Rationale

Throughout history, cultures have used psychoactive drugs for various purposes such as recreation, rituals, ceremonies, and medicinal purposes. A major concern for today’s medical professionals is substance abuse and its effect on society. To live a healthy lifestyle throughout one’s lifespan an understanding of the relationship between unsafe behavior and personal health is important.

Objectives

Upon completion of this lesson, the student will be able to:
- identify the most commonly abused drugs and list their effects;
- evaluate and explain why it is important to stay drug and alcohol-free; and
- develop strategies for preventing the use of tobacco, alcohol, and other addictive substances.

Engage

Discuss the following myths and or false statements:
- Marijuana is not addictive. The truth is, statistically, 1 in 10 will become addicted.
- Using certain drugs, even once, means you’re automatically addicted.
- Addiction can be cured by medicine.
- Children should be permitted to drink in the presence of their parents because a drink or two is “harmless.”

Discuss the following true statements:
- Children who start drinking in their early teen years are much more likely to develop problems with alcohol than those who wait until they are 21.
- Drug use and addiction is linked to at least half of the major crimes in this country, as at least half of the suspects arrested for violent crimes, such as homicide and assault, were under the influence of drugs when they were arrested.
- Stress is a major factor in drug use and abuse.
- Sadly, nearly two-thirds of people in drug abuse treatment report that they were physically or sexually abused as children. Child abuse is a major contributing factor to drug addiction.
Key Points

I. Substance-related disorder
   A. Major categories of substances that are abused:
      1. Alcohol
      2. Amphetamine
      3. Caffeine
      4. Cannabis
      5. Cocaine
      6. Hallucinogen
      7. Inhalant
      8. Nicotine
      9. Opioid
     10. Sedative, Hypnotic, or Anxiolytic
     11. Club Drugs

II. Substance Dependence and Substance Abuse
   A. Dependence: is being unable to stop using
      1. Individual’s symptoms have persisted for at least 1 month
      2. Individual must manifest three of the following symptoms:
         a. Tolerance
            i. need for markedly increased amounts of substance to achieve desired effect
            ii. Markedly diminished effect with continued use of same amount of substance
         b. Withdrawal
         c. substance is taken in larger amounts or over a longer period than was intended
         d. a pattern of persistent desire
         e. great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects
         f. important social, occupational, or recreational activities are given up or reduced because of substance abuse
         g. substance use is continued despite knowledge that it is a problem
   B. Abuse: people making bad decisions, like having too many drinks at a bar on Saturday night
      1. Pattern of substance use by one (or more) of the following:
         a. recurrent substance use resulting in failure to fulfill obligations at school, home, or work
b. recurrent substance use in situations in which it is physically hazardous
c. recurrent substance-related legal problems
d. continued substance use despite having persistent relationship problems caused by effects of substance

III. Alcohol-Related Disorder

A. Terminology
1. FAS: Fetal Alcohol Syndrome – causes mental and physical abnormalities
2. DWI: driving while intoxicated
3. DUI: driving under the influence
4. BAC: Blood Alcohol Concentration
5. Alcoholism: addiction to alcohol – cannot keep from drinking, cannot manage time without drinking, and cannot stop drinking once they have started
6. Cirrhosis: scarring of the liver
7. Jaundice: yellowing of the skin and eyes

B. Criteria for alcohol abuse:
1. Daily use of alcohol necessary to function
2. Person unable to cut down or stop drinking
3. Binges last longer than 2 days
4. Person occasionally consumes as much as a fifth of liquor per day
5. Amnesia occurs during periods of intoxication (blackouts)
6. Inability to function at work or with friends and/or family

C. Symptoms of Intoxication:
1. Slurred speech
2. Lack of coordination
3. Unsteady walking
4. Nystagmus: involuntary, rhythmic eyeball movement

