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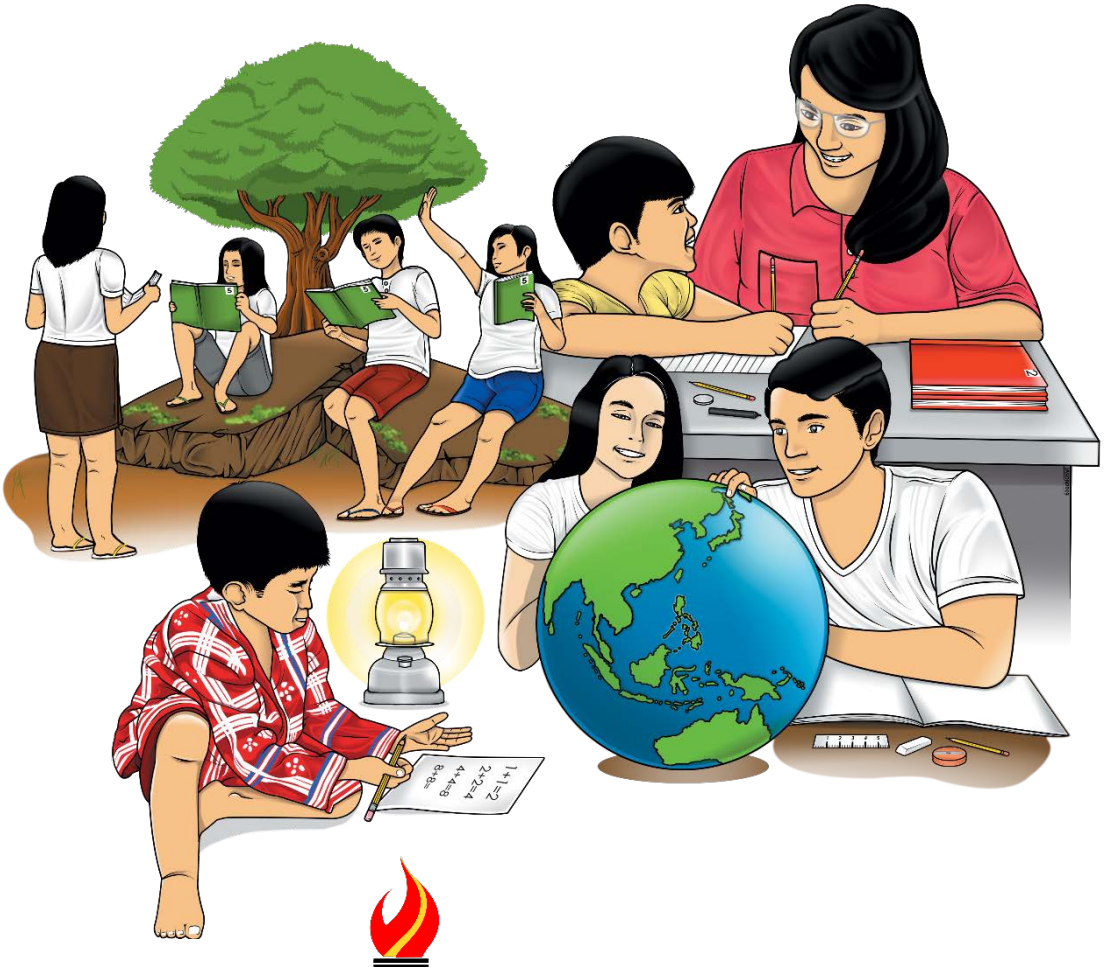
Science

Quarter 2 – Module 3:
Explain How the Different Organ System Work Together



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Quarter 2 – Module 3: Explain How the Different Organ System Work Together **First Edition, 2019**

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Science

Quarter 2 – Module 3:

Explain How the Different Organ System Work Together

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Introductory Message

This Self- Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises and discussion are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide your step by step as you discover and understand the lesson prepared for you.

Pre- test are are provided to measure your prior knowledge on lesson on each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator on your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self –check your learning. Answer key are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Note to the teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home- based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module do not hesitate to consult your facilitator.

