

LEARNING MODULE for HEALTH 7

Module 3:

Shielding the Body from Communicable Disease Invaders

Note to the Illustrator:

Please localize the drawing. Show a typical Filipino male and female adolescent. Cover the whole shield with the pictures of washing hand and cleaning the surroundings so that the shield can be distinguishable

In general, diseases can be either communicable or non-communicable. Communicable diseases are due to an infectious process and can be transmitted from one person to another. As such, prevention and control of communicable diseases is a public health concern.

Communicable diseases, such as bronchopneumonia in children and tuberculosis are one of the major health issues in our country. Although there have been improvements in the prevention and control of these diseases in the last 10 – 20 years, it remains to be a concern. Its negative effect can be felt at home, in school, and in the community. Families with sick members face financial and emotional problems. In schools, absenteeism due to infections affect student learning. Community people become at risk when epidemics happen, interrupting work and other productive activities. In order to free ourselves from the emotional pain and financial problems brought by diseases, we need to protect ourselves through good personal and environmental health practices.

Are you now ready to shield yourself against communicable diseases? Let's get started!

As a starting point, it's a good idea to check what you already know about communicable diseases. This is a diagnostic exercise, so don't worry if there are items which you can't answer.

Pre-test

A. Find the Secret Message

Direction: Complete each statement by writing the missing word. Clues are provided inside the box.

1. What viral infections are characterized by rough growths, usually in the hands but can appear in any part of the body? _____
2. What is a disease-causing microorganism called? _____
3. What is the smallest microorganism that causes infection, such as _____

- chickenpox, measles, and mumps? _____
4. What is a susceptible individual who can harbor the disease called?

 5. What proper daily health practice is an effective way to avoid infections? _____
 6. What skin infection caused by bacteria is common during adolescence? _____
 7. Bacteria, fungi, and parasitic worms are examples of disease. _____
 8. What kind of transmission is the transfer of disease through physical contact? _____
 9. How do microorganisms, like fungal infections enter the body? _____

Write your answers here for the secret message.

1.		W	_	_	_	_	_
2.		P	_	_	_	_	N
3.		_	I	_	_	_	
4.		_	O	_	_	_	
5.		H	_	_	_	N	_
6.		_	_	_	E	_	_
7.		A	_	_	_	S	_
8.		_	_	_	C	_	_
9.		S	_	_	_	_	_

10. The secret message is a very practical way to prevent the spread of diseases:

B. Odd Word Out

Direction: Analyze the series of words in each item and cross out the word that does

NOT belong to the group.

- | | | | |
|-----------------|-----------------|------------------|--------------------------|
| 1. mosquito | virus | bacterium | worm |
| 2. disinfection | quarantine | sterilization | fumigation |
| 3. acne | warts | tinea | common cold |
| 4. hand washing | cough etiquette | smoking | regular exercise |
| 5. therapy | immunization | proper nutrition | environmental sanitation |

C. Paired Words

Direction: Analyze the relationship of the first set of words to help you supply the missing word/s. Study the following example:

Round worm: helminth:: yeast: _____ Answer: fungus

Explanation: If a roundworm is an example of a helminth (parasitic worm); then yeast is an example of a fungus.

1. Tuberculosis: bacterium:: Dengue Fever: _____
2. poverty: economic factor:: superstitions: _____
3. hand washing: gastrointestinal diseases:: cough etiquette: _____
1. limit movement of a suspected carrier: quarantine:: separate a sick person: _____
5. life's most important resource: health:: problem in body structure or function: _____

D. Multiple Choice

Direction: Encircle the letter of the correct answer.

1. Which is a communicable disease?
A. Cancer B. Scurvy C. Diabetes D. Tuberculosis
2. What are contagious diseases due to?
A. Mosquito bites
B. Contaminated food
C. Contact with an infected person
D. Inhalation of droplets from an infected person
3. What does the poisonous gas belief state as the cause of disease?
A. Microorganisms in the body.
B. Problem in specific parts of the body.
C. Bad vapor in the atmosphere during bad weather.
D. Interaction among the agent, the host, and the environment.
4. Aliya woke up with a slight fever. She remembered that she visited a friend in the hospital a few days ago. What stage of an infection is Aliya experiencing?
A. Incubation stage C. Clinical stage
B. Prodromal stage D. Convalescence stage

5. How can you protect yourself from communicable skin diseases?
- A. Apply lotion every day.
 - B. Avoid going to crowded places.
 - C. Avoid exposure to the harmful rays of the sun.
 - D. Do not share personal care items, such as towels.
6. Which is a secondary level of disease prevention?
- A. Vaccination
 - B. Early diagnosis
 - C. Rehabilitation
 - D. Environmental sanitation
7. What is the only source of infection according to the germ theory of disease?
- A. Microbe
 - B. Bad spirit
 - C. Magic
 - D. Polluted agent
8. Which statement best summarizes the modern concept of health?
- A. Health is proper hygiene.
 - B. Health is being disease-free.
 - C. Health is a state of well-being.
 - D. Health is a resource to have quality life.
9. According to the agent-host-environment belief, what factors interact to cause an infection?
- A. Object, food, and water
 - B. Air, vehicle, and microbes
 - C. Germ, person or animal, and surroundings
 - D. Germ, reservoir, and manner of transmission
10. Why do we need to correct myths and misconceptions about diseases?
- A. We don't want to be labeled as backward or not educated.
 - B. Following myths and misconceptions can endanger our health...
 - C. We need to change our beliefs to keep pace with the changing times.
 - D. Our medical practitioners will get mad if we don't follow their advice.

Lesson 1: Health-- More Than Being Disease-Free



Lesson Targets

- Discuss the concept of health and disease
- Accept personal responsibility for one's health
- Practice ways to attain holistic health

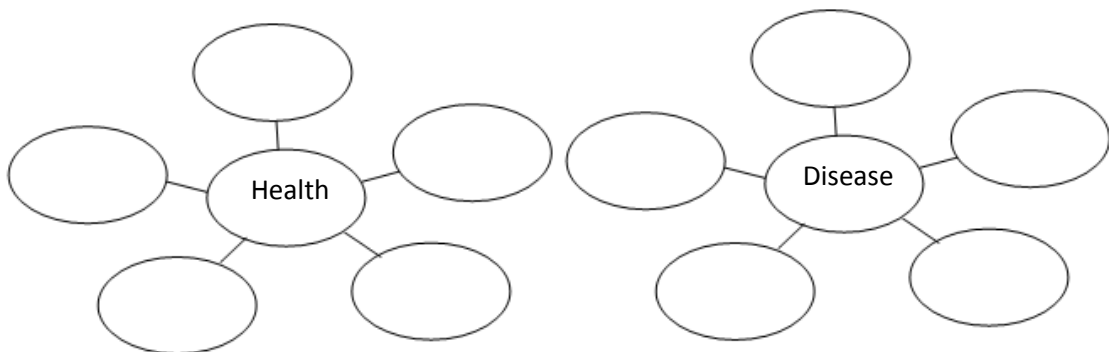
Something to Ponder On

In the first Module, you were introduced to the concept of holistic health. You learned that health has several dimensions that are interrelated.

Before we discuss health and disease in detail, let us first build on what you know about these two concepts.

Reflect, Write, and Share

Think of everything you know about health and disease. Write down words or phrases that you associate with these two terms. Then discuss your answers with a partner.



I'm sure you wrote interesting information about health and disease from your previous learning and experience. As you read and understand the content of this lesson, try to compare new concepts with your prior knowledge about health and disease.

Health as a concept is continuously changing as people see it differently. In the past, it was regarded as simply a condition of being free from disease. Then, it became equated with proper hygiene. Today, we know that to be healthy is not only to be free from disease. As our most important resource, it also includes living a quality of life that maximizes our potential and develops our sense of well-being.

Health is both a **personal and social responsibility**. It is the product of the collective decisions that we make about our lifestyle in general. The food that we eat, the number of hours of sleep we get, the time we allot for rest and recreation, the way we manage stress and the type of physical activities that we do, all impact our health and the health of people around us.

On the other hand, **disease** is just one manifestation of ill-health. It is a pathological condition that disrupts the normal functioning of the body. Unlike illness, which is subjective because it is based on the patient's experience, disease is objective, characterized by an abnormality in the structure or function of body organs. However, one can have a disease and not be ill. And one can be ill even without disease.

This Module will focus on communicable diseases. In general, diseases can be classified as communicable or non-communicable. Communicable diseases are caused by **pathogens** or disease-causing organisms and can be transmitted from one person to another or from animals to people. Examples include common cold, influenza, cholera, dengue fever, tuberculosis and warts. When the body is invaded by a pathogen, the invasion is called an **infection**. On the other hand, non-communicable disease cannot be transmitted from one person to another. These are also known as lifestyle-related diseases because danger or risk factors include obesity, smoking, lack of physical activity and exercise, and high-cholesterol, high salt diet. Cardiovascular diseases, cancer, chronic lung diseases and diabetes are the most significant non-communicable diseases in our country because they are the leading causes of death among Filipinos.

Before we go to the nature of communicable diseases, it is important to understand first the relationship between health and disease. Let us study the following diagram:



httj

im.jpg

The diagram shows that holistic health encompasses emotional, environmental, moral-spiritual, physical, social, and mental dimensions.

Health and disease can be seen as a continuum. As one goes up, optimum wellness is reached. On the other hand, a movement downward indicates progressive illness and premature death once the lowest point is reached. Since life consists of changing events and conditions, a person's health fluctuates along the continuum. The idea is to always move towards health and wellness. Thus, even if one has a disease, one can move towards wellness.

Assess your health at present. Where are you in the continuum? How do you improve your position to attain optimum wellness?

Health is more than the absence of disease because being disease-free is only one aspect of physical health. The modern view considers health as the major tool or resource in attaining quality life. To be considered healthy, one needs to balance the various health dimensions. This can be done by consistently demonstrating health-promoting behaviours in each health dimension. Study the following pictures:

Health is more than the absence of disease because being disease-free is only one characteristic of health. So, the modern view considers health as the major tool or resource in attaining quality life. In order to be considered healthy, one needs to strike a balance among the various health dimensions. This can be done by consistently demonstrating health-enhancing behaviours in each of the health dimension. Study the following pictures:



The Components of Health

Components of Holistic Health

Were you able to identify the health dimension being shown in the pictures? Compare your interpretation with the following:

- The picture on the upper left shows someone playing volleyball, an activity that can improve one's' physical health.
- The picture on the lower left shows an Igorot woman flashing a bright smile. She exhibits good emotional health.
- At the center are two pictures which show the interrelationship between moral-spiritual and environmental health. Our personal relationship with a Supreme Being and our harmonious relationship with nature are both key components in attaining holistic health
- On the upper right, we can see a group of teenagers happily conversing. They are enhancing their social health.
- The lower right picture shows women engaging in an activity to harness their mental health.

These activities are just examples of the many things you can do to attain holistic health. The challenge for you is how to integrate healthy practices into your lifestyle and make them a habit. Value your health by taking good care of it. It will mean practicing

discipline and consistency on your part, but it will be worth it. Now, let's do an activity that will encourage you to live a healthy lifestyle.

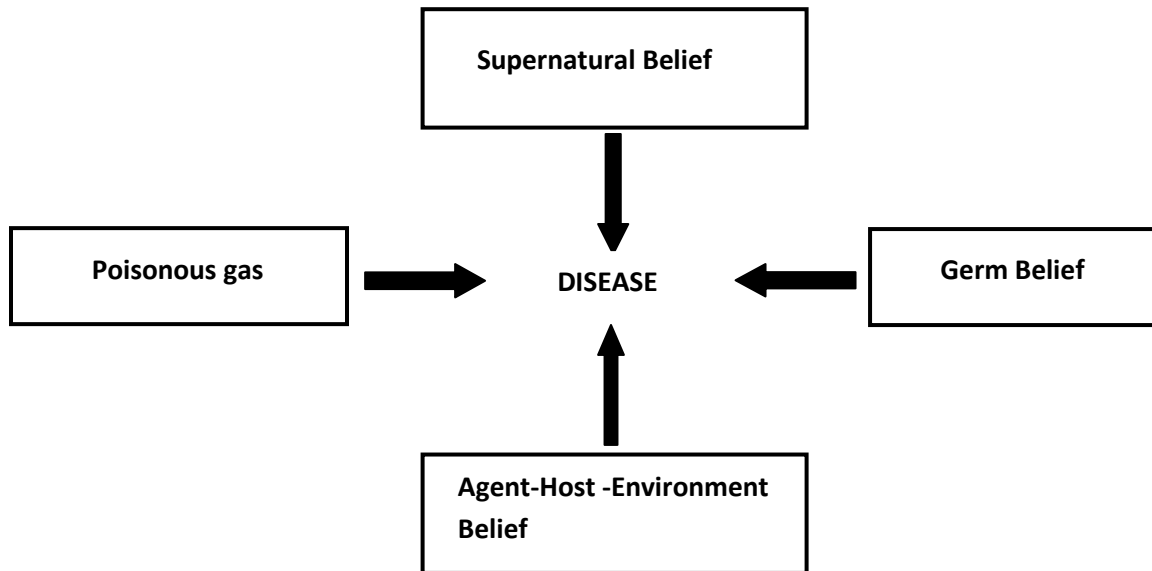
My Health Pledge	
I accept personal responsibility for my own health and I will show my commitment by practicing the following activities to attain holistic health	
1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
Signed: _____	Date: _____
Witnesses: _____	_____

Sum Up

Let's sum up the key points in this lesson:

- H-** ealth is more than the absence of disease.
- E** – nhancing behaviors should be consistently practiced to safeguard health.
- A-** ttainment of good health is both a personal and social responsibility.
- L** – ifestyle diseases are caused by unhealthful practices.
- T** – ype of activities that we do affect our health.
- H-** olistic health is the key to quality life.

