

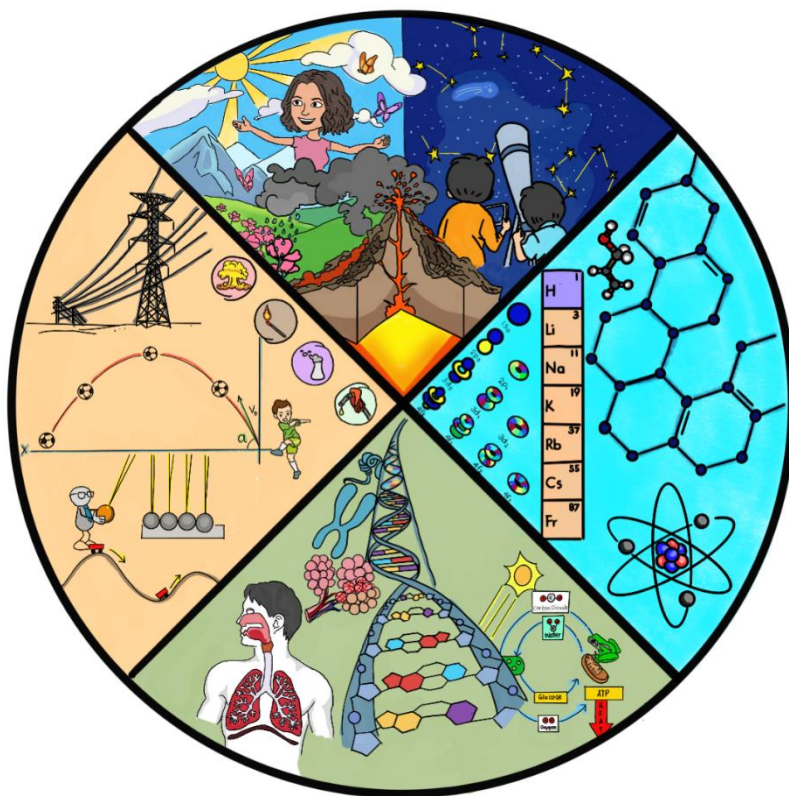
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Department of Education
National Capital Region
SCHOOLS DIVISION OFFICE
MARIKINA CITY

Science

Quarter 1 – Module 2

Effects of One's Lifestyle to the Respiratory and the Circulatory Systems

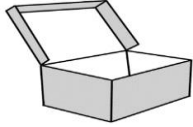


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What I Need to Know

The purpose of this module is to help you understand bad effects of smoking, how to detect and prevent diseases, how our lifestyle can affect the respiratory and the circulatory systems.

This module contains the following lessons:

- Lesson 1 – Effects of One’s Lifestyle to the Respiratory and the Circulatory Systems
- Lesson 2 – Infer How to Detect and Prevent Diseases in the Circulatory and the Respiratory systems.

After going through this module, you are expected to **infer how one’s lifestyle can affect the functioning of the respiratory and the circulatory systems. S9LT-Ic-27**

Specifically, you are expected to:

- explain the negative effects of cigarette smoking
- infer how to detect and prevent diseases in the circulatory and the respiratory systems
- infer how one’s lifestyle can affect the functioning of the respiratory and the circulatory systems; and
- conduct an information dissemination activity on effective ways of taking care of the respiratory and the circulatory systems.



What I Know

Read and understand each item carefully and encircle the letter corresponding to the word or group of words that completes the sentence.

