SECTION

8

PROMOTING HEALTH AND SAFETY

RELATIONSHIPS WITH THE ENVIRONMENT

The human body and health

INTRODUCTION

Hello learner! Cast your mind to your home, school and the community you live in.

This section therefore seeks to demonstrate an understanding of hazards in everyday life and how to manage them. You are going to get a better understanding of lifestyle diseases, their causes, symptoms and how to prevent them. You will also learn about recreational/ illegal drugs and their negative effects on the body and society.

At the end of this section, you will be able to:

- Explore common risks and hazards in the environment and how to address them.
- Describe lifestyle diseases, their causes, effects and prevention
- Analyse the attributes of drugs.

Key Ideas

- **Hazard** is described as danger or risk. It is something dangerous and likely to cause damage.
- **Lifestyle diseases** are diseases that individuals acquire due to lifestyle choices they make. The diseases are non-communicable, meaning they cannot be transferred from one person to another.
- **Symptom -** a sign representing a condition, disease or disorder.

Activity 8.1: What are hazards?

Discuss with your friend next to you the things you find dangerous, either to you or to people in general. Think specifically about your science laboratory; what are the general behaviours or actions that could pose dangers to you and your colleagues? See **Annex 8.1** for some suggested hazards.

Activity 8.2: Hazards in my environment.

Do this activity in your science groups

Aim: Identification of potential hazards or risks in my school.

Procedure:

1. Identify two places in your school (e.g., kitchen, laboratory, classroom, bathroom, etc).
2. Form two groups. One group should visit *Area 1* (e.g. the kitchen) while the other group should visit *Area 2* (e.g. the laboratory).
3. Complete the table below.

Hazard	Effect of hazard	Management of hazard	Indicate if the hazard is biological, chemical or physical

Data analysis:

1. Write a report on your interaction and findings; is the area you visited particularly hazardous? Justify your answer. Are the hazards primarily biological, chemical or physical?
2. Compare the hazards in your room to the hazards identified by your colleagues who visited another room.
3. Design a poster to help your school to prevent accidents from hazards.

Let us now have a general discussion about hazards.

HAZARDS AND HOW TO MANAGE THEM IN THE ENVIRONMENT

What are Hazards?

It is important to mention that hazards can be natural or artificial. They can occur in the school, workplace and home environment and are caused by physical, chemical, or biological agents. Other environmental hazards include natural disasters such as floods, earthquakes, hurricanes, and wildfires.

Environmental hazards can have short-term and long-term effects on human health, ranging from minor injuries to chronic illnesses and even death. To be protected from environmental hazards, it is essential to identify and manage potential hazards, implement safety protocols and regulations, and get education and training that will help minimise exposure to these hazards.

Common hazards/accidents in science classes and during science lessons include heat burns, scalds, chemical burns, cuts, fire outbreaks, shock, electrical shock, and poisoning.

Activity 8.3: Field trip

If possible, join your class on a field trip to a local industry. Whilst you are there you should observe and record any hazards in the environment that you identify as well as the steps that are taken to mitigate them.

1. Create a table (similar to the one in **Activity 8.2**) to record the hazards that you see and how they are mitigated.
2. Take photos or videos of hazardous situations or machinery.
3. Interview staff at the site to discover how they are prepared to handle hazards, including any compulsory or voluntary training that they might be asked to complete.

When you are back in the classroom, create a presentation (written or oral) about your findings from the field trip. Include an analysis of the effectiveness of the measures taken to minimise risk to the staff and visitors as well as a summary of the types of risk identified Deliver your presentation to one other group and listen to theirs in return.

Types Of Hazard Causes And Prevention

Now learner, having had some understanding of hazards, let us discuss the types and causes of each type of hazard.

Chemical Hazards

Many workplaces use chemicals such as solvents, acids, and pesticides that can harm human health. These chemicals can be found in manufacturing facilities, kitchens, laboratories, and cleaning services. Those exposed to chemicals may develop respiratory problems, skin irritation, or even cancer if exposed for prolonged periods. Chemical hazards can occur in various forms, including airborne particles, spills, and leaks. Exposure can happen through inhalation, skin contact, or ingestion.

Causes of chemical hazards

1. Mishandling of chemicals or improper storage of chemicals that can leak or spill.
2. Accidents during transportation, such as crashes or leaks, can spread hazardous chemicals.
3. Chemicals can contaminate the air, water, soil, or food, harming people and nature.
4. Accidental exposure to chemicals by breathing them in or swallowing them can cause harm.

Prevention of chemical hazards

1. Proper safety protocols must be implemented, such as providing protective equipment and training workers on handling and disposing of hazardous chemicals.
2. Store hazardous chemicals in a designated, well-ventilated area.
3. Clearly label all containers with their contents.
4. Use personal protective equipment (PPE) when handling chemicals.
5. Follow manufacturer instructions and safety guidelines.

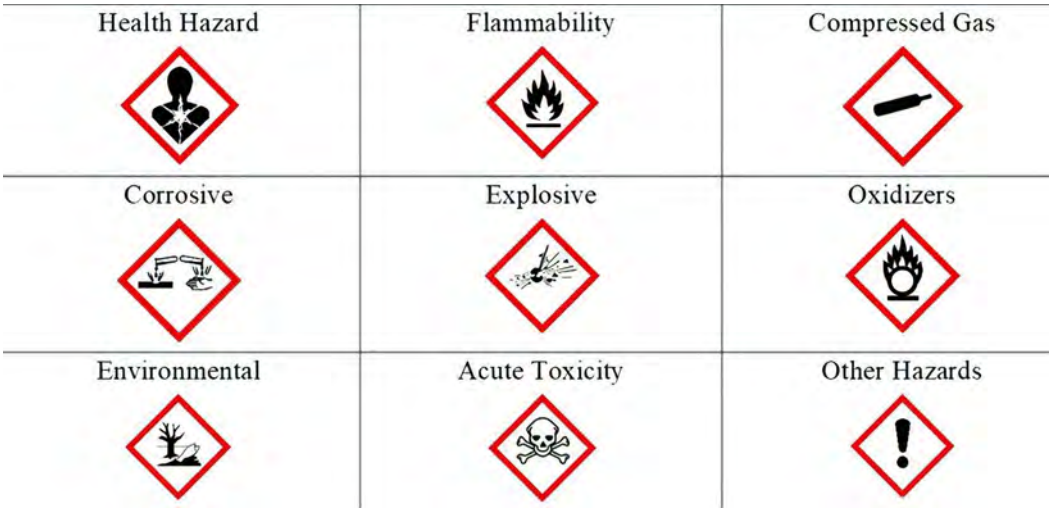

Fig. 8.1: Diagram of some hazard symbols

Biological Hazards

Biological hazards include bacteria, viruses, fungi, and other microorganisms that can cause infections and illnesses. We call these disease-causing organisms pathogens. These hazards are commonly found in workplaces such as healthcare facilities, laboratories, and farms, where workers are exposed to infectious diseases or contaminated materials. Workers exposed to biological hazards may experience symptoms such as fever, coughing, and skin irritation. In **Fig. 8.2**, you will observe the symbol shown for biological hazards.

Fig. 8.2: A symbol of biological hazard

Causes of biological hazards

1. Exposure to biological hazards such as blood-borne pathogens, airborne diseases and waste contaminated with pathogens.
2. Handling of infectious specimens or experiments with biological materials.
3. Exposure to animal-borne diseases or contaminated soil in farms and other agricultural settings.

