohol percentage 0.05%

Lack of coordination and inhibitions

Alcohol percentage 0.08%

Legally intoxicated in Idaho and Utah

Alcohol percentage 0.10%

Staggering and a feeling of drowsiness. Legally intoxicated in 44 states.

Alcohol percentage 0.15%

Legally intoxicated in Maryland, Mississippi, Wisconsin, and New Jersey

Alcohol percentage 0.20%

Feeling of nausea and poor bladder control

Alcohol percentage 0.30%

Lack of comprehension and intermittent periods of sleep and vomiting

Alcohol percentage 0.40%

Unconsciousness

E. EFFECTS OF ALCOHOL ON BEHAVIOR

Acquired tolerance to alcohol is believed by some to be an actual physiological result of drinking. There is no doubt that there may be wide differences in the effect of the same amount of alcohol upon different individuals, just as there may be differences in its effect upon the same individual at different times. The adaptation or reduced sensitivity of the central nervous system to the effects of alcohol is termed "tolerance" by pharmacologists. It is a phenomenon common to the chronic use of all addictive drugs.

The report Alcohol and Health[2] states,

> "In summary, the effects of alcohol consumption are modulated by a variety of factors having to do with rate of absorption, learned expectation, and differential central nervous system adaptation to drug effects. In the normal drinker, intoxication may be accompanied by feelings of exhilaration, loss of restraint, enhanced sociability, increased emotional lability, and impairment of performance on certain cognitive and perceptual tasks. Among the physical signs of intoxication are slurring of speech, abnormal gait, impaired motor performance, and, in some instances, disturbances of sensory perception. In the normal drinker, brief periods of intoxication leave no discernible behavioral or neurological residue, and therefore do not constitute a persistent health hazard. However, extreme intoxication may lead to a depression of the central nervous system, and to a state of stupor with an attendant risk of death."

F. ALCOHOLISM: DISEASE AND TREATMENT

It is estimated that 68 percent of all Americans over age 21 (some studies show over age 18) use alcoholic beverages in some form. Drinking presents no major problems to most of these. But to an estimated 9,000,000 or more (or roughly five percent), drinking has become enough of a problem to interfere with successful, happy living. These are the alcoholics. Approximately another five percent abuse the use of alcohol.

There is no one universally accepted definition of alcoholism of the hundreds that have been offered.

Mark Keller of the Rutgers Center of Alcohol Studies defines alcoholism as "... a chronic disease or disorder of behavior characterized by repeated drinking of alcoholic beverages to an extent that exceeds customary dietary use or ordinary compliance with the social drinking customs of the community and which interferes with the drinker's health, interpersonal relationships, or economic functioning."[3]

Dr. Morris Chafetz, Director of the National Institute of Alcohol Abuse and Alcoholism, states, "We define alcoholism as a chronic behavioral disorder which is manifested by undue preoccupation with alcohol to the detriment of physical and mental health, by a loss of control when drinking has begun (although it may not be carried to the point of intoxication), and by a self-destructive attitude when dealing with personal relationships and life situations. Alcoholism, we believe, is the result of disturbance and deprivation in early infantile experience and the related alterations in basic physiochemical responsiveness;

2. Ibid, p. 42.
3. Source: National Clearing House for Alcohol Information, Gaithersburg, Md.

the identification by the alcoholic with significant figures who deal with life problems through the excessive use of alcohol; and a socio-cultural milieu which causes ambivalence, conflict, and guilt in the use of alcohol."[4]

The late E. M. Jellineck, one of the foremost scholars of alcohol problems, suggested that for operational purposes, alcoholism be defined as "any use of alcoholic beverages that causes any damage to the individual or society or both."[5]

The AMA takes the position that "Alcoholism is an illness characterized by preoccupation with alcohol and loss of control over its consumption such as to lead usually to intoxication if drinking is begun; by chronicity; by progression; and by a tendency toward relapse. It is typically associated with physical disability and impaired emotional, occupational, and/or social adjustments as a direct consequence of persistent and excessive use of alcohol."[6]

The World Health Organization's concept of alcoholism refers to "those excessive drinkers whose dependence upon alcohol has attained such a degree that it shows a noticeable mental disturbance or an interference with their bodily and mental health, their interpersonal relations, and their smooth social and economic functioning, or who show the prodromal signs of such developments."[7]

Alcoholics are not representative of any single social or economic group in our population, and are definitely not all "Skid Row" types. In fact, this group represents only 3.5 percent of all alcoholics. Alcoholics include both men and women, of a wide age span (including teenagers), from all walks of life.

Not all users of alcohol become addicted to alcohol. Some drink excessively over long periods of time and with serious consequences, yet are still able to stop whenever they wish. Others lose control over their drinking almost as soon as they start.

According to the AMA, "Alcoholism is a growing disease problem confronted frequently by families, communities, and physicians.

"As with many other diseases it can be treated, but not really cured. The alcoholic can learn to completely control his disease, but the affliction cannot be stamped out so that he can return to alcohol without adverse consequences.

"While the treatment primarily involves merely not taking a drink, the course of the treatment is often long, harrowing and beset by relapses. As with so many diseases, early detection usually brings about better results. . . .

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4. Morris E. Chafetz, M.D., and Harold W. DeMone, Jr. Alcoholism and Society (New York: Oxford University Press, 1962), p. 4.
5. E. M. Jellinek, The Disease Concept of Alcoholism (New Haven: College and University Press, 1960), p. 35.
6. American Medical Association. Manual on Alcoholism. (Chicago: AMA, 1968, revised 1973), pp. 3-4.
7. World Health Organization. Expert Committee on Mental Health (1952). Alcohol Subcommittee Second Report. W.H.O. Technical Report Series, No. 48, p. 16.

"Alcohol, aside from its addictive qualities, also has a psychological effect that modifies thinking and reasoning. One drink can change the thinking of an alcoholic so that he feels he can tolerate another, and then another, and another.

"Most alcoholics cannot break the cycle alone, for it means giving up the thing in life he wants most.

"Help for the alcoholic can come from many sources - the physician, the clergy, governmental agencies such as the local health department and volunteer organizations like Alcoholics Anonymous.

"In addition the family can help by listening to his problems and helping him to face them realistically; encouraging him to help himself, but without scolding or lecturing him. And, when he gives up drinking, keep up his morale, emphasize his good points, not his bad ones. After all, he's sick, not wicked."[8]

One disease which seems to be connected to alcoholism is cirrhosis. This is a disease which causes the liver cells to break down. This breakdown is a direct result of the clumping of red blood cells with the resulting plugging of capillaries. Being deprived of oxygen, the liver cells begin to die. They are then replaced by scar tissue, with the result that the entire organ becomes heavier in its consistency and more fibrous. This new scar tissue is not able to carry on normal functions; and unless the degenerative process is stopped, the liver is eventually unable to carry on its vital work, and death results.

The traditionally poor diet of the alcoholic lends support to the belief that lack of proper nourishment, together with chronic and excessive intake of alcohol, bears a close relationship to cirrhosis. (It should be noted that excessive use of alcohol is not the only cause of cirrhosis.)

8. Only within the past two decades has alcoholism come to be accepted as a medical problem. Interested persons have demonstrated through new therapeutic approaches that alcoholics can recover. This does not mean a cure for alcoholism has been found; no method known today can free the alcoholic from the chronic disorder which makes it impossible for him to revert to moderate, controlled drinking. It does mean that through medical, psychological, and spiritual help, many alcoholics can be helped to stop drinking without substituting other injurious practices.

Medical treatment is often required during the period of acute intoxication and for the chronic symptoms that result from liver and neurological damage. Doctors have prescribed new drugs which, when taken, cause the patient to become violently ill if he drinks alcohol while the anti-alcohol medication (usually antabuse or temposil) is in his system. However, such drugs have no effect on the alcoholism itself. Some of the tranquilizing drugs have proved useful in the treatment of alcoholics by temporarily quieting anxieties that induce drinking. However, there is always the possibility that the alcoholic may become addicted to the medication; and what was meant to have been beneficial may, in reality, be merely a substitution of one addiction for another. Drugs can also be

8. The American Medical Association's Interpretation of Alcoholism as a Disease - July 31, 1964. From a News Release . . . "Health and Safety Tips."

used to build up physical stamina and to overcome vitamin deficiencies which are common to alcoholics.

G. MOTIVATIONAL FACTORS CONCERNING ALCOHOL CONSUMPTION

The teenager does not invent the idea of drinking; he learns it. His drinking behavior is patterned in part after that of prestigious adults in the community. The patterns and social context of drinking by adolescents reflect the patterns and social context of drinking among adults, including his parents.

Communities and schools are becoming increasingly concerned in light of mounting reports of adolescent drinking, intoxication, and alcoholism. This is perhaps one of the strongest arguments for schools to provide effective alcohol education. However, rumors and sensational stories of teenage drinking escapades, as reported in various news media, are poor indicators of actual adolescent drinking practices. Generalizations often implicate the entire teenage population; in actuality, those involved in frequent and excessive drinking behavior represent only a minority.

Data about teenage attitudes and behavior regarding the use of alcohol, gathered from studies carried out in Washington, D.C., New York, Wisconsin, Kansas, and Michigan, provide information that can be used in planning educational programs on drinking. Young people regard drinking as a characteristic part of adult behavior and as permissible for them in some circumstances. Therefore, it may not be reasonable for most communities to base alcohol education upon the assumption that adults, or teenagers, accept abstinence as a self-evident, desirable goal.

Adolescent drinking is a symptom of the growing pains approaching adulthood. The teenager who experiments with drinking should not be condemned as a criminal or delinquent who is on the road to "Skid Row." More than two out of three adults are users of alcoholic beverages. The word "user" is defined as one who uses alcohol to any extent, except solely for religious purposes or only as a dare. Therefore, the majority of students, as they observe this adult behavior, imagine the typical adult to be a user.

To students the image of adult drinking situations is concentrated primarily on informal social activities, parties, and celebration of special events. Students are also aware of the antisocial results of drinking, but they appear to have only a vague idea of what alcoholism is and how the alcoholic differs from the "drunk." Teenagers believe - and rightly so - that alcoholism is not typical adult behavior. Alcohol addiction, while recognized as a possibility, is often believed by students to be related to the drinker's personality as a problem source.

The proportion of teenage users varies between communities and even within a single community. In some places, a majority of teenagers will be users; in others, only a small minority. An indication of possible teenage drinking is the drinking behavior of that adult population which provides the models for drinking behavior.

Surveys show that the incidence of users increases with age. Teenage use is greater among males than females. Young people who live in urban areas are more apt to be users than those living in rural areas. Students at socioeconomic extremes, high and low, tend to be drinkers.

Drinking of alcoholic beverages can be dangerous to individuals of any age; but intoxication of young people can be especially dangerous. Most of them do not realize the effects of alcohol upon their maturing bodies.

Psychological intoxication often occurs even more readily than physical intoxication in the young. In this state, people may do foolish or reckless things, endangering the safety of themselves or others. Failure to exercise good judgment and the neglect of moral standards are very apt to occur as a result of drinking.

Parents and schools alike have an obligation to foster a healthy, realistic approach toward helping the teenager to understand the effect of alcohol and guiding him in making an intelligent decision about its use.

H. TRAFFIC SAFETY AND ALCOHOL

Statistics show traffic accidents to be one of the major problems in the United States today. Approximately 55,000 people per year are killed and 2,000,000 disabled. These same statistics show that about fifty percent of all fatal traffic accidents involve the use of alcoholic beverages by the driver or the pedestrian. (Statistics were provided by the American Automobile Association.)

The availability and widespread use of both the automobile and alcohol have created a great community problem. The drinking driver does not possess the mental and physical faculties needed to drive an automobile. An intoxicated person is a menace on the highway because of his false sense of confidence and his depressed condition. He endangers not only himself but all others on the road - no matter how defensively they may be driving. Self-assessment is the first thing impaired by alcoholic beverage consumption; and, therefore, the intoxicated driver takes chances he would probably not take when sober. In addition, alcohol has dulled his reaction time and accuracy. Although science has not been able to predict the drinking driver's exact decrease in safety efficiency, it has proved that such a decrease does take place.

No two people are affected by alcohol in the same way, nor is the same individual always affected in the same way each time he drinks. However, drinking any amount of alcohol will make the person a less skillful driver than he might ordinarily be.

I. POSSIBLE RELATIONSHIP BETWEEN ALCOHOL AND CRIME

The intoxicated individual may commit acts which he would not ordinarily do while sober. Alcohol releases inhibitions which normally control inner emotional makeup and attitudes; then the subconscious mind is free to express itself in other ways that may suggest themselves. This does not mean that every person who drinks is a criminal. However, recent investigations of criminal homicides have shown that between 50-55 percent of the offenders had been drinking. Alcohol has been strongly linked to assaultive behavior which did not involve death. Violence is often associated with the immediate intake of rather large amounts of alcohol. Chronic heavy drinking is more likely to be associated with feelings of self-destruction such as depression, suicide, and immature and irresponsible behavior.

CONCEPT	LEARNING EXPERIENCES	EVALUATION
I. Alcohol has been historically significant to society, industry, art, and medicine.	A. List substances in which alcohol is used. B. Collect pictures and prepare a display to show how alcohol is used by industry, art, and science. C. Make a notebook depicting "The Story of Alcohol." D. Prepare a chart or poster depicting the role alcohol plays in the average community. E. Demonstrate preparation of ethyl alcohol by fermentation. (See page 279[9] Sourcebook for Biological Sciences.) $C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2 + \text{energy}$ F. Demonstrate the distillation of ethyl alcohol. (See Sourcebook for Biological Sciences.)	1. Why is alcohol important in industry? 2. Why is alcohol used as a preservative? 3. What part did alcohol play in early cultures? 4. List commercial products which utilize alcohol in their preparation. 5. Explain the differences between fermented and distilled beverages.
II. A knowledge of the properties of alcohol is essential to understanding its effects upon the body.	A. Compare the composition and properties of alcohol with those of water. 1. Note the differences in the rate of evaporation of these two liquids by putting a couple of drops each of alcohol and of water on different parts of the arm. (Blow across them.) Explain why this property is the basis for using alcohol externally in the treatment of fever.	1. Explain the meaning of absorption, proof, hard liquor, and solvent. 2. Differentiate between ethyl alcohol, denatured alcohol, and methyl alcohol. 3. Compare ethyl alcohol with water as the appearance, use, dehydration, and preservation.

9. Evelyn Morholt, et al., A Sourcebook for the Biological Sciences, Second Edition (New York: Harcourt, Brace and World, Inc., 1966), page 279.

2. Find a small bottle (capacity 25 or 30 cc.) and weigh it. Fill it with alcohol and now record the weight. What is the difference in weight? Repeat using water, and compare the results.

B. Observe the affinity of alcohol for water.

1. In a clean test tube, mix 20 ml. of alcohol with 20 ml. of water. Shake vigorously and set aside. Observe after five minutes.

2. Place a small piece of bread in alcohol. Observe the drying in alcohol. Observe the drying or dehydrant action. What happens when bread is placed in water?

3. Put a piece of lean meat in alcohol. Alcohol tends to precipitate protein. What would this do to a living cell? Can you now explain why alcohol is used as a preservative? A disinfectant?

C. Long-term experiment:

Use experiment #3 above, and leave it for one week before observing the results. Does the alcohol seem to destroy the tissue?

D. Compare the effects of alcohol and water on growth.

Plant seeds in two different containers. Use a diluted alcohol solution (5 teaspoons of ethyl alcohol to one pint of water) on one planting and plain water on the other. Observe.

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	E. Demonstrate the solvent properties of alcohol. Fill six test tubes one-third full with grain alcohol. In each test tube, place one of the following: camphorgum (obtain from drug store), a few drops of vegetable oil, a green leaf, animal fat, salt, and sugar. Repeat this procedure substituting water for the alcohol. Leave overnight before making final observations.	
III. Alcohol is not beneficial to good health.	A. Ask the home arts teacher or nurse about the deficiencies of alcohol in vitamins and minerals, and report to class.	1. Compare the vitamin and mineral content of alcoholic beverages with those of milk.
	B. List some false beliefs about the benefits of alcohol in treating snake bite, "stomach trouble," diabetes, and shock.	2. Make a true-false test, utilizing common fallacies regarding the use of alcohol.
	C. Compare the food value of an alcoholic drink with that of a healthful drink such as milk.	3. How does alcohol measure up to meeting the function of food in the body? (Relate to nutrients in food.)
	D. Discuss the importance of a proper diet to good health by reviewing the four basic food groups.	4. What is a "proper diet"?
IV. The level of alcohol in the circulatory system affects the body physically.	A. Discuss the effects of alcohol upon muscular coordination, judgment, vision, and depth perception. (Refer to teacher information.)	1. Differentiate between "physiological" and "psychological" effects of alcohol.
	B. Using anatomical charts, trace the route of an alcoholic beverage through the body system to show how it acts as an anesthetic (on the brain).	2. List the parts of the body affected by the consumption of alcoholic beverages in the order in which they are affected.

CONCEPT	LEARNING EXPERIENCES	EVALUATION

C. Make charts showing alcoholic content of various alcoholic beverages.

D. Explain how the following factors would help to determine the degree of intoxication:
- kind of beverage
- rate of consumption
- total amount consumed
- body weight
- food or lack of food in stomach
- physical condition of drinker
- temperament of drinker
- rate or period of time during which beverage is consumed

E. Prepare a written report on the effects of alcohol on:
- The Circulatory System
- The Central Nervous System
- The Digestive System

F. Perform the following experiments simulating "drunkenness":
(In this investigation the students are going to experiment with the effects similar to some of those produced by drinking alcohol. However, the student will not be having anything to drink. Actions such as spinning around, or shaking your head vigorously can produce effects that can be used in testing reactions. The ability to perform certain tasks will be contrasted before and after being "drunk.")
Materials: paper clips, red pencils, lined notebook paper, wall clock.

3. Does the amount of food present in the stomach have anything to do with the physiological effects of alcohol? Explain.

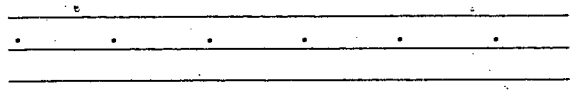
4. Why does alcohol affect different people differently?

5. Explain the meaning of depressant, tolerance, anesthetize, hangover, and oxidation.

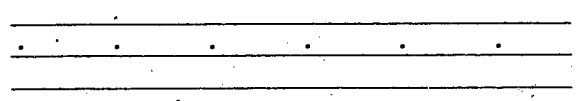
6. Explain why even small amounts of alcohol cause one to move and think more slowly.