Thank you.

The following are the parts of this module that will help you finish your tasks. Read the following descriptions below to better understand each part.

This module has the following parts and corresponding icons:

 ***What I Need to Know***	This will give you an idea of the skills or competencies you are expected to learn in the module.
 ***What I Know***	This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module.
 ***What's In***	This is a brief drill or review to help you link the current lesson with the previous one.
 ***What's New***	In this portion, the new lesson will be introduced to you in various ways; a story, a song, a poem, a problem opener, an activity or a situation.
 ***What is It***	This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.
 ***What's More***	This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.
 ***What I Have Learned***	This includes questions or blank sentence/paragraph to be filled in to process what you learned from the lesson.
 ***What I Can Do***	This section provides an activity which will help you transfer your new

	knowledge or skill into real life situations or concerns.
 ***Assessment***	This is a task which aims to evaluate your level of mastery in achieving the learning competency.
 ***Additional Activities***	In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned.
 ***Answer Key***	This contains answers to all activities in the module.

At the end of this module you will also find:

References	This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!

What I Need to Know

This module was designed and written with you in mind. It is here to help you master how the Major Organs of the Nervous System work with Musculo-Skeletal, Digestive, Respiratory and Circulatory System. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module is about:

- Explaining how the different organ system work together

After going through this module, you are expected to:

- Explain how the major organ system work together

What I Know

A. Direction: Write the letter of the correct answer. Write it on your Science journal.

1. Which of the following is the function of integumentary system?
   a. it serves as a body covering
   b. it serves as the pathway of the blood
   c. it serves as a sense of touch
   d. both a and c

2. How do musculo-skeletal system worked together?
   a. Muscles attached to the bones and produced movement by
      contracting and relaxing.
   b. Muscles attached to the skin and produced movement by
      the help of the epidermis.
   c. Muscles attached to the ribs and spinal column and thus it
      produce movement.
   d. Muscles attached to the cartilage thus producing movement.

3. The following are the work of circulatory system **except** _____**.**
   a. carrying nutrients to the cells
   b. carrying oxygen to the different parts of the body
   c. carrying message to the brain
   d. carrying wastes product of the cells

4. How circulatory system work together with respiratory system?
   a. Circulatory system breaks down food to be absorbed by the respiratory system as it provides oxygen to the cells
   b. Circulatory system carries nutrients to the respiratory system as it provides oxygen to the circulatory system.
   c. Circulatory system carries message to the respiratory as it provides oxygen to the circulatory system
   d. Circulatory system carries oxygen to the cells of respiratory system as it provides nutrients to the circulatory system.

5. How digestive system work together with respiratory and circulatory system?

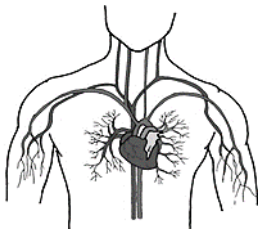
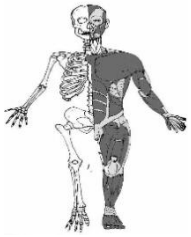
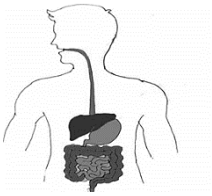
a. Digestive system digests food to be carry out by the circulatory system to the respiratory system as it provides oxygen to the digestive system.

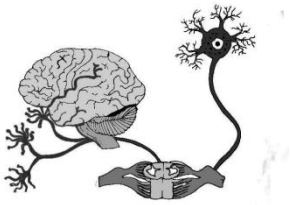
b. Digestive system digests food to be carry out by the respiratory system to the circulatory system as it provides oxygen to the digestive system

c. Digestive system carries nutrients to the circulatory system, while circulatory system digests food for the digestive system as it provides oxygen

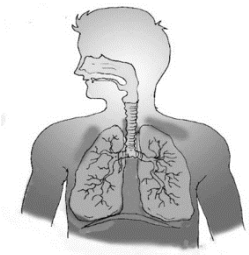
d. Digestive system provides food and oxygen to the circulatory and respiratory system.