4. Bodily fluids carry pathogens that can infect workers.
5. Poor sanitation can lead to the spread of diseases
6. Exposure to bacteria, viruses, fungi, parasites, or biological toxins increases the risk of infection.

Prevention of biological hazards

1. Follow strict protocols for the disposal of contaminated waste and specimens.
2. Implement regular training programs on infection control and biohazard safety procedures.
3. Maintain a clean and sanitised work environment to minimise the risk of contamination.
4. Monitor and enforce proper hand hygiene practices among workers.
5. Provide vaccinations and immunisations against relevant diseases where applicable.
6. Implement engineering controls such as ventilation systems to minimise airborne exposure.
7. Regularly inspect and maintain equipment to ensure proper functioning and safety.
8. Establish emergency response protocols in case of accidental exposure or spills.

Fire Hazards

Fire hazards can result from faulty wiring, flammable liquids like petrol, and kerosene, and combustible materials like Liquid Petroleum Gas (LPG), gasoline or cleaning solvents. They can be found in many places, including manufacturing facilities, homes, schools and auto repair shops. In addition, combustible materials, such as paper or wood, can be found in offices or construction sites. Faulty wiring can also pose a significant fire hazard in any workplace. In **Fig. 8.3**, you will identify some fire hazard symbols. Which ones are you familiar with?

Fig. 8.3: Some fire hazard symbols

Causes of fire hazards

1. Electrical faulty wiring can lead to fires.
2. Open flames pose a risk of ignition.
3. Overheating equipment may trigger fires.
4. Combustible materials increase the severity of fires.
5. Smoking in prohibited areas can start fires.
6. Improper storage of flammable substances heightens fire risk.

Prevention of fire hazards

1. Install smoke detectors and regularly check their functionality.
2. Keep flammable materials away from heat sources.
3. Have fire extinguishers in easily accessible areas.
4. Develop and practice a fire escape plan with all occupants.
5. By implementing safety protocols such as fire safety training, proper storage and handling of flammable liquids, regular inspections of electrical equipment, and working fire extinguishers and smoke detectors in the workplace.

Electrical Hazards

An electrical hazard is when a person comes into contact with live electrical components, wires, or objects that may have become "live" due to some fault or failure. An electrical hazard can be defined as a serious workplace hazard that exposes workers to burns, electrocution, shock, arc flash/arc blast, fire, or explosions.

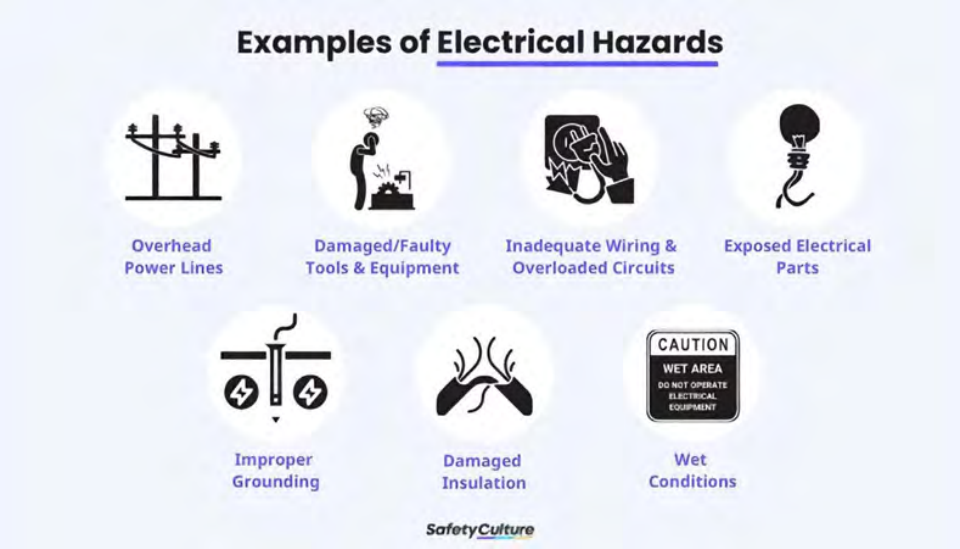

Fig. 8.4: Signs of electrical hazards

Causes of electrical hazards

1. Faulty wiring can cause electric shocks or fires.
2. Overloaded circuits may lead to overheating and electrical fires.
3. Damaged electrical equipment increases the risk of electric shock.
4. Exposure to live wires poses a direct threat of electrocution.
5. Improper use of electrical devices can result in accidents.

Preventing electrical hazards involves several measures

1. You need to be educated on electrical safety procedures, including proper use of equipment and awareness of hazards.
2. Regularly inspect and maintain electrical equipment to ensure it is in safe working condition.
3. Get an expert to install Ground Fault Circuit Interrupters (GFCIs) in areas where water and electricity may come into contact to prevent electric shocks.
4. Ensure wiring is installed correctly and meets safety standards to prevent electrical fires and shocks.
5. Implement procedures to de-energise and lock out machinery during maintenance to prevent accidental startup.
6. Provide appropriate PPE such as insulated gloves and mats for workers handling electrical equipment.
7. Maintain adequate clearance around electrical panels and equipment to allow for safe operation and maintenance.
8. Clearly label hazardous areas and equipment with warning signs to alert personnel of potential dangers.
9. Conduct routine inspections of electrical systems to identify and address any potential hazards promptly.

Physical hazards

Physical hazards are one of the most common environmental hazards in the workplace. These hazards can be found in various industries, such as manufacturing, construction, and transportation. Exposure to physical hazards can cause various health problems, including hearing loss, eye damage, burns, and other injuries. Examples of physical hazards include noise, which can harm workers' hearing if exposed to high decibel levels for extended periods. Vibration from equipment can cause musculoskeletal disorders such as carpal tunnel syndrome or hand-arm vibration syndrome. Extreme temperatures can cause heat stress or hypothermia, and radiation exposure can cause skin damage or increase the risk of cancer.

Observe the symbols in **Fig. 8.5** and discuss in class what each symbol represents.

Fig. 8.5: Some examples of health hazards

Causes of physical hazards

1. Failure to provide adequate safety equipment exposes workers to unnecessary risks.
2. Insufficient training leaves workers unable to recognise and mitigate physical hazards.
3. Neglecting to implement safety protocols.
4. Disregarding the importance of wearing appropriate PPE compromises worker safety during tasks.
5. Poorly stored objects pose a threat of falling and causing injury to workers.
6. Ignoring safe distances from moving machinery and equipment increases the risk of accidents.
7. Non-compliance with safety protocols and procedures when operating machinery increases the probability of accidents.

Prevention of physical hazards

1. It is important to provide proper safety equipment.
2. Training workers to identify physical hazards is required.
3. There is a need to implement safety protocols to reduce exposure.

4. Workers must be made to wear appropriate personal protective equipment (PPE) for the task.
5. Securely store objects to prevent them from falling.
6. Keep a safe distance from moving machinery and equipment.
7. Follow safety protocols and procedures when operating machinery.