1. Pencil Path Reaction Time

a) Prepare a piece of lined notebook paper by placing black dots 1/2 inch apart on every other line.



b) Use a red pencil to draw a wavy path back and forth through the dots, connecting each dot to the lines above and below. You will have 15 seconds to connect as many dots as you can. Try to touch each dot exactly and not to cross the lines above and below the dots.



c) Score 1 point for each time you touched a line or a dot correctly and record in column A-1 of your data table.

Name	A. Number of Lines and Dots Touched		B. Number of Paper Clips Joined	
	1. Before	2. After	1. Before	2. After
Joan	15	4	12	4

d) Use one of the following suggestions 10-15 times to gain the effects of being "drunk": (Be sure you take turns in this test so one team member is always alert to prevent falling.)

(1) Spin yourself around.

(2) Shake your head vigorously sideways or up and down.

e) Immediately repeat Step b) using other dots and lines of the prepared notebook paper. Record your score in Column A-2.

2. Paper Clip Assembly Test

a) Line up 12 paper clips on a table.

b) In 15 seconds fasten as many clips together as you can to make a chain.

c) Score one point for each clip on your chain and record the score in Column B-1 of your data table.

d) Again line up 12 paper clips. Perform one of the exercises in Part 1, Step d).

e) Immediately repeat Step b). Record your score in B-2 of the data table.

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	Questions: 1. Do you think the effects of alcohol or your test last longer? 2. Did team members vary greatly in their ability to connect dots and paper clips before and after the test? If so, how do you account for this? 3. Some people claim alcohol sharpens rather than dulls their reactions - did anyone on your team perform better rather than worse after either of the tests?*	
V. Alcohol affects the psychomotor responses of the body.	A. Conduct an experiment showing the effect of alcohol on behavior. Materials: 1 goldfish, a 1-quart fish bowl, and 1 ounce of ethyl alcohol. Directions: Place goldfish in bowl of clear water and observe its behavior. Add alcohol and observe the results. Results: Alcohol in a very minute quantity will impair mental and physical efficiency over a period of time. NOTE TO TEACHERS: Anticipate comments about relative size of goldfish and man in discussing effect of 1 ounce of alcohol on behavior.	1. What evidence is there in the community that drinking affects behavior? 2. How is behavior affected through the central nervous system during intoxication? 3. What relationship does the personality structure of an individual have upon his behavior when he becomes intoxicated?

*Miller, Benjamin F., et al., Investigating Your Health, pp. 270-71. Reprinted by permission.

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	B. Invite a local police officer to relate his experiences with intoxicated persons. C. Discuss the effects of alcohol on the body and behavior. D. Select individuals to do research and serve on a panel to discuss the effects of alcohol on behavior. E. Dicuss the relationship between alcoholic consumption and traffic accidents.	
VI. Personal dangers are involved in the use of alcohol.	A. Assign written reports on various diseases associated with excessive use of alcohol. (Examples: cirrhosis of the liver, neurological disorders, alcoholism, nutritional deficiencies, personality changes, etc.) B. Invite a physician from an alcoholic clinic to discuss some of the physical and emotional problems associated with alcoholism. C. Prepare a written report of the particular dangers involved when young people experiment with alcoholic beverages.	1. What diseases are associated with the excessive use of alcohol? Explain why. 2. Why is it dangerous for an adolescent to drink? Are the effects of alcohol more harmful to young persons than to adults? If so, why? 3. Is alcohol habit-forming? Does an individual always know when good or bad habits are being formed? 4. Distinguish between habit, dependency, and addiction.
VII. Alcoholism is considered by many to be a medical problem or disease.	A. Interview a self-acknowledged alcoholic. (Contact local branch of Alcoholics Anonymous.)	1. What is the value of education about alcohol?

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	B. Invite a community person who is active in work with alcoholics to discuss why alcoholism is considered a disease. One of the following groups might be helpful: Montgomery County Medical Society; Montgomery County Health Department, Alcohol Abuse and Alcoholism Program; and Washington Area Council on Alcoholism and Drug Abuse, Inc.	2. List symptoms of alcoholism. 3. Can an individual protect himself against alcoholism? If so, how? If not, why not? 4. Explain these terms: disease, acute disease, addiction, and chronic disease.
	C. Discuss the meaning of the word "disease." How does alcoholism compare with the common conception of disease?	5. Explain how alcoholism differs from other diseases.
	D. Prepare an educational video tape which might be used to inform the public about alcoholism more effectively.	
VIII. There are community resources available for the treatment of alcoholism.	A. Have student contact local health department to determine the procedure to follow in having an alcoholic admitted to an institution for treatment, including voluntary and involuntary commitment.	1. What is the function of Alcoholics Anonymous? Alateens? Al-Anon? 2. What local resources are available for the treatment of alcoholism?
	B. Make a report on Alcoholics Anonymous, Alateens, and Al-Anon.	
	C. Display a bulletin board depicting the various community resources available and the part they play in the treatment of an alcoholic.	

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	D. Survey local alcohol treatment agencies to determine the number of alcoholics whom they have treated in the past year. On this number, how many alcoholics have returned for additional treatment?	
IX. There are motivating factors that lead to the consumption of alcoholic beverages.	A. Have student groups develop and evaluate surveys showing their attitudes about drinking among: 1. parents 2. peers 3. older siblings 4. relatives	1. What factors influence decisions of teenagers regarding drinking? 2. To what extent do you think liquor advertisements influence adolescents to start drinking?
	B. Examine current issues of popular magazines in regard to the number of advertisements depicting alcohol and alcoholic consumption.	3. In what way can self-discipline aid the adolescent in decisions about drinking?
	C. List radio and television shows sponsored by alcoholic beverage companies.	4. What part should parents and schools play in influencing teenagers?
	D. Make a collection of liquor advertisements. Discuss their emotional appeal and the claims made for the products advertised. Have the students critically analyze them.	5. Discuss the exercise of willpower in relation to the use of alcohol. 6. In what ways are individuals influenced to drink through social pressures?
	E. Have the students prepare written reports on the role alcohol played in ancient civilizations and/or among various ethnic groups.	7. List some reasons why people drink to excess. Discuss whether these reasons are really <u>excuses</u>.
	F. Discuss the fad syndrome, peer pressure, and rebellion as a motivational factor in alcohol abuse.	8. Discuss some ways in which young people can be discouraged from social drinking.

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	G. Discuss the meaning and the significance of the terms <u>cocktail hour, happy hour</u>, and <u>social drinking</u>.	9. What part does fellowship play in the role of the social drinker?
	H. Invite members of Alcoholics Anonymous to speak on how people become alcoholic and how an alcoholic can stop drinking.	
X. A relationship exists between crime and the use of alcohol.	A. From the Montgomery County Police Department annual reports, a student can find out the percentage of misdemeanors and felony cases attributed by this agency to alcohol abuse. Representatives from the department may assist students in evaluating this information.	1. What, if any, is the relationship of drinking alcoholic beverages to the commission of criminal acts? 2. Elaborate on this statement: "The majority of crimes committed by people under the influence of alcohol would not have happened if the accused had been sober at the time." 3. What community resources could aid in the reduction of crime?
	B. Invite local juvenile authorities to speak on the relationship between alcohol and juvenile delinquency.	
	C. Interview a probation officer in regard to his experience with alcoholic criminals.	

TEACHER INFORMATION ON TOBACCO

A. Definition

B. History

C. Properties of Tobacco

D. Some Effects of Smoking

E. Motivating Factors Leading to Abuse of Tobacco

F. The Smoking Habit

G. Some Ways to Reduce Harmful Effects of Smoking

TEACHING UNIT ON TOBACCO

A. DEFINITION

Tobacco is defined by Webster as "any of a genus (Nicotiana) of chiefly American plants of the nightshade family with viscid foliage and tubular flowers; especially, a tall erect annual South American herb (N. tabacum) cultivated for its leaves; the leaves of cultivated tobacco prepared for use in smoking or chewing or as snuff."

B. HISTORY

Tobacco was first cultivated by the Indians of North and South America. Columbus and other explorers found the natives using tobacco in much the same manner as it is used today. The Indians wrapped tobacco leaves in maize husks, making crude cigars. They also used tobacco in peace pipes as a gesture of goodwill. Tobacco was generally supposed by the Indians to possess medicinal properties, and this was the chief reason for its early use following its introduction to Europe.

Francisco Fernandes, on his return to Spain in 1558, carried tobacco which he had obtained in Mexico; and Ralph Lane, the first governor of Virginia, and Sir Francis Drake took tobacco to England with them. Tobacco was available in France in 1556, in Portugal in 1558, in Spain in 1559, and in England in 1565. Jean Nicot, the French ambassador at Lisbon, Portugal, in whose honor the genus Nicotiana was named, is said to have sent the seed of Nicotiana tabacum to the queen of France, Catherine de Medici.

Nicotiana rustica, introduced into Europe for smoking in pipes, was a harsh form of tobacco. It was later supplemented by N. tabacum. Although N. rustica is still grown in Russia and other parts of Asia, n. tabacum is now the chief source of smoking tobacco.

Extension of tobacco culture to all parts of the world followed after its introduction to Europe.

The early beginnings of tobacco culture by white settlers in colonial America took place in the following areas on dates indicated: Santo Domingo 1531; Cuba 1580; Brazil 1600; Jamestown, Virginia 1612 by John Rolfe; Maryland 1631.

Skepticism about the medical value of tobacco began to develop at the end of the sixteenth century, but this did not deter smoking from being an almost universal habit among European and American men.

Although tobacco was then recognized as having no beneficial effects, it was not shown to have harmful ones until the twentieth century.

It should be noted that smoking cigarettes did not become popular until World War I. Before 1914, tobacco was more widely used in pipes, cigars, snuff, and in chewing tobacco.

In 1936, Dr. Alton Ochsner and Michael E. DeBakey, working in New Orleans, suggested a causal relationship between cigarette smoking and lung cancer. Dr. Raymond Pearl, Johns Hopkins University medical statistician, reported in 1938 that there was a shorter life expectancy among smokers. This caused a greater amount of interest in the relationship to smoking and other diseases.

Public awareness of a correlation with cigarette smoking came in the early 1950's, with the publication of a number of epidemiological studies. In 1957 the U.S. Public Health Service took the public position that cigarette smoking was a factor in lung cancer.

During the next decade numerous health organizations throughout the world issued statements based on rapidly accumulating evidence. The consensus was that cigarette smoking is an important health hazard, especially in relation to lung cancer and cardiovascular diseases. In 1962 the Royal College of Physicians of London issued a report stating that "cigarette smoking is a cause of lung cancer and bronchitis and probably contributes to the development of coronary heart disease and various other less common diseases. It delays the healing of gastric and duodenal ulcers."

The Surgeon General of the U.S. Public Health Service, in 1962, appointed an expert advisory committee to study the situation and make recommendations. For more than a year the 10-man panel of experts evaluated some 5,000 research reports. The reports covered epidemiological studies, animal experimentation, and clinic and autopsy studies. The Surgeon General's Report on Smoking and Health of 1964 concludes that "cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action."[1] Medical authorities throughout the world agree on the hazards of smoking.

Since the 1964 report, the Public Health Service has published six different reviews which not only confirmed the findings of the 1964 report but further indicate the extent of the hazard.

People who smoke have a substantially higher death rate than those who do not smoke. This means that smokers are more likely to die at an early age than nonsmokers. And their chances are great that this early death will result from lung cancer, coronary heart disease, bronchitis, or emphysema.

For men between the ages of 35 and 60, approximately one-third of all deaths that occur are excess deaths. This means they would not have died as early as they did if cigarette smokers had the same death rates as nonsmokers. Women smokers, too, have higher death rates than their nonsmoking counterparts. One out of 14 deaths among women at these ages is caused by a smoking-related disease.

A similar relationship has been discovered between smoking and illness. People who smoke have more illness, lose more time from work, spend more time sick in bed than those who have never smoked.

The more a smoker smokes, the longer he smokes, and the earlier he starts, the greater his chance of disability and early death. Yet a substantial proportion of these early deaths and excess disability can be delayed or prevented if smokers give up cigarettes or reduce the amount they smoke.

C. PROPERTIES OF TOBACCO

Although about 500 substances have been found in cigarette smoke, certain substances isolated from tobacco smoke have been shown to produce cancer in experimental animals. Among these are tars,

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1. Daniel Horn, Ph.D., Director, National Clearinghouse for Smoking and Health, "Smoking and Health," Encyclopedia International, (New York: Grolier, Inc., 1971), Vol. 16, p. 556.

nicotine, ammonia, formaldehyde, hydrogen sulphide, hydrogen cyanide, carbon monoxide, and arsenic. Any one of this group, taken in large enough dosage, is considered poisonous.

Useful chemical products, including insecticides, are also manufactured from tobacco. A forty percent solution of nicotine (Black Leaf 40) is used as an insecticide for plants.

Most American tobaccos contain two percent nicotine. "Denicotinized" tobaccos do not contain markedly less nicotine. When tobacco is burned, via smoking, nicotine is volatilized and taken into the mouth and lungs in the smoke. Nicotine is rapidly absorbed into the blood stream and then quickly destroyed in the body. Ninety percent of the nicotine is absorbed into the body when smoke is inhaled. Ten percent is absorbed when smoke is puffed but not inhaled.

D. SOME EFFECTS OF SMOKING

Despite the fact that many people have stopped smoking as a result of the evidence of a relationship between smoking and illness or disease, there continues to be widespread increase in the use of cigarettes by young people.

Research continues to be conducted to determine the effects of tobacco on disease and the life span. Nicotine stimulates the nervous system when it is absorbed into the blood stream. Nicotine even in a small amount can cause death; the amount of nicotine which a cigarette smoker absorbs is fortunately not concentrated at a toxic level. The majority of the nicotine which is absorbed in the body undergoes chemical changes and is rendered inactive. The small amount remaining is eliminated through the kidneys. All nicotine is thus eliminated or destroyed within twenty-four hours. Cigarette manufacturers have developed filters in an attempt to reduce the amount of nicotine which a smoker may absorb. Filters help only moderately to reduce the amount of harmful substances in cigarette smoke.

Nicotine poisoning produces such symptoms as rapid pulse, faintness, dizziness, clammy skin, nausea, vomiting, and diarrhea. Smoking itself may cause headaches, irritability, and sleeplessness. For some unknown reason, women seem to be more susceptible to the effects of tobacco than do men.

Tar formed by burning tobacco has produced cancer on the skin of mice. Irritation to the bronchial tubes by this tar is thought to produce cancer of the lungs.

In the last thirty years, the gross death rate has decreased. The death rate from lung cancer, on the other hand, has rapidly increased. The American Public Health Association has estimated that, if present trends continue, one million of today's school children will die of lung cancer before they reach the age of seventy. Studies have shown that ten times as many smokers as nonsmokers die of lung cancer. In fact, the more one smokes, the greater the risk of lung cancer. In comparison with nonsmokers, average male smokers of cigarettes have approximately a 9- to 10-fold risk of developing lung cancer and heavy smokers at least a 20-fold risk.

Studies also have shown that in addition to lung cancer, smokers tend to be more subject to all types of respiratory diseases, probably because of damage to the cilia in the respiratory tract. (Cilia are the tiny hair-like bodies which rid the bronchial tubes of foreign bodies.) As a person continues to smoke, the throat and lining of the

respiratory tract become irritated. The severity of this irritation is shown by the abnormal presence of large numbers of white blood cells in the mucous membranes. This sometimes leads to chronic bronchitis, emphysema, or cancer of the larynx.

Tobacco has an indirect effect on the cells of the growing body, weakening them through interference with proper nutrition. (Smoking tends to dull one's appetite.) In spite of this weakening of cells, fatigue is temporarily relieved by smoking because smoking stimulates the adrenal glands which in turn increase the blood-sugar level.

Cigarette smoking is also linked with coronary heart diseases and cancer of the esophagus, bladder, and kidneys.

The American Heart Association has pointed out that in a study of 4,120 men observed for six to eight years, the heart attack rate was three times as high for heavy cigarette smokers as for nonsmokers. Also, there are an estimated 60,000 premature deaths from heart attacks among male smokers in the United States. Although it has not been proved that cigarette smoking is a cause of heart disease, indications are that smoking speeds the development of coronary artery disease which leads to heart attacks.

Smoking one cigarette will increase the blood pressure 10-15 mm. and the pulse rate by 5-20 counts. These effects continue 30 to 60 minutes after cessation of smoking. The stomach is affected through increased gastric juices and reduced muscular contractions and the blood vessels become constricted, making it more difficult to receive oxygen. (This is one reason why athletes are advised not to smoke.)

The results of all studies in which the relationship between smoking and birth weight was examined have demonstrated a strong association between cigarette smoking and delivery of "small-for-dates" infants. On the average, the smoker has nearly twice the risk of delivering a low-birth-weight infant as that of a nonsmoker. Available evidence suggests the effect of smoking upon fetal growth reflects the number of cigarettes smoked daily during a pregnancy, and not the cumulative effect of cigarette smoking which occurred before the pregnancy began.

Atmospheric pollutants caused by smoking are derived from two major sources: mainstream and sidestream smoke. Mainstream smoke emerges from the tobacco product through the mouthpiece during puffing, whereas sidestream smoke comes from the burning cone and from the mouthpiece during puff intermissions. "Tar" and nicotine levels in sidestream smoke may be significantly higher than those of mainstream smoke and may be harmful to the nonsmoker.

The level of carbon monoxide attained in experiments using rooms filled with tobacco smoke has been shown to equal, and at times exceed, the legal limits for maximum air pollution permitted for ambient air quality in several localities. The effect of exposure may, depending on length of exposure, be harmful to the health of the exposed person. This would be particularly significant for people who are already suffering from chronic broncho pulmonary disease and coronary heart disease.[2]

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2. "Public Exposure to Air Pollution from Tobacco Smoke," The Health Consequences of Smoking - A Report of the Surgeon General, 1972.

E. MOTIVATING FACTORS LEADING TO TOBACCO ABUSE

There is no one reason why people smoke. Some smoke apparently because of a feeling of fellowship with other smokers. However, it may be questioned as to whether this feeling is due to tobacco or is the result of enjoying a common activity. Among the rationalizations given by adults who continue to smoke is that it "relieves tension."