D. Effects of Alcohol on the organs
1. Brain – decreased activity of the nervous system, thought processes are disorganized, memory and concentration are dulled, leads to brain damage resulting in loss of intellectual abilities
2. Liver – inhibits the liver’s ability to breakdown fats, fats accumulate leading to a fatty liver, the increased amount of fat keeps the liver cells from working and new liver cells being formed; cirrhosis – no blood flow through scarred area of the liver, causes the increase in blood pressure,
hemorrhage, abdominal swelling, infection, jaundice
3. Blood Vessels – increase heart rate and blood pressure
4. Kidneys – increased urination, dehydration
5. Stomach – increased flow of gastric acids, inflammation, ulceration
E. Tolerance – need to drink more to get the same effect
F. Dependence – physiologically addicted
G. Withdrawal – sleeplessness, sweating, tremors, and hallucinations
H. Treatment for alcoholism
1. Detoxification process --takes place in hospital or rehabilitation center
2. Major treatment options frequently presented to recovering alcoholics
   a. aversive therapy (Disulfiram/Antabuse therapy)
      i. form of behavior therapy that uses learning principles to cause patient to associate thought of drinking with unpleasant stimulus
      ii. Motivates the patient to avoid drinking
      iii. Disulfiram (Antabuse) is a drug that causes metabolism of alcohol to be blocked
      iv. Result is buildup of toxic alcoholic by-product called acetaldehyde
      v. produces unpleasant symptoms: flushing, sweating, palpitations, dyspnea, hyperventilation, tachycardia, hypotension, nausea, and vomiting
      vi. Useful adjunct treatment
   b. inpatient rehabilitation treatment program
      i. individual and group therapy
      ii. Intensive education and behavior modification to teach new coping skills to individuals who previously turned to alcohol
      iii. Teach patient communication skills and stress management
   c. Alcoholics Anonymous
      i. worldwide and is available in most communities
ii. The goal is to achieve a life of sobriety
iii. Peer-support, self-help program
iv. Related organizations for families of alcoholics (Al-Anon)

I. Teenage Drinking
   1. Reasons teens drink
      a. to have fun
      b. to relax
      c. to feel more self-confident
      d. to fit in – peer pressure
      e. to get away with something
   2. Negative social consequences – difficulties with family, friends, school, and police

J. Alcohol and pregnancy
   1. FAS – fetal alcohol syndrome, a cause of mental retardation
   2. Shorter, smaller babies, slow body growth
   3. Facial abnormalities
   4. Poor coordination
   5. Heart defects
   6. Poor attention span, nervousness, hyperactivity

K. Drinking and driving
   1. #1 cause of death for teenagers in the US
   2. Decreases the ability to judge distances, speeds, turns
   3. Decreases abilities and limitations
   4. Increases risk taking
   5. Slows reflexes
   6. Adds to forgetfulness
   7. Decreases the ability to concentrate

L. Stages of Alcoholism
   1. Stage 1: physiological and psychological dependence, drinks regularly, may have blackouts
   2. Stage 2: cannot stop drinking, defensive, denial, tolerance, performance at school/work declines
   3. Stage 3: drinking is visible, uncontrollable

IV. Amphetamine-Related Disorder
   A. Drugs included in this category:
      1. Amphetamines
      2. Dexedrine
      3. Methamphetamine (speed)
      4. Appetite Suppressants
B. Typical uses:
   1. Used to treat obesity
   2. Used by students to stay alert and study
   3. Used by truck drivers to stay awake
   4. Used by soldiers to decrease fatigue and increase aggression
C. Symptoms of intoxication:
   1. Euphoria
   2. Grandiosity
   3. Excessive wordiness
   4. Excessive vigilance
   5. Agitation
   6. Dilated pupils
   7. Elevated blood pressure
   8. Tachycardia
   9. Nausea and vomiting
   10. Chills or perspiration
D. Effects of Amphetamine use
   1. Increase heart rate and breathing
   2. Anxiety, sleeplessness
   3. Tolerance, dependence
   4. Methamphetamine (crank, speed, ice) cause paranoia and may increase violent tendencies
E. Today’s evidence suggests that amphetamine and related drugs produce both dependency and withdrawal states
F. Most dangerous drugs presently available
   1. Can produce toxic psychosis in mentally stable people
   2. Death from over dosage (usually associated with hyperpyrexia, convulsions, and cardiovascular shock)
G. Amphetamine-induced psychotic disorder clears in a matter of days or weeks following withdrawal of drug
H. Withdrawal depression may reach suicidal proportions – may be treated with tricyclic antidepressants
V. Cannabis-Related Disorder
A. Substances included in this category
   1. Marijuana – hemp plant Cannabis, the leaves and flowers are smoked, eaten, drunk. Over 400 chemicals present
   2. Hashish – dark brown resin from the tops of the cannabis plant
   3. Purified delta-9-tetrahydrocannabinol (THC) – chemical that causes the psychoactive effect; stored in fatty tissue,
especially in brain cells, liver, lungs, kidneys, and reproductive organs; acts as a poison and prevents proper formation of DNA