Psychological Hazards (e.g., stress, workplace violence)

Psychological hazards in society can stem from various sources, including:

1. Natural disasters, accidents, or violent incidents can lead to trauma and psychological distress among individuals and communities.
2. Loneliness, lack of social support, and disconnectedness can contribute to mental health issues such as depression and anxiety.
3. Systemic discrimination based on factors such as race, ethnicity, gender, sexual orientation, or religion can have profound psychological impacts, including feelings of inferiority, stress, and low self-esteem.
4. Financial insecurity, poverty, and unemployment can lead to chronic stress, anxiety, and depression.
5. Physical, emotional, or sexual abuse, whether experienced directly or witnessed, can cause long-term psychological harm.
6. Substance misuse and addiction can lead to various mental health disorders and worsen existing psychological issues.
7. Exposure to graphic or distressing content in media, including social media, can contribute to anxiety, fear, and desensitisation.
8. Political instability, oppressive regimes, or civil unrest can create an atmosphere of fear, mistrust, and anxiety among the population.
9. Negative attitudes and misconceptions about mental illness can discourage individuals from seeking help and lead to feelings of shame and isolation.

Preventive measures of psychological hazards

1. Educate the public about mental health issues, reduce stigma and encourage help-seeking behaviours.
2. Foster social connections, support networks, and community resilience to mitigate the effects of isolation and loneliness.
3. Implement anti-discrimination policies, promote diversity and inclusion, and provide training to combat prejudice and bias.

4. Implement policies that promote job security, fair wages, and access to resources to alleviate financial stress and poverty.
5. Enforce laws against violence and abuse, provide support services for victims, and promote healthy relationship dynamics.
6. Offer education on substance misuse, provide accessible treatment programmes, and implement harm reduction strategies.
7. Teach critical thinking skills and media literacy to help individuals navigate and interpret media content responsibly.
8. Advocate for peaceful conflict resolution, promote democratic values, and support initiatives that foster political stability and social cohesion.
9. Ensure access to affordable mental health services, including counselling, therapy, and crisis intervention.

Natural Disasters (e.g., earthquakes, floods, hurricanes)

Natural hazards are a type of environmental hazard that can pose a serious risk to lone workers. These hazards, such as earthquakes, hurricanes, floods, tsunamis, and avalanches can cause injury or trap lone workers in confined spaces. While many natural hazards can be impossible to predict, it is the employer's responsibility to ensure that lone workers can communicate their location and status in the case of a natural disaster or emergency.

Causes of natural hazards

1. Insufficient awareness or preparation for potential disasters.
2. Failure to anchor heavy items, leading to hazards during earthquakes.
3. Electrical gear at ground level is vulnerable to flood damage.
4. Failure to monitor weather updates and heed evacuation notices.
5. Insufficient means tracking lone workers' locations in real-time increases risk.

Prevention of natural hazards

1. Develop and practice emergency plans for different types of disasters.
2. Secure heavy furniture and objects to prevent injury during earthquakes.
3. Elevate electrical equipment and utilities above flood levels.
4. Stay informed about weather conditions and evacuate if necessary.
5. Personal safety devices, such as GPS-enabled devices or mobile apps, can allow employers or other team members to monitor the location of lone workers in real time.

CAUSES, EFFECTS AND PREVENTION OF LIFESTYLE DISEASES

In the previous lesson, you were introduced to hazards and how to prevent them. Some lifestyle choices can also expose people to hazards, for example, smoking. We will be looking at how bad lifestyle choices can lead to diseases and disorders that affect our way of life.

Lifestyle Diseases

As mentioned earlier, lifestyle diseases are diseases caused by lifestyle choices and these are called non-communicable diseases. They cannot be transferred from one person to another. Examples of lifestyle diseases include:

1. Lung cancer from smoking
2. Heart disease from poor diet and lack of exercise
3. Type 2 diabetes from poor diet

We will look at the causes of lifestyle diseases in some detail.

Causes of lifestyle disease/ non-communicable disease

There are several likely causes when a person develops a lifestyle disease. It can be from not doing enough physical activity, eating an unhealthy diet, excessive long-term drinking of alcohol or alcoholism, substance abuse and smoking tobacco. These can lead to heart disease, stroke, heart attack, obesity, type 2 diabetes, liver disease/ failure and lung cancer.

Fatigue (from lack of sleep or not having enough rest)

After a long day's work or studying, it is important to have some rest. Lack of rest normally leads to fatigue or tiredness in the body which may further lead to other lifestyle diseases.

Rest is an essential part of a healthy lifestyle. Disruptions in sleep can lead to various adverse effects on health, mental well-being, performance at work or in education, physical fitness and social interactions.

Sleep plays a crucial role in both physical and emotional health, and lifestyle decisions can affect the quality of sleep. Sleep deprivation is associated with serious medical issues, including high blood pressure, heart disease, stroke, obesity, and cognitive decline (i.e. problems with thinking clearly).

Diet and Body Mass Index (*BMI*)

Diet is the most important lifestyle component as it has a clear correlation with health. In every society, poor eating and its consequences, such as obesity, are prevalent health issues. BMI is a useful tool for measuring unhealthy lifestyles. BMI is obtained by measuring your weight and dividing it by the square of your height.

For example: Calculating the BMI of a person with the weight 60kg and height 1.5m,

$$BMI = \frac{Weight}{Height^2} = \frac{60\ kg}{(1.5\ \text{m})^2} = \frac{60}{2.25} = 26.67.$$

26.67 BMI indicates the person is overweight because a BMI above 25 is overweight. A BMI score of 30 and above indicates obesity.

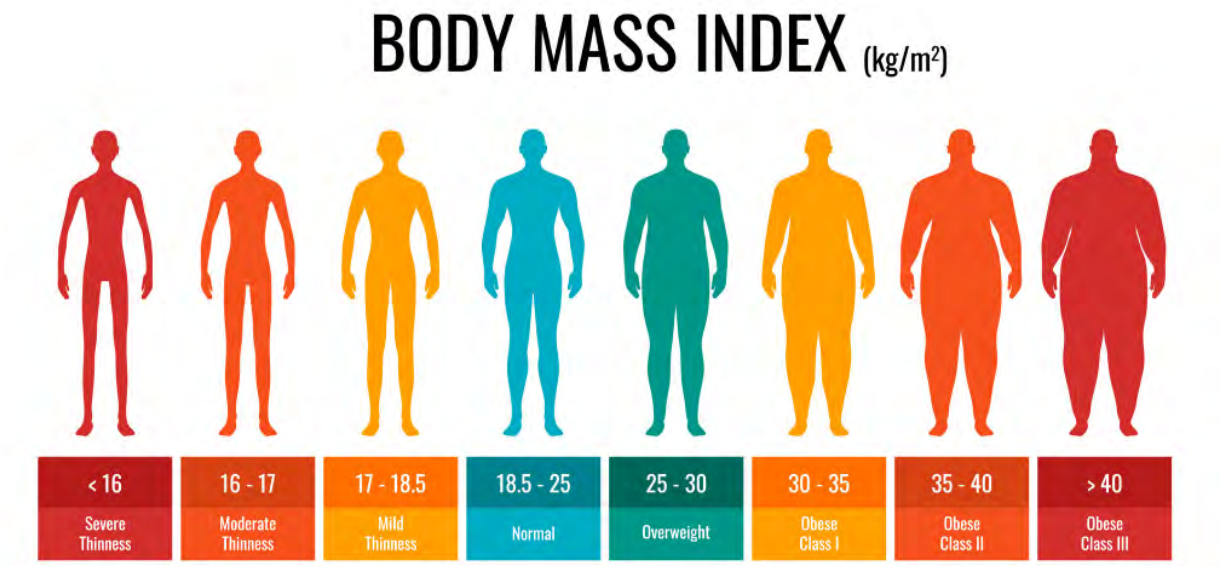

Fig. 8.6: BMI scale

Certain city lifestyles can cause issues with nutrition as they can have an imbalanced diet with a lack of nutrition, high-calorie content and high-fat content. This can be from having an excessive fast-food intake. An imbalanced diet can worsen conditions such as cardiovascular disease.