Lesson 2: Bad Air, Germs, or Combined Factors?



Lesson Target

- Analyze the major beliefs about the cause of disease

Something to Ponder On

In order to fully understand the nature of health, we need to understand the nature of disease. People in various times of history have been curious about the cause of disease. They tried to explain it as either a supernatural or a natural event.



Did you know that until the 1850s, people's fear of disease was worsened by ignorance?

The Causes of Disease

Beliefs on the cause(s) of diseases have undergone changes through time.

The Supernatural Belief

During the ancient times, people thought that disease was brought about by sorcery, witchcraft, fate, or spirit aggression (God's punishment or devil's work). These supernatural beliefs explained that disease was caused by a supernatural being (a god or a dead ancestor), or a person with special powers (a witch or a sorcerer).

The belief in the supernatural cause was evident during the "Black Death" or bubonic plague of the 14th century. The bubonic plague bacillus that came close to wiping out the global population was believed to be God's punishment for people's sins.

The Poisonous Gas Belief

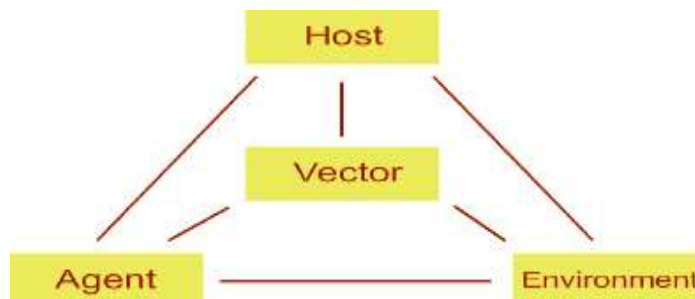
Another major belief during the 1800s is the poisonous air belief of disease causation. According to this view, disease, such as malaria, was transmitted by poisonous gases from rotting plants or bad vapour that came from swamps (the word malaria comes from *mala aria* meaning "bad air").

The Germ Belief

Before the turn of the 20th century, the germ belief about the cause of infectious disease became very popular... This belief holds that microscopic organisms are responsible for infectious diseases. Although revolutionary, this belief is quite limiting because it only considers a single cause of disease.

The Agent-Host-Environment Belief

Since many people believed that the one-cause idea of the germ belief was not enough to explain the actual cause of diseases, the Agent—Host--Environment belief was formed. It explains disease as a product of the complex interaction among three factors: agent, host, and environment. This is known as the classic agent—host—environment triangle. It helps us understand the nature of communicable diseases. It answers the "who?" (host), "what?" (agent) and "where?" (environment) of disease.



The Classic Agent—Host--Environment Triangle

The **host** is an organism, usually a person or an animal, affected by the disease; the **environment** is the condition outside the host that allows disease to be transmitted; and the **agent** is the organism that causes the disease.

In the case of **agents**, although microorganisms have an important part in the disease process, we should remember that many of them are harmless and some may even be beneficial.

There is now a growing awareness that the **environment** is not only a place for the host-agent interaction. Rather, it is an important factor in the disease process. In fact, to become an infection, the organism that causes the disease must be able to damage the host, has a susceptible host, and has a favorable environment.

To prevent and control communicable diseases, we must be able to upset or cut the connection among the agent, the host, and the environment. So, understanding the agent--host-environment triangle is very important.

K-Q-V Chart

Complete the following chart based on the lesson and be prepared to share your answer with your seatmate. The first row has been done for you:

Belief	Key Point	Question/s	Value or Importance
Supernatural	Disease is caused by spirits, magic, or sorcery.	Is there proof that supports this belief? How can this belief hinder people's quest for scientific ways to explain the cause of disease?	This belief can enhance one's faith in a supernatural being and encourages a person to do good so as not to suffer from disease.

Why is the knowledge of the beliefs on the cause of diseases important?

I'll Change It My Way

Write your opinion on how you can change the agent, host, and environment to prevent disease.

Agent	Host	Environment

Sum Up

The Cause of Disease

Since the earliest times, people have asked why
Communicable diseases caused people to die;
 Infecting people rich and poor
Bringing pain, death, and misery at their door.

In their desire to understand why they were sick
 They turned to gods, sorcery and magic;
The supernatural belief gained popularity
 As people spoke of spirits and divinity.

Then the poisonous gas belief was born
 That put blame to air pollution;
It claimed that bad air caused infections
 Such as malaria, and other afflictions.

When the world of microbes was made known
People turned to the germ belief of disease causation;
 Thus people became busy with disinfection
And other ways to bring germs to extinction.

But others proposed that germ was not the only cause
 But also the environment and the host;
 These three factors interact to make us sick
According to a belief known as “epidemiologic.”

Lesson 3: Disease Factors-- Spreading Ill Health

Lesson Targets

- Discuss the factors in the development of disease
- Formulate guidelines to lessen the impact of these factors

Something to Ponder On

Communicable diseases remain to be the leading causes of disease among Filipinos. There are several factors that facilitate their transmission.

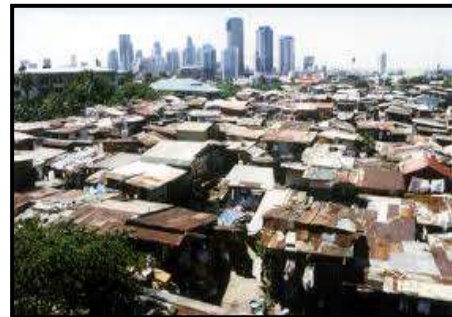
1. Personal Factors



Health is both a personal and social responsibility. Our unhealthful practices can predispose us and other people to communicable diseases. For example, not washing our hands properly after using the toilet can make us susceptible to parasitic infections. When we have colds and we don't practice cough etiquette, we spread the germs to people around us.

2. Economic Factors

Poverty is a big factor in disease transmission. It is a complex social problem that leads to a lot of other issues, such as overcrowding, limited access to education and health care, lack of safe water and food, inadequate excreta disposal facilities, and poor living conditions. Moreover, the culture of poverty creates a sense of hopelessness on the poor because they often become victims of discrimination in the utilization of healthcare services. Lack of accurate information about nutrition, hygiene, exercise and sleep may also lead to bad habits that weaken the body's natural defenses against disease.



3. Cultural Factors

Our culture is the sum of what we have learned and transmitted from one generation to another as a people. There are cultural beliefs that can provide us with a false sense of security thus delaying healthcare and appropriate treatment. Many Filipinos still consult quacks or fake doctors and fortune tellers to seek advice about their health.

There are also superstitious beliefs in different parts of the country that can directly or indirectly impact our health. Let us mention some:

- Taking a bath on a Friday will make one sick.
- Washing the eyes with the first urine early in the morning is an effective cure for sore eyes.
- An amulet or *anting-anting* protects the wearer from diseases and helps counteract witchery.
- Relapse or *binat* is caused by eating certain kinds of food or by cutting the hair too soon after illness. This is best treated by fumigating the patient with smoke produced by burning the offending food or the patient's hair.

Can you give other examples of superstitions related to diseases?

4. Environmental Factors

Unsanitary conditions and the presence of toxic chemicals, hazardous pollutants and wastes in food and water have had great effects on our immune systems. Extreme weather conditions due to global warming make people more vulnerable to lots of infections because they weaken the body's defence mechanism.

5. Political Factors

Political issues, such as corruption affect the provision of health care services and resources to the people. In many cases, people's health is not given utmost priority.

6. Educational Factors

Disease transmission can also be due to misinformation or lack of information, thus education is crucial in disease prevention and control.



Disease Detectives

Imagine that you are a disease detective and your task is to gather facts and use them to answer the question: How can I prevent the spread of communicable diseases?

Complete the following table based on what you learned:

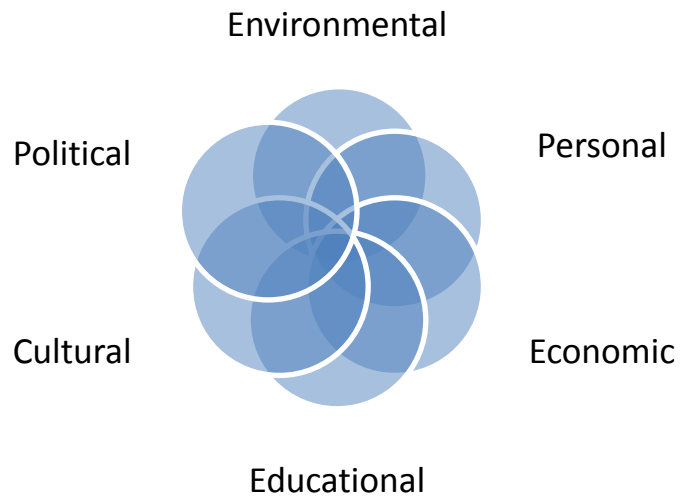
Factors that Affect Disease Transmission	Fact 1	Fact 2
1. Personal Factors		
2. Economic Factors		
3. Cultural Factors		
4. Environmental Factors		
5. Political Factors		
6. Educational Factors		

Disease Detective Report:

Based on the investigation I conducted, disease transmission can be stopped or lessened by following these guidelines:

Remember

Factors that Influence Disease Transmission



Lesson 4: The Chain of Infection

Lesson Targets

Explain the elements of the chain of infection and their interrelationship with one another.

Something to Ponder On

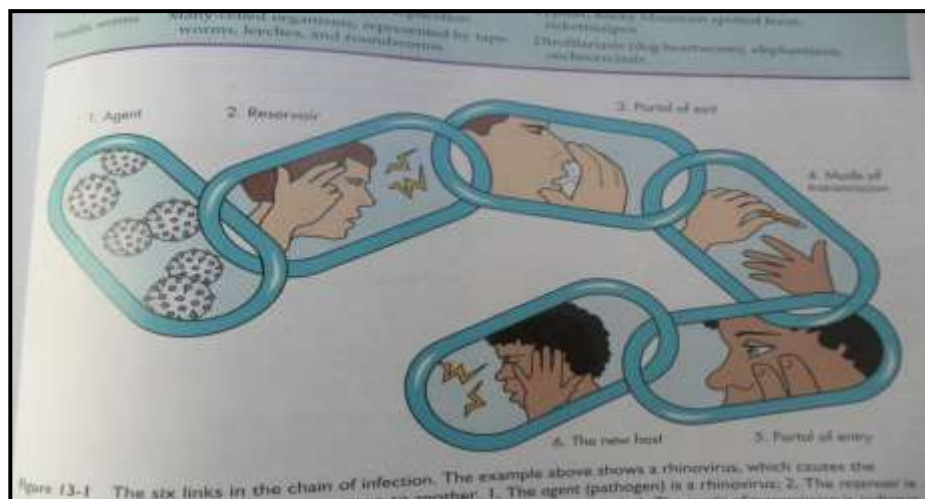
Just like the keychain that holds together different keys, the chain of infection links together in a sequential order the six steps the chain of infection.

Sequence Challenge

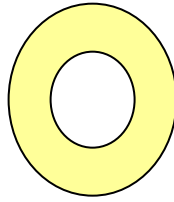
Arrange the elements of infection in their correct order from one to six.

- _____ Pathogen
- _____ Reservoir
- _____ Mode of exit
- _____ Mode of entry
- _____ Susceptible host
- _____ Mode of transmission

Do you want to know if you got the sequence right? Then, read on...




In order to break the cycle and prevent communicable diseases, it is important that we understand first the different elements of the chain of infection

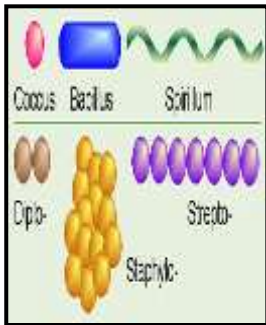


Pathogen or Causative Agent

This can be any of the following biological agents: virus, bacterium, rickettsia, fungus, protozoon, or parasitic worm. The pathogen is capable of invading the host and causing disease.