B. Marijuana is the most commonly used substance in this category

1. Widely prescribe for variety of ailments during the 19th century – coughing, fatigue, migraine, asthma, delirium tremens, etc.

2. Effects
   a. ability to cause euphoria
   b. tendency to produce sedation – effects last 2 to 4 hours from smoking and 5 to 12 hours from ingestion
   c. sensory perception changes
   d. decreased body temperature, increased heart rate and blood pressure
   e. stimulates appetite
   f. decreases self-control
   g. mood changes can be influenced by mood and environment
   h. personality problems with increased use
      i. lack of will power and motivation
      ii. lack of interest
      iii. paranoia
      iv. apathy and lethargy
   i. psychological dependence
   j. memory deficits
   k. decreased concentration and coordination
   l. decreased immune system function
   m. decreased testosterone, decreased sperm production
   n. use during pregnancy causes condition in baby similar to FAS

3. Intoxication symptoms
   a. tachycardia
   b. perception of slowed time
   c. intensified subjective perceptions
   d. apathy
   e. elation
   f. dry mouth
   g. increased appetite
h. redness of eyes

4. Adverse reactions
   a. appear to be dose related and environment in which it is used
   b. rare reactions:
      i. anxiety states
      ii. panic states
      iii. toxic psychosis

VI. Cocaine-Related Disorder
   A. Cocaine abuse is a problem of almost epidemic proportions in our society today
   B. Derived from leaves of coca plant which is indigenous to Bolivia and Peru
      1. Leaves chewed by natives for many years for ceremonial highs and religious “insight”
      2. Can be snorted, smoked, or injected
      3. Rapid acting and powerful stimulant
      4. Increases risk of heart attack, heart rhythm irregularities, and cardiac arrest
      5. Increased risk of HIV with use of shared needles for injecting
   C. Intoxication Symptoms: cocaine “high” is similar to that of amphetamines
      1. Euphoria
      2. Exhilaration
      3. Powerful sense of well-being and confidence
      4. Agitation
      5. Dilated pupils
      6. Elevated blood pressure
      7. Tachycardia and tachypnea
      8. Nausea and vomiting
      9. Chills or perspiration
      10. Paranoia, hallucinations
      11. Psychological and physiological dependence
   D. Commonly abused form of cocaine is crack
      1. Inexpensive, very potent, readily available
      2. Smokable form of cocaine
      3. Danger or injury/death from explosion or fire
      4. Causes insomnia, hallucinations, paranoia, and seizures as well as all of the common physiological symptoms like increased heart rate and blood pressure and lung damage
5. Extremely addictive
E. crack/cocaine intoxication marked by:
   1. Excitement, euphoria, restlessness, stereotyped movement, gnashing, grinding, or clenching teeth
F. tolerance and physical dependency develops
G. toxic psychosis with visual, auditory, and tactile hallucinations and paranoia

VII. Hallucinogen-Related Disorder
A. not categorized by intoxication or withdrawal – instead by their ability to alter mental status
B. psychedelics
C. alter mood, thought, and the senses
D. episodes of hallucinogenic flashbacks can occur at unpredictable times for years following termination of drug
E. Includes LSD, DMT, PCP, inhalants, and mescaline
   1. LSD: lysergic acid diethylamide
      a. increases heart rate and blood pressure
      b. chills, fever, loss of appetite, nausea
      c. panic attacks, anxiety, accidental suicide
      d. flashbacks
   2. PCP: phencyclidine, angel dust
      a. distorts senses
      b. muscle coordination is impaired
      c. false sense of power and strength; results in violence and accidents
      d. can cause permanent psychiatric disorders
      e. flashbacks – a recurrence of the effect of the drug, may occur at a later date
   3. Inhalants – sniffed, inhaled
      a. glue, spray paints, aerosols, gasoline
      b. decreases the central nervous system
      c. effects
         i. nausea, sneezing, cough, nosebleeds, fatigue, lack of coordination, loss of appetite
         ii. judgment is impaired
         iii. kidney, bone marrow, brain, and lung damage
      d. suffocation – death