Exercise

Physical activity is an integral aspect of a healthy lifestyle and is often utilised to address various health concerns such as being overweight and high blood pressure. Consistent exercise, combined with a nutritious diet, enhances overall

health and well-being. There are numerous studies that associate happiness with maintaining a positive and active lifestyle.

Fig. 8.7: Exercise promotes a healthy lifestyle

Substance abuse

Substance abuse refers to the excessive and illegal use of harmful or hazardous substances, including alcohol and drugs, which can lead to significant negative consequences in a person's life. An individual can get addicted to prolonged usage of these substances. Any addiction is often regarded as a detrimental lifestyle choice. Alongside various health problems, smoking and substance abuse can lead to brain damage, cancer, asthma, and cardiovascular diseases.

Medication abuse

Negative medication-related behaviours and medication abuse include:

a. self-medication - buying and using medication/ substances without advice from a doctor or medical professional

b. sharing medications

c. using drugs without a prescription

d. prescribing excessive quantities of medications

e. issuing large amounts of each drug

f. prescribing unnecessary medications

g. writing prescriptions inaccurately

h. overlooking conflicting medications - this can cause reactions or health issues

i. disregarding the adverse effects of drugs - this can cause negative impacts on health

j. failing to communicate the effects of medications – it is important to inform a medical professional of the effects medications are having in case there are any adverse effects to health and the medication needs to be changed.

Effects of lifestyle diseases

Irresponsible lifestyles may lead to health consequences such as:

1. heart disease
2. diabetes
3. cancer
4. stroke
5. Arthritis
6. migraines/headaches
7. sleep disorders e.g. insomnia, restless legs syndrome, narcolepsy and sleep apnea.
8. musculoskeletal disorders - these are conditions that affect bones, joints, muscles, and connective tissues
9. nerve compression disorders e.g. carpal tunnel syndrome which affects the wrists
10. tendonitis - this is when a tendon becomes inflamed or swollen, causing pain, soreness, and stiffness
11. degenerative neck - this includes degeneration of the bones and discs, pain or stiffness in the neck, tingling or numbness in the arms or legs, and difficulty walking
12. back disorders - these can affect the spine, muscles, ligaments, tendons, or discs, and can have a number of causes
13. pulmonary disease - this includes asthma, chronic obstructive pulmonary disease (COPD), pulmonary fibrosis, pneumonia, and lung cancer
14. osteoporosis - when bones become weak and brittle, resulting in back pain and loss of height
15. arteriosclerosis - a type of vascular disease where the blood vessels carrying oxygen away from the heart (arteries) become damaged
16. gallbladder disease
17. kidney and liver disease
18. Alzheimer's and dementia - when a physical illness damages the brain and causes a decline in cognitive abilities such as memory, thinking, language, and behaviour.

Activity 8.4: Lifestyle choices

Based on what we have learnt so far in this section, the effects of lifestyle diseases can be grouped under four broad lifestyle diseases which are diabetes, cancer, chronic respiratory diseases, and cardiovascular diseases.

1. Working in a group, fill in the table below by allocating the lifestyle disease causes discussed above to a group **(Group work)**

Diabetes	Cancer	Chronic respiratory disease	Cardiovascular disease

2. Compare your responses with other groups and then review them against the information provided below.

Let us dive into some of the lifestyle diseases and disorders, what they mean, what might have caused them and how to prevent them.

Cardiovascular Diseases

Cardiovascular diseases (CVDs) refer to a range of disorders affecting the heart and blood vessels. These include:

1. **Coronary Heart Disease –** this is a condition that affects the blood arteries that provide blood to the heart muscle.
2. **Cerebrovascular Disease –** it is a condition that affects the blood arteries that feed the brain.
3. **Peripheral Arterial Disease -** Peripheral arterial disease is a condition that affects the blood arteries that provide blood to the arms and legs.

Causes of Cardiovascular diseases (CVDs)

a. **Unhealthy diet:** Diets high in saturated fats, trans fats, cholesterol, and sodium can increase the risk of CVDs.
b. **Physical inactivity:** Lack of regular physical activity can lead to obesity and other risk factors for CVDs.
c. **Tobacco use:** Smoking and exposure to second-hand smoke can damage blood vessels and increase the risk of CVDs.

d. **Excessive alcohol consumption:** Heavy drinking can raise blood pressure, contribute to obesity, and increase the risk of heart disease.
e. **High blood pressure:** Hypertension puts extra strain on the heart and blood vessels, leading to CVDs.
f. **High cholesterol levels**: Elevated levels of low-density lipoprotein (LDL) cholesterol ("bad" cholesterol) can lead to plaque buildup in the arteries, increasing the risk of heart disease and stroke.

Symptoms of cardiovascular diseases

a. Chest pain or discomfort (angina)
b. Shortness of breath
c. Pain, numbness, or weakness in the arms or legs
d. Irregular heartbeat
e. Fatigue
f. Swelling in the legs, ankles, or feet
g. Sudden weakness or numbness of the face, arm, or leg (especially on one side of the body) indicating stroke

Prevention of cardiovascular diseases

To prevent cardiovascular diseases, you can;

a. Eat a heart-healthy diet rich in fruits, vegetables, whole grains, and lean proteins.
b. Exercise regularly (at least 150 minutes of moderate aerobic activity per week).
c. Avoid smoking and limit alcohol consumption.
d. Manage stress through relaxation techniques, adequate sleep, and mental health support.
e. Regularly monitor blood pressure, cholesterol, and blood sugar levels.

Chronic Respiratory Diseases

Respiratory diseases mainly occur when airflow from the lungs is blocked as a result of chronic respiratory disorders. This may result in breathing difficulties, cough, mucus production, and wheezing as symptoms. Long-term exposure to irritating gases or particulate matter, most often cigarette smoke, is the most common cause. People with chronic respiratory disorders are more likely to have heart disease, lung cancer, and other illnesses.

Causes of chronic respiratory diseases

a. **Poor Nutrition –** Your immune system is weakened by insufficient consumption of important nutrients. If you eat a diet deficient in vitamins and antioxidants it may make you more vulnerable to respiratory diseases, including asthma and chronic obstructive pulmonary disease (COPD).

b. **Lack of Exercise -** Living a sedentary lifestyle (a lifestyle that is not active) is linked to respiratory problems. So, if you engage in frequent exercise, it will increase your lung capacity and strengthen the respiratory muscles, which improves lung function. In addition to lowering the incidence of obesity-related respiratory conditions, including sleep apnea and asthma, physical activity will also aid in maintaining a healthy weight.

c. **Exposure to Second-hand Smoke –** If you inhale second-hand smoke, it exposes you to harmful toxins and irritants. Second-hand smoke can worsen existing respiratory conditions if you have one and it will increase the risk of developing new ones. When children are exposed to second-hand smoke (for example, if their parents smoke in the same room as them), they become vulnerable to higher rates of asthma, bronchitis, and respiratory infections.

d. **Smoking:** Chronic obstructive pulmonary disease (COPD) and lung cancer are two main respiratory disorders that are primarily caused by smoking tobacco.

Symptoms

a. Chronic cough

b. Shortness of breath, especially during physical activities

c. Wheezing

d. Chest tightness

e. Frequent respiratory infections

f. Fatigue

Prevention

a. Avoiding smoking and exposure to second-hand smoke.

b. Minimising exposure to air pollutants and occupational hazards.

c. Maintaining a healthy lifestyle, eating a balanced diet and doing regular exercise to strengthen your respiratory muscles.

d. Use protective equipment (for example face masks) in workplaces where dust and chemicals are produced.