<i>Pathogen</i>	<i>Description</i>	<i>Specific Diseases Caused by the Pathogen</i>
<p>Viruses</p> 	<ul style="list-style-type: none"> • requires intracellular parasite (can't survive outside the host's cell) • on the borderline between living and nonliving matter • can have varied shapes: helical (like a coiled spring), icosahedrons (with 20 triangular sides) or a very complex shape • attacks all kinds of biological agents, even bacteria • consists of a bit of nucleic acid (RNA or DNA, but never both) within a protein coat 	<ul style="list-style-type: none"> • AIDS (Acquired Immune Deficiency Syndrome) • chickenpox • common cold • dengue fever • influenza • measles • poliomyelitis • rabies • warts

Bacterium



- single-celled
- no true nucleus
- can be aerobic (needs oxygen) or anaerobic (does not need oxygen)
- can be spherical (coccus), rod-shaped (bacillus) or spiral (spirillum)
- can be in pairs (diplo-), in clusters (staphylo-), or in chains (strepto-)
- majority comprise the normal flora (live in the human body)
- majority are good/friendly (probiotic)
- can be opportunistic (friendly bacteria turn harmful when the immune system weakens)
- causes disease by directly attacking tissues or releasing toxins
- some can live in a dormant state as spores



- anthrax
- cholera
- diphtheria
- gonorrhoea
- leprosy
- tetanus
- tuberculosis

Protozoa

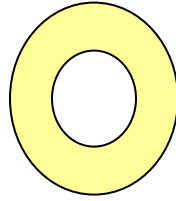


- parasitic or free-living (can survive outside the host)
- has a variety of shapes and sizes
- various types: amoeba, ciliates, flagellates, or sporozoans found most often in stagnant water or moist soil

- malaria
- amoebic dysentery

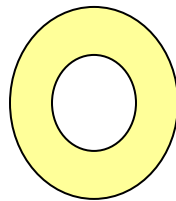
<p>Fungus</p> 	<ul style="list-style-type: none"> • thrive on dead or decaying matter • multicellular (like molds) or unicellular (like yeasts) • spore-forming (this is the reason why it's sometimes difficult to treat) • cause diseases of the skin, mucous membranes, and lungs 	<ul style="list-style-type: none"> • tinea or ringworm (jock itch, athlete's foot)
<p>Parasitic Worm</p> 	<ul style="list-style-type: none"> • largest among the pathogens • can either be flatworms or roundworms • examples of flatworms are tapeworms (can be transmitted by eating raw fish/pork/beef) and flukes (example is Schistosoma japonicum/mansoni that causes schistosomiasis) • examples of roundworms are pinworms and hookworm 	<ul style="list-style-type: none"> • ascariasis • elephantiasis • enterobiasis • schistosomiasis • taeniasis

2 Reservoir



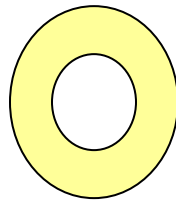
This is the place where the infectious agent lives and multiplies. This can be living (animal/human/plant) or non-living (air/water/food/utensil/equipment).

The most important reservoir is the human body.



3. Mode or Portal of Exit

This is the route through which the infectious agent leaves the reservoir. The common mode of exit is a break in the skin, nose, mouth or anus (discharges from the respiratory and gastrointestinal tract), and special body openings such as the vagina, penis, urethra, ears, and eyes. There are also cases when the pathogen leaves through mechanical means, such as through a mosquito bite or needle prick.



4 Mode of Transmission

This is the means by which the infectious agent is transmitted from the reservoir to a new host. There are two types of transmission:

a) Direct transmission- through close physical contact or direct person-

To-person contact

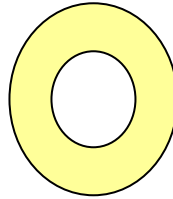
Examples: touching with contaminated hands, skin-to-skin contact

(shaking hands, kissing, etc.)

b) Indirect transmission- through an intermediate item or carrier

Examples: vector-borne transmission –carried by mosquitoes or other insects and

Vehicle-borne transmission - through contaminated items (fomites), such as eating utensils, contaminated food/water (food borne/waterborne) or through inhalation of the pathogen that has been suspended in the air for an extended time (airborne). There are 3 F's that are usually involved in vehicle-borne transmission: Food, Flies, and Fingers.

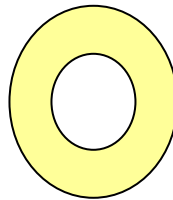


Mode or Portal of Entry 5

This is the route through which the infectious agent enters the body of the new host.

Examples are mouth, nose, skin and the urogenital organs. The mode of entry is

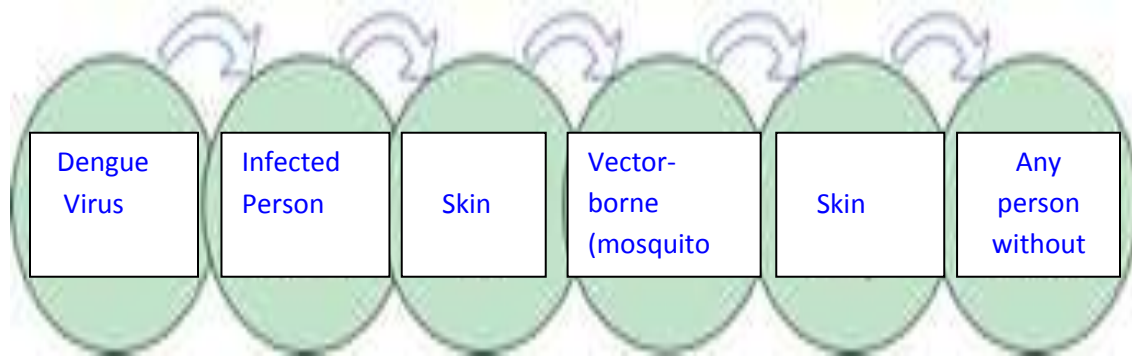
usually the same as the mode of exit.



6 Susceptible Host

This is a person who is vulnerable to disease due to a weak immunity or a prior infection. Children and the elderly are more prone to a lot of infections. Immunization is one way to strengthen one's immunity to disease.

Study the dengue fever chain of infection below:



Dengue Fever's Chain of Infection

Read the situation and trace what happened in the chain of infection above.

A child was taken to the hospital because of persistent fever, severe muscle pain, and vomiting. She has rashes all over her body, especially on the extremities. The doctor told her that she has dengue and that she got it from being bitten by a mosquito that carries the dengue virus. She was asked to protect her/himself from mosquito bites so that she can no longer infect other people.

Chain of Infection Challenge

A child was advised to stay at home because of influenza. Make a chain of infection showing the elements that made the child sick.

Remember

- The chain of infection has six elements arranged in sequence: pathogen, reservoir, mode of exit, mode of transmission, mode of entry, and susceptible host
- Cutting the chain at any point will help prevent and control disease transmission.

Lesson 5: Cut the Chain and Be Free

Lesson Targets

- Identify different ways of breaking the chain of infection and transmission of disease
- recommend actions to prevent and control communicable disease
- demonstrate self-monitoring skills to prevent communicable diseases

Something to Ponder On

Although germs pose threats to your health, the good news is that there are many things that that you can do to prevent and control diseases. For example, you can practice cough etiquette to prevent the spread of respiratory diseases. Cover your cough and sneeze but do not use your hands; use a piece of tissue or handkerchief instead. If none is available, cough into the crook of your elbows or sleeves. Using hands to cover a cough can easily spread germs because you use your hands in touching almost anything.

In general, there are three types of preventive approaches:

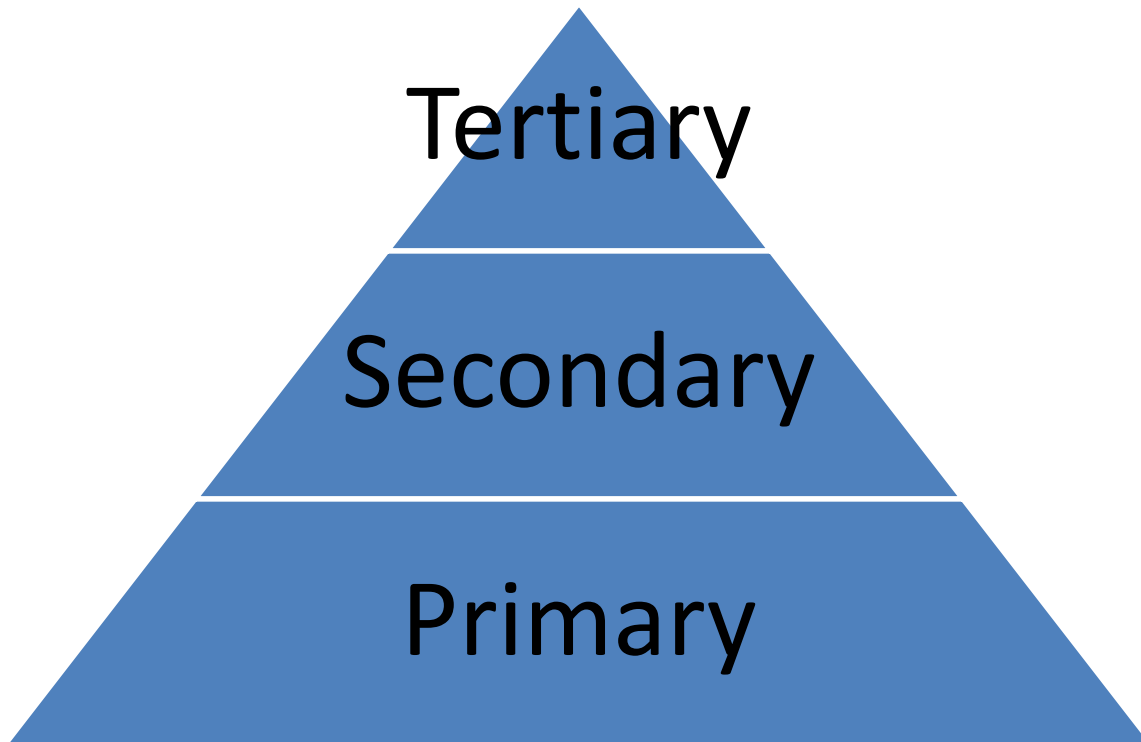


Figure 1. The Levels of Prevention

1. Primary Prevention is an early intervention that aims to protect the host from initial exposure to the disease. It prevents a disease before it happens. Primary prevention activities include proper nutrition, healthful practices, immunization, and environmental sanitation.
2. Secondary Prevention is a system for the early diagnosis and treatment of disease when it has just begun. It aims to slow down the progress of the disease or stops its spread.
3. Tertiary Prevention is an intervention done when the disease is already in the clinical stage in order to prevent complications and progression to an advanced stage that will necessitate excessive care.

Do you still remember the chain of infection? We can prevent and control communicable diseases by cutting the chain in its various points.

Study the following diagram:

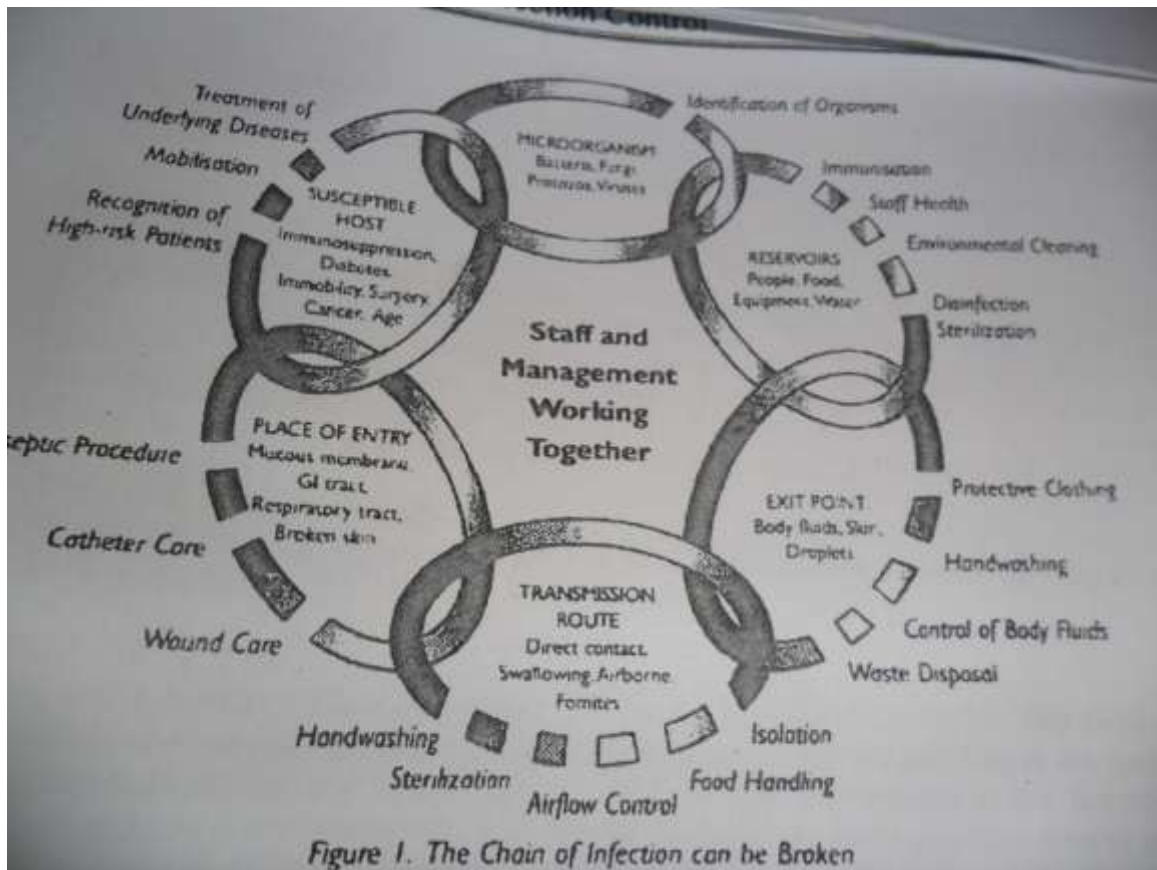


Figure 2. Ways to cut the chain of infection

Below is a chart summarizing the general strategies in the prevention and control of communicable diseases:

Targeting the Pathogen	Targeting the Reservoir	Targeting the Vectors/Fomites/ Agents of Disease	Targeting the Susceptible Host
<ul style="list-style-type: none"> • disinfection (using physical or chemical agents to lessen the number of germs or pathogens) • sterilization (destroying all pathogen) • fumigation (use of gaseous chemicals; should be conducted only if there are already cases in the area) 	<ul style="list-style-type: none"> • eradication • early identification • treatment • isolation (separating the sick person) • quarantine (limiting the movement of a sick person or a suspected carrier) 	<ul style="list-style-type: none"> • disinfection • environmental sanitation • clean food and water • proper waste segregation • pest control • proper ventilation and lighting 	<ul style="list-style-type: none"> • strengthening over-all resistance (proper hygiene, good nutrition, enough rest and sleep, regular exercise, regular check-up, immunization) • providing education (personal health, nutrition, disease prevention and control, emergency care)

Assignment:

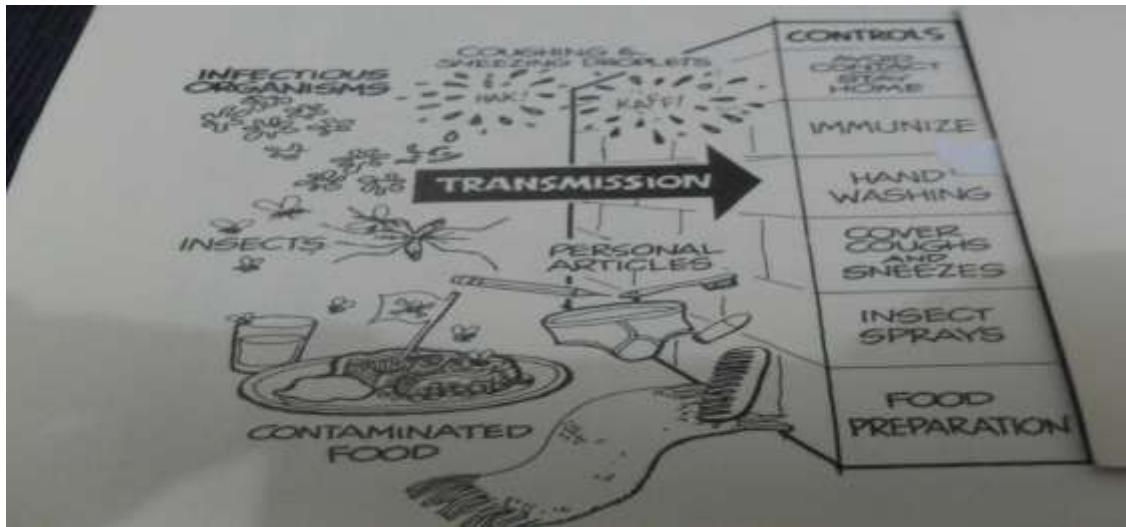
My Disease Protection Shield

Materials needed:

Group 1: Cartolina or hard board and coloring material

Group 2: Hard board, marking pen

How will you protect yourself from getting sick? Create your shield of protection from disease and label it. Look at the example



Group 2: Cut out unhealthful practices that can cause diseases or cut-out arrows on which are written/drawn a kind of germ in every arrow.

Be prepared for the Battle between Germs and Germ-Fighters

Assignment

Tell the students to complete their health history by interviewing their parents about their previous infections, and vaccinations. They will need this knowledge in their next activity.

Diseases I Have Had

Vaccines I have Been Given

Let's Monitor Our Health

Self-monitoring skills are competencies that will help us assess when we are healthy or sick. It is important that we are familiar with the normal condition of our bodies so that we can detect at once when something is wrong. It is also important that we have information, such as our vaccination record, so that we can assess our risk factors so that we can plan what to do as early as possible.

Do you think your practices help you avoid diseases? Answer the following personal inventory with a YES or NO based on your health practices. Be honest.

Monitoring Health Practices

1. I stay home when I'm sick..... _____
2. I stay away from sick people..... _____
3. I use my own comb and towel..... _____
4. I avoid going to crowded places..... _____
5. I have all the necessary vaccinations..... _____
6. I make sure that the food I eat is safe..... _____
7. I wash my hands after using the toilet..... _____
8. I avoid sharing drinking glasses with others..... _____
9. I make sure that food at home is properly stored..... _____
10. I cover my mouth with my handkerchief or elbow when I cough or sneeze.

To rate yourself, give yourself 1 point for every YES answer. A score of 8-10 is Very Good; 6-7 is Good, 4-5 is Fair. If you scored below 4, you need to work on improving your health practices.

Wow! I'm sure you enjoyed doing that personal assessment. Let's proceed to an activity that you can translate into action.

My Commitment to Be Disease-Free

Trace your hand on the space below. Inside the outline of your hand, write a self-contract stating your commitment to be disease-free. Go back to the self-monitoring inventory and use it as a guide in writing your contract. Write the date when you will start practicing the health habit and the date when the practice will become a habit. Have your parents and best friend in school witness your contract to be sure that somebody you trust is helping you fulfill your contract.

You can follow the format below:

I, _____, a grade 7 student of _____ School, hereby commit to do the following starting today, _____, until _____ in order to stay healthy and disease-free:

1. Eat safe and healthful foods.
2. Exercise at least 20 minutes thrice a week.
3. Wash hands before and after eating and after using the toilet.

Name and signature: _____

Witnesses:

Name and signature: _____

Name and signature: _____

Congratulations for committing yourself to a great cause, which is to start being a model of a disease-free lifestyle. May you inspire others to follow your example.

Remember

Finish this statement: The best thing I can do to protect myself from infection.....

Lesson 6: Infection, Stage by Stage

Lesson Targets

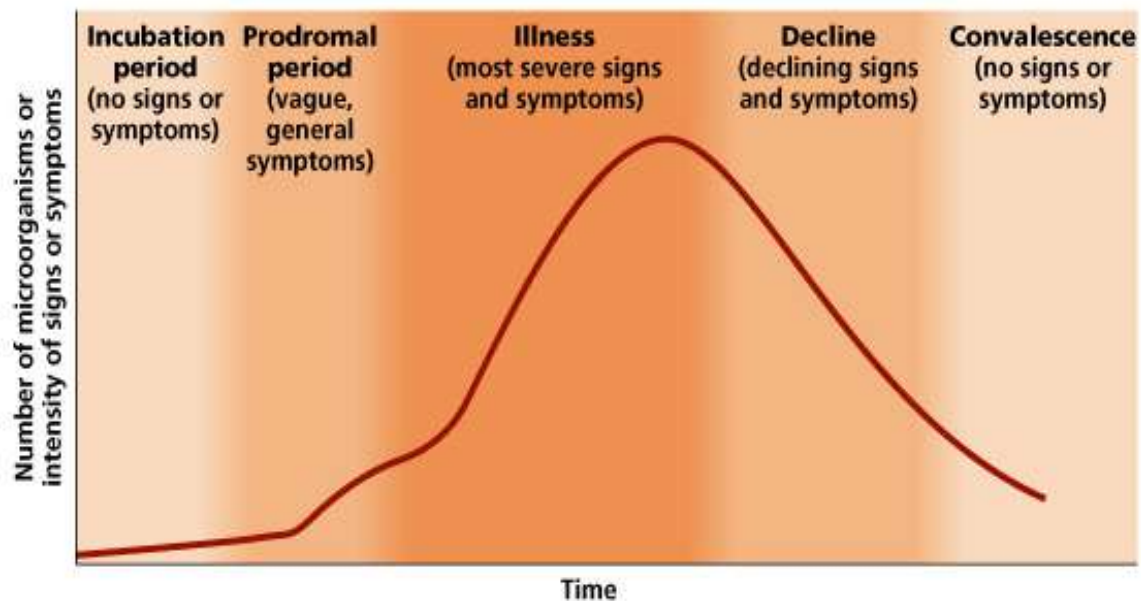
Discuss the stages of an infection

Something to Ponder On

When was the last time you had a cold? I'm sure you still remember the uncomfortable feeling that accompanied it. Can you share your experience with a severe cold?

The common cold is an infectious disease, Like other infectious or communicable diseases, it undergoes several stages--from the entry of the cold virus up to the time when the sick person recovers.

Let's study the following illustration:



1. Incubation Stage

This is the time from the entry of the germs to the appearance of the first sign or symptom. This can last from several hours to several months or even years. For example, measles has an incubation period of two weeks while HIV (Human Immunodeficiency Virus) can invade the body up to several years before the condition becomes full-blown AIDS (Acquired Immune Deficiency Syndrome).

Incubation periods not only vary from disease to disease, but also from person to person. One who has a stronger immune system can lengthen the incubation period of a disease.

2. Early Symptoms Stage

This is when the general signs and symptoms of the disease appear, such as fever, nasal discharge, and rashes. It is the early stage of the battle between the germs and our body defenses. During this time, the disease is highly contagious. Diagnosis is difficult at this stage.

3. Clinical Stage

This is the height of the disease when the infection is very severe. During this period, one is obviously sick as characteristic signs and symptoms of the disease appear.

4. Recovery Stage

During this stage, there is a gradual return to health as signs and symptoms begin to disappear. The body is now on its way to recovery. However, when the body is unable to recover, disability or death may result.

There are times when people experience a relapse. A relapse happens when a sick person partially recovers but goes back to the clinical stage. Recovery takes much longer after a relapse because the body defenses are still weak from a previous infection.

Let us remember that the progress of a disease can be slowed down or stopped at any

point as a result of the strong response of the body's natural defenses or through medical intervention; but the best thing is to prevent contracting the disease in the first place.