B. Direction: Match the body system to its proper function. Write in on your Science journal.

	A	**B**
6.		a. provides support and movement
7.		b. breaks down food into into smaller substances
8.		c. helps in breathing in oxygen and breathing and breathing out of carbon-dioxide

9. 

d. carries nutrients to the cells and carry out the wastes product of the cells

10. 

e. serves as control unit of the body

Lesson 1	**Explain How the Different Organ System Work Together**

Humans are considered as the most complex living things because we are composed of different organ systems. Each part of the body system does a special job as it coordinates with one another to perform specific function.

These specific task carry out by the body enables us to grow, breathe, move, and carry on activities such as dancing, jumping and texting.

What's In

Direction: Choose the letter of the correct answer. Write the answer on your journal.

1. Which is the longest bone in the body?
   a. clavicle
   b. ulna
   c. radius
   d. femur

2. Ribs are bones at the side of the chest. Which of the following organs are protected by the ribs?
   a. heart and lungs
   b. kidneys and gall bladder
   c. liver and intestines
   d. brain and stomach

3. A type of voluntary muscles that are controlled by the bones and responsible for all kinds of movement.
   a. Cardiac muscles
   b. Smooth muscles
   c. Skeletal muscles
   d. Cardiac muscles

4. It is the largest organ in the body that secretes bile that aids in the digestion of fats.
   a. pancreas
   b. liver
   c. intestines
   d. esophagus

5. What part of the brain responsible for the voluntary movements of the body?
   a. brain stem
   b. cerebellum
   c. cerebrum
   d.hypothalamus

6. What is the main organ of the respiratory system?

a. lungs
b. bronchi
c. pharynx
d. nostrils

7. Which of the following is a muscular organ that pumps blood throughout the body?

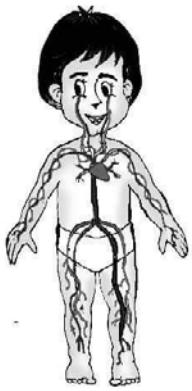
a. atria
b. ventricles
c. ventricles
d. heart

8. The _____ is the outer layer of the skin where hair is located.

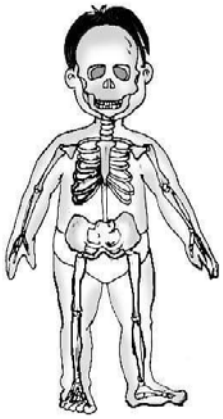
a. dermis
b. hair follicles
c. epidermis
d. fatty tissues

What's New

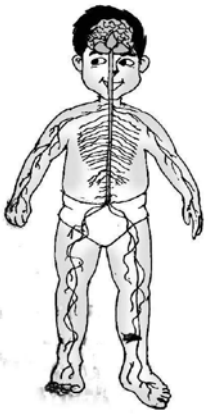
Direction: Based on the picture below, complete the table by supplying the correct answer using your Science journal.