Symptoms of Some Lifestyle Diseases

Cardiovascular Diseases (CVD)

The main symptoms of cardiovascular diseases are:

1. Chest pain or discomfort (this is often the most common symptom, as it can indicate reduced blood flow to the heart muscle).
2. Shortness of breath can occur due to the heart's inability to pump blood effectively.
3. Irregular heartbeats known as arrhythmias
4. Fatigue, dizziness, and leg swelling are other common signs as the heart struggles to circulate blood properly.
5. In severe cases, cardiovascular diseases can lead to sudden cardiac arrest.

Type 2 Diabetes

The key symptoms of type 2 diabetes include:

1. High blood glucose levels can cause increased thirst and urination as the body tries to flush out the excess sugar.
2. Unexplained weight loss and fatigue occur as the body is unable to properly use glucose for energy.
3. Blurred vision can develop due to fluid changes in the eyes, and slow wound healing is a result of poor blood circulation.
4. Nerve damage, or neuropathy, can also lead to tingling or numbness in the hands and feet.

Obesity

The main symptoms of obesity include:

1. Excessive body weight, difficulty in physical movement, fatigue, shortness of breath, and joint pain.
2. Carrying excess body weight, especially around the abdomen, can make physical activity and movement more challenging. This can lead to fatigue and shortness of breath, even with simple tasks. The extra weight also puts significant strain on the joints, causing pain and discomfort.
3. Obesity is also a major risk factor for developing other serious health conditions like diabetes and heart disease.

Hypertension (High Blood Pressure)

Hypertension often does not have any noticeable symptoms, which is why it is sometimes called a "silent killer." However, in severe cases, symptoms may include headaches, dizziness, blurred vision, or nosebleeds. Most people with high blood pressure do not experience any symptoms, making regular blood pressure monitoring crucial for detection and management.

Hypotension (Low Blood Pressure)

The main symptoms of hypotension (low blood pressure) are:

1. Dizziness or light-headedness, especially when standing up from a sitting or lying position
2. Blurred or fading vision, fainting or feeling like you might faint
3. Fatigue and weakness
4. Trouble concentrating
5. Nausea or upset stomach
6. In severe cases, low blood pressure can lead to a condition called 'shock' (low blood flow to the organs), which has additional symptoms such as confusion, especially in older people, cold, sweaty skin, pale or bluish skin colour, rapid, shallow breathing, weak and rapid pulse.

It's important to note that some people with low blood pressure may not experience any symptoms at all.

Respiratory Diseases (e.g., Chronic Obstructive Pulmonary Disease - COPD)

The primary symptoms of respiratory diseases like COPD include:

1. Chronic cough, wheezing, shortness of breath, frequent respiratory infections, and chest tightness.
2. Shortness of breath, even with minimal exertion, is a sign symptom as the lungs struggle to function properly.

Lung Cancer

Lung cancer symptoms can vary, but the common ones include:

1. A persistent cough that does not go away, or one that brings up blood, can be an early sign of lung cancer.

2. Chest pains, shortness of breath, unexplained weight loss and fatigue are also frequently reported symptoms as the cancer progresses and affects lung function.

Prevention of Lifestyle Diseases

1. **Quit smoking:** Stopping smoking (or avoiding it altogether) can significantly reduce the risk of severe health issues, including heart disease, cancer, type 2 diabetes, and lung disease, as well as the risk of premature death even for those who have smoked for many years
2. **Eating healthy:** Consuming a balanced, healthy dietary pattern that includes a variety of fruits, vegetables, whole grains, lean protein, and low-fat dairy products, while limiting added sugars, saturated fats, and sodium. This can help prevent, delay, and manage heart disease, type 2 diabetes, and other chronic diseases.
3. **Getting regular physical activity:** Engaging in moderate-intensity physical activity, such as brisk walking or gardening, for at least 150 minutes per week, along with muscle-strengthening activities 2 days a week. Regular physical activity can help prevent, delay, or manage chronic diseases.
4. **Avoid drinking too much alcohol:** Excessive alcohol consumption over time can increase the risk of high blood pressure, various cancers, heart disease, stroke, and liver disease. Limiting alcohol intake can reduce these health risks.
5. **Taking care of your teeth**: Regular dental checkups, at least annually, can help detect and treat oral health issues early, ensuring overall dental well-being.
6. **Getting enough sleep:** Insufficient sleep can contribute to the development and poor management of conditions like diabetes, heart disease, obesity, and depression. Aim for at least 7 hours of sleep per night.
7. **Knowing your family history:** If you have a family history of chronic diseases, such as cancer, heart disease, diabetes, or osteoporosis, you may be more likely to develop those conditions. It is important to share your family health history with your doctor, who can help you take steps to prevent or catch these conditions early.

Activity 8.5: Identifying Lifestyle Diseases

Aim: To unearth lifestyle diseases in the community where I live.

Materials: Writing materials (Notebooks, pen/pencil, eraser, sharpener, nose mask, hand gloves.

Procedure:

1. Working in a group, identify a health facility near your home where you live or in your community.
2. Ask your teacher to write an introductory letter that will introduce you and your group to the manager of the health facility asking them to talk to you about lifestyle diseases.

   Alternatively, if a nurse lives in your community, you could approach them. Produce an interview schedule that contains the following questions:

   a. What is a lifestyle disease?
   b. Please name five lifestyle diseases in our community.
   c. What are the causes of each of the five lifestyle diseases?

NB: If some of the lifestyle diseases in your book are not mentioned, ask the resource person about them too.

   d. What are the signs that a person has developed a named lifestyle disease?
   e. How can lifestyle diseases be avoided or managed when contracted?

Data Collection:

Enter your data in a Table as shown below:

Lifestyle Disease	Causes	Signs/Symptoms	Cure	Prevention

Data Analysis:

1. Write a report on your interaction and findings.
2. As a group, make a presentation on your findings to your class and teacher.
3. Identify which of the lifestyle diseases are common in your community.
4. What are the causes of these common lifestyle diseases?
5. Analyse the differences among the various lifestyle diseases.

Conclusion:

1. Make an appropriate conclusion on the lifestyle diseases in the community
2. Design a poster to help your community refrain from inappropriate lifestyle that leads to such a disease.

RECREATIONAL DRUGS AND THE NEGATIVE EFFECTS THESE HAVE ON THE BODY AND SOCIETY IN GENERAL

When you are unwell, what is the first thing to do or treatment that comes to mind? Do you want to go to the hospital, go to the drug store, cook herbs to drink or do nothing? In most cases, you will want a treatment (drug) to stop your symptoms and make you feel better.

Drugs are chemicals and substances that affect both your mind and your body; this can be positive or negative. The prolonged use of any drug may lead to physical and/or psychological dependence. Drugs are substances that can alter the functioning of the body when taken.

The term ‘drug’ is also used for substances which are habit-forming and are often abused, for example, narcotics such as cocaine, morphine, heroin, and marijuana. The term also can apply to therapeutic drugs and recreational drugs. Some recreational drugs are legal, and others are illegal. An overdose of any drug may lead to death. They can be classified into various categories based on their effects and uses.

Classes of Drugs

1. Narcotics
2. Depressants
3. Stimulants
4. Hallucinogens
5. Anabolic steroids

We will be focusing on the illegal or recreational use of drugs.

