Senior High School

DepED
DEPARTMENT OF EDUCATION

Earth and Life Science

Quarter 2 – Module 7: Organ Systems of Representative Animals

ALTERNATIVE DELIVERY MODE
ADM

Earth and Life Science

Alternative Delivery Mode Quarter 2 – Module 7: Organ Systems of Representative Animals

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What I Need to Know

This module was designed and written with you in mind. It is here to help you master the nature of Organ Systems. 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.

The module is divided into three lessons, namely:

• Lesson 2 – Functional Relationships of the Different Organ Systems in Ensuring Animal Survival

After going through this module, you are expected to:

1. Identify the different function organ system of the representative animal; and
2. Explain the functional relationships of the different function organ system in ensuring animal survival.

Lesson 2 Functional Relationships of the Different Organ Systems in Ensuring Animal Survival

Every day, you use your body to do a lot of things. Because of your body, you can think, move, play and generally go about your daily activities. There are lot of things happening inside your body that make life possible. You are alive because of the many wonderful systems of organs that work together perfectly through very complex processes. These organ systems keep in touch with one another, exchanging information and working together to keep you alive.

What's In

The body of an animal consist of various organ systems. Each contains several specific organs. An organ is a unique anatomic structure consisting of groups of tissues that work in concert to perform specific function.

System of the Body	Major Organ	Function of the Organ System
Digestive System	Esophagus, stomach, small intestine, large intestine, rectum	Processes foods and absorb nutrients, minerals, vitamins, and water.
Respiratory System	Nose, trachea, bronchi, lungs	Delivers air to sites where gas exchange can occur.
Circulatory System	Heart, blood vessels	Transports oxygen, nutrients and other substances to the cells and transport wastes, carbon dioxide and other substances away from the cells; help to stabilize body temperature and pH.
Urinary System	Kidneys, urinary bladder, ureter	Removes excess water, salts, and waste products from the blood and body and controls pH
Immune System	Bone marrow, thymus	Defends against microbial pathogens and other diseases
Nervous System	Brain, spinal cord	Collects, transfers and processes information and directs short term change in other organ systems.
Endocrine System	Glands produce hormones	Provides communication within the body via hormone and direct long-term change in other organ systems to maintain homeostasis
Muscular System	Muscles, tendons	Provides movement, support and heat production
Skeletal System	Bones, cartilages, ligaments	Supports and protects soft tissues of the body; provide movement at joints; produces blood cells

What's New

There are various systems in the animal's body: muscular system, respiratory system, digestive system, skeletal system, circulatory (or cardiovascular) system, excretory (or urinary) system, reproductive system, nervous system, Immune system, and endocrine system. Each system has a special job. All of the body systems have to work together to keep them healthy. The bones and muscles work together to support and move the body. The respiratory system takes in oxygen from the air.

It also gets rid of carbon dioxide. The digestive system absorbs water and nutrients from the food we eat. The circulatory system carries oxygen, water, and nutrients to cells throughout the body. Wastes from the cells are eliminated by the respiratory system, the excretory system, and the skin. The nervous system controls all these activities with electrical impulses. If any system in the animals isn't working properly, other systems are affected.

ACTIVITY 1. Matching Type

Directions: Match Column A with the description on Column B. Write the letter of the correct answer on the space provided before the number.

COLUMN A	COLUMN B.
_____1. Digestive system and Muscular System	A. These systems interact when food is pushed down the esophagus to the stomach.
_____2. Muscular System and Respiratory System	B. These systems interact when the kidneys filter materials out of the body.
_____3. Urinary System and Circulatory System	C. These systems interact to allow the inhalation and exhalation of gases in the lungs through the help of accessory muscles.
_____4. Endocrine System and Nervous System	D. These systems interact when glands of the brain control functions of the body.
_____5. Respiratory system and Circulatory system	E. Takes oxygen for the delivery to cells and removes carbon dioxide brought from the cell
_____6. Endocrine System and Skeletal System	F. Hormone increases the heart rate of an animal in danger
_____7. Digestive System and Circulatory System	G. The brain sends signals that the person needs to go to the bathroom for urination.
_____8. Immune System and Skeletal System	H. Bone marrow produces red blood cell.
_____9. Nervous System and Urinary System	I. Protein and sugar travel from the intestines directly to blood.
_____10. Endocrine System and Circulatory System	J. The hormone testosterone increases the bone density of a growing male.