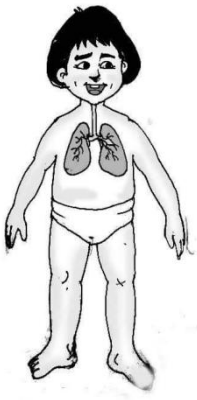
Circulatory System



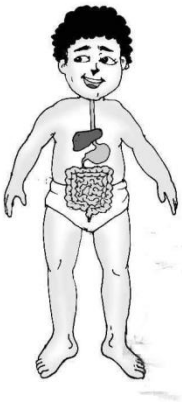
Skeletal System



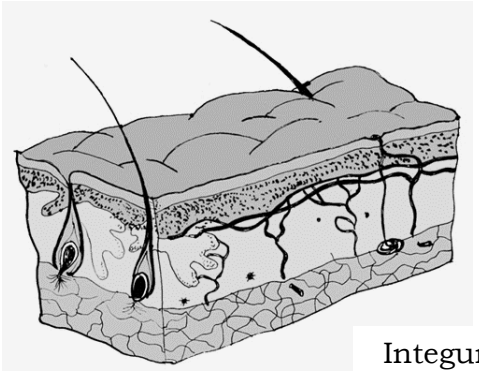
Nervous System



Respiratory System



Digestive System

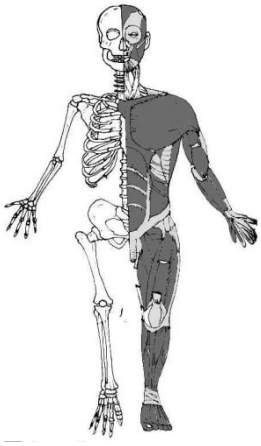


Integumentary system

Body System	Organs Involve	Functions of the Body System
Integumentary System		
Muscular System		
Skeletal System		
Digestive System		
Respiratory System		
Circulatory System		
Nervous System		

What Is It

Different major organs of the body worked together to keep our body alive and produce different movements with specific functions and coordination yielding desired result. The following are the body system and their specific functions:

1. 

Musculo-skeletal System

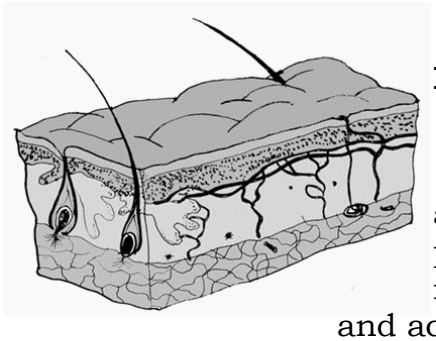
The musculo-skeletal system provides support to the body and enables the body to produce movement.

Bones in the body (skeletal system)
muscles (muscular system), the cartilage,
tendons, ligaments, joints, and other
connective tissue that supports and binds
tissues muscular system comprise
musculo-skeletal system.

Muscular System – all muscles in the body make up the skeletal system which allow us to move. These consists of the three types of muscles, the cardiac muscles that controls the heart, smooth muscles controls involuntary movement of

the digestive tract, blood vessels, and bladder, and the skeletal muscles are voluntary muscles controlled to move bones.

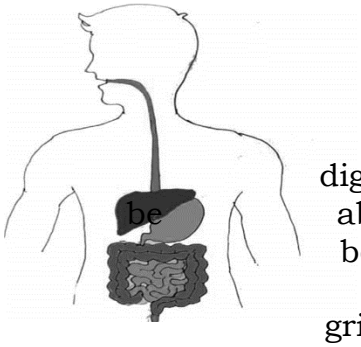
Skeletal System – all the bones in the body make up the skeletal system, which protects internal organs and supports the body. It also produce millions of blood cells needed by the body.



Integumentary System

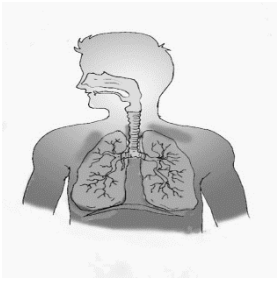
2. The integumentary system serves as body covering that provides protection to our body against microorganisms, temperature, and acts as receptor for touch.

The skin is composed of tough skin cells and tough protein called keratin that protect tissues, organs, and other stuctures underneath the skin against physical damage from minor cuts,



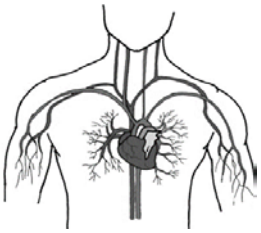
Digestive System

Digestive system works in digesting food into substances that can be absorbed by the body. Digestion begins in the mouth by breaking food by means of cutting, tearing, and grinding known as mechanicadigestion. The breakdown of food into smaller molecules by enzymes found in the digestive system is known as chemical digestion. Final digestion of food takes place in the small intestine and absorption of nutrients happen.

4. 

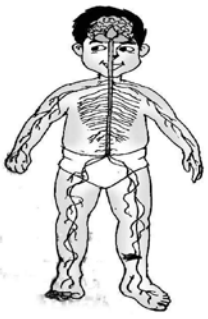
Respiratory System

Respiratory system is responsible for the exchange of gases such as carbon-dioxide to oxygen in the bloodstream. Respiratory process starts from the nostrils, pharynx, to the trachea, into the bronchi and to the lungs.