Men and women who began smoking fifteen to twenty years ago or more did not have much information available regarding harmful effects. Had the facts been known, many perhaps would have never begun.

Often a person begins to smoke because of social pressures from friends. He likes to be a "good sport" and "one of the crowd." Advertising also often convinces people that smoking is the smart thing to do.

Whether or not young people will smoke appears to depend to a considerable extent on the amount of cigarette smoking done by their parents and other family members. There seems to be a correlation between smoking and difficulty in school and in social relationships. Other young people begin to smoke as a rebellion against restrictions placed on them.

F. THE SMOKING HABIT

Forty-two percent of the men and 31 percent of the women 18 years of age and over smoke. Between the ages of 12-18, 15.7 percent of the boys and 13 percent of the girls are regular smokers.

There is a difference between the "smoking habit" and the "tobacco habit." Reaching for a cigarette, a smoking habit, becomes mechanical. The smoker gets used to holding something in his hands and flicking the ashes. Heavy smokers crave a smoke due to the adjustment of the body to nicotine. This is the 'tobacco habit." After a few months of smoking, the procedure becomes routine. Add to this the body's physiological demand for nicotine, and a reinforced habit is established which is not easily broken. When an attempt is made to break the habit, withdrawal symptoms may develop.

Some determined individuals can stop smoking abruptly. However, this is difficult, particularly when the smoker depends on the nicotine. Examples of the difficulty in discontinuing this addicting habit are:

1. During depression years, people did without needed commodities in order to purchase cigarettes.

2. Cigarettes sold for as much as $2.00 per pack on the black market in Europe during the war.

3. Shortage of cigarettes during the war caused some women to switch to pipes.

Many suggestions have been made regarding the "best" method of breaking the cigarette habit. Among them are well defined regimens such as the "Five-Day-Plan" originated by the Seventh Day Adventists for use in their smoking education program. Some suggest that giving up smoking is easier when doing it with a group and by following the "buddy" system as practiced in Alcoholics Anonymous by those who are trying to abstain from drinking.

G. SOME WAYS TO REDUCE HARMFUL EFFECTS OF SMOKING

If you must smoke, choose a cigarette with less tar and nicotine. Some cigarettes are listed by the Federal Trade Commission as low tar and nicotine brands. Any reduction in tar and nicotine intake is obviously somewhat helpful.

Smoke no more than the first half of the cigarette. Since some of the harmful chemicals from the first half are trapped and become concentrated in the last half, the last puffs are the most dangerous.

Take fewer puffs. The more time the cigarette spends burning in an ash tray, the less time you can spend puffing.

Avoid inhaling. The deeper the smoke is inhaled, the greater the diffusion of harmful chemicals into the blood.

Smoke fewer cigarettes per day.

TEACHING UNIT ON TOBACCO

CONCEPTS	LEARNING EXPERIENCE	EVALUATION
I. The use of tobacco in the United States has had a long history.	A. Develop a booklet or scrapbook depicting the story of tobacco. B. Compare smoking customs of various nationality groups since tobacco was first introduced. C. Have students develop a time-line chart depicting the use of tobacco throughout history.	1. Trace the history of tobacco from Columbus's voyages to the present. 2. What part did the following people play in the history of tobaeco? Sir Francis Drake Jean Nicot Alton Ochsner
II. A knowledge of the basic properties of tobacco relates to its effects on the body.	A. Have students prepare a bulletin board illustrating the harmful ingredients found in tobacco. B. Invite the school nurse to speak on the topic "The Properties of Tobacco." C. Assign a report on the ingredients in tobacco including tars, nicotine, ammonia, formaldehyde, hydrogen sulphide, hydrogen cyanide, carbon monoxide, and arsenic. D. Discuss the validity of the statement "...but I smoke filtered cigarettes!" or "I can stop anytime I want to." E. Request large tobacco companies to supply information on the growing, packaging, and distribution of tobacco. F. Write the Federal Trade Commission requesting a chart giving the latest tar and nicotine rating for all of the leading brands of cigarettes.	1. Explain the meaning of: nicotine tar filter denicotinized stimulant volatilized 2. Discuss the statement: "Filter cigarettes are less harmful than cigarettes without filters." 3. Compare cigarettes, pipes, and cigars for nicotine content. 4. Review the respiratory system. 5. Compile a list of ingredients of cigarette smoke and discuss their effects on the body.

CONCEPTS	LEARNING EXPERIENCE	EVALUATION
		6. Draw a bar graph representing the concentrations of tar and nicotine in popular cigarette brands.
		7. Explain how the absorption of nicotine and tobacco can be related to the dampness of the tobacco, firmness of packing, and amounts of inhalation.
III. Tobacco is not beneficial for growth or fitness.	A. Read the cautions on a bottle of "Black Leaf 40" spray, which contains nicotine.	1. Discuss the relationship between smoking and physical development in adolescence.
	B. Observe and discuss reasons for brown teeth and fingers of heavy smokers.	2. Explain the statement: "The effect of tobacco on the body varies with the individual."
	C. Discuss the statement: "Smoking stunts one's growth."	
	D. Interview a member of the Montgomery County Smoking Education Committee to determine what action is being taken in educating the public about the effects of smoking on health.	
IV. Tobacco affects skills, endurance, general fitness, and mental efficiency.	A. Following a class meeting with the physical education teacher, summarize and discuss the arguments for and against smoking.	1. Differentiate between the physiological and psychological effects of smoking.
	B. Read selected references on the effects of smoking on one's skills, endurance, and general physical fitness.	2. Can you name any advantages of smoking?
	C. Discuss the question: Is it more important for athletes than for other youth to refrain from smoking so as to be physically fit?	3. Discuss why lung capacity is reduced through smoking.

CONCEPTS	LEARNING EXPERIENCE	EVALUATION
	D. Review some of the ways in which a young person can relax, have fun, and at the same time improve his fitness and engage in wholesome physical and mental activity. Contrast methods of "abstaining" during the period of growth as well as in maturity through a knowledge of the effects of tobacco and through a well-balanced program of living, with adequate sleep and recreation.	4. Why do coaches recommend that athletes do not smoke? What are the effects of smoking on participation in athletics?
	E. Read about the work of scientists in studying the effects of the use of tobacco on the body, and discuss some of the reasons for inconsistencies in their findings and the difficulty of applying them to individuals. For example: (1) variations in kinds, amounts, and moisture content of the tobacco used; (2) variations in the amounts of nicotine destroyed during the smoking process; (3) differences in the susceptibility to nicotine of the individual smoker; (4) differences in the physical and emotional conditions of the men and women studied.	5. Discuss what you can do to help educate your fellow students about the effects of smoking.
	F. Discuss the questions: Is smoking more harmful for youth than for adults? For women than for men? Does it affect some people more than others? Is cigarette smoking more or less harmful than cigar and pipe smoking? Why? Discuss whether tobacco helps or hinders living at one's best?	

G. Discuss the reduction of lung capacity and action of the cilia by the use of cigarettes.

H. Elaborate on the statement that the "wind" of an athlete is reduced after smoking.

I. Experiments:

(1) Match Test: Hold a lighted match approximately six inches from the mouth. Without pursing the lips, blow out the match. (Emphysema patients and persons with reduced lung capacity are unable to do this.)

(2) Method for measuring lung capacity: Equipment: a one-gallon clear cider jug, a large graduated cylinder, a pneumatic trough, a long rubber tube, and a sink. Fill the jug with water colored with a vegetable dye. Invert the jug in a pneumatic trough which is full of water. Carefully insert one end of a rubber tube into the neck of the jug. The subject blows the rubber tube. The bubbles of air rise in the jug displacing the colored water. The volume of water displaced each time the subject exhales is a measure of the amount of air expelled from his lungs. By use of a long rubber tube, you can compare the change in volume that occurs while the subject is at rest with the changes in volume that occur when he is running in place or doing other physical or mental tasks.

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
V. The use of tobacco is potentially dangerous.	A. Have students report on the effects of smoking on the heart, lungs, and general stamina of the individual. B. Develop two bulletin boards on the effects of smoking--one each for the boys' and girls' physical education locker rooms. C. Obtain slides or films from a local hospital or physician, showing the effects on the lungs of cigarette smoking. D. Contact the Montgomery County Lung Association and the Heart Association to determine what connection there is between quantity of cigarettes smoked and the incidence of respiratory disease. What is the reason for this correlation? (pamphlets available) E. Conduct experiments such as those which follow or those described in Smoking and Health Experiments booklet in Teacher's Information Packet. Experiment #1: Effect of Nicotine on Fish Materials: Suction apparatus, several cigarettes, 100 ml. flask, 2 glass tubes, one small goldfish Directions: Place the goldfish in the flask which has been 3/4 filled with water and force the smoke into the water with the suction apparatus. Leave the fish in the water and observe closely. Ordinarily, about a half-hour or more will be needed to elapse before the full effect will be obtained.	1. Why does smoking affect individuals differently? 2. What are some immediate and long-range physical symptoms produced by smoking? 3. What are the effects of tobacco use on the heart? 4. What is the relationship between smoking and lung cancer? 5. What relationship is there between smoking and various respiratory diseases?

Note: As soon as the fish begins to float on top of the water, take it out and place it in fresh water. It will be necessary to change this water frequently for the next few hours.

Result: The fish will float.

Experiment #2: Effect of Nicotine on Fish
Materials: One cigarette, two clear glass bowls, one small goldfish

Directions: Place goldfish in bowlful of clear water. Observe how it swims around. Soak the cigarette tobacco in another bowl filled with water. Remove the tobacco from the bowl, and place the fish in the water containing the dissolved nicotine. Observe how slowly the fish moves. Remove the fish immediately and place in clear water.

Results: Nicotine, over a period of time, tends to affect the nervous reaction of all organisms.

Experiment #3: Effect of Nicotine on Animal Cells
Materials: Microscope, slides, jar of water containing protozoan animal, beaker of water in which tobacco has been soaked (making a tobacco solution)

Directions: Place a drop of water containing the protozoan animal on a microscope slide. Observe its movements under a microscope. Add a drop of the tobacco solution. Observe the results.

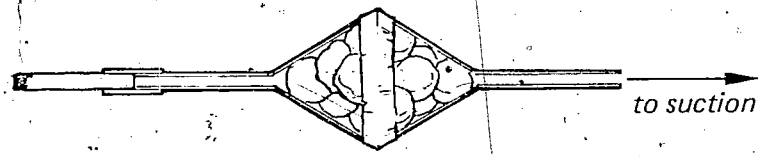
CONCEPTS	LEARNING EXPERIENCES	EVALUATION

Results: Nicotine seriously affects the nervous reaction of all organisms.

Experiment #4: The Tar Content of Tobacco Smoke

Materials: 2 funnels, 1 dozen cotton balls, 2 inches of plastic tubing, masking tape, 2 cigarettes of the same brand. (Each lab group should have a different brand.)

Directions: Place six cotton balls in each of 2 funnels. Place the filled funnels together as shown below, and seal with masking tape. Attach a cigarette to one end using a piece of plastic tubing. Attach suction to the other end. Smoke one cigarette with a filter. (Do not inhale.) Replace the discolored cotton, and repeat the experiment with the filter removed from the second cigarette.



VI. People smoke for many reasons.

A. Consider such questions as the following for thought and class discussion:

(1) Do some young people smoke who do not want to? Which example is most powerful--that set by parents or by peers? Why do some young people say, "Everybody's doing it," or "The gang does it"?

1. Give a true-false test with such statements as:

a) Some young people smoke who do not want to.

b) Smoking seems to be prevalent among school dropouts.

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
	(2) Is smoking by youth a desirable way to "Show-off"? Does it help the young person to grow up or to appear grown-up?	c) If parents smoke, will their children be more likely to smoke than children whose parents abstain from smoking?
	(3) Does repeated smoking develop the smoking habit? If so, how can the smoker break such a habit?	2. Make a list of reasons why people smoke.
	(4) Is knowledge of the effects of tobacco on the body sufficient to insure its nonuse by youth? What is meant by self-control?	
	B. Interview five teenage smokers and five adult smokers to determine why they smoke. Report your findings to the class.	
	C. Summarize the reasons given for smoking.	
VII. Young people's attitudes toward the use of tobacco are based on contemporary smoking.	A. Discuss what factors are involved in the choice to smoke or abstain. Relate how present-day scientific evidence might make a difference in a person's decision to smoke as opposed to the decision to smoke of someone who started fifteen years ago.	1. What resources does an individual have to help him make an intelligent decision regarding smoking?
		2. What are the implications of accepting cigarettes from strangers?
	B. Survey the general student body to determine smoking attitudes and habits prior to the presentation of unit on tobacco.	3. Elaborate on the statement: "Teenage smoking is a problem of education rather than prohibition."
	C. Contrast the differences in methods of relaxation obtained from smoking with that of getting adequate sleep and recreation.	4. In what ways are people influenced by social pressure to smoke?
	D. Survey students prior to and after initiating the unit to measure attitudes regarding smoking.	

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
		5. Discuss whether the effects of tobacco on the body are sufficient to insure its nonuse by you.
VIII. The smoking habit is hard to break.	A. Select an (other) undesirable habit and make a plan for overcoming it. As progress is made, report to the class.	1. Why is it difficult to stop smoking?
	B. Make a list of activities which could be used in place of smoking.	2. Differentiate between the "smoking habit" and the "tobacco habit."
	C. Discuss what part self-discipline plays in relation to a habit.	3. Differentiate between moderate and excessive cigarette smoking.
	D. Discuss ways to reduce harmful effects of smoking. (Pamphlet HEW)	4. What organizations can help in breaking the smoking habit?
	E. Collect tobacco advertisements from magazines. Analyze them in class to evaluate claims made by manufacturers. Are the claims true or false? Do they claim benefits to health from use? Are they worded so as to imply beneficial effects which are not present? Why do manufacturers especially desire such testimonials? What can young people do about questionable advertising?	5. Copy several tobacco ad slogans on the board. Ask students to analyze each one for the claims made.
		6. Discuss why well known persons are used by tobacco manufacturers in their advertising. What methods are used by advertisers to increase the sale and use of tobacco products?
	F. Compare filter tips and nonfilter tips by taking them apart. Discuss whether there is a significant reduction of tars by use of filters.	
	G. Survey available research on filters as a device in protecting smokers from nicotine. Present the findings to the class.	

TEACHER INFORMATION ON CONTROLLED DANGEROUS SUBSTANCES
(Stimulants, Depressants, Hallucinogens, and Volatile Chemicals)

OUTLINE

A. History

1. Narcotics
2. Marijuana
3. Amphetamines
4. Barbiturates
5. LSD
6. Volatile Chemicals

B. Stimulants, Depressants, Volatile Chemicals, Hallucinogens, and Those Drugs with Mixed Actions and Their Effects on the Systems of the Body

1. Stimulants

a) Caffeine
b) Cocaine
c) Amphetamines

2. Depressants

a) Opium and its derivatives

(1) Opium
(2) Morphine
(3) Heroin

b) Bromides
c) Aspirin
d) Tranquilizers
e) Anthistamines
f) Barbiturates
g) Nonbarbiturate sedatives
h) Volatile Chemicals

3. Hallucinogens

a) LSD
b) Peyote and Mescaline
c) Psilocybin and Psilocyn
d) DMT, DET, DOM (STP)
e) Other hallucinogens

4. Chemicals with Mixed Actions

a) Marijuana
b) THC and Hashish

5. Motivating Factors Leading to Drug Abuse

A. HISTORY

1. Narcotics

As far back as 5000 B.C., the Sumerians, who lived in Mesopotamia, recorded their uses of the juice from the poppy plant. Gil, meaning joy, was the name given to the juice of the poppy which when ingested had the power to induce forgetfulness. The news of opium, with its remarkable properties, was spread eastward to Persia and India, and westward to Egypt by the Babylonians.

Opium was used for medicinal reasons for many centuries, and Homer and Virgil made references in their writings to the sleep-producing poppy. Other sources indicate that Hippocrates (445-357 B.C.) recommended drinking the juices of the white poppy for certain illnesses. Physicians began to prescribe its uses for many ailments, and local healers used it freely for all ailments and disabilities.

It is believed that the Arabs, as well as traveling physicians of other countries, introduced opium to China in the 9th century. Opium was used for dysentery, an ailment which had plagued the Chinese people, and as an appetite depressant to combat hunger during times of famine. This substitution resulted in more rapid death from starvation and overdoses of opium.

Opium smoking became a problem in China and elsewhere in the second half of the 18th century when the East India Company started to import opium on a large scale. The opium pipe

was in common use by all classes, and the demand for more and more opium created a lucrative business.

The nonmedical use of opium became such a menace by the late 1700's that the Emperor of China issued laws to prohibit the smoking of it. However, these laws had little effect since so many of the people were already addicted. Ensuing laws attempted to prohibit importation, but this failed. Thus the smuggling of opium began.

Conflict between Great Britain and China erupted in the Opium War in 1840 when the Chinese tried to prevent the British from entering the Canton River with opium. The British won and doubled the opium trade.

In the early 1800's, the Chinese immigrants who were brought to the United States to help build railroads introduced opium smoking in this country. Soon opium dens began to appear on the West Coast of the United States among the sporting groups and lower class Americans. From there it spread to larger cities across the United States.

A German scientist in 1805 discovered morphine, the first alkaloid derivative of opium. In 1853, the development of the hypodermic syringe and needle enabled army surgeons to inject morphine for quick relief of pain and fear among the sick and wounded. It was used freely during the Civil War, and its easy availability caused many soldiers to become addicted. In 1898, another German scientist produced heroin from morphine. Heroin was thought to have all the properties of morphine without the addicting

qualities. However, it was soon found to be even more addictive.

At the turn of the century, the addiction rate had reached such a peak that the public was alarmed and pressed Congress to protect them from the drug menace. In 1909 a federal regulatory measure was passed prohibiting the importation of opium for other than medical purposes. The second measure, the Harrison Act, was passed in 1914 to regulate the domestic trade and distribution of all narcotic drugs. This act is the basic law from which all state uniform narcotic acts are now patterned.

For ages, cocaine has been used as a stimulant by chewing the leaves of the coca plant. Today, in the Andes of South America, Indian tribes believe that chewing the coca leaves will enable them to perform physical feats requiring great strength. Early Spanish explorers reported the coca plant found in South America, but little attention was paid to it until an Austrian scientist isolated the cocaine alkaline in 1859. Cocaine was used as a topical anesthetic in the beginning, but today it has been replaced by newer drugs such as Novocaine and its derivatives. In the early 1900's, cocaine was used in sniffing and absorbing the crystals through the mucous membrane of the nose. It is not <u>physically</u> addictive, but it can result in strong <u>psychological</u> addiction.