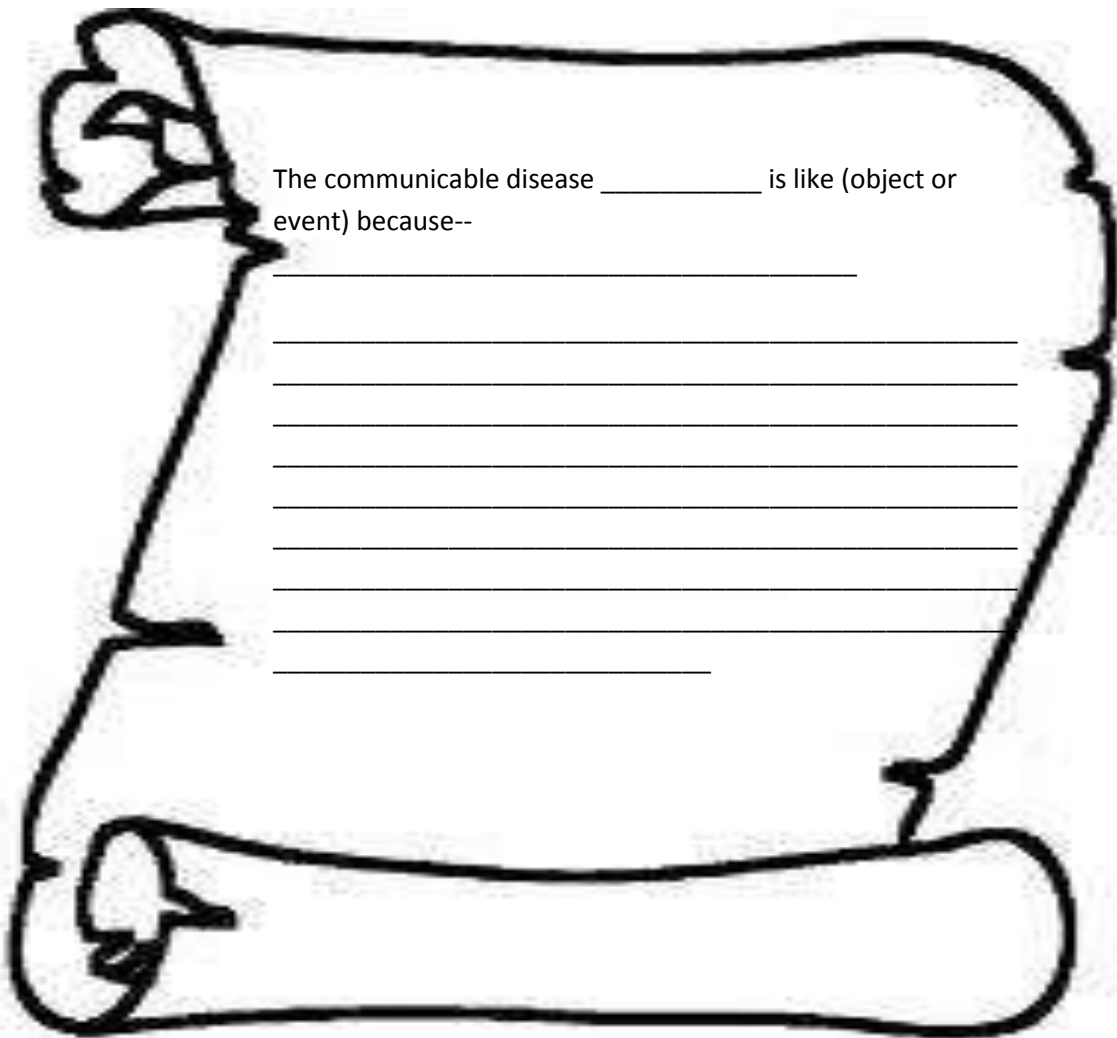
My Personal Encounter with a Pathogen

Think of a communicable disease that you had. Share with a partner your personal experience as you went through the different stages of the infection. After 5 minutes, switch roles. Your friend will now share her/his story.

How was your experience similar to your partner's?

Although infectious diseases go through different stages, there are specific signs and symptoms for a particular disease.

I'm sure you're ready for another challenge.



The communicable disease _____ is like (object or event) because--

Q and A Portion: It's Your Turn

You are one of the contestants vying for the title "Healthy Idol" and you pick this question: "If you were to compare a communicable disease to an object or an event, what would it be? Why?"

To answer the question, think of the different stages of a communicable disease. Write your answer below:

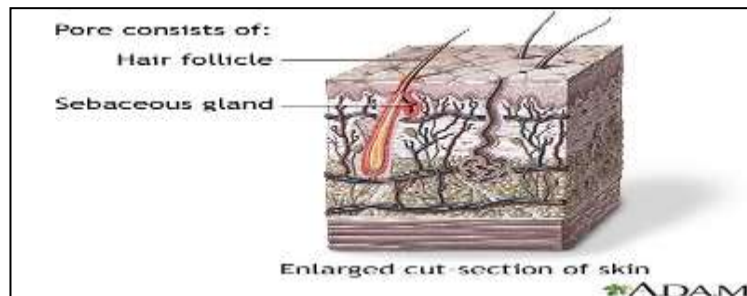
Let Us Remember

An infection goes through several stages: incubation, first symptoms, clinical, and recovery. Relapse happens when the sick person returns to the clinical period after partial recovery.

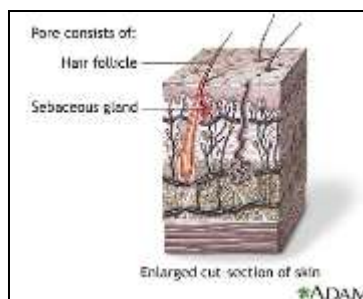
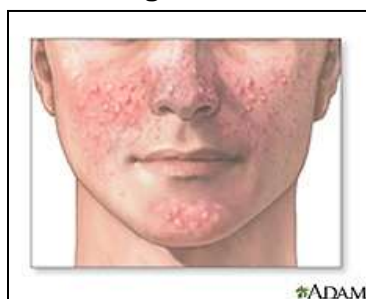
Lesson 8: Common Skin Diseases during Adolescence

Lesson Targets:

- Explain the nature of common skin diseases during adolescence
- Practice ways to prevent and control common skin diseases during adolescence
- Distinguish facts from myths about common skin diseases during adolescence



Something to Ponder On

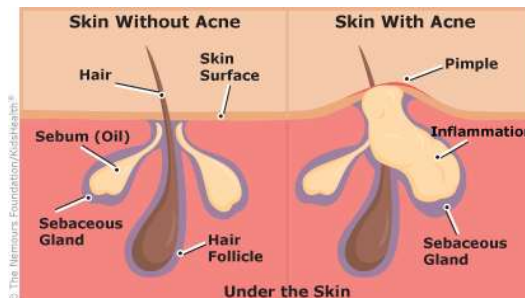
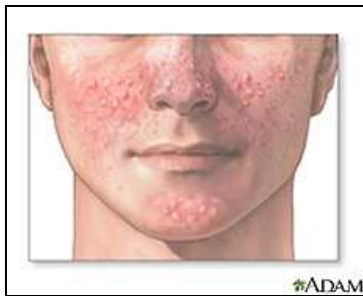


Your skin is the largest, essential protective part, and the most exposed organ of your body. Your whole body is covered with it. Your skin provides you visible signs showing that there is an infection affecting your body. Diseases affecting the skin can be non-infectious, but there are also skin diseases that are infectious and are usually hard to control.

When an infectious skin disease occurs, any object the skin touches can become infected by the virus, bacteria, fungus or mite responsible for spreading the disease. Infectious skin diseases cause considerable problems for the members of the family, children, classmates and teachers in schools.

Common skin infections during adolescence are **acne**, **warts** and **tinea** or **fungal** infections.

Acne: (illustrator: Please make the face Filipino)



Although most common among teenagers, acne can appear at any age, even among infants and people in their 30s and 40s.

Acne, commonly called **pimples** or “zits”, is a skin condition characterized by the inflammation of the oil glands (sebaceous gland) and the **hair follicles** or cavity contained within tiny holes on the surface of the skin, called **pores**. This happens when oil (or sebum) from an oil gland that normally drains into a **hair follicle** and then gets out through an open pore on the surface of the skin is blocked. Dirt, debris, bacteria, and inflammatory cells build up on the clogged pore. A clogged pore is called a **plug**. The top of the plug may be dark (**blackhead**) or white (**whitehead**).

Blackheads are caused by an excess of oil (sebum) in the pores. When the sebum reaches the surface of your skin, it hardens to a small, dark head. A whitehead is a plug of sebum that has not been exposed to air. When bacteria breed in the trapped oil, the skin will be inflamed. This inflamed red spot is called acne. If the plug breaks open, the material inside causes swelling and the formation of red bumps.

Acne can be hereditary and can be triggered by:

- High levels of humidity and sweating
- Greasy or oily cosmetic and hair products
- Certain drugs, such as steroids, testosterone and estrogen

- Hormonal changes related to menstrual periods, pregnancy, birth control pills, or stress

Management of Acne:

Acne can be prevented, but if you go through it, the following steps are suggested to manage your acne:

DO'S

- DO remove make-up at night.
- DO clean your skin gently with a mild, nondrying soap;
- DO remove all dirt or make-up and wash once or twice a day, including after exercising.
- DO shampoo your hair daily, especially if it is oily; comb or pull your hair back to keep the hair out of your face.

DON'TS

- DON'T scrub or wash your skin repeatedly.
- DON'T touch your face with your hands or fingers.
- DON'T wear tight headbands, baseball caps, and other hats.
- DON'T squeeze, scratch, pick, or rub the pimples, although it might be tempting to do this; it can lead to infection and scarring.
- DON'T use greasy cosmetics or creams. Look for water-based or cosmetics that do not clog pores. They have been tested and proven not to cause acne.

If these practices do not clear up the blemishes, see a dermatologist. A **dermatologist** is a doctor who specializes in treating conditions that affect the skin, hair, and nails.

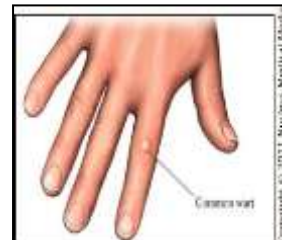
Acne usually goes away after the teenage years, but it may last into middle age. The condition often responds well to treatment after 6 – 8 weeks, but it may flare up from time to time. Scarring may occur if severe acne is not treated.

Warts:

(Please revise illustration-make it Filipino)

Although warts are mostly acquired by kids, teens and adults can get warts, too. It commonly appears on fingers, hands and feet.

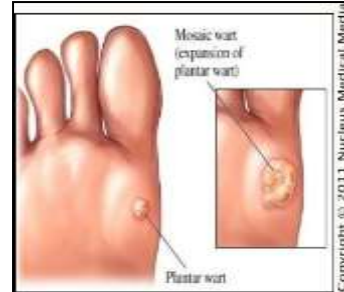
Warts are small, raised, rough, cauliflower-like infectious growths on the skin caused by a family of more than 100 types of viruses. Warts are normally not painful, but some warts itch and may cause pain, especially if they



are on your feet. Warts are contagious and usually enter the body in an area of broken skin. Some people are more naturally resistant to wart virus and don't easily get warts as other people do.

There are different types of warts according to their shape and location:

- **Common warts** are raised, rough growths that usually appear on the hands, but can also grow anywhere on the body;
- **Flat warts** are small, smooth, flattened, flesh-colored warts that usually appear on the face, neck and forehead;
- **Filiform** are thread- or finger-like warts, most common on the face, especially near the eyelids and lips;
- **Genital warts** appear on the genitals and between the thighs;
- **Plantar warts** are hard sometimes painful lumps found on the soles of the feet;
- **Mosaic warts** are groups of tightly clustered warts, commonly found on the hands or soles of the feet;
- **Subungual warts** are cauliflower-like clusters of warts found under or around the fingernails and toenails



Management of Warts

Warts may be passed on to another person through touching. You can also get warts from using towels or other personal care things used by a person who has warts. It is always a good idea to wash your skin regularly and well. If you cut or scratch your skin, be sure to use soap and water because open wounds are more susceptible to warts. Wear waterproof sandals or slippers in public showers, locker rooms, and around public pools, which will also prevent you from getting other skin infections, like fungal infections. If you have warts, do not rub, scratch, or pick at them or you might spread the virus to another part of your body or cause the wart to become infected.

Tinea or Fungal Infections:



Fungal skin infections, called **tinea**, is a group of itchy, reddish and scaly skin infections caused by several types of mold-like fungi that live on the dead tissues of the skin, hair, and nails.



Some Types of Tinea Infections:

- **Ringworm** affects the skin in different parts of the body, like the legs, chest and arms. It starts as a red, scaly patch or bump that becomes very itchy and uncomfortable over time. It may begin to look like a ring or a series of rings with raised, bumpy, scaly borders (the center is often clear).

- **Athlete's foot** is a fungal infection found between toes that causes severe itchiness, redness and blisters.



- **Jock itch** is ringworm that affects the groin or pubic area and the upper thigh; they may appear as red, itchy, scaly patches.

- **Ringworm of the scalp** may start as a small sore on the scalp that resembles a pimple before becoming patchy, flaky, or scaly. It may cause some hair to fall out and may cause baldness.

- **Ringworm of the nails** affects one or more

nails on the hands or feet. The nails may become thick, white or yellowish, and brittle.

Management of Tinea Infection:

The most common sources of the fungi that cause tinea infections are other people. Ringworm is contagious and can easily spread from one person to another. You can get tinea infections or ringworms when you come into contact with the infected skin of someone suffering from the condition. You can also get them from inanimate objects contaminated by the fungus such as combs, unwashed clothing, and public showers or pool surfaces. The fungus that causes ringworm thrives in warm, moist areas. Ringworm is more likely to thrive when you are often wet (such as from sweating) and from minor injuries to your skin, scalp, or nails. It is also possible to become infected from contact with animals, like cats and dogs.

DO'S

- DO shower after contact sports.
- DO wash sports clothing regularly.
- DO shampoo regularly, especially after a haircut.
- DO wash your hands often, especially after touching pets.
- DO wear slippers in the locker room shower or at the pool.

DON'TS

- DON'T touch pets with bald spots.
- DON'T share clothing, towels, hairbrushes, combs, or other personal care items.

What about Skin Diseases?

Fill in the table below about the different skin diseases that we have discussed. Be guided by the headings in each column.