5. 

Circulatory System

Circulatory system is a transport system of the body responsible for the distribution of nutrients to the cells and carries away the wastes product of the cells. The heart is the vital organ in the circulatory system that pumps blood to all body parts. The blood vessels are the railway station of the blood enable blood to reach different parts of the body that serve as . Blood is another component of the circulatory system as it circulates to all parts of the body as it transport oxygen from the lungs to the cells and carries the waste materials from the cells.

6. 

Nervous System

Nervous system is the control unit of the body thus it regulates and coordinates body processes. It has two major divisions: the central nervous system (CNS) composed of brain

and spinal cord and the peripheral nervous system (PNS) consists mainly of nerves that connects the CNS with the rest of the body.

Its major parts are the brain, spinal cord, and neurons or nerve cells.

Brain is the control unit of the body as it interprets messages, make judgments, to have sensations, and to think creatively. The spinal cord is a cordlike material encased in a spinal column that links between the brain and the PNS. It is also responsible for a reflex action or an instantaneous movement that protect the body from harm. The neurons or nerve cells are the working unit of the nervous system as it transmit information to the nerve cells, muscles or gland cells.

What's More

Below is the information of the interactions of the **Nervous System** on the different body systems.

Table 1

System	***Functions***	***Interactions with the Nervous System***
Skeletal	1. It supports the body/framework of the body. 2. It protects the internal organs of the body. 3. The skeletal system produces blood cells. 4. It stores minerals like calcium and phosphorous.	1. The skull protects the brain from injuries. 2. The brain controls the position of the bones in the body. 3. The spinal column protects the spinal cord from injury. 4. Bones provide calcium essential for the function of the nervous system.

Muscular	1. Different types of muscles control voluntary and involuntary movement of the body. 2. Muscles produce heat to maintain body temperature. 3. Muscles move food in the digestive tract. 4. It contracts heart.	1. The brain controls voluntary movement. 2. Muscles in the body provide information to the brain. 3. The nervous system regulates the speed at which food moves through the digestive tract.
Integumentary	1. The skin is the body covering for protection, regulates body temperature and acts as receptor for touch.	1. The receptor cells in the skin send message to the brain. 2. Brain controls the sweat glands of the body. 3. The nerves in the underneath the skin control muscles connected to the hair follicles
Digestive	1. The digestive system stores and digests food into simpler form . 2. It provides food to the body. 3. It eliminates waste of the body.	1. The digestive system provide food for the brain 2. Brain controls eating behavior/stomach contraction. 3. The brain controls muscles for eating and elimination. 4. The digestive system sends sensory information to the brain.
Respiratory	1. The respiratory system supplies oxygen to the blood and remove carbon-dioxide.	1. The brain monitors respiratory process 2. The brain controls respiratory rate.
Circulatory	1. The circulatory system carries nutrients to the cells and carries away waste product of the cells. 2. The heart pumps blood to all parts of the body.	1. The brain controls blood and heart beat activities. 2. The brain regulates heart rate and blood pressure.

Direction: Based on Table 1, complete the data below.
Write the answers on your journal.

1. Describe how nervous system worked with integumentary system.

Receptor cells of the _____ brain

Brain controls _____ .

2. How nervous system do work with musculo-skeletal system?

Skull protects _____.

The brain controls the _____ and _____ movement.

3. How nervous system worked with the circulatory system?

Circulatory system carries _____ and _____

product of the cells.

Brain controls _____ and _____ activities.

4. How nervous system do work with respiratory system?

Respiratory system supplies _____ to the brain.