VIII. Inhalant-Induced Disorder
A. intoxication symptoms:
1. Belligerence
2. Impaired social functioning
3. Dizziness
4. Nystagmus
5. Lack of coordination
6. Slurred speech
7. Unsteady gait
8. Lethargy
9. Depressed reflexes
10. Tremor
11. Muscle weakness
12. Stupor or coma
13. Euphoria

IX. Nicotine-Related Disorder

A. Tobacco Terminology
1. Nicotine: addictive drug found in cigarettes
2. Stimulant: a drug that increases activity of the central nervous system and other organs
3. Tar: thick, sticky, dark fluid produced when tobacco burns
4. Carcinogen: a cancer causing substance
5. Carbon monoxide: a colorless, odorless, poisonous gas in cigarette smoke that passes through the lungs into the blood
6. Leukoplakia: thick, white, leather appearing spots in the inside of a smokeless tobacco user’s mouth, it is precancerous
7. Passive smoke: cigarette, cigar, or pipe smoke inhaled by non-smokers
8. Mainstream smoke: smoke the smoker blows off
9. Sidestream smoke: smoke that comes from the burning tobacco
10. Cilia: hair like projections in the respiratory tract, keep airway clean
11. Chronic bronchitis: bronchi are irritated, cilia do not work, chronic coughing and excessive mucus
12. Emphysema: destruction of air sacs in the lungs through which oxygen is absorbed
13. Lung cancer: cancer of the lungs, one of the leading causes of death
14. Addictive: physiologically, psychological dependence
15. Physiological addiction: body has a chemical need for the
drug

16. Psychological addiction: person thinks they need the drug to function

17. Withdrawal: symptoms when substance that they are addicted to is withdrawn

B. Cigarettes: have more than 4,000 chemicals, at least 43 known carcinogens

1. Nicotine is the addictive stimulant that increases blood pressure and heart rate

2. Tar: carcinogen, coats and penetrates the airway and lungs, paralyzes and destroys the cilia

3. Dangers of smoking
   a. COPD: chronic obstructive pulmonary disease
      i. chronic bronchitis
      ii. emphysema
   b. lung cancer
   c. circulatory system
      i. decreased circulation
      ii. increased plaque buildup in the vessels
      iii. increased risk of myocardial infarction
      iv. increased blood pressure
      v. increased risk of stroke
      vi. damages the heart muscle

4. Smoking and pregnancy
   a. small fetal growth and low birth weight
   b. increased chance of miscarriage and stillbirths
   c. growth and development during childhood
   d. nicotine – transfers during breast feeding
   e. children of cigarette smokers have increased respiratory problems, poor lung functions, and are twice as likely to develop lung cancer

5. Pipe and cigar smokers are more likely to develop lip, mouth, and throat cancer

6. Smokeless tobacco: mouth sores, leukoplakia, may turn into cancer of the mouth; also an increased chance of developing cancer of the lip, throat, damage of the teeth, gums, and digestive system
   a. Dangers of smokeless tobacco
      i. addictive
      ii. leukoplakia
      iii. bad breath, discolored teeth
iv. decreased smell and taste senses

C. Tobacco dependence withdrawal symptoms
   1. Depressed mood
   2. Insomnia
   3. Irritability, frustration, and anger
   4. Anxiety
   5. Difficulty concentrating
   6. Restlessness
   7. Decreased heart rate
   8. Increased appetite or weight gain