Narcotics ("opioids")

The term "narcotic" comes from the Greek word for "stupor" and originally referred to a variety of substances that dulled the senses and relieved pain. Though some people still refer to all drugs as "narcotics," today "narcotic" refers to opium, opium derivatives, and their semi-synthetic substitutes. A more current term for these drugs, with less uncertainty regarding its meaning, is "opioid." Examples include the illegal drug heroin and pharmaceutical drugs such as codeine, morphine, methadone, and fentanyl.

Physiological Effects

Narcotics/opioids, besides their medical use, produce a general sense of well-being by reducing tension, anxiety, and aggression. These effects are helpful in a therapeutic setting but can also contribute to drug abuse.

Narcotic/opioid use comes with a variety of unwanted effects including:

a. drowsiness
b. inability to concentrate
c. apathy
d. slowed physical activity
e. constriction of the pupils
f. flushing of the face and neck
g. constipation
h. nausea
i. vomiting
j. slowed breathing
k. constricted (pinpoint) pupils
l. cold

m. clammy skin
n. confusion
o. convulsions
p. extreme drowsiness
q. slowed breathing.

Narcotics are highly addictive substances. They act on the brain's reward system, causing a surge of dopamine, which reinforces drug use and makes quitting difficult. Prolonged use can lead to physical dependence, where the body adapts to the presence of the drug and requires it to function normally. If the use of the drug is stopped, withdrawal symptoms may occur. Withdrawal symptoms can be different depending on the drug and the severity of dependence but often include nausea, vomiting, diarrhoea, anxiety and insomnia.

With continued use, the body may develop tolerance, requiring higher doses to achieve effects. This can increase the risk of overdose. Narcotics can depress the central nervous system, leading to respiratory depression, coma, and death in cases of overdose.

Societal risks from recreational drugs

a. Substance abuse, including narcotics, imposes significant costs on society, including healthcare expenses, lost productivity, and criminal justice expenditures.
b. Addiction to narcotics can strain relationships with family members, leading to domestic violence, neglect of children, and breakdown of family structures.
c. Individuals struggling with narcotic addiction often face stigma and discrimination, which can hinder their access to treatment and support services.
d. Opioid overdoses, in particular, have become a major public health crisis in many countries, contributing to a significant number of deaths each year.

Heroin

Heroin is a rapidly acting, highly addictive drug. It is an opiate, a class of drugs that are either naturally derived from the flowers of the poppy plant or made from synthetic substitutes. Heroin is produced from morphine, a naturally occurring substance that comes from the seedpod of poppy plants. It carries a strong risk of addiction and physical dependence. Heroin is taken by either injecting, snorting

or smoking it, and all three methods can cause the same level of addiction, as well as serious health problems. Heroin targets and stimulates the brain's natural reward system.

Physiological effect

a. Heroin binds to opioid receptors in the brain, leading to feelings of euphoria and pain relief.

b. It depresses the central nervous system, causing slowed breathing and heart rate.

c. Long-term use can lead to tolerance, dependence, and withdrawal symptoms.

Hazards to the body

As heroin enters the brain so rapidly, it is particularly addictive, both psychologically and physically. Heroin users report feeling a surge of euphoria or "rush," followed by a twilight state of sleep and wakefulness. Other reactions and risks of heroin use include:

a. drowsiness

b. respiratory depression

c. constricted pupils

d. nausea

e. a warm flushing of the skin

f. dry mouth

g. slow and shallow breathing

h. blue lips/fingernails

i. clammy skin

j. heavy extremities

k. convulsions

l. coma

m. possible death

Using heroin also has a significant risk of overdose with symptoms including respiratory depression, coma, and death.

As the drug can be administered via injection, users might share needles which increases the risk of contracting infectious diseases such as HIV and hepatitis.

Hazards to Society

a. Heroin addiction often results in unemployment, financial instability, and strained relationships.

b. Users may engage in criminal behaviour to support their addiction, leading to legal problems.

c. The use/reuse of syringes/needles can create a hazard in the environment if they are not disposed of correctly.

Stimulants

Stimulants speed up the body's systems. This class of drugs includes prescription drugs such as amphetamines, methylphenidate, diet aids, and illegally produced drugs such as methamphetamine, cocaine, and methcathinone. Examples of stimulants are methamphetamine and cocaine.

Physiological effect

Stimulants increase the release of dopamine and norepinephrine in the brain, leading to heightened alertness and energy. They elevate heart rate, blood pressure, and body temperature. Prolonged use can result in tolerance, psychosis, and cardiovascular issues.

Hazards to the body

Overdose of stimulants can cause seizures, heart attacks, and strokes.

Hazards to Society

Stimulant abuse can lead to erratic behaviour, social isolation, and relationship problems.

Users may experience difficulties at work or school due to impaired cognitive function and focus.

Effect of the Stimulants

When stimulants are used as drugs of abuse and not under a doctor's supervision, they are taken to produce a sense of exhilaration, enhance self-esteem, improve mental and physical performance, increase activity, reduce appetite, extend wakefulness for prolonged periods, and "get high".

Other reactions to stimulants include:

a. Dizziness

b. Tremors
c. Headaches
d. Flushed skin
e. Chest pain with palpitations
f. Excessive sweating
g. Vomiting
h. High fever
i. Convulsions
j. Abdominal cramps
k. Cardiovascular collapse may precede death.

Example of stimulants

Cocaine is an intense, euphoria-producing stimulant drug with a strong addictive potential that can be risky even the first time you use it. It is a hydrochloride salt derived from processed extracts of the coca plant leaves. Cocaine overstimulates the brain's natural reward system, causing it to be a highly addictive drug.

Physiological effect

Cocaine blocks the reuptake of dopamine, serotonin, and norepinephrine, producing intense feelings of pleasure and increased energy. It constricts blood vessels, leading to elevated blood pressure and an increased risk of heart attack and stroke. Chronic use can result in tolerance, dependence, and severe cardiovascular issues.

Hazards to the body

The intensity of cocaine's euphoric effects depends on how quickly the drug reaches the brain, which depends on the dose and method of abuse. Following smoking or intravenous injection, cocaine reaches the brain in seconds, with a rapid build-up in levels. This results in a rapid-onset, intense euphoric effect known as a "rush." Other effects include:

- Increased alertness and excitation
- Restlessness
- Irritability
- Anxiety.

The physiological effects of cocaine include increased blood pressure and heart rate, dilated pupils, insomnia, and loss of appetite.

The widespread abuse of highly pure street cocaine has led to many severe adverse health consequences, such as cardiac arrhythmias, ischemic heart conditions, sudden cardiac arrest, convulsions, strokes, and death.

Hazards to Society

- Cocaine use often leads to financial instability, legal troubles, and strained relationships.
- Users may experience mood swings, aggression, and paranoia, contributing to social conflicts.

Depressants

Depressants will put you to sleep, relieve anxiety and muscle spasms, and prevent seizures. Depressants can be legal drugs or substances readily available to buy in shops or prescribed by a doctor or medical professional or illegal substances. Examples of depressants include alcohol (beer, wine, vodka, tequila, gin, etc.), sleeping pills, and marijuana (cannabis).

Physiological effects

Depressants enhance the activity of the neurotransmitter gamma-aminobutyric acid (GABA), resulting in sedation and relaxation. They slow down the heart rate, breathing, and brain activity. Prolonged use can lead to tolerance, physical dependence, and potentially life-threatening withdrawal symptoms.