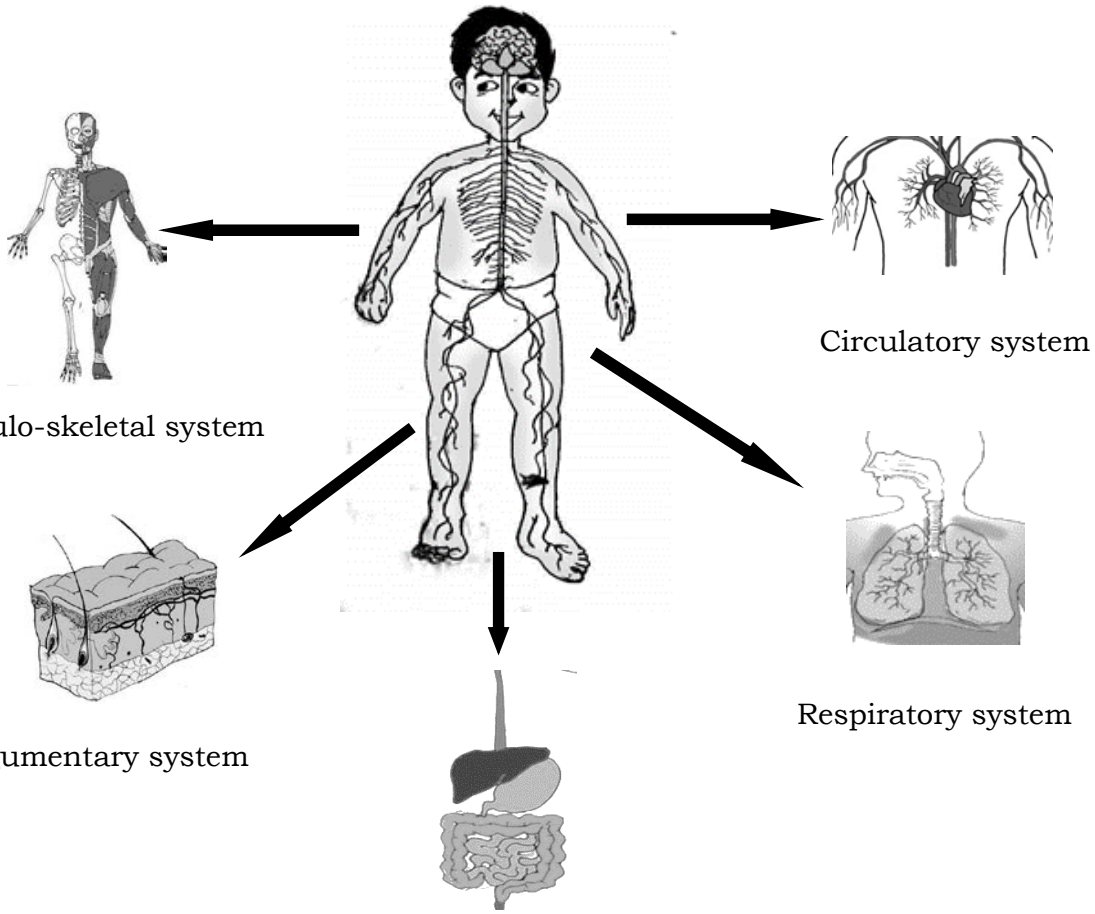
5. Based on the illustration below explain how the different organ system work together.

_____

_____

_____

Nervous System



What I Have Learned

Direction: Write the correct answers using your journal.

I learned that…….

Nervous system do work with the following body systems such as:

Skeleletal system by controlling the _____

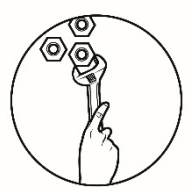
Muscular system by controlling _____

Integumentary system by controlling _____

Digestive system by controlling _____

Respiratory system by monitoring _____

Circulatory system by controlling _____ and _____.



What I Can Do

Study the chart below. Check the **YES** column showing healthful habit that promotes proper functioning of the organ system and check the NO column if not.

HEALTHFUL HABITS	YES	NO
1. Eat balanced diet.		
2. Have enough rest every day.		
3. Playing video games until midnight.		
4. Take a bath every day.		
5. Sunbathing from 10 – 12 noon.		
6. Sleep at least 6 hours a day.		
7. Exercise regularly.		
8. Eat too much fatty foods.		
9. Have proper ventilation and sunshine in you room.		
10. Have medical check-up regularly.		