2. <u>Marijuana</u>

Marijuana comes from a resin substance found in the flowers and leaves of Indian hemp. It is grown in Asia, Africa, Mexico, and almost all of the United States. Around 1900 it was introduced into New Orleans by Mexican laborers.

3. <u>Amphetamines</u>

Amphetamines are synthetic stimulants which first became available to practicing physicians in the 1930's. These drugs are best known for their ability to combat fatigue and sleepiness. They are also used as part of strictly supervised weight-reduction programs.

4. <u>Barbiturates</u>

Barbiturates are synthetic depressants which are manufactured from barbituric acid. Barbituric acid, first produced in 1846, does not, however, possess the depressant qualities associated with modern barbiturates. In 1903 barbital, the first sleep-inducing barbiturate, was synthesized. Since that time, over 2500 related compounds have been produced. Of these, only 30 have been found suitable for clinical use.

5. LSD

LSD is a hallucinogenic drug whose chemical name is Lysergic Saure (acid) Diethylamide. LSD is a white, tasteless, odorless chemical often referred to by other names such as "1-25,"

"L," "D," "acid," and "bluemist." In 1938 Dr. Albert Hofmann, a physician from Switzerland, discovered the compound called Lysergic Saure (acid) Diethylamide, while doing research on the fungus ergot. Ergot is a rust that forms on rye and wheat. The hallucinogenic properties of LSD were not discovered until 1943 when Dr. Hofmann accidentally inhaled the drug.

6. Volatile Chemicals

Any substance that can easily be changed into a gas can be classified as a volatile chemical. Among the volatile substances in common use are gasoline, glue, lighter fluid, kerosene, paint lacquers and thinners, cleaning fluids, and numerous aerosol sprays. Hydrocarbons, chemical compounds containing only hydrogen and carbon, are the principal ingredients in the volatile chemicals that render physical harm.

B. STIMULANTS, DEPRESSANTS, VOLATILE CHEMICALS, HALLUCINOGENS, AND THOSE DRUGS WITH MIXED ACTIONS AND THEIR EFFECTS ON THE SYSTEMS OF THE BODY

"A drug is a substance other than food or nutrients which is taken into the body to produce a desired effect. The minimum dose is the smallest amount which produces the effect. A toxic dose is that which produces dangerous effects; the just fatal dose is that which is sufficient to cause death.

"A narcotic is a depressant that produces drowsiness, sleep, dullness, or an insensible condition, and lessens pain by dulling the nerves. In Greek it means to stupify or cause deep sleep."[1]

1. Stimulants

a) Caffeine stimulates the medulla, reducing drowsiness and fatigue for a period of time. Contrary to popular belief it does not increase accuracy of performance, however. An overdose causes excitement, nervousness, tremors, insomnia, and possible delirium.

An amount of tolerance is built up from a daily intake of caffeine for an extended period of time. It becomes a habit that is controlled only by the individual's resolution to discontinue it. Plenty of rest and relaxation will help to prevent the habit.

The average daily dose is 300 mg. One cup of coffee contains 100 mg., one bottle of cola, 50 mg.

b) Cocaine

Cocaine is derived from the coca leaf which can be found growing in some South American countries. It is an odorless, white, crystalline powder, which has a bitter taste. The powder is usually put into capsule form in order to prevent excessive loss of the powder. It can be liquified and injected into the body, or the powder can be sniffed through the nose by the user.

Cocaine was used extensively by the medical profession as a local anesthetic; however, with the discovery of Novocaine and Xylocaine it is no longer used for this purpose.

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1. Texas Alcohol and Narcotic Education, Inc. The Problems...Alcohol-Narcotics. Dallas: Tane Press, 1962, p. 60.

Cocaine is not a narcotic in the medical sense of the term, but a powerful and dangerous stimulant that affects the central nervous system. It stimulates the personality and gives the feeling of great mental awareness and muscular strength. If cocaine is used repeatedly, it will cause muscular twitching and extreme perforation of the nasal system.

Hallucinations and delusions of a paranoid nature may develop causing a serious mental condition from which recovery is uncertain.

The withdrawal illness from cocaine is mild. The drug causes an emotional dependency rather than a physical dependency.

c) Amphetamines

Amphetamines are stimulants to the central nervous system and are frequently called pep pills, bennies dexies, speed, wake-ups, lid poppers, hearts, or co-pilots. The most common are benzedrine, dexedrine, and methedrine. Amphetamines are taken orally as a tablet or capsule; however, abusers may resort to intravenous injection.

When taken according to prescription to relieve depression, curb the appetite, fight fatigue, promote wakefulness, and/or increase energy, there is little danger in them. However, self-medication is very dangerous. The first effect is a feeling of alertness which may be followed by headache, dizziness, irritability, weight loss, and extreme fatigue. Intravenous injection of amphetamines produces cocaine-like psychotoxic effects. It can also cause high blood pressure, abnormal heart rhythms, and even heart attacks. Some individuals take amphetamines to keep awake. This can lead to confused thinking, loss of coordination, and hallucinations.

Although psychological dependence does develop from the use of amphetamines, there is no evidence of the development of physiological dependence; nor is there any characteristic withdrawal syndrome.

2. Depressants

a) Opium and its derivatives

(1) Opium

Opium is formed from the milky juice of the opium poppy when it is dried into sticky pellets. These pellets are pressed into lumps of crude opium from which over twenty alkaloids are obtained. Prepared opium is dark brown and smells like molasses. It can be smoked, chewed, or eaten.

The opium poppy is not grown in the United States. It is most often smuggled in illegally from the Far and Near East.

When opium is smoked, it is sleep-producing and generally causes pleasant and fantastic dreams. In smoking opium, the opium is held in a flame until red hot and then dropped into a bowled pipe. The body builds a tolerance to the drug, thus creating a need for larger doses.

(2) Morphine

The principal alkaloid of opium is morphine, which is a white, odorless powder with a bitter taste. It is given orally or hypodermically. It can be obtained with the prescription of a legally registered doctor.

Morphine is absorbed into the blood stream and carried to the central nervous system, acting to relieve pain. The effects of morphine include analgesia, euphoria, muscular relaxation, loss of concentration, and drowsiness. There may be certain individual reactions to morphine. For example, instead of a reaction of apathy, there may be an occurrence of excitability, delirium, and convulsions.

There is a withdrawal effect from morphine when the addict does not receive his regular dose. The effects reach their peak in thirty-six hours and include nervousness, weakness, muscular twitching, and goose flesh. The withdrawal effects then subside and in a few days they are gone. Withdrawal can be almost unbearably distressing and is sometimes disabling to the addict.

(3) Heroin

Heroin is the most powerful and dangerous derivative of morphine. At one time, it was thought to be a nonaddicting substitute for morphine. Heroin is

banned from medical use in the United States and cannot be legally imported. It is a white, yellow, or brown powder and is usually illegally peddled in capsules. Addicts sometimes first try heroin by sniffing or rubbing it into the mucous membranes of the nose. Within a short time, this ceases to satisfy; and it is then injected hypodermically or even intravenously as a "fix" for greater reactions. The effects are similar to those of morphine, except that the feeling of well-being seems to be greater with heroin. Heroin is a physically addicting drug. It works directly on the central nervous system, slowing down all major body functions--breathing, heart beat, and circulation. The slowdown in heart beat is accompanied by a decrease in blood pressure. Associated with these symptoms are a loss of appetite and chronic constipation.

Heroin addicts are usually very thin and in poor health. Heroin rarely kills the addict directly, unless there is an overdose. However, many heroin addicts are prey to blood poisoning and hepatitis as a result of using unsterilized hypodermic needles. The heroin user becomes psychologically addicted to the drug. He realizes that if he were to discontinue using the drug, he would suffer painful withdrawal symptoms. These symptoms include cramps, nausea, chills, twitching, and severe bodily pains. Although the withdrawal symptoms are painful, they do not result in death.

(4) Codeine

Codeine is another drug that belongs to the opiate family. It is a derivative of morphine but is not nearly as potent, having only one-sixth the potency. Codeine is highly effective as a pain killer and is one of the basic ingredients in some cough medicines.

The effects of codeine abuse are much the same as those of other opiates. It is a highly dangerous physiologically and psychologically addicting drug.

(5) Demerol (Meperidine) and Methadone

These are synthetic drugs that resemble morphine in their effects on the human body. As with other true opiates, they are addictive.

These synthetic drugs are being used for the treatment of heroin and morphine dependency. They produce less severe withdrawal symptoms than either heroin or morphine.

Both of these drugs are used medically as painkillers.

(6) Other Opiates

Dilaudid, laudanum, Penapon, and paragoric are all opium derivatives and are addicting.

b) Bromides

A bromide is a depressant drug that causes drowsiness, sleep, and a sense of calm. In moderate amounts, bromides relieve pain and anxiety; but prolonged overdosing causes toxic symptoms and emotional dependencies.

Bromides are sold without prescription. Some examples of bromides are Nervine, sodium bromide, potassium bromide, triple bromides.

c) Aspirin

Aspirin, one of the most commonly sold drugs in the United States, is a mild depressant. It is a mild pain reliever, and only large doses cause toxic effects.

d) Tranquilizers

Tranquilizers are depressant drugs which affect the central nervous system. Sold only on prescription, they are usually prescribed to relieve tension. They may cause dizziness and sleepiness thus creating a hazard to drivers who are under their influence (and, therefore, to everyone else on the road!).

e) Antihistamines

Antihistamines, used in the treatment of allergies, (runny nose, watering eyes, etc.) and nasal congestion, may cause drowsiness, confusion, and inattention. They should not be taken by the operator of a motor vehicle unless he has doctor's permission.

f) Barbiturates

Barbiturates (sleeping pills) are chemically-produced drugs that are depressants. The slang terms for them are goof balls, barb, blue devils, candy, yellow jackets, phennies, peanuts, and blue heavens. The common names of those on the market are phenobarbital, Nembutal Sodium, Seconal, Amytal Sodium, and Luminal.

The medicinal uses of barbiturates are valuable in pre- and post-operative sedation, insomnia, anxiety states, epilepsy, high blood pressure, and surgical anesthesia.

On the other hand, when they are taken too often in excess amounts, they cause mental confusion, delusion, loss of muscular coordination, irritability, antisocial behavior, slowed reaction time, slurred speech, and possible coma. Barbiturates depress the central nervous system, inducing sleep and giving a feeling of well-being.

Barbiturates, like narcotics, are addicting drugs. Some 700,000 pounds of sleeping pills are produced annually--enough for every person in the United States to have twenty-four equal doses of the same drug.

Of particular concern is the extremely dangerous practice of mixing barbiturates with alcohol. Numerous accidental deaths have occurred as a result of total depression of the respiratory and cardio-vascular systems. The two drugs in combination have an effect much greater than the sum of their individual effects. Abusers of this nature often resort to the use of stimulants to relieve the extreme depression. This practice serves only to further upset the normal body processes, often culminating in death.

Withdrawal illness from barbiturates after an extended period of use is more severe than that which results from heroin addiction. (It has been known to result in death.)

g) Nonbarbiturate Sedatives

Included in this group are Glutethimide (Doriden), chloral hydrate (Mickey Finn, joy juice), and Methaqualone (Quaalude, soper).

Of particular interest at the present time are quaaludes or sopers which are sedatives and are classed as a central nervous system depressant. They are prescribed as a sleeping pill, but they produce a high which makes one feel uninhibited, expansive, and "punch happy drunk" for those who avoid sleep.

h) Volatile Chemicals

Volatile chemicals are substances that evaporate rapidly. Among the volatile substances commonly abused are gasoline, glue, lighter fluid, kerosene, paint lacquers and thinners, cleaning fluids, and numerous aerosol sprays. Hydrocarbons, chemical compounds containing only hydrogen and carbon, are the principal ingredients in the volatile chemicals that render physical harm.

The volatile chemicals or solvents are taken into the body by means of sniffing or inhalation. Individuals who sniff these solvents may exhibit loss of muscular coordination, blurred vision, mild hallucinations, and slurred speech in varying degrees. The symptoms of solvent inhalation resemble closely those of alcohol intoxication. Continued usage may bring drowsiness, unconsciousness, or even death. In addition to the above mentioned effects, it is believed that the inhalation of solvents may cause damage to the kidneys, liver, heart, or blood cells. Possible development of anemia and/or damage to the nervous system may result as well. Extreme usage of volatile chemicals may result in death from suffocation because of the oxygen deprivation so incurred.

The inhalation of volatile chemicals is most widespread among the 10-15 year age group, with heaviest usage among boys. Volatile chemicals are relatively easy for children to obtain because their uses are numerous and common.

Current evidence indicates that these drugs are not physiologically addicting; but a psychological dependency may develop due to repeated use.

3. Hallucinogens

a) LSD - Lysergic Saure (acid) Diethylamide

A solution of LSD is colorless, oderless, and tasteless. It is packaged as a liquid, pill, powder, or capsule by the clandestine laboratories which produce it. It can be carried in small quantities (approximately 50-200 micrograms) on such objects as sugar cubes, chewing gum, blotting paper, stamps, and aspirin. LSD can be taken by swallowing, inhaling, or injecting a diluted form. The drug begins to take effect after about thirty minutes, and the effect can continue from 6 to 12 hours.

The drug shows no evidence of physical dependence, but it can cause a psychological dependence. LSD affects the central nervous system and may produce physical symptoms such as dilated pupils; lower body temperature or chills; increased blood sugar; rapid heart-beat, with an increased pulse; and a loss of appetite.

An LSD user may experience many bizarre effects on the mind such as hallucinations, distortions of sensory perception, restlessness, inability to sleep, and impulses toward violence and suicide. Users of LSD have reported the occurrence of a periodic "bad trip." During this "bummer," the user has more bizarre hallucinations with accompanying fear and panic.

There is also evidence that LSD causes damage to chromosomes. Another danger associated with the drug is the fact that sensations caused by LSD may recur unexpectedly without the user's ingesting another dose.

b) Peyote and Mescaline

Peyote is derived from the peyote or dumpling cactus that grows in the deserts of

Southwestern United States and Mexico. It can be injected hypodermically, but it is more often taken orally. Because of its bitter taste, the drug is often ingested with tea, coffee, milk, orange juice, or some other common beverage. Peyote produces colorful hallucinations and euphoria as a result of its effects on the central nervous system.

Mescaline is a more concentrated form of peyote. Both are readily available on the illicit market, and their use in the United States is growing.

c) Psilocybin and Psilocyn

Psilocybin is derived from a certain variety of Mexican mushroom. It is similar to LSD but not as potent. Psilocyn is very similar in structure to psilocybin. In fact, psilocybin is changed into psilocyn by the body. Both drugs affect the central nervous system, producing brilliant and colorful hallucinations which are generally followed by a period of emotional disturbance.

d) DMT (dimethyltryptamine), DET (diethyltryptamine), DOM (dimethoxymethylamphetamine or STP)

These are additional central nervous system drugs which may be used as hallucinogens. DMT and DET are similar in potency to LSD. However, the effects of the drugs last only 30-60 minutes.

STP (or DOM) is a drug jokingly said to stand for serenity, tranquility, and peace. However, it is chemically known as DOM. It is a highly potent drug similar to mescaline and the amphetamines.

The drug produces severe and powerful hallucinations which may last up to 72 hours. The full effects of STP have not yet been determined, but it is reported that STP may be even more powerful than LSD.

e) Other Hallucinogens

Other drugs that may be classified as hallucinogens are saffron, catnip, sernyl (PCP-Phencyclidine), bufotenine, monosodium glutamate, Amanita Muscaria (a mushroom that grows wild throughout the country), nutmeg, and morning glory seeds.

4. Chemicals with Mixed Actions

a) Marijuana

Marijuana is derived from the dried flowering tops and leaves of the female Indian hemp plant. Marijuana is often called pot, tea, grass, weed, and Mary Jane.

As the flowers and seed heads of the female hemp plant ripen, a liquid oozes out. In its pure state, this substance is known as hashish. The dried flowers and leaves are crushed or chopped into small pieces which are rolled and smoked as cigarettes commonly known as reefers, sticks, joints, or mooches. The odor of smoke from marijuana is like that of burnt weeds or rope. It has a distinct, sweet smell.

The effects of marijuana vary greatly because of the variations in potency of the

weed and differences in the personality of the user, as well as the emotional and physical state of the person at the time of use. Some of the physical reactions include muscular trembling, increased heart rate, dizziness, ringing in the ears, bloodshot eyes, general increase in appetite, reduction in overall body temperature, nausea, and inaccurate spatial perception.

Some psychological and emotional effects from using marijuana are hilarity, indifference, emotional instability, reduction in inhibitions, hallucinations (with strong and repeated doses), and anxiety and depression (with repeated use).

Authorities now think in terms of drug "dependence" rather than "addiction." Marijuana, which is not a narcotic, does not cause physical dependence as do heroin and other narcotics. This means that the body does not become dependent on continuing use of of the drug. The body probably does not develop a tolerance to the drug, either, which would make larger and larger doses necessary to get the same effects.

A number of scientists think the drug can cause psychological dependence if taken regularly. All researchers agree that more knowledge of the long-term physical, personal, and social consequences of marijuana use is needed before national decisions about its legal status can be made.

b) <u>THC (Tetrahydrocannabinol) and Hashish</u>

THC is the active ingredient in marijuana. It produces effects similar to extreme marijuana intoxication. Hashish is the most potent form of THC.

C. MOTIVATING FACTORS LEADING TO DRUG ABUSE

Drug abuse is not confined to a particular age group nor to a specific socioeconomic class. It can and does affect people of all ages and from all walks of life.

The therapeutic uses of drugs are of extreme value. Drugs are administered frequently because of severe illness, accident, or injury, in order to relieve pain and induce sleep. The extent of the patient's illness may require an extended period of time for medication; however, because the physician is aware that a dependency on the drug may result, he can effect a withdrawal when necessary. There is remote chance that the patient will have an emotional dependence on the drug because the drug was used during the time of his extreme illness rather than because of a personality disorder, emotional problem, or inability to face reality.