1. Which is not an effect of cigarette smoking?
A. tuberculosis B. fertility C. emphysema D. cancer
2. Children exposed to secondhand smoking are more likely to have the illness. Which of the following diseases is **incorrect**?
A. bronchitis and pneumonia
B. ear infections
C. diarrhea and bleeding
D. severe and frequent asthma attacks



3. The following are referred to as secondhand smoke **EXCEPT**:
 - A. environmental tobacco smoke
 - B. exhaled toxic Cloud
 - C. involuntary smoking
 - D. passive smoke

4. How does smoking affect your lungs?
 - A. smoking inflames and irritates the lungs.
 - B. smoking kills the brain cells only.
 - C. smoking increases the number of tiny hairs or cilia.
 - D. smoking can cause increase the number spaces and blood vessels in the lungs

5. All are good benefits of having a healthy lifestyle **EXCEPT**:
 - A. regulate the heart rate and breathing rate
 - B. prevent from respiratory and circulatory diseases
 - C. stressful in line of work
 - D. happy family

6. Which is a symptom of high infection in the body?
 - A. fever
 - B. cough
 - C. colds
 - D. high blood pressure

7. Atherosclerosis is a disease where the artery is blocked by fats, tar and high blood pressure. How can we prevent Atherosclerosis?
 - A. eat fatty food and drink hot water.
 - B. sleep early and eat food that rich in saturated fats
 - C. do not smoke cigarette and eat fruits and vegetables
 - D. eat vegetable, fruits and whole grains and smoke cigarette

8. How will you detect if you have *Chronic Obstruction Pulmonary Disease*?
 - A. on and off high fever with difficulty in breathing
 - B. colds and coughing in three days
 - C. sleep disturbances
 - D. a week of cough with phlegm

9. What do you call the disease that deals with contraction and relaxation of the artery and stroke is the complication?
 - A. emphysema
 - B. asthma
 - C. heart attack
 - D. hypertension



10. Why do we need to check a person's vital signs?
- A. to determine the presence of chronic diseases.
 - B. to check if a person is healthy.
 - C. to check if the white blood cell increases in the blood.
 - D. to check the amount of nicotine present in the blood
11. Which harmful component is present in cigarettes that can cause mouth cancer, and chronic obstructive pulmonary disorder (COPD)?
- A. nicotine B. zinc C. carbon dioxide D. magnesium
12. Which is the best way to prevent diseases in the respiratory and circulatory systems?
- A. eat all food that you like
 - B. always sleep late
 - C. avoid vices such as cigarette smoking and alcohol drinking
 - D. always engage in a tiring exercise to consume more oxygen
13. How does pulse rate changes before and after exercise?
- A. pulse rate is the same before and after exercise
 - B. pulse rate is normal before exercise and slow down after exercise
 - C. pulse rate is normal before exercise and becomes faster after exercise
 - D. pulse rate is fast before exercise and slow down after exercise
14. What kind of element needs the lungs to develop a strong respiratory system?
- A. carbon dioxide B. blood C. vitamins D. oxygen
15. A healthy lifestyle is important for people to prevent diseases. Which of the following can be a cause disease?
- A. quitting smoking C. keeping a healthy body weight
 - B. drinking more alcohol D. eating a healthy die



Lesson 1

Effects of Cigarette in Lungs



What's In

The Respiratory System have two important functions: it brings oxygen into our bodies, that is needed for our cells to live and function properly; and it helps us get rid of carbon dioxide as a waste of cellular respiration. A person's cigarette smoking habit attributes to respiratory diseases such as cancer, heart disease, stroke, lung diseases, and chronic obstructive pulmonary disease (emphysema and chronic bronchitis). According to the Philippine Cancer Society cigarette smoking is the leading cause of lung cancer.



Figure 1. Lung with Cancer (Carcinoma)

<https://bit.ly/3h6qBsY>

Answer the following questions.

1. What are the functions of the respiratory system?

2. Why should a person quit smoking?

? What's New

In this lesson, you will learn the negative effects of cigarette smoking to the body. According to the Medical News Today, cigarettes can increase the risk of developing lung cancer; 25 times greater for men and 25.7 times greater for women and 30-40 percent risk of developing type 2 diabetes. Based on Public Health Action, the Philippines started to implement to control the use of tobacco in 1987 and successfully passed the Republic Act 9211: Tobacco Regulation Act of 2003.