Assessment

Direction: Choose the correct answer in each number.
Use a separate sheet for your answers.

1. How musculo-skeletal system do work with the integumentary system?

a. Musculo-skeletal system gives support to the body and help the body to move while integumentary system gives protection to the musculo-skeletal system by providing a protective covering.

b. Musculo-skeletal system gives oxygen to the integumentary system while integumentary system provides food to the musculo-skeletal system.

c. Musculo- skeletal system pumps blood to integumentary system while integumentary system gives support to the musculo-skeletal system

d. Musculo-skeletal system excrete sweat thus providing pathway to the integumentary system in absorbing oxygen.

2. How respiratory system do work with circulatory system?

a. Respiratory system provides nutrients to the circulatory system, thus circulatory system provides oxygen to the respiratory system

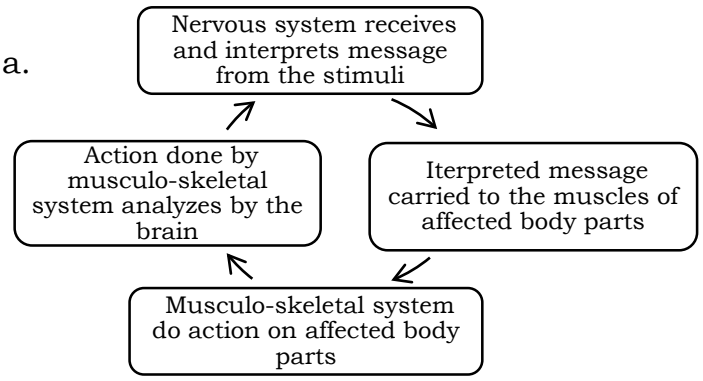
b. Respiratory system serves as pathway of blood carrying nutrients to the circulatory system, thus circulatory system pumps blood to the respiratory system.

c. Respiratory system provides oxygen to the circulator system, thus circulatory system carry blood with nutrients needed by the respiratory system.

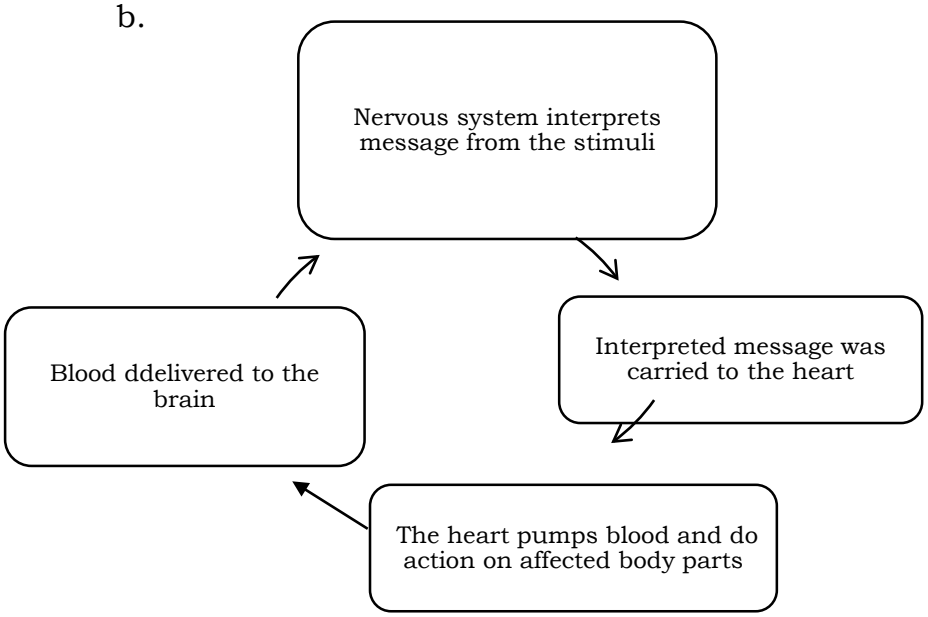
d. Respiratory system carries carbon-dioxide to the circulatory system, thus circulatory system provide oxygen needed by the respiratory system.