Hazards to the body

Depressants, when used therapeutically under the supervision of a medical professional, do what they are prescribed to do e.g. induce sleep, relieve anxiety, reduce or relieve muscle spasms by relaxing muscles, and prevent seizures. They can also cause amnesia, leaving no memory of events that occur while under the influence, reducing reaction time, impairment of judgment, and confusion.

Long-term use of depressants produces psychological dependence and tolerance.

Unwanted physical effects include:

a. slurred speech
b. loss of motor coordination
c. weakness
d. headache
e. light-headedness

f. blurred vision
g. dizziness
h. nausea
i. vomiting
j. low blood pressure
k. slowed breathing.

For example, alcohol is a central nervous system depressant. Alcohol goes directly from your digestive system into your bloodstream, and within minutes, it spreads to the entire body. The brain gets the highest concentration because it gets more blood than any other part of the body.

Hazards to Society

a. Depressant abuse can impair judgement and coordination, leading to accidents and injuries.
b. Users may experience difficulties maintaining relationships and meeting responsibilities at work or home.

Alcohol

Physiological effects

a. Alcohol is a central nervous system depressant that can slow down your brain activity and impair your cognitive and motor function.
b. It will increase the release of dopamine, producing feelings of pleasure and relaxation.
c. If you engage in **c**hronic alcohol abuse, this can lead to liver disease, cardiovascular issues, and neurological damage.

Hazards to Society

a. If you abuse alcohol, you are liable to a wide range of social problems, including drunk driving accidents, violence, and family dysfunction.
b. If you drink excessively, it may lead you to lose your job, encounter financial difficulties, and have legal consequences.

Hazards on the body

a. High blood pressure, heart disease, stroke, liver disease, and digestive problems.

b. Cancer of the breast, mouth, throat, oesophagus, voice box, liver, colon, and rectum.

c. Weakening of the immune system.

d. Learning and memory problems, including dementia and poor school performance

e. Mental health problems include depression and anxiety.

f. Social problems, including family problems, job-related problems, and unemployment.

Hallucinogens

Hallucinogens can be found in plants and fungi, are synthetically produced, and are among the oldest known groups of drugs. They are used for their ability to alter human perception and mood.

Effects of Hallucinogens

Depending on the dosage, setting taken in and the mood of the individual, the sensory effects can include:

a. Perceptual distortions.

b. Time and space-related mental aberrations are among the impacts of psychic energy

c. Time may seem to stop

d. Dilated pupils

e. High blood pressure

f. An accelerated heart rate.

An example of a hallucinogen is **3,4-methylenedioxymethamphetamine**, or **MDMA**. It functions as a stimulant and a psychedelic, causing energising effects, time and perception distortions, and an increased appreciation of tactile experiences.

Its illegal use is believed to be because it boosts feelings of euphoria, intimacy, empathy, and sexuality while lowering inhibitions. While users refer to 3,4-methylenedioxymethamphetamine (MDMA) as “ecstasy,” researchers have found that many ecstasy tablets include a number of additional, potentially dangerous substances or drug combinations in addition to MDMA. These include methamphetamine, ketamine, cocaine, the over-the-counter cough suppressant dextromethorphan (DXM), the diet drug ephedrine, and caffeine. The users of

illegal drugs can never really know what is contained within them, as they are not produced in a regulated or legal way.

Physiological Effects

Hallucinogens are a diverse group of drugs that alter perception, thoughts, and feelings. Examples include lysergic acid diethylamide (LSD), psilocybin (magic mushrooms), and 3,4-methylenedioxymethamphetamine (MDMA/ecstasy).

Physiological effects can vary depending on the specific drug, but common effects include:

a. hallucinations
b. altered sensory perception
c. increased heart rate
d. changes in body temperature.

Hazards to the Body

While hallucinogens are not typically associated with physical dependence or overdose deaths, they can still pose risks to both the individual and society which include:

a. psychological dependence
b. flashbacks
c. exacerbation of underlying mental health issues is a potential hazard.

Hazards to Society

The societal impact of hallucinogens can be complex. While some people use them recreationally in controlled environments, others may experience negative outcomes such as accidents, injuries, or psychological trauma. In some cases, the use of hallucinogens can lead to risky behaviours or impaired judgment, which can have negative consequences for both the individual and society.

Effect of 3,4-methylenedioxy-methamphetamine (MDMA)

MDMA mainly affects brain cells that use the hormone serotonin to communicate with each other. Serotonin helps to regulate mood, aggression, sexual activity, sleep, and pain sensitivity. Clinical studies suggest that MDMA may increase the risk of long-term, perhaps permanent, problems with memory and learning. MDMA causes changes in perception, including euphoria and increased sensitivity to touch, energy, sensual and sexual arousal, need to be touched, and need for stimulation.

Marijuana

Marijuana is a mind-altering (psychoactive) drug produced by the *Cannabis sativa* plant. Marijuana contains over 480 constituents. THC (delta-9-tetrahydrocannabinol) is believed to be the main ingredient that produces the psychoactive effect.

Physiological Effects

Marijuana, also known as cannabis, contains psychoactive compounds such as tetrahydrocannabinol (THC) that affect the brain and body. Short-term effects can include:

a. altered senses
b. altered sense of time
c. changes in mood
d. impaired body movement
e. impaired memory.

Long-term use can lead to respiratory issues, cognitive impairment, and addiction.

Hazards to the Body

When you smoke marijuana, the THC passes from your lungs and into the bloodstream, which carries the chemical to the organs throughout your body, including the brain. In the brain, the THC connects to specific sites called cannabinoid receptors on nerve cells and influences the activity of those cells. The effects of marijuana include:

a. sedation
b. bloodshot eyes
c. increased heart rate
d. coughing from lung irritation
e. increased appetite
f. decreased blood pressure.

While marijuana is generally considered less harmful than many other drugs, it can still pose risks to both individual health and society. These risks include impaired cognitive function, respiratory problems and addiction.

Hazards to Society

The societal impact of marijuana use is a topic of ongoing debate. Some argue that legalisation can lead to increased tax revenue, reduced strain on the criminal

justice system, and improved access to medical marijuana for patients in need. Others raise concerns about potential negative effects, such as impaired driving, increased youth access, and the normalisation of drug use.

Steroids

Anabolic steroids are synthetically produced variants of the naturally occurring male hormone testosterone. When used illegally, they can be abused to promote muscle growth, enhance athletic or other physical performance, and improve physical appearance. Common street names include Arnolds, Juice, Pumpers, Roids, Stackers, and Weight Gainers.

Physiological Effects

Steroids have various effects on the body including increased muscle mass, strength, and endurance. However, they can also cause serious health problems, such as liver damage, cardiovascular issues, hormonal imbalances, infertility, and psychiatric effects like aggression and mood swings.

Hazards to the Body

If you use steroids for a long time, it can have devastating effects on both your health and wider impacts on society. Healthcare costs associated with treating steroid-related health problems can be substantial, and the societal impact of steroid abuse extends to issues such as crime and violence. Outside of sports, steroid abuse can lead to social and interpersonal problems, including strained relationships and legal issues.

Hazards to Society

In sports, the use of steroids is often associated with cheating and unfair competition. Athletes may use steroids to enhance their performance, which can undermine the integrity of the sport and create an uneven playing field.