The different effects of cigarette smoking are illustrated below.



Figure 2. Oral Cancer due to Tobacco

<https://bit.ly/3dkRB6W>

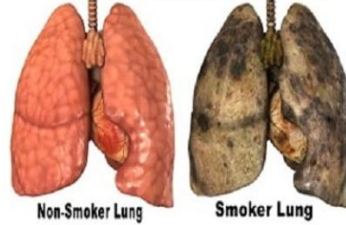


Figure 3. Comparison of lungs of non-cigarette smoker and cigarette smoker

<https://bit.ly/2UHfbEp>



Figure 4. Tar staining of the teeth

<https://bit.ly/3h4vimW>



Figure 5: Comparison of skin of Twin A non-cigarette smoker and Twin B a cigarette smoker

<https://bit.ly/2UCORnf>

Cite effects of cigarette smoking based on the illustrations shown above.

1. _____
2. _____
3. _____

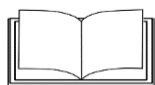


What Is It

Cigarettes contain harmful materials like nicotine, tar, ammonia, methane, naphthalene, phenol, formaldehyde, hydrogen cyanide, ketones, benzene, butane, arsenic, carbon, and heavy metals such as: cadmium, lead, beryllium, cobalt, nickel. These harmful substances cause mouth cancer, chronic obstructive pulmonary disorder (COPD), asthma, tuberculosis, fertility problem, cataract, pregnancy complication, type 2 diabetes, weak immune system, vision problems, and poor oral hygiene.

Philippines passed some laws and policies that aims to control tobacco consumption like the Sin Tax Bill. World Health Organization Framework Convention on Tobacco Control (WHO FCTC) was ratified in 2005, RA9711, which allowed for the FDA to regulate tobacco and tobacco products. Department of Health (DOH) issued CSC-DOH No. 2010-01: Protection of the Bureaucracy Against Tobacco Industry Interference.





What's More

Smoking is a hard habit to break because the tobacco contains an addictive chemical called nicotine. This can accelerate the heart rate, strengthen contractions and harden the arteries that leads to heart problem. **Tar** is a sticky brown chemical that stains teeth and fingernails, and deposits in the wall of the artery which narrow the arteries in different parts of the body. Cigarette smoking can also damage sex cells and brain cells that leads to infertility and Alzheimer's disease.

Activity 1. Target Agent Respiratory (TAR)

Objective: Explain the negative effects of cigarette smoking.

What you will do: Refer to the images shown and answer the guide questions below.



Figure 6. Set up before the experiment.



Figure 7. During the experiment



Figure 8. After the experiment



Figure 9. Nebulizer tube before and after the experiment

Guide Questions:

1. What happened inside the bottle while the cigarette was lighted?

2. Describe the cotton balls before and after the cigarette was consumed.

3. What do you think is the substance that caused the discoloration of Cotton balls?

4. Compare Tube A and B. Refer to Figure 9.

5. What are the substances found in cigarette?





What I Have Learned

Read the passage carefully and fill in the missing words on the spaces provided. Choose the answer from the options inside the box.

ammonia	atherosclerotic	beryllium	lead	tar
blood	cadmium	carbon monoxide	nicotine	
cataract	cigarette smoking	emphysema	health	

Cigarette is very dangerous to your 1. _____ cigarette is composed of dangerous materials such as : 2. _____, a brown sticky that can narrow the arteries; 3. _____, a colorless and odorless liquid that can harden the arteries; 4. _____, an odorless and colorless gas that make it harder for oxygen to get to tissue; 5. _____ used in household cleaning products and heavy metals like Arsenic, 6. _____ Nickel, Cobalt, 7. _____ and 8. _____. These components of cigarette can give diseases like infertility, Alzheimer disease, lung, liver and oral cancer, 9. (clouding of eyes), 10. _____ (brittleness of alveoli) and may lead to heart problem like 11. _____ (Narrow the artery) and high 12. pressure cause of stroke. We can prevent these diseases to stop 13. _____.