3. Analyze how the nervous system do work with musculo- skeletal system.

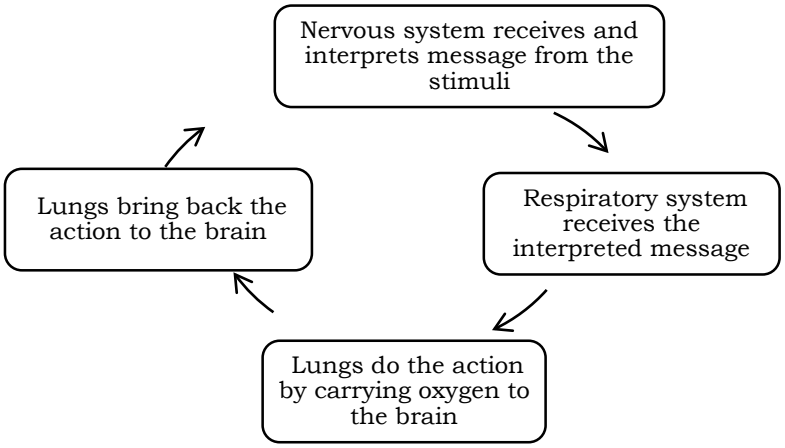
a.



b.



c.



d. None of the above

4. How digestive system do work with circulatory system?
   a. Digestive system provides oxygen to the circulatory system and circulatory system provides nutrients to the digestive system
   b. Digestive system provides support to the circulatory system and circulatory system pumps blood to the digestive system
   c. Digestive system digests food into simpler form which will be needed by the circulatory system and the circulatory system distributes nutrients to the body parts
   d. Digestive system excrete waste product produce by the circulatory system and the circulatory system interprets message coming from the digestive system

5. Which of the following is the work of circulatory system?
   a. Gives support to the body
   b. Interprets all messages
   c. Responsible for the exchange of oxygen and carbon dioxide
   d. Carries nutrients to the cells and carries away the waste product of the cells

Direction: Complete the sentence with the correct word found inside the box.

alive
respiratory
eating behavior, stomach contraction
flow, sweat glands
oxygen

Nervous system do work with integumentary system by controlling blood _____ and _____ (6). It also worked with digestive system by controlling _____ and _____(7)

The respiratory system worked with the nervous system by supplying _____ (8) to the brain, while nervous system monitors _____(9) process. Major organs of the body worked together to keep our body _____ (10)

Additional Activities

Identify what body system is involve in each of the following activities.

Activities	Body System Involved	Explaination/Reason
Running		
Answering the test		
Eating breakfast		
Touching a hot glass of milk		
Sleeping		

Answer Key

What I Know

1. d
2. a
3. c
4. b
5. a
6. d
7. a
8. b
9. e
10. c

What's New

1. skin-body covering/regulates body temperature
2. muscles-for movement
3. bones-supports the body
4. stomach, liver, intestines-digests food
5. lungs-exchange of oxygen and carbon dioxide
6. heart, blood, blood vessels- carries nutrients to the cells and carries away waste product of the cells
7. brain, spinal cord, nerves-controls body activities

What's More

1. skin sends message to the brain
   Sweat gland of the body
2. brain
   position of the bones
   movement of muscles
3. nutrients, carries away waste product
   blood, heartbeat
4. oxygen
5. answers may vary

What I Have Learned

position of the bones
movements of the muscles
blood flow, sweat glands
eating behavior, stomach contraction
respiratory process
blood, heart beat activities

What I Can Do

Answers vary

Assessment

1. a
2. c
3. a
4. c
5. d
6. flow, sweat glands
7.eating behavior, stomach contraction
8. oxygen
9. respiratory
10. alive

Additional Activities

Mammals:
bat,cat,carabao

Amphibians:
swamp frog, toad, frog
Reptiles:
lizard, snake, crocodile
Birds:
maya, white heron, chicken
Fish:
bangus, tilapia, stingray

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