NAME OF SKIN DISEASE	DISTINGUISHING CHARACTERISTICS	CAUSE
1. ACNE		
2. WARTS		
3. TINEA		

Let's Huddle

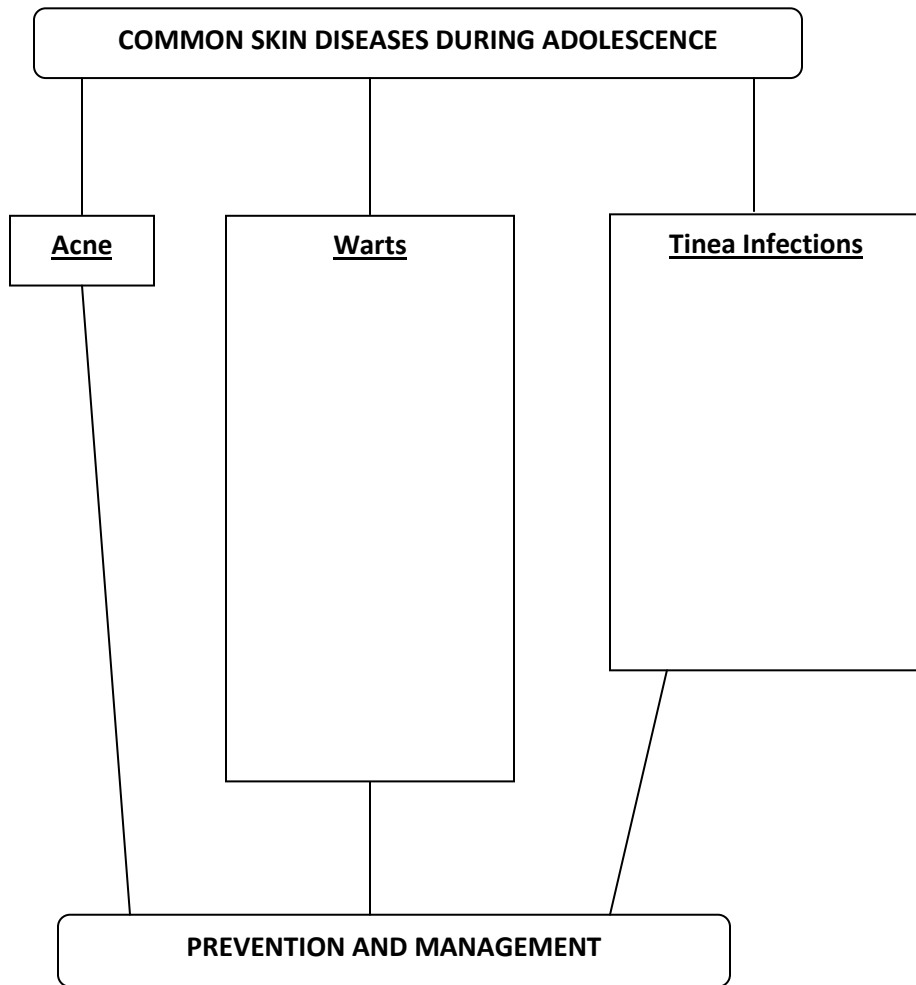
Group 1 – A song or choral recitation on how to prevent warts.

Group 2 – Present a skit on how to manage/prevent ringworm at home or during a family-outing.

Group 3– Design the box of a new soap for teenagers: It can be soap for preventing acne. It should not only have an appealing design but it should also include the soap's importance in managing acne and directions for using the soap. Advertise the soap to the class.

Sum Up:

CONCEPT MAP



B. OMG: Is It a Y or an N?

Direction: Write Y if the statement is true and N if it is false.

1. Warts are bacterial infections.
2. Acne is caused by eating peanuts.
- 3 Fungi can cause respiratory infections.
4. Communicable diseases can be transmitted.
5. Protozoa cannot reproduce outside its host.
6. Relapse is the height of an infectious disease.
7. There are asymptomatic communicable diseases.
8. Poverty is an economic factor in disease transmission.
9. There is Immunization for almost all communicable diseases.
10. Isolation is limiting the movement of suspected carriers of disease germs.

C. True or False: Write the word **TRUE** if the statement is correct; if the statement is wrong change the underlined word to make it correct. Write your answer on the blank provided.

- _____ 1 A clogged pore can result to acne.
- _____ 2. Athlete's foot is an infectious skin disease.
- _____ 3. Tinea infections can be prevented by keeping feet wet.
- _____ 4. Ringworms and warts are non-infectious skin diseases.
- _____ 5. Ringworms that are located on the nails are called jock itch.

Enrichment Activity:

For additional information about common skin diseases during adolescence like acne, warts and tinea infections, you can visit this website:

<http://teenshealth.org/teen/>

You have finished Module 3. Congratulations!

References:

Chiras, D. (2005). Human biology, 5th ed. MA: Jones and Bartlett.

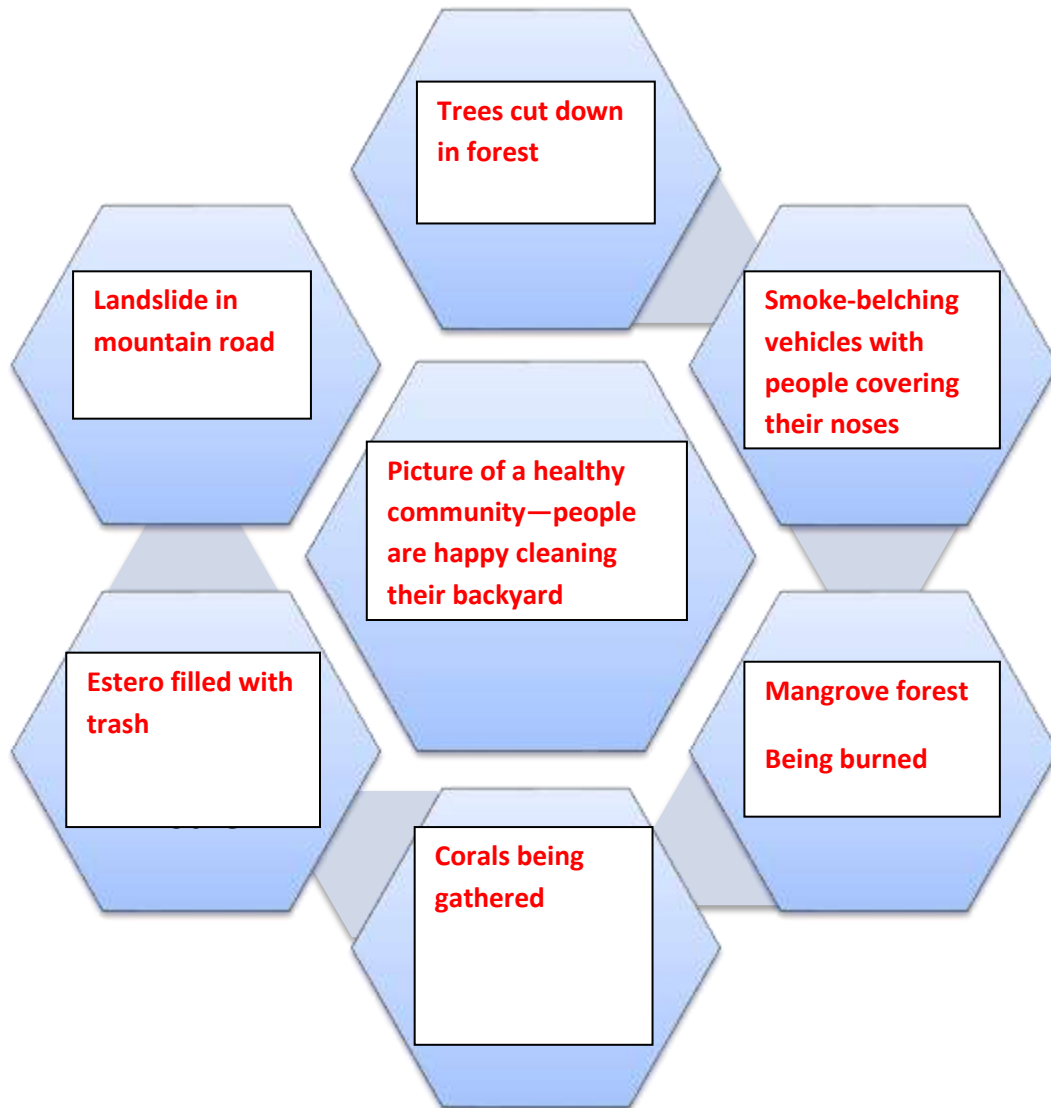
Galvez Tan, Jaime Z, Vicencio, Evelina M. et al (2009). The health curriculum in Philippine Basic Education Volume 2 (A resource book on Health for teachers). Pasay City: UNESCO, National Commission of the Philippines, UNACOM, Social and Human Sciences Committee.

Hales, D. (2006). An invitation to health. brief, 4th ed. CA: Thomson Wadsworth.

Insel, P. & Roth, T. (2008). Core concepts in health, 10th ed. NY: McGraw-Hill.

LEARNING MODULE for HEALTH 7

Module 4: MY SPACE, MY ENVIRONMENT



These are some environmental problems that affect the quality of life of our people. Are these present in your community? What other health problems are present in your community?

Community and environmental health are areas of health that focus on community and environmental concerns, such as keeping the air, water, and land free from pollution. It likewise includes preventing and controlling diseases, injuries, and disabilities related to the interaction between the people and their environment. Maintaining a healthful environment is important in improving and prolonging life.

Pretest

A. Directions: Circle the letter of the correct answer.

1. Which disease is NOT transmitted by air?
 - A. AIDS
 - B. Mumps
 - C. Measles
 - D. Pneumonia
 - E. Tuberculosis

2. Which health problem is caused by air pollution?
 - A. Cancer
 - B. Asthma
 - C. Diabetes
 - D. Heart disease
 - E. High blood pressure

3. How can a person get sick of leptospirosis?
 - A. Swimming in the river
 - B. Breathing in polluted air
 - C. Being bitten by a rodent
 - D. Eating contaminated food
 - E. Wading in contaminated floodwater

4. Which is NOT an effect of deforestation?
 - A. Landslide
 - B. Soil erosion
 - C. Climate change
 - D. Extinction of wildlife
 - E. Demand for real estate

5. What activities of man DO NOT cause soil erosion?
 - A. Agriculture
 - B. Urbanization
 - C. Reforestation
 - D. Industrialization
 - E. Building of roads

6. Why can soil erosion lead to a malnourished population?
 - A. The soil loses its nutrient.
 - B. Soil erosion causes land pollution.
 - C. Food plants cannot grow in eroded soil.
 - D. The soil goes to the rivers and kills fishes.
 - E. Soil erosion affects the country's economy.

7. What is the most important use of mangrove swamps in our country?
 - A. Fuel
 - B. Food
 - C. Medicine
 - D. Resting place for birds
 - E. Home for water animals

8. Which disease is NOT likely to be caused by drinking infected or polluted water?
 - A. Dengue
 - B. Cholera
 - C. Hepatitis B
 - D. Amoebiasis
 - E. Typhoid fever

9. Coral reefs are protected mostly because of their _____ value.
 - A. Aesthetic
 - B. Economic
 - C. Nutritional
 - D. Recreational
 - E. Tourism

10. The main cause of global warming is the high level of _____ in the atmosphere.
 - A. Oxygen
 - B. Miasma
 - C. Nitrogen
 - D. Water vapor
 - E. Carbon dioxide

B. Essay (15 pts.)

Name the three most urgent health problems in your barangay. Rank them according to urgency with No. 1 as the most urgent and No. 3 as the least urgent. (3 pts.)

For each community health problem, answer the following questions: (4 pts. for every discussion of a community health problem, or a total of 12 pts.)

1. Describe the situation in your barangay related to the health problem.
2. How are the people affected by the health problem?
3. What, if any, are the following doing about the health problem?
 - a. You and your family
 - b. The people of the barangay
 - c. The barangay officials

Lesson 1: Philippines: Still the Pearl of the Orient Seas?