:-



What I Can Do

Make a poster that promotes/ encourages a healthy lifestyle and discourages a person to smoke by emphasizing its negative effects. Use a short bond paper.

Your output will be assessed in accordance with this rubric.

CATEGORY	4	3	2	1
Presentation	The poster clearly communicates the main idea and strongly promotes awareness.	The poster communicates some of important ideas and slightly promotes awareness.	The poster indirectly communicates the idea and hardly promotes awareness.	The poster does not sufficiently communicate any idea that can promote awareness.
Creativity and Originality	All the graphics used on the poster reflect an exceptional degree of student ingenuity in their creation.	Most of the graphics used on the poster reflect student ingenuity in their creation.	The graphics were made by the student but were copied from the designs or ideas of others.	The graphics were not made by the student.



5. Which is most likely to happen to a smoker?
- A. increase of appetite
 - B. easy to get sick and complication like pneumonia
 - C. high percentage of having coronavirus
 - D. low risk in diabetes



Additional Activities

Smoking is addictive and difficult to give up. In 3-5 sentences, what can smokers do to quit smoking safely and effectively?



Lesson 2

Lifestyle Affects the Respiratory and Circulatory System



What's In

Answer the following questions. Write your answers on a separate sheet of paper.

1. Why do we need to sleep 8 hours a day?

2. Why should we eat healthy food?



What's New

Lifestyle is a choice that people make in their daily lives and it is very important to maintain a healthy body. Here are examples of a person's lifestyle:

A.



Figure 10. Exercising
<https://bit.ly/3dlBzd0>

B.



Figure 11. Playing

C.



Figure 12. Smoking
<https://bit.ly/3qybywf>

D.

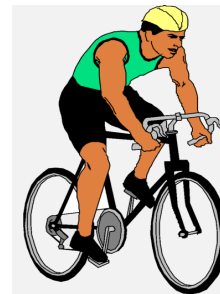


Figure 13. Riding a bike
<https://bit.ly/3gYPhVn>



E.



Figure 14. Drinking Milk

F.



Figure 14. Drinking Alcohol

G.



Figure 16. Eating Junk foods

<https://bit.ly/3h0dECc>

H.



Figure 17. Staying up late

<https://bit.ly/3aaNNGw>

On the table below, indicate how often you do the following activities. Write **NEVER**, **SOMETIMES** and **ALWAYS** on the space provided. Answer the questions that follow.

Activity	How often do you do these?
A. Exercising	
B. Playing	
C. Smoking	
D. Riding a bike	
E. Drinking milk	
F. Drinking alcohol	
G. Eating junk foods	
H. Staying up late	

1. Which of those activities shows:

a. healthy lifestyle? _____

b. unhealthy lifestyle? _____

2. How does your lifestyle affect the respiratory and circulatory systems?

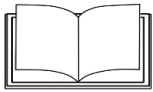




What Is It

Health of respiratory and circulatory systems are affected by one's lifestyle and genes. Lifestyle is a factor that can be controlled such as lack of exercise, being overweight, smoking, overuse of alcohol, high level of stress and poor diet. Advanced age, gender, family health history such as stroke, congenital and high blood pressure or high cholesterol are factors that cannot be controlled.

A healthy lifestyle can prevent diseases of the respiratory and circulatory system like eating healthy food and balanced diet, exercise for a minimum of 30 minutes a day, maintain healthy weight, sleep 8 hours a day, manage the stress and drink plenty of water.



What's More

Healthy lifestyle can decrease your susceptibility to diseases. This can make your heart and lungs stronger. On the other hand, smokers and secondhand smokers have high risk of getting different diseases like pneumonia, emphysema, hypertension, and acute bronchitis that may lead to death because their lungs are too weak to recover.