X. Opioid-Related disorder
   A. Includes opium, heroin, morphine, meriperidine (Demerol),
      codeine, and methadone
      1. Heroin: has no medical use in the United States;
         depresses the central nervous system; causes coma
         and/or death with large doses; tolerance; withdrawal from
         drug is difficult and painful; and increased risk of HIV
         infection from contaminated needles
   B. The most addictive drugs abused
   C. Depresses areas of the brain that reduce hunger, thirst, and
      sex drive
   D. Demerol, morphine, and codeine used in healthcare facilities
      as painkillers
   E. Methadone used to treat heroin addiction
   F. Intoxication symptoms:
      1. Euphoria
      2. Drowsiness (“nodding out”)
      3. Constriction of pupils (dilation if major overdose)
      4. Dysphoria, apathy
      5. Psychomotor retardation
      6. Tachycardia
      7. Fever
      8. Lacrimation
      9. Rhinorrhea
     10. Piloerection
     11. Sweating
     12. Diarrhea
   G. Withdrawal symptoms:
      1. Sweats
      2. Shakes
      3. Chills
4. Diarrhea
5. Vomiting

XI. Sedative-Hypnotic-Related Disorder
   A. CNS depressants such as Librium, Valium, Seconal, and Serax
   B. Used to relieve anxiety, “chill-pills” – produce feelings of relaxation and inhibition; decreases heart rate and respiratory rate
   C. This class of drugs most often abused because they create longer acting effect than alcohol
   D. Extremely addictive causing physiological and psychological dependence
   E. Intoxication symptoms – cognitive confusion (memory impaired)
   F. Withdrawal symptoms:
      1. Coarse tremors of hands, eyelids, and tongue
      2. Nausea and vomiting
      3. Malaise or weakness
      4. Autonomic hyperactivity
      5. Anxiety
      6. Depressed or irritable mood
   G. Sudden withdrawal can cause seizures

XII. Barbiturates
   A. This is a sedative category which relaxes the central nervous system
   B. Synthetic drugs made from barbituric acid
   C. Prescribed to treat insomnia, high blood pressure, and epilepsy
   D. When taken with alcohol, they tend to enhance effect
   E. Symptoms:
      1. mood shifts
      2. restlessness
      3. euphoria
      4. excitement
      5. confusion
      6. hallucinations
   F. Withdrawal symptoms:
      1. cramps
      2. nausea
      3. delirium
      4. convulsions
   G. Dependent individuals need to be withdrawn very slowly since sudden withdrawal can result in death
XIII. Club Drugs

A. Ecstasy – MDMA
   1. tablet, powder, capsule
   2. usually consumed orally
   3. effects can last from 3-24 hours
   4. causes euphoria and intoxication
   5. depression, paranoia, and sometimes violent and irrational behavior
   6. physical reactions:
      a. loss of appetite
      b. nausea and vomiting
      c. blurred vision
      d. increased heart rate and blood pressure
      e. chills
      f. sweating
      g. tremors
      h. insomnia
      i. convulsions
      j. heat
      k. exhaustion
      l. dehydration

B. Rohypnol – sedative, ten times as strong as Valium
   1. taken orally
   2. causes intoxication
   3. can cause deep sedation, respiratory distress, blackouts can last up to 24 hours
   4. short term amnesia
   5. can cause aggression
   6. called the “date rape drug”

C. Anabolic Steroids – synthetic derivative of male hormone testosterone
   1. used illegally to increase athletic performance
   2. increases aggressiveness and strength
   3. side effects
      a. increased blood pressure, acne, liver damage, heart disease, and stroke
      b. males – baldness, depression, aggressiveness, decreased sperm production, decreased testicular size, increase breast growth and body and facial hair
      c. females – breast shrinkage, growth of facial hair,
baldness
d. mood swings
e. increase risk of HIV infection with shared needles

XIV. Addiction – it is a disease like hypertension or diabetes
A. Tolerance
B. Physiological and psychological dependence
C. Withdrawal
D. Intervention – interrupting the addiction
E. Recovery – process that happens over time
   1. counseling
   2. support groups – 12 step programs like AA – Alcoholics Anonymous
   3. Alcohol and Drug treatment centers (Costs Americans approximately $500 billion annually)
F. Family disease
   1. codependency – being overly concerned with other people’s behaviors and problems, feeling responsible to fix and control those problems
   2. enabling – trying to protect the person having trouble facing the consequences of their use
   3. recovery from codependency
      a. get help from outside the family
      b. counselors
      c. support groups