Nonmedically related factors have been found to be motivating forces leading to drug abuse. Listed below are some of these motivating forces:

1. Loneliness
2. Availability of drugs
3. Attempt to "buck" the establishment
4. Natural curiosity of youth to seek new experiences
5. Attempt to escape reality
6. Personality instability

7. The misconception that drugs may be the answer to or an escape from the problems of the world

8. "Kicks"

9. Rebellion

10. "Fad syndrome"

11. Peer pressure

12. Emotional instability

13. The search for a deeper insight into the meaning of life

14. Association with the "wrong crowd"

15. Parental complacency toward drugs

16. Living in a permissive, affluent, freedom-seeking society

17. Propaganda of underground newspapers that advocate its use

NOTE: With those drugs for which overdose is a danger, the amount required for a fatal dose remains constant. This is true even though more and more of the drug is required to produce an effect. Consequently, a person addicted to heroin or barbiturates can overdose while increasing his normal amount only slightly.

Drugs are frequently available as pills or in capsule form. Pills and capsules that are sold for oral use are frequently made with inert filler substances like chalk, which are not readily soluble. When these pills are then dissolved and injected into a vein, the inert fillers can cause severe inflammation or infection of the local veins and can also be carried by the circulating blood to the lungs where they also cause inflammation and scaring of the lung tissues.

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CONCEPTS	LEARNING EXPERIENCES	EVALUATION
I. Drug use and abuse have a long history.	A. Give the attitudes and opinions survey included in teacher's reference.	1. What part did China play in the history of narcotics?
	B. Discuss the early medicinal and social uses of drugs. Divide class into groups to study how man over the ages discovered the use of plants, leaves, herbs, barks, berries, nuts, etc. to produce drug effects for medical remedies, religious rites, and a substitute for a way of life.	2. What are the sources of opium, marijuana, LSD, and volatile chemicals?
	(1) What uses did man make of these?	3. Outline the history of drug addiction in the United States.
	(2) How did they affect the people?	
	(3) What social changes came about because of the use of these? i.e., (caused war, used to relieve human miseries during war, way of life for people, made living easier.)	
	(4) Draw conclusions as to how drugs are used universally and why in some places use of drugs is not considered abuse but a way of life.	
	C. Construct a timeline illustrating the use of drugs throughout history.	
	D. Have interested students prepare reports on the history of drugs.	
	E. Draw a world map illustrating sources of drugs.	

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
II. Certain drugs are classified.	A. Organize with students the specific drugs into the following categories: Depressants Stimulants Hallucinogens Mixed Actions (1) Discuss the differences between the above headings. (2) Discuss how some drugs would fit under more than one heading. (3) Include medical uses. (4) Discuss the way the drug will affect the mind and body functions (digestive, nervous, excretory, and respiratory systems). B. Using the definition of a depressant (any drug that reduces body activity, causes muscular relaxation, and slows down functions of the central nervous system), have the students describe an instance when their physician gave them or someone they know a depressant (aspirin). Ask them to recall the medicine prescribed and its effect. Experiment - pH of aspirin compounds C. Construct a bulletin board and display listing various depressants and their uses.	1. What are some medical uses of depressants? 2. What are the meanings of: narcotics barbiturates drug addict tolerance withdrawal illness "fix" "pusher" "peddler" "horse" "goof ball" and other slang terms 3. What are the derivatives of opium? 4. Are narcotics stimulants or depressants? Explain the difference between a stimulant and a depressant. 5. Differentiate between the terms "addicting" and "habit forming." 6. What are some synthetic depressants? 7. List ten volatile chemicals. 8. What are the beneficial uses of volatile chemicals?

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
	Collect pamphlets and other information concerning depressants from National Institute of Mental Health, American Medical Association, and the Food and Drug Administration.	9. What are the meanings of: "sniffer" solvent volatile gas evaporation
	E. Have students write their interpretations of depressants. Discuss their answers in class, identifying the correct ones and pointing out why the incorrect one is fallacious.	
	F. Construct a wall chart illustrating the various physiological and psychological effects of depressants.	
	G. Assign a creative writing paragraph describing some beneficial uses of depressants in our society.	
	H. Write or call NIMH, AMA, Hotline (949-6603), and the FDA for speakers.	
	I. Request from Montgomery County Police Department exhibits pertaining to drug abuse and an explanation of exhibits by qualified personnel.	
	J. Write reports illustrating the use and abuse of depressants.	
	K. Prepare a chart illustrating common solvents and their uses.	
	L. Define volatile chemicals, and then list on the board as many as the class can contribute.	

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
	M. Explain the meaning of the terms volatile, solvent, evaporation, gas.	
III. Certain drugs are classified as stimulants.	A. Refer to Learning Experiences accompanying concept on Depressants. (A through J)	1. What are some medical uses of stimulants?
	B. Discuss reasons why truck drivers and students often resort to the use of coffee and cigarettes.	2. What are the meanings of: "speed" "pep pill" "bennies"
	C. Discuss caffeinated and decaffeinated coffee.	3. What beverages contain caffeine?
	D. Write reports on the harmful ingredients in colas.	4. Name five common stimulants. (For example: Benzedrine, Dexedrine, caffeine, cocaine, pep pills, coffee, coke, etc.)
	E. Make a list of the slang terms associated with the drug culture.	
IV. Certain drugs are classified as hallucinogens.	A. Refer to Learning Experiences accompanying concept on depressants. (A through J)	1. What are the meanings of: mind-expanding "a trip" euphoria "mind-bending" hallucinate
	B. Write reports on the following: Mind-expanding Drugs Albert Hofmann A "Trip" Mind-bending Drugs Hallucination Use of Hallucinogens by American Indians	2. Name four hallucinogenic drugs.
		3. Do hallucinogens have medical value?
	C. Discuss in depth the reasons why one user may experience what he thinks is a "groovy	4. What are the reasons given for using hallucinogens?

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	trip" and another user experiences a nightmarish and torturous "trip" with recurrent hallucinations.	5. What are the dangers in using hallucinogens?
	D. Have interested students prepare and deliver oral reports on: LSD — Peyote Ergot Fungus — Mescaline	
V. Drugs have a physiological and psychological effect on the body.	A. Ask the students to submit for discussion anonymous questions and problems regarding psychological effects of drugs.	1. What are the physical effects of the use of drugs?
	B. Using charts of the circulatory, nervous, digestive, and respiratory systems, point out specific parts of the body affected by specific drugs.	2. What signs and symptoms are indicative of drug addiction?
	C. Compare the physiological effects to the behavioral effects of drugs.	3. What psychological effect does the use of drugs have on the drug addict?
	D. By means of charts and pamphlets, review the nutritional requirements of the body. Relate this to the way in which drug abuse affects the appetite with resultant effect on the nutritional intake.	4. Explain why the use of drugs makes the addict more prone to illnesses such as: hepatitis venereal disease brain damage respiratory disease circulatory disease
	E. Using a model of the brain, point out areas affected by different drugs.	5. Give the meanings of: dependency habit tolerance addiction withdrawal abuse
	F. Conduct an experiment showing the effect of drugs upon behavior. (See Goldfish experiment in Alcohol unit.) This experiment may be altered by using the stimulant caffeine instead of alcohol. Caffeine can be obtained without prescription from any drug store.	

CONCEPT	LEARNING EXPERIENCES	EVALUATION
	G. On the chalkboard, prepare a chart listing drugs, their medical use, symptoms produced, and their dependence potentials. (Example: name, slang name, classification, medical use, effect sought, long-term symptoms, physical dependence potential, organic damage potential.) Refer to Teacher's Packet.	6. Which drugs result in psychological dependency, physiological dependency, or both?
	H. Compare the actions of the different drugs in each major group (depressants, stimulants, hallucinogens, mixed actions). Hint: The action of one depressant is similar to the actions of all depressants; the action of one stimulant is similar to the actions of all stimulants, etc.	
VI. Some of the common drugs, as well as stimulants in beverages, are habit-forming and can create serious problems.	A. Clip advertisements from magazines and newspapers about aspirins, bromides, coffee, cola, etc. and analyze their emotional appeal.	1. Elaborate on the habit-forming qualities of coffee, cola, etc.
	B. Discuss the many advertisements used today to influence the public in the use of drugs.	2. What potentially dangerous drugs that nevertheless do not require a prescription may be found in the average medicine cabinet?
	C. Compare the food values of cola beverages and milk.	3. Why is it not safe for you to use a medicine prescribed for another member of your family even though you may have the same symptoms?
	D. Discuss the potential danger to adolescents in using stimulants.	
	E. Go to any store and list some of the over-the-counter drugs which you can purchase without a prescription. From this list, check the ones which are found at home.	4. Which drugs cause physical dependence? Create a need for larger doses? Create emotional dependence?

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
	Tell what the uses are and the factors to be considered in the use of these drugs.	5. What food values do cola and other soft drinks have? 6. Why is the use of stimulants more dangerous even to adolescents than to adults?
	F. Evaluate the validity of advertisements by testing various drugs for their speed of solution. Time this carefully. Examples: aspirin (several brands), Bufferin, Anacin, Contact, etc. After time studies, vary temperature.	
	G. Experiment: pH of Aspirins Materials: Bufferin, Bayer Aspirin, Tylenol, Excedrin, Empirin Compound, Anacin, pH paper, red and blue litmus paper, aluminum foil Procedure: Place the samples to be tested on a large piece of aluminum foil. Label each sample. Put 5 drops of water on each sample. Permit each sample to dissolve. Test with litmus paper and pH paper and record results.	
VII. There are many reasons for the abuse of drugs.	A. List on the chalkboard those motivating factors for drug abuse which students suggest. (Alienation--generation gap, group or peer pressure, availability, curiosity, spiritualism, search for self, boredom, outlook on the world and its problems, the way out, pleasure, recreation.)	1. Elaborate on the following reasons for using drugs: social pressure independence satisfaction excitement relaxation escape rebellion
	B. Discuss personality traits usually connected with drug abuse.	

CONCEPTS	LEARNING EXPERIENCES	EVALUATION

C. Discuss the validity of the following statements:

"Everybody's doing it."
"Don't be chicken."
"It doesn't hurt you."
"Just one won't get you hooked."
"My parents use drugs."
"We live in a drug society."
"It's not habit forming."
"I'll never become addicted."

D. Discuss the reasons for increased teenage drug abuse.

Does boredom lead to drug abuse?

What kinds of things do you do to relieve boredom?

What would you like to see made available?

Would work opportunities at a younger age be one of your choices?

Make a list of the types of jobs that could be made available to junior high school age students.

E. Contact various drug agencies to invite ex-addicts to discuss "Why I used drugs, and how I kicked the habit."

F. Invite a psychiatrist to discuss psychological factors leading to drug abuse.

2. Explain how the following three groups may become narcotic addicts:

Physically ill--a person afflicted with an organic impairment.

Neurotic--a nervous person in whom emotions predominate over reason.

Psychotic--deeper, more far-reaching and prolonged behavioral disorders.

3. Discuss the statement:

"Addiction is usually a symptom of personality maladjustment."

4. What recreational groups are available to youth today which help them to refrain from developing habits detrimental to health?

5. Elaborate on the statement:

"One's physical and emotional make-up contributes to avoiding or establishing the drug habit."

CONCEPTS	LEARNING EXPERIENCES	EVALUATION
	G. Discuss the social consequences of drug abuse. (1) How can drug addiction affect family relationships or group relationships? (2) What effect does drug abuse have on the financial demands to the user and to society? (3) What effect does drug abuse have on crime and delinquency?	
VIII. There are community resources which try to help those addicted to drugs.	A. Have students find out about the help that is available to the drug user at the county, city, and neighborhood levels--both governmental and nongovernmental. B. Make the students aware of the existence of the "Hotline" as a means of help. Phone number: 949-6603 C. Invite a speaker from the Federal Bureau of Narcotics to talk about its efforts to help the drug user.	1. What community resources are available to help the drug addict? 2. Which of the facilities also offer help to the nonaddict drug abuser?

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and
TEACHER PACKET
DRUGS AND DRUG ABUSE:
ALCOHOL, TOBACCO, AND CONTROLLED DANGEROUS SUBSTANCES

A Supplement to the Seventh Grade Science Course of Study

Bulletin No. 278-A

Montgomery County Public Schools
Rockville, Maryland
Homer O. Elseroad
Superintendent of Schools

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PRETEST A: ALCOHOL

Please circle the correct response to each of the following items:

1. True or False — Ethyl alcohol is a substance formed from sugar and starches by the process called fermentation.
2. True or False — A beverage containing 40% alcohol is about 80 proof.
3. True or False — Although the abusive use of ethyl alcohol may cause alcoholism and other community problems, it is difficult to eliminate alcohol production because alcoholics would suffer severe withdrawal symptoms.
4. True or False — As a food, alcohol provides energy for the functions of the body.
5. True or False — Alcohol must be digested to be absorbed into the circulatory system.
6. True or False — Even small amounts of alcohol can cause harmful effects in the body.
7. True or False — One reason which leads young people to drink alcoholic beverages is that their parents drink.
8. True or False — It is estimated that over two-thirds of all American people over age twenty use alcoholic beverages in some form.
9. True or False — A person who is addicted to alcohol either physically or psychologically is called an alcoholic.
10. True or False — To treat alcoholism, doctors sometimes use an antialcoholic medication which causes the patient to become violently ill if he drinks alcohol.
11. True or False — The minimum age for distilled liquor consumption in Montgomery County is 21.
12. True or False — During Prohibition, the consumption of all alcoholic beverages was stopped.
13. True or False — An individual is affected in the same way each time he drinks.
14. True or False — Alcohol is a drug.
15. True or False — Because alcohol is a stimulant, it tends to pep a person up.
16. True or False — Alcoholic beverages can be fattening.
17. True or False — A person can die of alcoholic poisoning.

18. True or False All alcoholic beverages are equally strong.

19. True or False Liquor taken straight will effect you faster than liquor mixed with water or soda.

20. True or False Switching drinks will make you drunker than staying with one kind of alcoholic beverage.

21. True or False You can sober up quickly by drinking black coffee and dousing your head with cold water.

22. True or False Drunkenness and alcoholism are the same thing.

23. True or False Anyone who drinks is likely to become an alcoholic person.

24. True or False Alcoholic individuals can be helped.

25. True or False There are no beneficial uses of alcohol.

POSTTEST A. ALCOHOL

Please select the ONE BEST response to each of the following items:

1. Which of the following is not a property of ethyl alcohol?

   A. tasteless
   B. colorless
   C. volatile
   D. inflammable

2. Ethyl alcohol is a substance formed from sugar and starches by the process called _____.

   A. distillation
   B. fermentation
   C. photosynthesis
   D. mastication

3. A by-product of alcohol formation is _____.

   A. nitrogen
   B. oxygen
   C. carbon monoxide
   D. carbon dioxide

4. Alcohol is classified as a _____.

   A. stimulant
   B. depressant
   C. hallucinogen
   D. barbiturate

5. A beverage containing 40% alcohol is about _____ proof.

   A. 20
   B. 40
   C. 80
   D. 100

6. Beverage alcohol of high alcoholic content requires a process called _____.

   A. distillation
   B. fermentation
   C. photosynthesis
   D. mastication

7. Although the use of ethyl alcohol may be abused and cause alcoholism and related community problems, it is difficult to remove alcohol from use because _____.

   A. It is an essential product in industry.
   B. Alcoholics would suffer severe withdrawal symptoms.
   C. Taverns would be forced to close, producing mass unemployment.
   D. None of the above.

8. Alcohol provides _____ which are used in carrying out body functions.

   A. protein
   B. mineral
   C. vitamins
   D. energy

9. Which of the following does not influence the effect alcohol has on the body?

   A. the amount of alcohol
   B. size of individual
   C. the grain from which the alcohol was obtained
   D. the amount of food in the stomach

10. The breakdown of alcohol takes place in the _____.

A. stomach
B. duodenum
C. liver
D. kidney

11. Alcohol must be _____ before it can be absorbed.

A. chewed
B. swallowed
C. digested
D. none of these

12. Which of the following has the highest percentage of alcohol?

A. beer
B. wine
C. whiskey
D. hard cider

13. A person who is addicted to alcohol either physically or psychologically is called a(n) _____.

A. vagrant
B. alcoholic
C. drunk
D. psychotic

14. Cirrhosis is a disease of the _____.

A. pancreas
B. liver
C. gall bladder
D. central nervous system

15. Drinking alcohol causes dilation of blood vessels which in turn causes _____.

A. loss of heat
B. a feeling of warmth
C. a lowering of blood pressure
D. all of these

16. Alcohol causes red blood cells to _____.

A. decrease in number
B. increase in number
C. clump together
D. take on more iron

17. The minimum legal age for alcohol consumption in Montgomery County is _____.

A. 16
B. 18
C. 21
D. 25

18. Which of the following is most likely to slow down the absorption rate of alcohol in the body?

A. exercising
B. food in the stomach
C. drinking in a relaxed atmosphere
D. none of these

19. Alcohol is a _____.

A. food
B. drug
C. depressant
D. all of these

20. Alcohol affects _____.

A. all parts of the body
B. only heart, liver, stomach
C. only brain, liver, and muscles
D. pancreas, intestines, kidneys

21. Which of the following will be absorbed fastest?

A. Scotch and soda
B. Rum and coke
C. Gin and tonic
D. Martini

22. Which of the following will sober you the quickest?

A. black coffee
B. taking a walk
C. dousing your head in cold water
D. none of the above responses

23. Of the following age groups, which would be affected most by alcohol?

A. 12-15
B. 16-18
C. 19-21
D. 22 and over

24. Which of the following may have a physiological dependency?

A. social drinker
B. alcoholic
C. drunk
D. boozer

25. Which of the following is used as an alcoholic beverage?

A. methyl alcohol
B. ethyl alcohol
C. isopropyl alcohol
D. rubbing alcohol

PRETEST B: TOBACCO

Please circle the correct response to each of the following items.

1. True or False — The tobacco which is used in cigarettes comes from the leaves of the tobacco plant.
2. True or False — Tobacco smoking was not known to have harmful effects until the 20th century.
3. True or False — Nicotine is classified as a depressant.
4. True or False — All nicotine is eliminated or destroyed by the body within 24 hours after one stops smoking.
5. True or False — There is little evidence available to prove that cigarette smoking increases the chance of lung cancer.
6. True or False — Fatigue is relieved by smoking primarily because smoking stimulates the adrenal glands which in turn increases the blood sugar level.
7. True or False — Tobacco smoking causes the skin temperatures to increase.
8. True or False — Filter cigarettes are not as harmful as nonfilter cigarettes.
9. True or False — Cigarettes are more harmful to the body than cigar or pipe smoking.
10. True or False — Smoking is more harmful to the elderly than to the young.
11. True or False — Cigarette smoking can be addictive.
12. True or False — After smoking a cigarette, blood pressure is decreased from the dilation of the blood vessels.
13. True or False — Lung cancer is the only serious disease associated with smoking.
14. True or False — Smoking is not a health hazard for women.
15. True or False — Whether or not you have smoked a long time, your risks go down when you quit.
16. True or False — There is no risk in smoking cigarettes if you don't inhale.
17. True or False — Some people gain weight when they quit smoking.
18. True or False — Some people can smoke a few cigarettes without getting the habit.