Lesson Target:

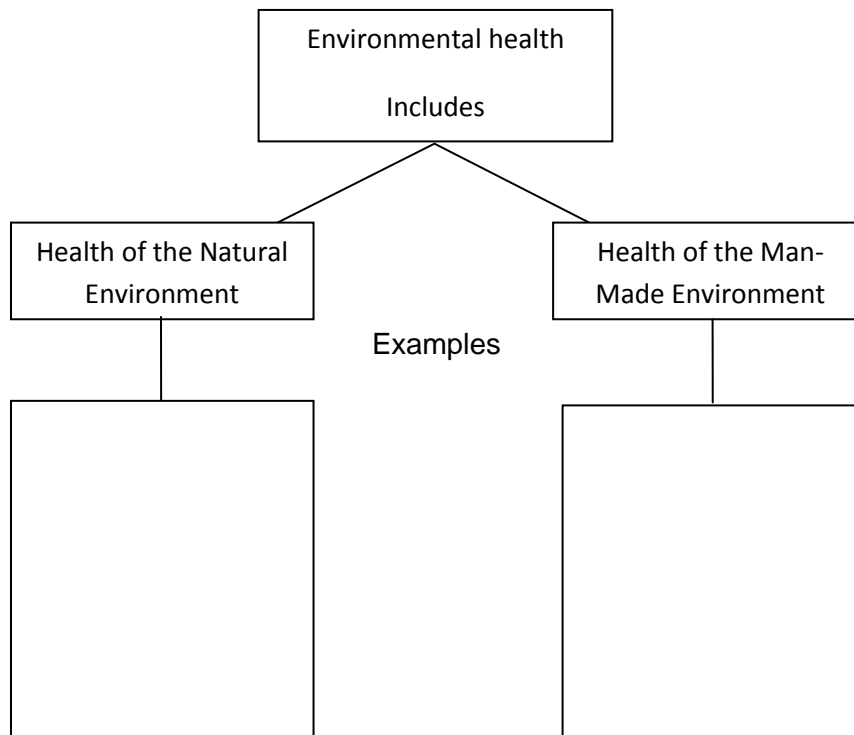
- A. Explain the concept of environmental health.
- B. Describe the environmental problems in the Philippines.
- C. Analyze the impact of the environmental problems on people's health.

Something to Ponder On

Environmental health is concerned with everything in the natural and man-made environment that might affect our health. The natural environment includes land and water forms while man-made environment includes houses, buildings, bridges, neighborhoods, cities and provinces and the like.

Focus on Environmental Health

Draw a concept map of environmental health based on the definition stated above.



Our Natural Resources: Going...Going...Going

The Central Intelligence Agency (2012) identified the most pressing environmental problems in the Philippines as follows:

1. Uncontrolled deforestation, especially in watershed areas
2. Soil erosion
3. Air and water pollution in major urban centers
4. Coral reef degradation
5. Increasing pollution of coastal mangrove swamps that are important breeding grounds of fish

Deforestation

One hundred years ago, the Philippines had about 22,000,000 hectares of forest. In 2000, our forests had been trimmed down to 600,000 hectares (Imagine Echo Projects, 2008). Where did almost 97% of our forests go?

This alarming loss of forests is not only happening in our country. It's happening all over the world. We are losing forests at a faster rate than ever before-- approximately 16.5 million hectares a year. Now, forests cover only about 27 percent of the land surface of the earth.



Deforestation is the destruction of big areas of our forests and this has been going on for many years. We are losing our forests because of—

- Agriculture
- Urbanization
- Illegal logging
- Mining
- Forest fires

Trees are cut down for the forests to become farms and to become towns and cities. These need lumber for houses, furniture, and many other necessities. We also export lumber to other countries, which necessitates cutting of trees.

What is the effect of deforestation on our health? The International Rice Research Institute (IRRI) in Los Banos, Laguna estimates that it takes more than 4,000 liters of water to produce one kilo of rice (Imagine Echo Projects, 2008). Most of our freshwater comes from watersheds found in our forests. Deforestation has resulted in the decrease of freshwater for our farms. So, loss of forests means loss of food. It also means loss of

other health products that come from the forests—clothing and medicines. Many of our people rely on traditional medicines, and most of them are forest products.

Forests help prevent the appearance of communicable diseases. There are communicable diseases that result from deforestation, like dengue. These communicable diseases are usually transmitted by insect vectors, which in the case of dengue, are mosquitoes. When forests are lost, insect vectors and rodents who live in them lose their habitat, so they look for places where they can settle. If they cannot find other forests, then they settle in places where there are people.

Smoke from forest fires and the burning of fields for planting (*kaingin*) causes respiratory problems. Smoke from forest fires can travel hundreds of kilometers and can threaten not only the health of people but can also cause death.

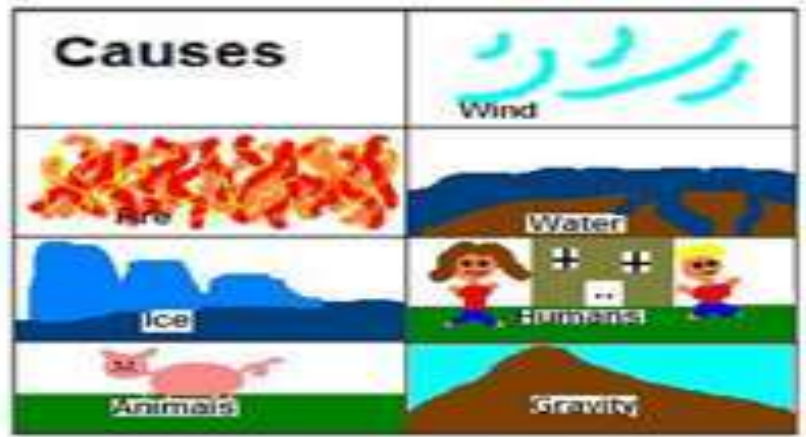
There are laws and regulations that protect our forests, but these laws are either weakly enforced or not enforced at all. This is the reason for the existence of illegal logging practices. To maintain our forests, new trees are supposed to be planted to take the place of trees that have been cut down. Unfortunately, lack of funds makes reforestation difficult to sustain.

Soil Erosion

Soil erosion happens when soil and rock are moved from one place to another by wind, water, and gravity. It is brought about by natural and human activities. Strong winds and heavy rains cause soil erosion. People's activities also cause soil erosion, like—

- Deforestation
- Building of roads
- Agriculture
- Urbanization—creation of towns and cities
- Mining

Soil erosion is a result of deforestation. The forest floor is covered by fallen and dead leaves and humus or natural compost made up of plant and animal matter. The leaves of trees serve as umbrellas and the forest floor serves as a mat that both protect the soil from the rain, such that rainwater is slowly absorbed by the soil. The roots of trees and plants in the forest likewise hold the soil together and prevent it from being washed away. Deforestation therefore exposes the soil to wind and water.



- [Help](#) - [Privacy Policy \(Updated\)/Legal](#) - [About Our Ads](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Submit Your Site](#)

Powered by Bing™

http://images.search.yahoo.com/search/images?_adv_prop=image&fr=slv8-msgr&va=landslide+philippines+2012

Please revise illustration. Change Ice to Deforestation (picture of trees being cut down), change Humans to People. Make Wind strong; add rain to picture of Water; more houses in People; carabaos, goats and cows in Animals instead of cat.

Soil erosion affects our health because most of our food comes from plants and our farmlands are, like our forests, fast disappearing at the rate of more than 10,000,000 hectares a year because of soil erosion, while more than 3.7 million people are malnourished (Pimentel as cited in Lang, 2006). Our nutrient-rich topsoil is lost when it is

carried away by either wind or water. Soil also loses its fertility when the forest or farm is burned. Pimentel (2006) reports:

- As a result of erosion over the past 40 years, 30 % of the world's farmland has become unproductive.
- About 60 % of soil that is washed away ends up in rivers, streams and lakes, making waterways more prone to flooding and to contamination from soil's fertilizers and pesticides.
- Soil erosion also reduces the ability of soil to store water and support plant growth, thereby reducing its ability to support biodiversity.
- Erosion promotes critical losses of water, nutrients, soil organic matter and soil biota, harming forests, rangeland and natural ecosystems.
- Erosion increases the amount of dust carried by wind, which not only acts as an abrasive and air pollutant but also carries about 20 human infectious disease organisms, including tuberculosis.

"Soil erosion is second only to population growth as the biggest environmental problem the world faces," said David Pimentel, Professor of Ecology at Cornell University in the United States.

Challenge

1. What is deforestation?
2. How are we losing our forests?
3. What are the effects of deforestation on our health?
4. Why is it difficult to stop deforestation?
5. What is soil erosion?
6. What are the causes of soil erosion?
7. What are the effects of soil erosion on our health?

Air Pollution

The Philippines is spending billions of pesos in income and time loss and health care expense because of air pollution (World Bank, 2009). According to World Bank, 1.5 million Filipinos of different ages are suffering from respiratory illness due to outdoor air pollution in urban areas, while almost a third of that number suffer from illnesses due to indoor air pollution.

ILLUSTRATION OF SMOKE BELCHING JEEPNEY AND TRICYCLE; WOMAN COOKING USING WOOD AND STOVE INSIDE KITCHEN WITH INDOOR SMOKE; factory chimneys emitting dark smoke

Outdoor air pollution (OIP) is caused mostly by exhaust from vehicles, especially jeepneys and tricycles, and factories. **Smog** (smoke+fog=smog) is caused by chemical reactions of pollutants, mainly exhaust from vehicles exhaust and factories. It is large-scale outdoor pollution. Urban areas where there are different kinds of vehicles and where there are many industrial establishments are often darkened by smog even during daylight, especially during the dry season.

Particulates or Particulate matter (PM) is composed of tiny particles that pollute the air, including dust, dirt, soot, smoke, and liquid droplets. Some particulates are large and can be seen; others are so small that they can only be seen through the microscope. Particulates can stay in the air for a long time. When we breathe them in, they can cause respiratory diseases.

Smoke coming from our activities—burning fuel, using gasoline for our vehicles, burning coal, oil and gas in factories and in generating electricity release gases (carbon dioxide, carbon monoxide, water vapor, chlorofluorocarbons or CFC, and others) in the atmosphere that add to global warming or warming of the Earth. The gases released in the atmosphere act like a blanket that traps the heat, making our temperature rise, thus warming the Earth.

On the other hand, indoor air pollution (IAP) is common among poor families because they use firewood, dried animal manure and coal in cooking and their kitchen is poorly ventilated. Indoor smoke contains carbon monoxide and soot that have bad effects on the respiratory system when inhaled. Women and young children are the most affected by indoor air pollution because they are the ones who usually cook food and stay in the kitchen.

Deaths due to indoor air pollution (IAP) are usually due to chronic obstructive pulmonary disease or COPD (for example, chronic bronchitis), pneumonia and lung cancer. Men, on the other hand, likewise suffer from respiratory disease but is made worse if they smoke, which makes indoor air pollution worse. If there is a smoker at home, all the members of the household will suffer from indoor air pollution due to second-hand smoke (inhaling the smoke from the smoker) and third-hand smoke (inhaling smoke from clothes, bed sheets, curtains, and other things that absorb cigarette smoke. Other conditions and illnesses related to indoor air pollution are low birth weight, tuberculosis, heart disease, and cancer of the respiratory organs (WHO, 2011).

In short, what is in the outside, goes in our insides; what is inside, stays in our insides.

Snare that Air

Objective: Determine how polluted is air in different places

Materials needed:

- 1 white cartolina cut into ¼ size short bond paper, such that half of the class will have a piece
- Pomade, hair gel, petroleum jelly, or Vaseline
- Plastic knife
- Clothesline clip or string
- Permanent marking pen (fine)
- Masking tape
- Hand lens (optional)

1. At the bottom of the white cartolina, with the use of the permanent marking pen, write where you will place the cartolina to trap air pollution. Write your name, grade and section.
2. Spread the pomade (or hair gel, petroleum jelly or Vaseline) on the piece of white cartolina using the plastic knife.
3. Do this activity on a dry day.
4. With the use of the clothesline clip or string, hang, tie or place your Air Snarer (card) in a place in the school, home, or neighborhood, for example, busy road, residential places, near buildings, in the kitchen, bedroom, classroom, or on a tree, etc. You may have to request somebody to watch the cards so that it will not be removed, touched or transferred. It's better if it is high enough so that it will not catch attention.
5. Observe your Air Snarer every day and write down your observations.
6. After one week, bring your Air Snarer to school.
7. Lay it on the table with the other Air Snarers.
8. If you have a hand lens, look at the Air Snarers and compare them. See if you can distinguish what kind of particulates are there.
9. Arrange the Air Snarers from the cleanest to the dirtiest.
10. Tape the all the Air Snarers on the bulletin board, arranged also.
11. Answer the questions below in your notebook.

Challenge

1. What was the location of the cleanest Air Snarer? The dirtiest?
2. What kinds of particulates were trapped in the Air Snarers?
3. What are the differences in the PM trapped in the Air Snarers?
4. What did you expect?
5. What did you NOT expect?
6. What do you plan to do as a result of this Activity?

Water Pollution

(picture on beautiful beach in the Philippines or any beautiful scenery with water—waterfall, river, beach, etc.

Our country, the Philippines, will not be called Pearl of the Orient Seas for no reason. The Philippines is blessed with rich and beautiful natural resources that are the envy of other countries--land forms and water forms essential for our nation to live in comfort and for our country to progress economically. Our water resources include freshwater from our rivers, waterfalls, brooks, springs, lakes, and groundwater. Then we have saltwater from our coasts, seas, and oceans. There is water everywhere, our country being an archipelago, and it is sufficient for everyone... except in urban and coastal areas, which are highly populated. These areas experience water shortage, especially during the dry season. The National Capital Region (Metro Manila), Central Luzon, Southern Tagalog, and Central Visayas are the four urban regions experiencing problems in water quality and quantity from domestic and industrial sources during the dry season. Highly populated areas, unfortunately, are rapidly increasing because of our run-away population.