Activity: Healthy Lifestyle Goal

Cut out different pictures of healthy and unhealthy lifestyle from any printed material and create a LUNG-shaped collage out of the cut outs. Put the unhealthy lifestyle pictures on the left lung and healthy lifestyle on the right lung. Paste it on a short bond paper.

Guide Questions:

1. How can lifestyle affect the functioning of the respiratory and circulatory systems?

2. What are the respiratory and circulatory diseases that one might get from unhealthy lifestyle?

3. What might happen if a person goes on with unhealthy lifestyle?

4. How can unhealthy lifestyle be changed?





What I Have Learned

Write three sentences depicting the message on this picture.



Figure 18. Healthy Lifestyle
<https://bit.ly/2U7gLPo>

1. _____
2. _____
3. _____



What I Can Do

Write 5 things you will do to keep your respiratory and circulatory systems healthy. Draw a hand on a separate sheet of paper then write your answer on each finger.





Assessment

Read and understand each item carefully and encircle the letter corresponding to the word or group of words that completes the sentence.

- Which is a healthy lifestyle?
 - sleeping after 10pm
 - drinking 6 glasses of water
 - eating fruits and vegetable
 - drinking alcohol
- Healthy lifestyle can help prevent respiratory and circulatory diseases. Which is a healthy lifestyle practice?
 - exercise for at least 30 minutes a day
 - drink 8 glasses of alcohol a day
 - sleep 4 hours a day
 - eat chocolate, cakes, and other pastries every day
- Which unhealthy lifestyle can affect the individual's psychological aspect?
 - eating habit
 - exercise
 - drink alcohol
 - stress
- Which unhealthy lifestyle can severely affect your heart and lungs?
 - sleep late at night
 - eat unhealthy food
 - smoking
 - drink alcohol
- Which of the following is a healthy diet?
 - food with excessive fats
 - any food that you like
 - food rich in carbohydrate
 - regular meal and fruits



Additional Activity

Comic Strip Making Activity

On a sheet of bond paper, make a comic strip showing how you will encourage others to have a healthy lifestyle and protect their respiratory and circulatory systems.

Your output will be assessed in accordance with this rubric.

CATEGORY	4	3	2	1
Presentation	The comic strip clearly communicates the main idea and strongly promotes awareness.	The comic strip communicates some of important ideas and slightly promotes awareness.	The comic strip indirectly communicates the idea and hardly promotes awareness.	The comic strip does not sufficiently communicate any idea that can promote awareness.



Creativity and Originality	All the graphics used on the poster reflect an exceptional degree of student ingenuity in their creation.	Most of the graphics used on the poster reflect student ingenuity in their creation.	The graphics were made by the student but were copied from the designs or ideas of others.	The graphics were not made by the student.
Accuracy and Relevance of the content	All graphics in the comic strip are accurate and related to the topic.	Most graphics in the comic strip are accurate and related to the topic.	Some graphics in the comic strip are accurate and related to the topic.	The graphics in the comic strip are neither nor relate to the topic.
Required Elements	The comic strip includes all required elements as well as additional information.	All required elements are included.	Few required elements are included.	Required elements are missing.



Posttest

Read each question carefully and encircle the letter of the correct answer.

- Diseases in the respiratory and circulatory systems can be prevented with a healthy lifestyle. Which among the given practices best prevents man from these diseases?

I. Eating a balance diet
II. Avoiding vices

III. Proper hygiene
IV. Regular exercise

A. I and II B. I and III C. I, III and III D. I, II III and IV
- Why should a person quit smoking?

A. It raises blood pressure and leads to constriction of blood vessels.
B. It carries more oxygen by the blood throughout the body.
C. It keeps the person awake and alert for several hours.
D. It leads to slower heart rate when rising from more consumption.
- The lungs and heart are very important in our body, how can you keep them strong?

A. smoke
B. healthy lifestyle

C. sleep the whole day
D. eating heart - shaped foods
- A condition in which the air sacs of the lungs are damaged and enlarged, causing a person's breathlessness. Which of the following diseases damaged the lungs?