19. True or False — The report to the Surgeon General of the U. S. Public Health Service on Smoking and Health left some doubts that smoking really is harmful.

20. True or False — Young smokers aren't necessarily "hooked" by the cigarette habit.

POSTTEST B: TOBACCO

Please select the ONE BEST answer to each of the following items.

1. The tobacco which is used in cigarettes comes from the _____ of the tobacco plant.

   A. flower
   B. root
   C. leaves
   D. stems

2. Tobacco smoking was not shown to have harmful effects until the _____ century.

   A. 17th
   B. 18th
   C. 19th
   D. 20th

3. Nicotine, which comes from tobacco, is sometimes used as a (an) _____.

   A. insecticide
   B. preservative
   C. fertilizer
   D. pain killer

4. The amount of nicotine present in _____ usually produces death when placed on the gums of a dog.

   A. one cigarette
   B. one pack of cigarettes
   C. five cigarettes
   D. none of these

5. Nicotine is classified as a _____.

   A. depressant
   B. stimulant
   C. hallucinogen
   D. volatile chemical

6. All nicotine is eliminated or destroyed by the body within _____.

   A. 1 hour
   B. 6 hours
   C. 24 hours
   D. 48 hours

7. There is evidence that cigarette smoking increases the chance of _____

   A. kidney cancer
   B. heart disease
   C. lung cancer
   D. all of these

8. Fatigue is relieved by smoking primarily because smoking stimulates the _____ which in turn increase(s) the blood sugar level.

   A. adrenal glands
   B. pancreas
   C. liver
   D. all of these

9. Which one of the following is not found in tobacco smoke?

   A. formaldehyde
   B. cyanide
   C. arsenic
   D. strychnine

10. Tobacco smoke causes the skin temperature to _____.

A. decrease
B. increase
C. remain constant
D. fluctuate

11. Which of the following methods reduces the harmful effects of smoking?

A. choose a cigarette with less tar and nicotine
B. only smoke the cigarette halfway
C. take fewer puffs
D. all of the above responses

12. Which of the following is least harmful to the body?

A. nonfilter cigarettes
B. filter cigarettes
C. hand-rolled cigarettes
D. smoking one-half of a cigarette

13. Which of the following is most harmful to the body?

A. cigars
B. pipes
C. cigarettes
D. snuff

14. Smoking is most harmful to _____.

A. the elderly
B. adults
C. young adults
D. teenagers

15. Nicotine poisoning produces such symptoms as _____.

A. rapid pulse
B. dizziness
C. vomiting
D. all of these

16. Smoking one cigarette will increase the blood pressure as a result of _____.

A. constriction of blood vessels
B. increased heart rate
C. both A and B
D. neither A nor B

17. The results of the first Surgeon General's report:

A. showed a definite decrease in the consumption of cigarettes
B. increased the taxation on cigarettes
C. stated that cigarette smoking was detrimental to your health
D. showed there may be a relationship between smoking and occupations

18. Cigarette smoking

A. increases the appetite
B. decreases fatigue
C. decreases the heart beat
D. all of the above responses

19. Cigarette smoking has the most direct affect on the:

A. respiratory system
B. circulatory system
C. excretory system
D. digestive system

20. When a person's body craves a smoke due to the adjustment of the body to nicotine, we say this individual has:

A. the "smoking habit"
B. the "tobacco habit"
C. a psychological dependency
D. an emotional dependency

PRETTEST C: CONTROLLED DANGEROUS SUBSTANCES

Please circle the correct response to each of the following items.

1. True or False — Opium is formed from the milky juice of the Indian hemp plant.
2. True or False — Morphine is classified as a hallucinogen because of its dulling effect on the central nervous system.
3. True or False — Heroin can be introduced into the body by sniffing.
4. True or False — Depressant drugs are useful medically to aid in weight reduction.
5. True or False — Aspirin is dangerous because it can be fatal if an overdose is taken.
6. True or False — Heroin is legally obtained with a doctor's prescription.
7. True or False — Caffeine, a stimulant, is found in frozen orange juice.
8. True or False — Amphetamines are used medically to induce sleep.
9. True or false — Students often use "pep pills" to prevent sleep.
10. True or False — Amphetamines are stimulants which are distilled from a brown resin secreted by the cannabis.
11. True or False — Marijuana is derived from the dried bark and stems of the female Indian hemp plant.
12. True or False — The effects of marijuana do not vary as a result of variations in its strength.
13. True or False — Since marijuana is not physically addictive, it produces no withdrawal symptoms.
14. True or False — LSD, when taken into the body, has the ability to produce hallucinations.
15. True or False — One reason LSD is considered dangerous is the possible recurrence of a trip.
16. True or False — LSD must be taken in large quantities to produce a satisfactory high.
17. True or False — Mescaline produces hallucinations which are clearer images of what one actually sees.
18. True or False — Glue is classified as a volatile chemical.

19. True or False — Volatile chemicals are introduced into the body by inhalation.

20. True or False — Volatile chemicals may produce death from suffocation.

21. True or False — Barbiturates are a type of "pep pill."

22. True or False — Cocaine and coca come from the same plant.

23. True or False — Experiments with LSD show that its use causes definite chromosomal damage.

24. True or False — Opium, morphine, heroin, and codeine are all derived from the same plant.

25. True or False — Death may result from use of barbiturates, either from overdose or sudden withdrawal.

POSTTEST C: CONTROLLED DANGEROUS SUBSTANCES

Please select the ONE BEST answer to each of the following items.

1. Opium is formed from the milky juice of the opium _____.

   A. hemp
   B. coca leaf
   C. poppy
   D. sunflower

2. Morphine is classified as a _____ because of its dulling effect on the central nervous system.

   A. stimulant
   B. depressant
   C. hallucinogen
   D. volatile chemical

3. Heroin is introduced into the body by _____.

   A. sniffing or rubbing it into the mucous membranes of the nose
   B. injecting it intravenously
   C. both A. and B
   D. neither A. nor B

4. Depressant drugs are useful medically to _____.

   A. aid in weight reduction
   B. produce hallucinations
   C. prevent sleep
   D. relieve pain

5. Aspirin is dangerous because it _____.

   A. can be fatal if an overdose is taken
   B. produces euphoria
   C. is addicting
   D. produces anxiety

6. In this country heroin, as a drug, _____.

   A. is legal in some states
   B. can easily be obtained with a doctor's prescription
   C. is illegal
   D. is of great medical value

7. Caffeine, a stimulant of the medulla, is found in _____.

   A. cola
   B. cigarettes
   C. milk
   D. orange juice (frozen)

8. Amphetamines are used medically to _____.

   A. induce sleep
   B. prevent headache
   C. reduce weight
   D. all of these

9. Students often use "pep pills" to _____.

A. calm them after exams
B. prevent sleep
C. think more clearly
D. improve appetite

10. Amphetamines are stimulants which are _____.

A. extracted from the female hemp plant
B. distilled from a resin produced by a mushroom
C. man-made
D. derived from a poppy

11. Marijuana is derived from the dried _____ of the female Indian hemp plant.

A. roots and root hairs
B. flowering tops and leaves
C. bark and stem
D. all of these

12. Which of the following is a characteristic of marijuana?

A. Its effects vary
B. Its effects are consistent
C. Its effects can recur
D. none of these

13. Marijuana is _____.

A. physically addictive
B. psychologically addictive
C. nonaddictive
D. a narcotic

14. LSD, when taken into the body, has the ability to _____.

A. induce sleep
B. produce hallucinations
C. increase mental alertness
D. calm an upset stomach

15. LSD is considered dangerous because _____.

A. of the possibility of a "bad trip"
B. of the possible recurrence of a trip
C. of possible violence or suicide
D. all of these

16. Which of the following is not classified as a hallucinogen?

A. marijuana
B. antihistamines
C. peyote
D. LSD

17. Mescaline produces hallucinations which are _____.

A. bizarre visions of things which don't exist
B. clearer images of what one actually sees
C. feelings of intoxication
D. feelings of depression

18. Which of the following is not a volatile chemical?

A. glue
B. water
C. gasoline
D. heroin

19. Volatile chemicals are introduced into the body by _____.

A. drinking
B. eating
C. sniffing
D. injecting

20. Volatile chemicals may produce _____.

A. death from suffocation
B. blurred vision
C. intoxication
D. all of these

21. Barbiturates are a form of _____.

A. pep pills
B. stimulants
C. depressants
D. volatile chemicals

22. Cocaine is derived from _____.

A. cocoa plant
B. coca plant
C. poppy
D. cannabis sativa

23. LSD is dangerous because of _____.

A. chromosomal damage
B. birth defects
C. bad trip
D. all of the above responses

24. Which of the following drugs are derived from the opium poppy?

A. morphine
B. heroin
C. codeine
D. all of the above responses

25. Death may result from use of barbiturates by _____.

A. overdose
B. sudden withdrawal
C. both A and B.
D. neither A nor B

TEST ANSWER KEYS

A: ALCOHOL

Pretest	Posttest
1. True	1. A
2. True	2. B
3. False	3. D
4. True	4. B
5. False	5. C
6. True	6. A
7. True	7. A
8. True	8. D
9. True	9. C
10. True	10. C
11. True	11. D
12. False	12. C
13. False	13. B
14. True	14. B
15. False	15. D
16. True	16. C
17. True	17. B
18. False	18. B
19. True	19. D
20. False	20. A
21. False	21. D
22. False	22. D
23. False	23. A
24. True	24. B
25. False	25. B

B: TOBACCO

Pretest	Posttest
1. True	1. C
2. True	2. D
3. False	3. A
4. True	4. B
5. False	5. B
6. True	6. C
7. False	7. D
8. True	8. A
9. True	9. D
10. False	10. A
11. True	11. D
12. False	12. D
13. False	13. C
14. False	14. D
15. True	15. D
16. False	16. C
17. True	17. C
18. True	18. B
19. False	19. A
20. True	20. B

C: CONTROLLED DANGEROUS SUBSTANCES

Pretest	Posttest
1. False	1. C
2. False	2. B
3. True	3. C
4. False	4. D
5. True	5. A
6. False	6. C
7. False	7. A
8. False	8. C
9. True	9. B
10. False	10. C
11. False	11. B
12. False	12. A
13. True	13. B
14. True	14. B
15. True	15. D
16. False	16. B
17. False	17. A
18. True	18. D
19. True	19. C
20. True	20. D
21. False	21. C
22. False	22. B
23. False	23. C
24. True	24. D
25. True	25. C

TABLE OF DRUG CHARACTERISTICS

Classification	Drug Name	Slang Name	Medical Use	How Taken	Potential for Physical Dependence	Physical Complications	Potential for Psychological Dependence	Psychological Complications	Withdrawal Symptoms	Long-Term Symptoms
Narcotics	(Examples)		Treatment of pain, diarrhea, and cough	Smoked (Inhaled)	Yes	*Addiction, CNS depressant; Impaired intellectual functioning and coordination, Overdose	Yes	Asocial and antisocial reactions, Intoxication, Addiction	Vomiting, Diarrhea, Tremors, Aches, Sweats	Addiction, Constipation, Loss of appetite
	Opium	Op								
	Heroin	H, Smack, Horse	None							
	Morphine	M, White stuff	Pain relief	Swallowed, sniffed, or injected						
	Codeine	Schoolboy	Cough depressant							
	Methadone (Synthetic)	Dolly	Takes place of heroin							
Barbiturates (Depressants)	Nembutal	Yellow jackets	Treatment of insomnia and tension, Sedation, Relieves high blood pressure, Induction of anesthesia	Swallowed as pills or capsules	Yes	*CNS depressant; Drowsiness; Impaired judgment, reaction time, coordination, and emotional control; Overdose; Addiction	Yes	Diversion of energy and money, Habituation, Addiction, Asocial and antisocial behavior	Tremors, Delirium	Addiction with severe withdrawal symptoms, possible convulsions, Toxic psychosis
	Seconal	Red Devils								
	Phenobarbital	Phennies								
		Goofers								
Amphetamines (Stimulants)	Benzedrine	Bennies	Treatment of obesity, narcolepsy, fatigue, depression	Swallowed as pills or capsules or injected in a vein Sniffed or injected	No, or very minimal	Malnutrition, Needle contamination, Insomnia, Loss of appetite, Habituation, Overdose	Yes	*CNS stimulants, Irritability, Restlessness, Psychosis	Depression, Apathy	Loss of appetite, Delusions, Hallucinations, Toxic psychosis, Addiction
	Dexedrine	Dexies or Xmas trees								
	Methedrine	Crystal or speed								
	Cocaine	Coke, snow	Anesthesia of the eye, throat							
Hallucinogens (Psychedelics)	LSD	Acid, sugar	Experimental	Swallowed as a liquid, pill, capsule, or sugar cube	No	Rare seizures, cardiovascular collapse; Nausea; Impaired coordination; Anxiety	Minimal	Visual imagery, Paranoid state, Panic, Psychosis	None	Panic reactions, future trip without taking drug again
	Psilocybin		Experimental	Same as LSD	No		Minimal	Sometimes consciousness expansion	None	Not known.
	Mescaline	Cactus	Experimental	Same as LSD	No	Same as above	Minimal	Same as above	None	Not known
	Marijuana**	Pot, grass, tea, weed, Mary Jane	Experimental	Smoked, eaten	No	Bronchitis, Conjunctivitis, Impairment of Judgment	Moderate	Confusion, Anxiety, Aggressiveness	None	Not known

*CNS – Central Nervous System
**Also has stimulant and depressant characteristics

SYMPTOMS OF DRUG ABUSE[1]

I. Toxic Inhalants - glue, paint, gasoline, nail polish remover

A. Odor of substance usually present on clothing, breath

B. Running, inflamed nose; eyes bloodshot and watering

C. Muscular incoordination, sleeplessness

D. Nausea, dizziness

E. Inebriation, euphoria

F. Death by asphyxiation and tissue deterioration

II. Pills, Tablets, and Capsules - Barbiturates, "Goofballs"--generally addictive

A. Initial symptoms

1. Elation, tranquility, sense of well-being

2. Alcoholic-type intoxication except that breath is odorless

3. Pupils of eyes may be constricted and react to light

4. Lack of emotional stability, lack of interest, confusion

5. Incoordination, sleepiness, mild hallucinations

B. Withdrawal symptoms - Occur up to 24 hours after last use of drug

1. Anxiety, weakness, loss of appetite, tremors, sleeplessness

2. Fever, vomiting, nervousness, uncontrolled tremors, epileptic-like seizures

3. Symptoms intensify with time

4. Death - (The most common form of death from drug abuse is overdose of depressants.)

III. Stimulants - Amphetamines, "Speed" - generally nonaddictive

A. Hyperactivity, agitation, argumentativeness, nervousness, confusion, talkativeness

B. Headaches, dizziness, incoordination, delirium, loss of appetite, sleeplessness

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C. Pupils dilated, itchy nose, dry mouth and nose, bad breath

D. Hallucinations, increased blood pressure and pulse rate

E. Excessive doses or prolonged use reverse the above effects and will be followed by extreme fatigue and mental depression.

IV. Narcotics - Heroin, Demerol, Morphine, Cocaine

A. Inhaling causes irritation of nostrils

B. Injecting: Tell-tale needle marks (tracks) and possible abcesses

C. Pupils pin-pointed, lethargic, drowsiness

D. Withdrawal symptoms (See Barbiturates)

V. Hallucinogens - LSD, STP, DMT, DET, Psilocybin, Peyote, Morning Glory Seeds, Marijuana

A. Early Symptoms

1. High activity, talkativeness, giggling, changes in mood or behavior, extreme feaf of discovery, hot and cold flashes

2. Depth, sight, and sound perceptual changes. Hallucinations can cause extreme terror and/or dreamy, trance-like state.

3. Pupils of eyes widely dilated, intense hunger for sweets

4. Unexpected reactions to normal situations

B. Later Stages

Drowsiness, extreme depression

(Note: Users can experience complete personality changes, including suicidal tendencies, nervous breakdowns, and psychotic behavior.)

MARYLAND LAW ON DRUG ABUSE ANALYSIS AND INTERPRETATION

Definitions - Youth and the Law

Montgomery County, Maryland.

Article 26, Section 70-1 defines

Minor as a person who has not reached his 18th birthday[2]

Child as a person who has not reached his 18th birthday

Adult as a person who has reached his 18th birthday

Deliquent act means an act which is in violation of Article 66½, any other traffic violation, or any act which would be a crime if done by a person who is not a child.

Child in need of supervision means a child

(1) subject to compulsory school attendance who is habitually and without justification truant from school.
(2) without substantial fault on the part of his parents, guardian, or other custodian, who is habitually disobedient, ungovernable, and beyond their control.
(3) who so deports himself as to injure himself or others.
(4) requires guidance, treatment, or rehabilitation.

Alcoholic Beverages

It is a Misdemeanor

(1) for a minor to purchase alcoholic beverages;
(2) for a minor to misrepresent his age in order to obtain liquor;
(3) for a person over 18 to obtain liquor for a minor when a minor's age is known;
(4) for a person to misrepresent a minor's age in order that a licensed innkeeper or restaurant sell liquor to a minor;
(5) for any person to consume or give liquor to any person on school grounds; and
(6) for any person to appear in public in an intoxicated, disorderly condition.

Tobacco

It is unlawful and a misdemeanor for any dealer, or any person who is not a dealer, to sell or give any cigar, cigarette, smoking or chewing tobacco to any minor under the age of 15 years, unless authorized in writing by parent or guardian, or unless the minor is sole agent of his employer.

Smoking

Pupils of Montgomery County Public Schools are prohibited from using tobacco in any form in the school building. Areas are provided on the school grounds for this purpose.