Illustration of polluted water near the bay and dead rivers, dirty esteros



So many people are using water for so many purposes—household and industrial, such that much of the waste water is no longer treated or disposed properly. They become pollutants in the process. These pollutants are in different forms from different sources: sewage, detergents, fertilizer, heavy metals, chemical products, oils, and even solid waste. Add to these, mercury pollution in bodies of water near abandoned mining areas, and we see that water pollution has become a big problem in our country.

According to the Philippines Environment Monitor, in 2008, only about 1/3 or more than 36 % of our river systems were safe sources of public water supply. Up to 58% of our groundwater was found to be contaminated with disease-causing microorganisms and therefore unfit for drinking and recreational use. It needed water treatment. About 31% of illnesses reported were water-borne, including gastro-enteritis, diarrhea, typhoid, cholera, dysentery, hepatitis, and severe acute respiratory syndrome (SARS).

Our growing population has likewise resulted in the urbanization of coastal areas. About 62% of our population lives in coastal areas. The urbanization of these areas is damaging our marine resources—coral reefs, mangroves and sea grasses. Gathering of corals has become a source of livelihood even if they are protected by environmental laws. Mangroves have been destroyed to give way to housing in coastal areas. Coral reefs and mangroves are home to our fish.

Climate change caused by air pollution and resulting in rise in sea temperature has likewise destroyed our marine resources. The rising sea temperature has brought about fish kills and red tides, which happen during El Nino period. These events have resulted in the decreasing fish supply. We are a fish-eating people, and time will come when we might not have even fish to eat, if we do not do something about our present situation.

The impact of water pollution costs our government an estimated Php67 Billion annually, which could be spent in better ways. The government has imposed pollution fines and environmental taxes in addition to environmental laws to control water pollution. Unfortunately, law enforcement is weak because of inadequate resources, poor database, and weak cooperation among different agencies and Local Government Units (LGUs).

Must Be Something in the Water

Objective: To identify pollutants in the water supply

Materials needed:

- Gauze or clean white cloth large enough to cover a faucet
- String
- Hand lens (optional)
- Cardboard
- Clear plastic

1. Choose a faucet in your house.
2. Cover the mouth of the faucet with gauze or clean white cloth. Tie the cloth with the string to keep it from falling.
3. Remove the gauze every day and examine it through a hand lens. Record your observations in your notebook.
4. After one week, remove the gauze or cloth. Using your hand lens, examine the gauze or cloth for the last time.
5. Dry the cloth and tape it on cardboard. Cover it with plastic to preserve whatever has been caught in the cloth.
6. Bring the cloth to school.
7. Lay your cloth on the table. Compare your cloths.
8. Answer the questions below.

Challenge

1. What was the location of the faucet with the cleanest cloth? The dirtiest?
2. What kinds of particulates were trapped in the cloth?
3. What are the differences in the PM trapped in the cloth?
4. What did you expect?
5. What did you NOT expect?
6. What do you plan to do as a result of this Activity?

Sum Up

Prepare a reflection paper to answer the question: Is the Philippines Still the Pearl of the Orient Seas?

Lesson 2: Exposé: Community Health Problems

Lesson Target:

Identify pressing health problems in the community.
Survey community health resources
Make a plan of action

Something to Ponder On

Community health is concerned with maintaining, protecting and improving the health of people living in their immediate geographic area, while environmental health is concerned with all aspects of the natural and man-made environment that might affect human health.

A community is made up of people who live in the same neighborhood, barangay or city-- people with the same interests or background, or even organizations that have something in common. You and your family are members of a community and your health is affected by other members as well as by the community itself. Your health problem can become a community health problem and the other way around. You and your family must therefore be responsible members of your community and be actively involved in solving community health problems.

What's the Problem?

A problem must be clearly identified and properly stated to be able to work for its solution. You will learn how to identify community health problems and how to prioritize them so that you can identify the problem that needs to be solved right away.

It will be helpful in the future if you will keep a PORTFOLIO of your Community Health Project so that you will remember the activities involved not only in doing a project but also in solving a problem.

So, from here on, start writing a diary of your activities. Collect artifacts to show proof of activities you are participating in. At the end of the Module, you will submit your portfolio to your teacher.

1. Identify a problem or issue.

- a. Study the problems identified by the class in the pretest.
- b. Individually, choose the problem that you think needs to be solved right away and write it as No. 1 on the sheet of paper that will be given to you by your teacher.
- c. Choose the next most pressing number and rank it as No. 2.
- d. Then, think of the least pressing problem and rank it last.
- e. Choose No. 3, then second to the last, then No. 4 and so forth.

What about the Problem?

2. Study the problem or issue.

What information do you need to know more about the problem to be able to do something about it? You can do this through the K-W-H chart.

As a group, fill in the K-W-H chart:

What do we KNOW?	What do we WANT to know?	HOW will we get the answers?
------------------	--------------------------	------------------------------

Divide the tasks among yourselves to find answers to the WANT and HOW questions. There are different ways of answering the questions. You might need to do these:

- Go to the community to interview people, survey the resources, or observe people's activities and behaviors
- Go to the library to do research
- Surf the internet to find more information

Networking with Community People

(Please Filipinize all the pictures. Illustrate different community resources in each hexagon: health centers/hospitals, police department, Agriculture office, etc.)



Health problems are solved and health status improved once there is a joint effort that brings the school and the community together. This necessitates a school to be health-promoting. To be effective, it has to recognize the potential of working closely with the community and to tap its resources, since the school is also part of the community. One of the key features of health-promoting schools is to strive to improve the health of the community by focusing on community health concerns and participating in community health projects (WHO, 1966). Now is your chance to bring your school and community together to work on a health project.

Community Potentials

1. Study the resources in your community.
2. Who are the people doing health promotion?
3. What are the community health programs in place?
4. Are there individuals who might be interested in helping you implement your Community Health Action Project?

Think about:

- Clinics, hospitals and health-care providers
- Infant health, child nutrition, family planning, HIV prevention, safety and other public health programs
- Parent education and parent health-promotion projects
- Local government programs
- Non-Government Organization programs

Include these in your K-W-H chart and plan how you can invite them to help you.

What'll we do with the Problem?

3. Plan the action to be taken.

Here you will discuss possible actions that you can take to solve the problem. For each action, think of the consequences. This will help you choose which action to take.

Ready for Action!

Are you ready to implement your Community Health Project? What will you consider to more or less be sure that the implementation of your Project will go well?

Criteria for Community Health Project

- a. Your teacher is with you.
- b. The project site is near your school.
- c. Your safety and security are ensured.
- d. The Barangay officials know about the project.
- e. Your parents approve of your participating in the project
- f. Community members join you in the project or appreciate what you are doing.
- g. You do not spend money for the project or if you do, the expense is minimal and it is voluntary.
- h. The project helps maintain, sustain, and promote the health of the people in the community.

Can you add some more criteria?

Lesson 3: Let's DOH It!

Lesson Targets

1. implement the plan.
2. evaluate the plan.
3. promote health among the students, staff, families and the community.

Do-Day

4. Act on the plan.

You are now ready to implement your plans. Remember to cooperate with your Leader and to work harmoniously with your groupmates. Remember also to make a record of what you are doing and put it in your Portfolio. Take pictures to remember how you helped to improve the health of your community.

5. Reflect on the action.

Congratulations! Aren't you proud of what you did for the health of the people in your Barangay?

- What did the people of the community think of what you did?
- What are the effects of your Community Health Action Project on your Barangay?
- What is the effect of the project on your class?
- What is the effect of the project on you—personally and as a member of your community?
- What possible action should they take next?

Write a reflection paper on the Community Health Action Project that you did.

Why don't you plan a class party to celebrate what you did for your community?

Lesson 4: New Town

Lesson Target

- A. describe the characteristics of a healthy community
- B. make decisions about buildings, businesses, services, housing areas and other structures to include in the development of a healthy new town

Something to Ponder On

According to the World Health Organization (2002) a healthy community --

- is physically clean and safe
- meets everyone's basic needs
- has different and innovative economy
- has available resources for all
- understands local health and environment issues
- promotes and celebrates historical and cultural heritage
- accessible and appropriate health services and facilities
- promotes social harmony and actively involves everyone
- has members who participate in identifying local solutions to local problems
- provides varied experiences, means of interaction and communication to its members

Wouldn't it be nice if we could live in a healthy community?

New Town

You are given the freedom to plan a new community—a new healthy community—a New Town. What will you put in your New Town? What factors will you consider?

What will your New Town have? Mark each item with a—

- | | |
|----|-------------------------|
| N | if it is Necessary |
| VN | if it is Very Necessary |
| O | if I can do without it |

- _____ School
- _____ Fire station
- _____ Gas station
- _____ Grocery store
- _____ Residential building (such as an apartment complex)
- _____ Office building
- _____ Bus station
- _____ River
- _____ Lake
- _____ Internet café
- _____ Restaurants

What other places, structures, and land and water forms will you include in your New Town?

Where will you put them?

Where will you locate your New Town?

What will you call your New Town?

How will you make your New Town peaceful, safe, and healthy?

Module 4: POSTTEST

I. Multiple Choice. Write the letter of the correct answer.

1. Which is a natural environment?
 - A. House
 - B. Mall
 - C. Park
 - D. Spring
 - E. Zoo

2. Which is NOT a pressing environmental problem in our country?
 - A. Soil erosion
 - B. Air pollution
 - C. Vehicular accidents
 - D. Coral reef degradation
 - E. Uncontrolled deforestation

3. When big areas of forest are destroyed, what is it called?
 - A. Forest fire
 - B. Deforestation
 - C. Reforestation
 - D. Forest Preservation
 - E. Forest Conservation

4. How does loss of forest cause communicable diseases?
 - A. Human disease carriers lose their forest homes.
 - B. Communicable disease carriers cannot live in forests.
 - C. Communicable diseases spread faster in areas without trees.
 - D. Forests are breeding places of communicable disease carriers.
 - E. Disease carriers lose their homes and move to populated areas.

5. Why is illegal logging rampant in our country?
 - A. The laws are not enforced.
 - B. There are no laws to stop it.
 - C. Logging is a big export industry.
 - D. The illegal loggers become rich.
 - E. Our country is rich in forest resources.

6. How does deforestation cause soil erosion?
 - A. The soil loses its fertility.
 - B. Deforestation makes the soil soft and loose.
 - C. There are no more roots of trees to hold the soil.
 - D. The loss of trees leaves deep holes in the ground.
 - E. Wild animals in the forests dig holes and make the soil loose.

7. Which does NOT cause soil erosion?
 - A. Fire
 - B. Gravity

- C. Reforestation
 - D. Water
 - E. Wind
8. What is the primary cause of smog?
- A. Electric trains
 - B. Cigarette smoking
 - C. Use of fuel in households
 - D. Metro rail transit and light rail transit
 - E. Smoke from industrial establishments
9. Why are women and children most affected by indoor air pollution?
- A. They are always at home.
 - B. The men seldom stay at home.
 - C. Most homes are not well-ventilated.
 - D. It's a natural weakness among females.
 - E. They are exposed to smoke in the kitchen.
10. What kind of cigarette smoke clings to curtains, sofas, bed sheets, and other household linens?
- A. First-hand
 - B. Second-hand
 - C. Third-hand
 - D. Fourth-hand
 - E. Fifth-hand
11. Why does the National Capital Region experience water shortage, especially during the dry season?
- A. There is no rain.
 - B. The rivers run dry.
 - C. It is thickly populated.
 - D. The water is polluted.
 - E. It is not a coastal area.
12. What is the importance of coral reefs to our health?
- A. They have nutritional value.
 - B. They are home to our fishes.
 - C. They can be made into jewelry.
 - D. They can be exported to other countries.
 - E. They make our underwater scenery beautiful.
13. Which is NOT a disease caused by water pollution?
- A. Cholera
 - B. Dysentery
 - C. Gastroenteritis
 - D. Typhoid
 - E. Tuberculosis
14. We are losing our farmlands due to _____?

- A. Deforestation
- B. Erosion
- C. Pollution
- D. Reforestation
- E. Urbanization

15. We experience global warming when our temperature _____.

- A. rises
- B. falls
- C. remains as is.
- D. rises and falls
- E. becomes unpredictable

16. Our climate has changed; it has become _____

- A. cooler
- B. dry
- C. humid
- D. unpredictable
- E. warmer

Answer the questions below. You can use each letter more than once.

- A. Circulatory
- B. Digestive
- C. Nervous
- D. Respiratory
- E. Skeletal

Which body system is affected by _____?

- 17. Air pollution
 - 18. Water pollution
 - 19. Forest fire
 - 20. Particulate matter (PM)
-

II. Essay (30 points)

Choose a health problem in your community other than what we worked on in class. What steps you will do to solve the problem? Identify each step in the process and explain what activities you will do in each step.