XV. Predisposing Factors
A. Healthcare workers (high risk due to available of drugs)
   1. highest addiction rate – anesthesiologists
B. Family history of substance abuse
C. Emotional problems
D. Ineffective coping mechanisms
E. History of childhood physical or sexual abuse
F. “Addictive” personalities

Activity
I. Write a critical analysis on an article related to substance abuse (e.g. Addiction As a Disease, Can the Addicted Brain Change Back? The Role of Biology and Addiction, Gateway Drugs. (See Materials)
II. Cut out smoking advertisements and bring them to class; divide the students into small groups and have them discuss
   a. What message does the advertisement imply?
   b. What group is the advertisement targeting?
   c. Does the advertisement really have anything to do with smoking?
d. What is the purpose of the advertisement?

III. Create anti-drinking and anti-drug advertisements that can be placed around the school for red ribbon week, prom week, homecoming week, etc.

Assessment
Successful completion of the Substance-Related Disorders Quiz
Successful completion of the critical analysis of a substance abuse article

Materials
Key for Quiz
Critical Analysis Rubric
Art supplies: construction paper, markers, scissors, glue, poster board, etc.

The Addicted Brain, Films for the Humanities & Sciences (800) 257-5126 #DPM1363. Excellent documentary video that examines the biochemistry of addiction and addictive behavior

Accommodations for Learning Differences
For reinforcement, the student will create a chart identifying substance related disorders and symptoms

For enrichment, the student will research and develop charts and graphs depicting the cost of substance abuse to our society (e.g. treatment costs, law enforcement costs, etc.)

National and State Education Standards
National Health Science Cluster Standards
HLC06.02 Safety, Health, and Environmental Health care workers will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.

TEKS
130.204 (c) 8A comply with specific industry standards related to safety and substance abuse

Texas College and Career Readiness Standards
English Language Arts
II. B. Understand new vocabulary and concepts and use them accurately in reading writing and speaking.
**Critical Analysis Rubric**  
Addiction as a Disease

NAME _____________________ DATE __________ PERIOD _____

<table>
<thead>
<tr>
<th>Scoring criteria</th>
<th>4 Excellent</th>
<th>3 Good</th>
<th>2 Needs Some Improvement</th>
<th>1 Needs Much Improvement</th>
<th>N/A</th>
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<tbody>
<tr>
<td>The critical analysis has all required parts from introduction to body to conclusion.</td>
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<td>The critical analysis is concise but complete.</td>
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<td>The critical analysis demonstrates that the writer comprehends addiction and related disorders.</td>
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<td>The critical analysis demonstrates accurate spelling, grammar, and punctuation.</td>
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<td>The overall content of critical analysis emphasizes appropriate points.</td>
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<td>The writer shows an understanding of sentence structure, paragraphing, and punctuation.</td>
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<td>The source of the critical analysis is clearly and accurately documented.</td>
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<td>The critical analysis demonstrates correct use of medical language.</td>
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NOTE: N/A represents a response to the performance, which is “not appropriate.”

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Quiz—Substance-Related Disorders

TRUE / FALSE (Circle correct answer.)

1. Individuals who are abusing alcohol might use it daily in order to function.  T or F
2. Valium is a good aversive therapy for alcoholics. T or F
3. Medical supervision is necessary for alcohol detoxification. T or F
4. Amphetamines depress the central nervous system. T or F
5. Cannabis can increase appetite. T or F
6. The byproduct of cocaine that is inexpensive, and very potent is derived from the hashish plant. T or F
7. There are no adverse reactions to marijuana. T or F
8. Unpredictable hallucinogenic flashbacks can be caused by LSD. T or F
9. Withdrawal from nicotine might result in drowsiness and lethargy. T or F
10. Sedatives can depress the central nervous system, but are not addictive. T or F
Key: True/False Quiz
Substance-Related Disorders

1. T
2. F
3. T
4. F
5. T
6. F
7. F
8. T
9. F
10. F