2. Annotated Code of the Public Laws of Maryland, 1973, Effected July 1.

MARYLAND LAW ON DRUG ABUSE ANALYSIS AND INTERPRETATIONS[3]

A. Students Seeking Advice from Educators for Drug Abuse Problems

1. Maryland law encourages and protects those students who seek information from teachers on how to overcome drug abuse problems.

2. Whenever a student seeks information for overcoming a drug problem from any educator (teacher, counselor, or other pupil services specialist, administrator), no statement made by the student or observations made by the educator during the information/counseling session is admissible in any proceeding. This means no criminal conviction or school disciplinary action can result from what was said or done during this conference between the student and educator.

3. Educators who meet with students are under no legal duty to inform the parents of that student about his or her visit or drug abuse problem.

4. The law further states that educators cannot be compelled by the school administration or other authorities to divulge the identity of any student who seeks drug abuse information.

B. Student Seeking Treatment from Medical Personnel for Drug Abuse Problems

1. Any young person, including those under eighteen years of age, may be treated by a physician for any form of drug abuse without his or her parent's consent. The treating physician is under no legal duty to inform the parents of any minor under his treatment for drug abuse.

2. Whenever a person seeks counseling or treatment for drug abuse from a physician, psychologist, hospital, or authorized drug abuse program, no criminal convictions may ensue from the contents of those sessions.

3. The law guarantees that any statement made by a person seeking help or any observation made by the one treating him is not admissible in court or in any other proceeding.

C. Drug Violations Under Criminal Law

1. It is unlawful to distribute (to transfer, with or without the exchange of money) any drug which is defined as a controlled dangerous substance. This crime is a felony and is punishable on the first conviction by a maximum of 20 years imprisonment and/or a maximum fine of $25,000 if a narcotic drug is involved, and five years and/or $15,000 if a non-narcotic drug.

2. It is unlawful to possess (to have control over) any drug defined as a controlled dangerous substance. This crime is a misdemeanor and punishable on the first conviction by a maximum of four years imprisonment. Possession of marijuana is punishable on the first conviction by a maximum of one year imprisonment, or a maximum fine of $1,000, or both.

3. Montgomery County Public Schools. Guidelines for Educators in Drug Abuse Counseling, 1971.

3. It is unlawful to distribute or possess controlled paraphernalia. "Paraphernalia" includes hypodermic syringes, needles or other instruments used to administer drugs, as well as gelatin capsules, glassine envelopes, and other packaging or equipment intended to be used in the distribution of drugs. This crime is a misdemeanor and punishable on the first conviction by a maximum of four years imprisonment.

4. Second and subsequent convictions under Maryland's drug laws are punishable by a maximum of double the sentence for first convictions of that offense.

5. When any person is convicted of a first offense under Maryland's drug laws, the court in its discretion may place the defendant on probation without finding a verdict of guilty. Upon successful completion of the term of probation by the defendant, the court shall discharge the proceedings and order all criminal records be expunged.

GENERAL PROFESSIONAL GUIDELINES[4]

A. Every case in which a student seeks counseling or information from a professional educator for the purpose of overcoming drug abuse must be handled on an individual basis, which will depend upon the nature and particulars of the subject case. In determining what procedures might be appropriate, the educator from whom such information is sought shall consider the following factors:

1. Age of student
2. Type of drug
3. Intensity of involvement
4. Sincerity of student and willingness to undertake appropriate treatment
5. Resources available
6. Parental involvement

B. As in any good helping relationship, the educator at the earliest appropriate time is encouraged to discuss the availability of other sources, his professional limitations, and the desirability of parental involvement. Decisions to include parents should be made jointly by the student and educator, unless in the judgment of the educator, the mental or physical health of the child is immediately and dangerously threatened.

C. The new law on confidentiality places no duty on the part of educators to inform parents, administrators, or law enforcement personnel, of the identity of students seeking help for overcoming drug abuse problems.

D. While confidentiality is a major force in enhancing help-seeking by current or potential drug abusers, educators are cautioned to obtain professional medical advice or to refer the student to the appropriate available medical facility, if there is an immediate and dangerous threat to the student's physical or mental health. As in the performance of any professional role, failure to act reasonably in a drug counseling case may subject the educator to civil liability.

E. Examples of immediate and dangerous threats to a student's health are: loss of consciousness, severe intoxication, inability to communicate coherently, or threat of suicide.

F. When an educator comes into possession of a substance suspected to be a drug, the material should be placed in the custody of the principal who will contact the appropriate law enforcement agency. When such suspected substances are received by any member of the school faculty, the following steps should be taken:

1. Immediately place the substance in an envelope or other container and label the container with date, time, and circumstances. NOTE: When such substances are acquired by an educator during a counseling/

4. Montgomery County Public Schools. Guidelines for Educators in Drug Abuse Counseling, 1971.

information-seeking conference, the name of the student should not be indicated. In all other instances where an educator comes into possession of drugs, the name of the individual should be carefully noted.

2. Do not taste the suspected substance under any circumstances.

3. At the earliest opportunity, turn the material over to the principal who in turn will keep it under lock and key.

4. The principal or person holding the substance in every case should notify the local or state police and turn over all substances to the police.

5. The educator should obtain a receipt from the principal for the suspected drug. It should include a statement as to the quantity turned over. It should be remembered that no authority has been given to any school personnel to possess any prohibited drug or paraphernalia except during transfer to proper authorities. (See Public School Laws of Maryland--Bylaw--Reporting Crimes.*)

G. Helping role contacts with students seeking to overcome a drug problem should be held on school premises whenever possible.

H. If an educator feels he is incapable of providing adequate help for a student or feels his counseling can no longer benefit the student, the educator and student should cooperatively seek additional professional help from available sources.

I. Any written information pertaining to or about the information-seeking/counseling session should be regarded as the personal notes of the educator. No record should be kept in any official school file or folder.

J. All educators should have access to a list of available resources in their community where students with drug problems may be referred for help. (It would also be beneficial to have in each school a drug resource person who could act as a sharing person to aid an educator involved in counseling a drug-involved student.)

K. In the general classroom situation, teachers should not attempt to diagnose symptoms of drug abuse. Because of the difficulty of determining such symptoms, it is suggested that if a student is physically or mentally incapable of functioning properly in class, he should be sent to the school health facility where the usual school health referral procedures should be followed.

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*Reporting Crimes: State Board of Education Bylaw 742:1, Public School Laws of Maryland, page 350, 1970 edition.

"1. School officials shall promptly report to the responsible law enforcement agencies all police matters coming to their attention whether occurring on or away from the school premises which involve pupils attending the particular school."

(As it is unlawful to distribute or possess controlled dangerous substances and prescription drugs without proper authority, these matters would be considered "police matters.")

PROCEEDINGS
AMA HOUSE OF DELEGATES
JUNE 18-22, 1972
REPORT OF THE BOARD OF TRUSTEES [5]

Report: J
(A-72)

Subject: Marihuana - 1972

Presented by: Max H. Parrott, M.D., Chairman

Referred to: Reference Committee E
(P. John Robechek, M.D., Chairman)

HOUSE ACTION: ADOPTED AS AMENDED

Introduction

In view of the dramatic rise in marihuana use in the United States in recent years, the Council on Mental Health and the Committee on Alcoholism and Drug Dependence of the American Medical Association have continued to review evidence obtained from scientific research into the drug. The AMA's policy statement on Marihuana was issued in December 1969, with the instructions that study and evaluation be continued.

Because of heightened public interest in marihuana and the amount of research conducted since that time, the Council and Committee are recommending the adoption of this statement as reflective of the most recent scientific findings. Such findings have been reported in three documents: (1) The Use of Cannabis, Report of a WHO Scientific Group, 1971; (2) Marihuana and Health, Second Annual Report to Congress from the Secretary of Health, Education, and Welfare, 1972; and (3) Marihuana: A Signal of Misunderstanding, First Report of the National Commission on Marihuana and Drug Abuse, 1972.

Marihuana, as used in the United States, is derived usually from the leaves and flowering tops of the female cannabis plant. The plant develops a resinous material which incorporates the active pharmacological principles. This resin can be extracted from the dried tops of the plant, leaves and flowers. It may be pulverized and smoked with or without admixture with tobacco. Smoking is the typical method of administration in the United States, although oral ingestion is not uncommon.

The principal active ingredients of cannabis resin are cannabinols, especially tetrahydrocannabinols (THC) which exist in several isomeric forms. The precise mechanism by which these ingredients induce effects of the drug in man is still not known.

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5. Past House Action: A-71:188-189; C-70:111-112; A-70:241-242; C-69:163-164,246.

Scientific Findings on Marihuana

Cannabis, as a psychotropic substance, acts on the central nervous system. As with all psychoactive drugs, its effects are a function of the complex interplay among the physiological and psychological status of the drug taker, the amount and potency of the drug substance, and the frequency and mode of administration. The lower the dose taken, the less intense and significant the physical and psychological effects will be. As the dose increases, so will these effects. The effects of smoking hashish, a highly potent form of cannabis, are markedly different from the effects of marihuana as currently used in the United States.

Important too are the setting in which the drug is taken, the influence of others present and the expectation of drug effects by the user. While these factors play a role in any psychoactive substance use, they are especially pertinent to the way marihuana is used in the United States at the present time. In comparison with other psychoactive substances, when dose and frequency are constant, there is an apparent wider variation of effects from individual to individual, or even in the same individual at different times.

Unless otherwise indicated, the term "marihuana" in this report refers to the comparativley low-dose content of the active chemical substances taken by the preponderance of users in the United States in 1972.

Marihuana is currently used primarily as a recreational drug. The use of marihuana is a pleasurable experience for a majority of users.

Somatic effects include conjunctival injection, increased pulse rate, and decreased intraocular pressure. Immediate cognitive-psychomotor effects are dose-related, familiar tasks being affected less than unfamiliar ones, and experienced users showing less decrement in performance than "naive" or inexperienced users. There is temporary episodic impairment of short-term memory.

Although use of marihuana is generally pleasurable, exceptions do occur. The most frequent exception is a transient anxiety reaction often related to conflicting attitudes toward marihuana of the inexperienced user. In cases of extremely high dosages, or occasionally with a "novice" at low dosage, an acute psychotoxic reaction may develop which is also transient in nature, usually disappearing when the drug has been eliminated from the body. It is uncertain how much of this phenomenon is caused by the marihuana and how much is the result of preexisting psychopathology. The most severe acute psychological reaction is a toxic psychosis. Evidence favors the theory that when such a psychosis develops, it represents an aggravation of a previously existing mental disturbance.

It is often stated that chronic use results in an "amotivational syndrome." In the United States, there has been some opportunity to observe and study possible long-term changes in mental and social functioning which might result from marihuana use. The major evidence for these observations at this time is derived from clinical reports. Controlled large scale studies have not been done.

An association has been established between the heavy long-term use of cannabis and social deterioration in certain other countries. Although a causal relationship has not been clearly proved, this association leads to some apprehension concerning a potential hazard of large scale long-term heavy use of marihuana in the United States.

Physical dependence such as seen with the barbiturates, opiate derivatives, and alcohol does not exist with marihuana; there are some reports of mild withdrawal symptoms, but they have not been differentiated from possible placebo effects. Psychological dependence does occur and varies with the extent of use. Occasional users are unlikely to manifest psychological dependence, but heavy use reflects strong psychological dependence.

Chronic physical effects are difficult to assess because of the likelihood of multiple drug use and uncontrolled variables in much of the research. Some evidence does indicate that with very heavy use there is increased likelihood of organ damage. Pulmonary function has been shown to be impaired with chronic heavy smoking.

Although not conclusive, there is evidence that impairment of motor vehicle operation can result from marihuana use. The probability and nature of such impairment should be the subject for additional research.

No reliable data exist to date showing chromosomal or genetic damage from marihuana use. The risk to the fetus is still uncertain.

There is no evidence supporting the idea that marihuana leads to violence, aggressive behavior, or crime. Another idea commonly held is that marihuana use causes progression to other dependence-producing drugs. A statistical association between marihuana use and the use of other drugs has been shown. The nature of this relationship remains to be clarified.

The Legal Status of Marihuana

This AMA House of Delegates does not condone the production, sale or use of marihuana. It does, however, recommend that the personal possession of insignificant amounts of that substance be considered at most a misdemeanor with commensurate penalties applied. It also recommends its prohibition for public use; and that a plea of marihuana intoxication should not be a defense in any criminal proceedings.

In view of the need for further research, and the possibility of some deleterious effects on the user and on society at large which could constitute a major public health problem, the Council and Committee agree that a policy of discouragement is prudent.

Research Needs

The Council and Committee strongly urge that there be increased research on marihuana. In the course of current research, possibilities of its use as a therapeutic agent in the treatment of terminal disease, glaucoma, and hypertension have been proposed. Such therapeutic possibilities certainly deserve further exploration. In addition, much more research is needed into the pharmacology of the drug; its interactions with other drugs; large-scale epidemiological studies of long-term effects of chronic heavy usage; marihuana use and personal and public safety; and methods of treatment for the heavy user.

Education Needs

The Council and Committee also urge that educational efforts be vastly expanded to all segments of the population, including members of the medical and legal professions, and law-enforcement agencies. Changes recommended on the basis of scientific evidence would mandate that the American public should be better informed on the subject of marihuana.

POISON PREVENTION[6]

THE PROBLEM

Modern science, technology, and manufacturing capabilities have produced an impressive number of household and drug products for consumer use in the home. When properly used, these products add immensely to ease, comfort, safety, and enjoyment of life. When misused, either by accident or intention, they often jeopardize health and may have fatal results. The American Medical Association estimates there are 250,000 products for home use which are potentially harmful. However, most are harmless and safe when used as directed and intended and when necessary precautions are taken to protect young children. Accidental poisoning from household and drug products is tragic, needless, and easily preventable.

About 1,300 die each year from accidental poisoning in and around the home. It's estimated that nearly a million persons are involved in home poisoning each year. Of these, perhaps close to half require medical attention and 200,000 result in disabling illness. Children 14 years and younger lead the list in total cases, with toddlers under five-years-old the most frequent victims.

SMALL CHILDREN

Because most accidental poisoning victims are children, a special effort should be made to educate parents.

Children about a year old are most likely to ingest materials such as cleaning, sanitizing, and polishing agents; rodent and insect killers; solvents; and kerosene because they are frequently stored within easy reach on the floor, under sinks, and on low shelves.

Children two- to four-years-old are mobile and love to climb. Products kept on high levels such as those stored in medicine cabinets and drawers, and on open shelves and on top of furniture become a challenge to reach. At this age, children have learned to avoid many of the common household items that are problems with younger children; but in a desire to imitate adults or take flavored remedies (sometime referred to as "candy"), they help themselves to potentially harmful products.

A number of tragic accidents happen because harmful materials are placed in containers that children associate with food and drink--pop bottles, milk cartons or bottles, jars, jugs, cereal or candy boxes, cake tins, and coffee cans. This practice is very dangerous and, unfortunately, wide-spread.

Accidental ingestion is closely related to the age of the child, access to potentially harmful materials, socio-economic conditions, and lack of direct adult supervision at time of accident.

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6. Modified from Statements by Division of Accident Prevention, Maryland State Department of Health.

COMMON PRODUCTS INGESTED

Aspirin (usually flavored), insecticides, bleach, detergents, soaps, cleaners, furniture polish, kerosene, vitamins and iron preparations, disinfectants, deodorizers, lye, drain cleaners, corrosives, and laxatives are leading examples.

Though most aspirin ingestions don't require hospitalization, aspirin leads the list in both the number of cases and cause for deaths of children under five. The fatality figures reflect the extremely high number of ingestions.

Several products, though less frequently ingested than aspirin, are much more apt to cause serious illness and hospitalization. These are lye, drain cleaners, ammonia, insecticides, kerosene, solvents, and petroleum-distillate furniture polishes. Also, many products commonly ingested have a low rate of serious illness and hospitalization, some rarely causing more than a mild upset. These are detergents, soaps, laxatives, scouring powder, bleach, etc.

Within some product categories, there may be wide differences in potential toxicity of various brands, depending upon ingredients.

THE REASONS

1. Failing to read and heed labels and precautionary statements on containers
2. Leaving or storing potentially harmful products and drugs where children can get them; also, not promptly disposing of unused portions or empty containers
3. Taking products out of original containers and putting them in unmarked food or drink containers
4. Lack of adult supervision--child being left alone where potentially harmful products are accessible
5. Children not being trained to leave household products and drugs alone and to stay out of storage areas
6. Lack of public awareness to potential dangers of many common household products and drugs, and the need for care in their handling and storage
7. Underestimating the ability of children to find poisonous products
8. Householders with children in their home not being prepared for visiting relatives, neighbors, and friends with small children
9. Not realizing the increasing mobility of very young children (--what was seemingly a safe storage place last month, may not be now)
10. Keeping edibles and nonedibles on the same shelf with often tragic results of confusion and mistaken identity
11. A hungry or thirsty child is more apt to ingest nonedibles

12. Storing kerosene (for household use) in the house or on the back porch in tin cans or glass jugs results in many accidental poisonings.

13. Calling flavored medicines "candy"

FOUR ESSENTIAL RULES FOR HOME POISON PREVENTION

1. Read and heed labels and written instructions on containers before using household and drug products. Few accidental poisonings would happen if people would observe these precautions.

2. Keep all drugs, poisons, and potentially harmful household products out of the reach of children. Keep household products on high shelves, not under the sink, on the floor, or on low shelves. Keep deadly poisons absolutely beyond reach of children, preferably in a locked cabinet or storage area. If possible, keep medicines in cabinets which can be locked or which have lockable special compartments. Store kerosene and other fuels out of the house in well-marked, approved storage containers.

3. Keep household and drug products in their original containers with labels and instructions intact. Never put potentially harmful materials in empty food or drink containers. If a product must be transferred because the original container is broken or torn, be sure that the label is transferred, too, and that the new container is well marked and properly stored.

4. Dispose of empty containers and unused portions. Don't leave them where children or pets can get at them. Flush unused portions down the drain or toilet, and rinse out containers and put them in the trash. Don't burn aerosol cans because of the possibility of the cans' exploding. Don't forget that some chemicals can produce harmful fumes when burned.

ALSO FOLLOW THESE SUGGESTIONS

1. Keep food and nonedible products on separate shelves.

2. Because children are "imitators," don't take medicine in front of them.

3. When children are given medicine, especially the flavored kind, call it "medicine." Don't say it's "candy."

4. When giving or taking medicine at night, always switch on a light so you can read the label to make sure it's the right medicine and proper dosage.