A. asthma B. emphysema C. air allergy D. COPD

5. Coronavirus disease or COVID-19 outbreak weakens a person's health condition that leads into a severe complication called _____.
A. asthma B. cold C. pneumonia D. allergy
6. The brown sticky substances found in a cigarette that can narrow the blood vessels is called _____.
A. tar B. nicotine C. Carbon monoxide D. lead
7. What disease is caused by artery blockage consisting of fats and tar that resulted into high blood pressure?
A. sclerosis B. emphysema C. atherosclerosis D. covid-19
8. Which is a correct way of protecting the respiratory and circulatory systems?
A. exercise 30 minutes a day
B. drink 8 glasses of alcohol a day
C. sleep 12 hours a day
D. eat chocolate, cakes, and other pastries every day
9. It filters dust and other particles that enter the nose through breathed air. What are these tiny hairs that protect the nasal passageways and the respiratory tract?
A. capillaries B. cilia C. alveoli D. bronchi
10. Secondhand smoke emitted by a lit cigarette combined with the smoke exhaled by an active smoker is referred as _____.
A. environmental smoke C. passive smoke
B. active smoke D. dirty air
11. The following are risk factors for high blood pressure **EXCEPT**:
A. excess cholesterol C. obesity
B. exercise D. smoking
12. Which of the following food intake is caused by primary hypertension or high blood pressure?
A. high sugar intake C. high salt intake
B. high cholesterol intake D. high vegetable intake
13. If hypertension is the medical term for high blood pressure, what is for hypotension?
A. low blood pressure C. low sugar level
B. low energy level D. low stress level

14. What common lung disease is caused mainly by smoking and having a hard time breathing?
- A. Chronic Obstructive Pulmonary Disease
 - B. asthma
 - C. bronchitis
 - D. flu
15. Why does your pulse rate increase after having an extreme exercise?
- A. because you are tired
 - B. because you want so
 - C. because you need more oxygen
 - D. because you consume more food



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Answer Key

What I Know

- ## What's In

- ## What's new

- ## What is it

What's More

1. The cotton balls are white and clean.
2. The smoke get inside the bottle and have stain brown/dark substance and full of smoke inside.
3. The cotton balls turn to brown or dark color.

What's More

- ## Guide Questions:

- ## What I Have Learned

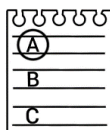
- ## What Can I Do

The answer may vary.

Assessment

1. D
2. D
3. A
4. A
5. B

Additional Activity: The answer may vary



Answer Key

<p>Lesson 2</p> <p>What's In</p> <p>Possible answer/ The answer may vary.</p> <p>1. To rest or relax the tissue or organs in the body.</p> <p>2. To maintain healthy body.</p> <p>What's new</p> <p>1. Healthy Unhealthy Lifestyle</p> <p>2. The circulatory and respiratory will malfunction and it leads to sickness and worst is death.</p> <p>What is it</p> <p>Possible answer</p> <p>Change the unhealthy to healthy lifestyle like from cigarette smoking to stop smoking, alcohol drinker to water drinker, fatty food to fruits and vegetable from sleep late to early sleep.</p> <p>What's more</p> <p>What' More</p> <p>1. Unhealthy lifestyle is a big factor to effect of functioning of the respiratory and circulatory system because of what we eat, drink and activities.</p> <p>2. The diseases can be getting from unhealthy lifestyle are lung, throat, oral cancer, infertility, acute bronchitis, and tuberculosis.</p> <p>3. We can the unhealthy lifestyle if we are ready to change.</p> <p>4. He or She might die at early age.</p>	<p>Continuation of Lesson 2</p> <p>What I Learned</p> <p>The answer may vary.</p> <p>What I can do</p> <p>The answer may vary.</p> <p>Assessment</p> <p>1. C 2. A 3. D 4. C</p> <p>Additional Activities</p> <p>The answer may vary</p>
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