Attributes of Drugs

1. **Classification:** Drugs can be categorised into legal and illegal substances. Legal drugs include prescription medications and over-the-counter drugs, while illegal drugs are substances prohibited by law due to their potential for abuse and negative health effects.
2. **Purpose:** Drugs may serve therapeutic purposes to treat medical conditions, relieve symptoms, or manage chronic diseases. On the other hand, some

drugs are used for recreational or non-medical purposes, leading to potential abuse and addiction.

3. **Effects**: Drugs can have different effects on your body, for example, if you take stimulant drugs it will increase your alertness and energy, depressants will slow down your bodily functions, hallucinogens will alter your perception and sensory experiences, and if you take analgesics it will relieve you of pain.
4. **Routes of Administration**: Drugs can be taken orally as pills or liquids, inhaled through the lungs, injected directly into the bloodstream, absorbed through the skin, or administered via other routes, influencing their onset and duration of effects.
5. **Addiction and Dependence:** Some drugs have a high potential for addiction and can lead to physical and psychological dependence. If you use substances for a long it may result in tolerance, which will require that you take in higher doses to achieve the same effect.
6. **Side Effects and Risks:** Drugs can produce various side effects, ranging from mild to severe, depending on the individual's response and dosage. If you misuse or abuse drugs it can lead to adverse health consequences, including organ damage, mental health issues, and overdose.
7. **Legal and Social Implications:** The legality of drugs varies between countries and regions, and the possession, distribution, and use of certain drugs can lead to legal consequences. Additionally, drug abuse can have significant social impacts, affecting relationships, work performance, and overall well-being.

Activity 8.6: Drugs and their Negative Effects on the Human Body and Society

Aim: To identify categories of drugs and their effects on humans and society.

Materials: Writing materials (Notebooks, pen/pencil, eraser, sharpener, nose mask, hand gloves.

Procedure:

1. Identify a health facility near your home where you live or in your community.
2. Ask your teacher to write an introductory letter that will introduce you to the manager of the health facility asking them to talk to you about drugs/drug use. Alternatively, if a nurse/healthcare giver lives in your

community approach them. Produce an interview schedule which should contain the following questions:

a. What is a drug?

b. What type of drugs are commonly used in our community?

c. What are the uses of each of the drugs?

NB: If some of the drugs named in your book are not mentioned, ask the resource person about them too.

d. What are the negative effects of drugs on a person and on society?

e. How can drug addiction be avoided among the youth?

Data Collection:

Enter your data in a Table as shown below:

Category of Drug	Effect on Humans	Effect on Society	How can its abuse be Avoided	

Data Analysis and Conclusion:

1. Write a report on your interaction and findings.
2. Make a presentation on your findings to your class and teacher.
3. Which of the drugs is commonly abused in your community?
4. What accounts for the answer to question 3?
5. Analyse the differences among the various categories of drugs you have dealt with.

Based on your learning: Design a poster to help your community refrain from inappropriate use of drugs.

REVIEW QUESTIONS

Review Questions 8.1

You are the safety officer at a manufacturing plant that produces chemicals. Recently, there have been several incidents involving different types of hazards, including:

- **Chemical Hazards:** Employees have reported exposure to fumes due to improper ventilation.
- **Physical Hazards:** There have been instances of slips and falls in the storage area where materials are stacked.
- **Biological Hazards:** Some workers have raised concerns about potential exposure to mould in a damp section of the facility.

1. What immediate actions would you recommend to address each type of hazard?
2. How would you implement a training program to educate employees about recognising and mitigating these hazards?

Review Questions 8.2

1. In Maudaso, a significant number of residents are diagnosed with diabetes and heart disease. What specific lifestyle changes could be implemented in this community to promote healthier habits and reduce the incidence of these diseases?
2. What are the key lifestyle factors contributing to the prevalence of chronic diseases, and how can individuals modify their behaviours to reduce their risk?
3. In a Senior High School, it was observed that several students have been using illegal substances. What strategies can the school administration and community implement to address this issue and support students in making healthier choices?

ANNEXES

Annex 8.1 – Solutions to Some Activities

Activity 8.1

Causes of Hazards during Science Lessons/Classes

1. Eating or drinking where there have been chemicals used.
2. Water poured on a polished floor.
3. Explosion (gas or chemical).
4. Chemicals being poured above eye level.
5. Flammable solvents being heated with a naked flame.
6. Placing heavy apparatus on a weak support.
7. Using tools such as chisels, knives, saws, etc. during lessons without wearing appropriate protective clothes.
8. Leaving sharp and pointed tools on the floor.
9. Long/overgrown fingernails.
10. Keeping long hair that is not tied back.
11. Overcrowding materials on a bench or floor.
12. Playing and running in the laboratory.
13. Ignorance of specific safety rules in the laboratory.

EXTENDED READING

- Recommended Practices for Safety Health Programmes - https://www.osha.gov/safety-management/hazard-Identification/
- 6 Types of Workplace hazards - https://www.ecoonline.com/blog/6-types-of-workplace-hazard
- Control of Environmental Hazards - https://iris.who.int/bitstream/handle/10665/58908/WHO-PEP-89.6-eng.pdf?sequence=1&isAllowed=y

REFERENCES

1. Cooper, J.A.G. & McLaughlin, S. (1998). Contemporary multidisciplinary approaches to coastal classification and environmental risk analysis. Journal of Coastal Research, 14(2), 512-524.
2. Shi, Peijun (2019), "Hazards, Disasters, and Risks", Disaster Risk Science, IHDP/Future Earth-Integrated Risk Governance Project Series, Singapore: Springer Singapore: 1–48, doi:10.1007/978-981-13-6689-5_1, ISBN 978-981-13-6688-8, PMC 7123175
3. Wisner, Ben; Gaillard, J.C.; Kelman, Ilan (2011). The Handbook of Hazards and Disaster Risk Reduction. Routledge.
4. Singh, A. (2018). Lifestyle diseases: consequences, characteristics, causes, and control. Journal of Cardiovascular Disease Research, 9(2), 38–4.
5. Mathers CD, Loncar D (2006). Projections of Global Mortality and Burden of Disease from 2002 to 2030.PLoS Medicine, 3(11), e442.
6. WHO (2017) Cancer. Fact Sheet. (Retrieved from: http://www.who.int/mediacentre/factsheets/fs297/en/ on 1/05/2017)
7. Beaglehole R, Bonita R. (2008). Global public health: A scorecard. *Lancet,* 372(9654):1988–1996.
8. NHS (2017). Act F.A.S.T. if you think someone is having a stroke. NHS information leaflet. (Retrieved from: http://www.nhs.uk/actfast/Documents/ActFAST_Leaflet2017_EasyRead.pdf on 1/05/2017)
9. Wong ND (2015) Epidemiology and prevention of cardiovascular disease. In Detels, R., Gulliford, M, et al. *Oxford Textbook of Global Public Health* (6 ed.). Oxford University Press.

10. https://www.dea.gov/sites/default/files/202304/Heroin%202022%20Drug%20Fact%20Sheet.pdf

GLOSSARY

Alzheimer's – It is a disease believed to be a combination of genetic, environmental, and lifestyle factors. Known risk factors include age (most common in individuals 65 and older), leading to memory loss, cognitive decline, language difficulties, disorientation and confusion, behavioural changes, and physical impairments.

ACKNOWLEDGEMENTS

Ghana Education Service (GES)

List of Contributors

Name	Institution
Prof. Christian A. Krueger	UCC, Cape Coast
Emmanuel O. Ocquaye	GES, Science Education Unit, Accra
Rev. Thomas K. Arboh	Police Education Directorate, Accra
Samuel Bismark Larbi	Mfantsipim School, Cape Coast