5. Learn basic first aid. Keep a first aid booklet or chart handy. These are inexpensive, simple to follow, and available in any town.

COMMON POISONOUS PLANTS
Their Toxic Parts, and Symptoms of Ingestion

HOUSE PLANTS

Plant	Toxic Part	Symptoms
Hyacinth, Narcissus, Daffodil	Bulbs	Nausea, vomiting, diarrhea. May be fatal.
Oleander	Leaves, branches	Extremely poisonous. Affects the heart, produces severe digestive upset and has caused death.
Poinsettia	Leaves	Fatal. One leaf can kill a child.
Dieffenbachia (Dumb cane) Elephant ear	All parts	Intense burning and irritation of the mouth and tongue. Death can occur if base of the tongue swells enough to block the air passage of the throat.
Rosary pea Castor bean	Seeds	Fatal. A single rosary pea seed has caused death. One or two castor bean seeds are near the lethal dose for adults.
Mistletoe	Berries	Fatal. Both children and adults have died from eating the berries.

FLOWER GARDEN PLANTS

Larkspur	Young plant, seeds	Digestive upset, nervous excitement, depression. May be fatal.
Monkshood	Fleshy roots, seeds	Digestive upset and nervous excitement.
Autumn crocus Star-of-Bethlehem	Bulbs	Vomiting and nervous excitement
Lily-of-the-Valley	Leaves; flowers	Irregular heart beat and pulse, usually accompanied by digestive upset and mental confusion.
Iris	Underground stems	Severe, but not usually serious digestive upset.
Bleeding heart (Dutchman's breeches)	Foliage, roots	May be poisonous in large amounts. Has proved fatal to cattle.

Plants	Toxic Part	Symptoms
Foxglove	Leaves	One of the sources of the drug digitalis, used to stimulate the heart in large amounts. The active principles cause dangerously irregular heart beat and pulse, usually digestive upset, and mental confusion. May be fatal.
Rhubarb	Leaf blade	Fatal. Large amounts of raw or cooked leaves can cause convulsions, coma, followed rapidly by death.
ORNAMENTAL PLANTS		
Daphne	Berries	Fatal. A few berries can kill a child.
Wisteria	Seeds, pods	Mild to severe digestive upset. Many children are poisoned by this plant.
Golden chain	Bean-like capsules in which the seeds are suspended	Severe poisoning. Excitement, staggering, convulsions, and coma. May be fatal.
Laurels Rhododendron Azaleas	All parts	Fatal. Produces nausea and vomiting, depression, difficult breathing, prostration, and coma.
Jessamine	Berries	Fatal. Digestive disturbance and nervous symptoms.
Lantana camara (red sage)	Green berries	Fatal. Affects lungs, kidneys, heart, and nervous system. Grows in the southern U.S. and in moderate climates.
Yew	Berries, foliage	Fatal. Foliage more toxic than berries. Death is usually sudden without warning symptoms.
TREES AND SHRUBS		
Wild and cultivated cherries	Twigs, foliage	Fatal. Contains a compound that releases cyanide when eaten. Gasping, excitement, and prostration are common symptoms that often appear within minutes.

Plants	Toxic Part	Symptoms
Oaks	Foliage, acorns	Affects kidneys gradually. Symptoms appear only after several days or weeks. Takes a large amount for poisoning. Children should not be allowed to chew on acorns.
Elderberry	Young shoots, buds, leaves, bark, roots	Children have been poisoned by using pieces of the pithy stems for blowguns. Nausea and digestive upset.
Black locust	Bark, sprouts, foliage	Children have suffered nausea, weakness, and depression after chewing the bark and seeds.
Jack-in-the pulpit	All parts, especially roots	Like dumb cane, contains small needle-like crystals of calcium oxalate that cause intense irritation and burning of the mouth and tongue.
Moonseed	Berries	Blue, purple color, resembling wild grapes. Contains a single seed. (True wild grapes contain several small seeds.) May be fatal.
Mayapple	Apple, foliage, roots	Contains at least 16 active toxic principles, primarily in the roots. Children often eat the apple with no ill effects, but several apples may cause diarrhea.
PLANTS IN SWAMP OR MOIST AREAS		
Water hemlock	All parts	Fatal. Violent and painful convulsions. A number of people have died from hemlock.
PLANTS IN FIELDS		
Buttercups	All parts	Irritant juices may severely injure the digestive system.
Nightshade	All parts, especially the unripe berry	Fatal. Intense digestive disturbances and nervous symptoms.

Plants	Toxic Part	Symptoms
Poison hemlock	All parts	Fatal. Resembles a large wild carrot. Used in ancient Greece to kill condemned prisoners.
Jimson weed (thorn apple)	All parts	Abnormal thirst, distorted sight, delirium, incoherence, and coma. Common cause of poisoning. Has proved fatal.

TECHNICAL TERMS[7]

Abuse - the misuse of drugs or other substances by a person who has obtained them illegally or legally and administers them himself without the advice or supervision of a qualified person

Addiction - a state resulting from the regular use of drugs, (especially depressants), which create physical dependence

Analgesic - a pain-relieving chemical

Anesthetic - a chemical substance producing a loss of feeling and relief from pain

Antagonistic - having or producing opposite effects

Central Nervous System - the brain and spinal cord

Chronic - of long duration

Compulsion - a compelling impulse which causes a person to act in a way that may be contrary to his good judgment or normal actions

Convulsions - a series of involuntary contractions of the muscles

Delirium - a condition marked by confusion, disordered speech, and hallucinations

Dependence - the need for and the reliance upon a substance (can be both physiological and psychological)

Depressant - any of several types of drugs which cause sedation by acting on the central nervous system

Euphoria - exaggerated sense of well-being

Habituation - compulsive drug use

Hallucination - a sensory experience which exists inside the mind of an individual and is a false perception of the actual conditions

Hallucinogenic - causing or producing hallucinations

Intoxication - the temporary reduction of mental and physical control because of the effects of drugs or other substances

Narcotic - any drug that produces sleep and also relieves pain

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7. Source: Drug Abuse: Teacher's Manual. Toledo Area Program on Drug Abuse, Toledo Public Schools, pp. 18-24, March 10, 1970. Reprinted by permission.

Paranoid - a person suffering from a mental disorder in which he has fears that others are threatening him. Delusions of grandeur are also common to a person who is a paranoid

Peer - a person or thing of the same rank, value, ability, etc.

Pharmacology - the science dealing with the production, use, and effects of drugs

Placebo - An inert or harmless medication given to a patient

Psychedelic - the distortion of the senses of time, distance, vision, and hearing resulting from the use of a drug

Psychosis - any severe mental disease or disorder

Sedative - any substance which calms or quiets body activity

Stimulant - any of several types of drugs which act upon the central nervous system to produce excitation, sleeplessness, and alertness

Withdrawal - the discomfort that results when a drug or other substance upon which a syndrome person has become physically dependent is withheld from his body

SLANG TERMS

Acapulco Gold - a highly potent form of marijuana

Acid Head - habitual LSD user

All Lit Up - under the influence of a drug

Amping, Over Amping - overdose of drugs

Amy, Amy Joy - Amyl Nitrate; amytal: a barbiturate of intermediate action

Artillery - equipment for injecting drugs (syringe, cotton, etc.)

Around the Turn - having passed through the worst part of withdrawal

Babysit - to guide a person through a drug experience

Backtrack - to withdraw the plunger of a syringe before injecting drugs

Backwards - tranquilizer usage

Bad Trip - unpleasant experience, usually caused by panic reaction after taking a drug

Bag - container of drugs (nickel bag - five dollars worth, etc.)

Balloon - toy rubber balloon used for storing or delivering drugs

Bamboo - opium pipe

Bang - inject drugs, usually heroin

Barbs - barbiturates

Bernice - cocaine

Big Chief - Mescaline

Big D - LSD

Blanks - poor quality narcotics

Blast, Blow - smoke marijuana

Blasted - high on marijuana

Blow Your Mind - get high on drugs

Blue Bands - pentobarbital sodium

Blue Birds or Blues (Blue Devil) - amobarbital capsules Amytal; amobarbital sodium)

Blue Velvet - paregoric and an antihistamine

Bogart - to "bogart a joint" is either to salivate upon or to retain (and not pass around) a marijuana cigarette

Bombed - high on drugs

Bombids - injectable amphetamine

Booster - consumption or injection of an additional dosage of drugs; to continue or prolong a trip

Bottle Dealer - person who sells drugs in 1,000 tablet or capsule bottles

Boxed - in jail

Boy - heroin

Brick - kilo of marijuana in compressed, hard brick form

Bridge - see Roach Holder

Bull - federal narcotics agent

Bummer, Bum Trip - a "bad trip"; adverse reaction to drugs, especially LSD

Bush - marijuana

Burn - to accept money and give no drugs in return; or to burn skin-injecting drugs

Burned - used to describe the purchase of poor quality drugs, diluted drugs, or no drugs at all

Busted - arrested

Button - peyote button: mescaline

(to) Buzz - attempt to buy drugs

C - cocaine

Can - a specific amount of marijuana--usually one ounce

Candy - barbiturates

Cap - capsule containing a drug

Carrying - in possession of drugs

Cartwheel - amphetamine tablet (round, white, double scored)

Charged Up - high on drugs

Chicken Powder - amphetamine powder suitable for injection

Chip, Chipper - Tuinal capsule

Clean - to remove seeds and stems from marijuana; to be free from needle marks; not having narcotics in your possession

Clear Up - discontinue the use of drugs completely

Coasting - high on drugs

Cocktail - inserting a partially smoked marijuana cigarette into the tip of a regular cigarette so that none of the drug is wasted

Coke - cocaine

Cokie - cocaine addict

Cold Turkey - breaking the habit of using an addictive drug

Columbian Pink - a highly potent form of marijuana

Come Down - to return from a "trip"

Connect - to buy drugs

Connection - source of supply for drugs, usually referring to a person

Conrad - a peddler of drugs, usually pills

Contact High - the feeling of getting high on drugs simply by being in contact with someone who is on drugs

Cook - to prepare opium for smoking

Cooker - device, usually a bottle cap, for heating drug powder with water in preparation for injection

Cop - to buy drugs

Cope - to handle oneself effectively while under the influence of drugs

Cop-Out - to confess, alibi

Corine - cocaine

Crash - to complete a drug experience, especially marijuana or amphetamine, by sleeping

Crutch - see Roach Holder

Crystals - amphetamine powder for injection

Crystal Blue Persuasion - type of hallucinogen, usually LSD or mescaline

Cube - sugar cube impregnated with LSD

Cut - to dilute a narcotic powder with sugar, talc, flour, etc.

"D" - LSD

Dabble - to use small amounts of drugs on an irregular basis

Dauber - a person who uses drugs infrequently

Dealer - the seller or pusher of drugs

Deck - a small packet of narcotics

Dexies - dextroamphetamine sulfate or amphetamine tablets

Doing - the taking of a drug

Dollies - Dolophine tablets

Dope - any drug

Doper - drug user

Dotting - placing LSD on a sugar cube

Double Cross - amphetamine tablets that are double scored

Double Trouble - Tuinal capsules

Down - someone or something that depresses a person who is under the influence of drugs

Downer - a depressant drug, either barbiturates or tranquilizers

Dried Out - withdrawn from drugs completely

Drop - take pills, especially LSD or mescaline

Dust - cocaine

Fat - word used to describe someone who has a good supply of drugs

Fine Stuff - drugs of unusually high quality

Fit, Outfit - see Artillery

Fix - to inject drugs or to take a dose of a particular drug

Flash - the intense feeling the user has just after using drugs

Flashback - recurrence of the drug reaction without having taken the drug again. Can happen months later with LSD.

Flip-Out - extremely high on drugs

Flying High - high on drugs

Flynn - see Bummer

Forwards - pep pills, especially amphetamines

Freak - one who uses drugs to the point of loss of reality, especially referring to a "speed" freak who is a heavy methadrine user

Freak-Out - to lose all contact with reality

Gassing - gas sniffing

Gee-Head - paragoric abuser

General - experienced drug user; sometimes ranked by number of stars - "5-star," etc.

Getting Off - see Going Up

Gimmicks - see Artillery

Glad Rag - cloth soaked with glue for sniffing

Gluey - glue sniffing

Go - to participate freely in the drug world

Gold Dust - cocaine

Going Up - the initial effect of taking drugs

Goof balls - barbiturate

Grass - marijuana

Greens - green, heart-shaped tablets of dextro-amphetamine sulfate and amobarbital

Gun - equipment for injecting drugs; also to put mouth over the lit end of a pipe or a cigarette containing marijuana and to blow the smoke into the mouth or nostrils of another person, to "shoot a gun"

Guru - see General

H - heroin

Habit - addiction to drugs

Hang-Up - a personal problem

Hard Stuff - hard narcotics

Harry - heroin

Hash - hashish

Head - chronic user of a drug

Heavenly Blue - type of LSD

Heavy - something highly emotional

High - under the influence of a drug, especially a stimulant

Hit - one dose of a particular drug

Hocus - narcotic solution ready for injection

Hog - a drug user who takes all and any drugs that he can get his hands on

Holding - possession of drugs

Hooked - addicted to a drug or drugs

Horning - sniffing drugs through the nasal passage

Horse - heroin

Hot - wanted by the police

Hot Shot - fatal dosage of a drug

Hype - a person who injects drugs

Ice Cream Habit - irregular use of drugs

J or Jay (Joint) - marijuana cigarette

Jolt - an injection of narcotics

Joy Pop - intermittent injection of one dosage of a drug

Joy Powder - Heroin

Jug - bottle of 1,000 capsules or tablets

Junk - narcotics

Junkie - heroin addict

Kee or Key - kilo

Keg - bottle of 25,000 tablets or capsules

Kick - to stop using drugs

Kicks - a drug experience

Kilo - 2.2 pounds of drugs, usually marijuana

Lame - not very smart in drug dealings

Laotian Green - highly potent form of marijuana

Layout - see Artillery

Lid - an amount of drugs, usually slightly more than an ounce

Lipton - poor quality marijuana

Litup - high on drugs

Loaded - high on drugs

Machinery - see Artillery

Magic Mushrooms - psilocybin

Main-Line - intravenous injection of drugs

Maintaining - keeping a certain level of drug habits

Make It - attempt to buy drugs

Matchbox - a small amount of drugs, about one-fifth of a lid

MDA - a hallucinogen; methyl-3, 4 methylenedioxy-phenethylamine, the "Love Pill"

Meth - methamphetamine; methedrine

Mickey; Mickey Finn - chloral hydrate

Miss Emma - morphine

Monkey - a drug habit in which physical dependence is present

Nark - narcotics agent

Needle - hypodermic needle

Nickle (bag) - five dollars worth of drugs

Nimby - nembutal capsules, brand of phenobarbital

Number - marijuana cigarette

O.D. - overdose of drugs

On the Nod; On the Beam - high on drugs, especially heroin or morphine

Ope - opium

Oranges - dexedrine tablets

OTC - over the counter

Outfit -

OZ: Ounce - an ounce of drugs

Panama Red - a potent type of marijuana

Peace Pill: P.C.P. - phencyclidine

Peaches - Benzedrine tablets

Pep pills - amphetamines

Per - a prescription

Peter - chloral hydrate

P.G. or P.O. - paragoric

Pill Head; Pilly - amphetamine or barbiturate user

Pinks; Pink Ladies - seconal tablets

Point - hypodermic needle

Poke - a puff on a marijuana cigarette

Pop - a subcutaneous injection of drugs

Popper - see Amy

Pot - marijuana

Pothead - regular marijuana user

Pusher - one who sells

Quill - folded matchbox cover through which drugs are sniffed

Rainbows - tuinal tablets

Rap - communicate--speak with rapport

Reds, Red, Red Devils - seconal tablets

Reds and Blues - tuinal capsules

Reefer - marijuana cigarette

Register - to wait until blood comes into the hypodermic needle before injecting a drug intravenously

Rip Off - to forcibly rob a peddler of his drugs or his money; also to be fined for illegal use, possession, or sale of drugs

Roach - small butt of a marijuana cigarette

Roach Holder (Clip) - device for holding a "roach" so that one's fingers are not burned

Roll, Roll Deck - a tinfoil wrapped roll of tablets or capsules

Roses - benzedrine tablets

Run - to take drugs continuously for at least three days, but usually for a week or more; to inject drugs

Rush - see Flash

Satch Cotton - cotton used to strain drugs before injection

Scat; Scot; Schmeck - heroin

Score - make a drug purchase

Shooting Gallery - place where drugs are injected

Shoot Up - to inject drugs

Shot - injection of a drug

Skin Popping - intradermal or subcutaneous injection of a drug

Sleepers - a depressant drug

Smack - heroin

Smashed - high on drugs

Snapper - see Amy; Amyl Nitrite

Sniffing; Snorting - sniffing drugs through the nasal passage

Soper - Quaalude

Source - where drugs can be obtained

Spaced; Space Out - high on drugs

Speed - originally restricted to mean methedrine, but now used to refer to any stimulant

Spike - hypodermic needle

Spoon - a quantity of heroin, measured on a teaspoon

Square - nonuser

Stash - a cache of drugs

Stoned - high on drugs

STP - hallucinogenic drug (the initials stand for serenity, tranquility and peace)

Straight - a nonuser of drugs

Strung Out - heavily addicted to a drug

Stuff - drugs, in general

T; Tea - marijuana

Thoroughbred - peddler who sells pure, high quality drugs

Toke Up - to light a marijuana cigarette

Tooies - tuinal capsules

Tracks - a series of puncture wounds in the veins which are caused by the continued injection of drugs

Trigger - to smoke a marijuana cigarette immedicately after taking LSD, mescaline, or psilocybin

Trip - the experience felt by a person while he is under the influence of drugs, particularly LSD and mescaline

Truckdriver - amphetamine

Turned Off - withdrawn from drugs

Turned On - to use drugs or to induce another person to use drugs

Twenty-five (25) - most pure and potent form of LSD

Up; Upper - amphetamine

User - one who uses drugs

Wag - cloth soaked with glue for sniffing

Wake-Ups - amphetamines

Washed-Up - withdrawn from drugs

Wasted - high on drugs

Way Out - high on drugs

Wedges - small tablets of various drugs

Weed - marijuana

Weekend Habit - irregular drug use

Whites; Whities - amphetamine tablets

White Stuff - morphine

Wig Out; Wigging - extremely high on drugs

Works - see Artillery

Wrecked - high on drugs

Yellows - nembutal