What is It

Each Body System Works with the Others

Each individual body system works in conjunction with other body systems. The circulatory system is a good example of how body systems interact with each other. The heart pumps blood through a complex network of blood vessels. When the blood circulates through the digestive system, for example, it picks up nutrients the body absorbed from the last meal. The blood also carries oxygen inhaled by the lungs. The circulatory system delivers oxygen and nutrients to the other cells of the body then picks up any waste products created by these cells, including carbon dioxide, and delivers these waste products to the kidneys and lungs for disposal. Meanwhile, the circulatory system carries hormones from the endocrine system, and the immune system's white blood cells that fight off infection.

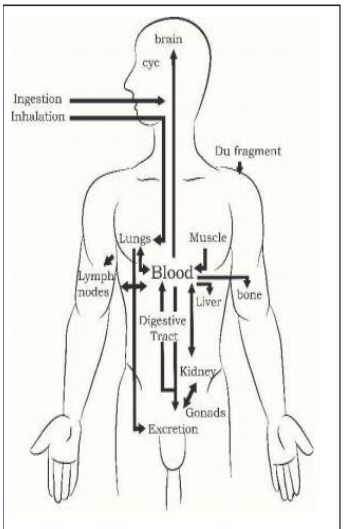


Fig. 1 How the Human Body Systems work

Each of the body systems relies on the others to work well. The respiratory system relies on the circulatory system to deliver the oxygen it gathers, while the muscles of the heart cannot function without the oxygen they receive from the lungs. The bones of the skull and spine protect the brain and spinal cord, but the brain regulates the position of the bones by controlling the muscles. The circulatory system provides the brain with a constant supply of oxygen-rich blood while the brain regulates the heart rate and blood pressure.

Even seemingly unrelated body systems are connected. The skeletal system relies on the urinary system to remove waste produced by bone cells; in return, the bones of the skeleton create structure that protects the bladder and other urinary system organs. The circulatory system delivers oxygenrich blood to the bones. Meanwhile, the bones are busy making new blood cells. Working together, these systems maintain internal stability and balance, otherwise known as homeostasis.

What's More

Each organ system interacts with at least one other organ system. Organ systems do not work independently; organ systems interact with each other to keep the organism functioning. The systems of the body are interdependent. The job that one system carries out depends on and influence jobs carried out by other systems.

Activity 1

Complete the table below by listing the body systems that interact together for each scenario described.

SYSTEMS	INTERACTION
1.	Lungs supply oxygen carried by the blood to cells of the body
2.	Nutrients pass into the circulatory system to be carried to body cells
3.	Kidneys remove wastes from blood
4.	Movement of the diaphragm in breathing
5.	Production of blood cells in bone marrow
6.	Daily movement and coordination
7.	Pumping of the heart & blood
8.	Chewing, swallowing and movement of food through the digestive tract
9.	Pulmonary vein brings blood from the lugs back to the heart
10.	Muscles in the leg cause the tibia and fibula bones to move upward

Question:

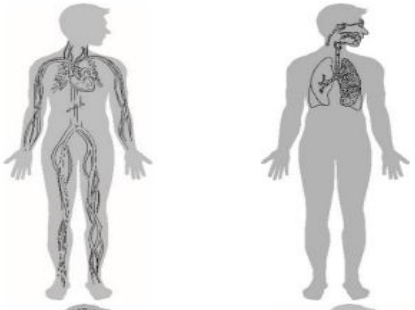
1. How do they all function together?

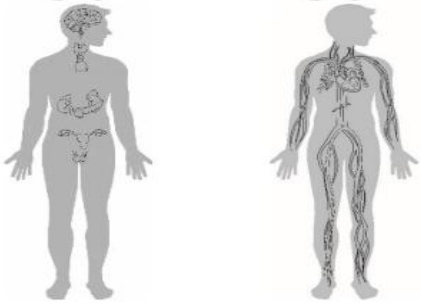
_____

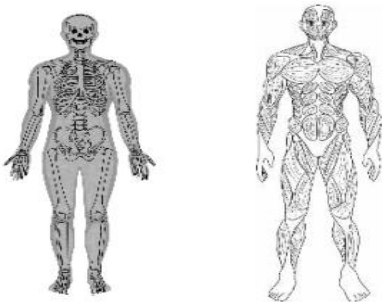
_____

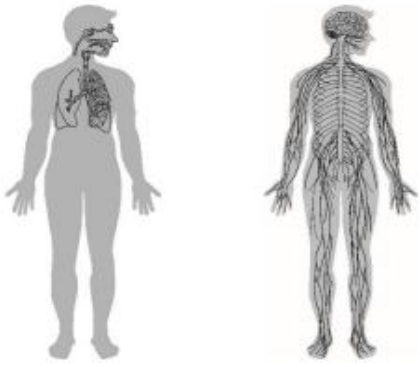
Activity 2

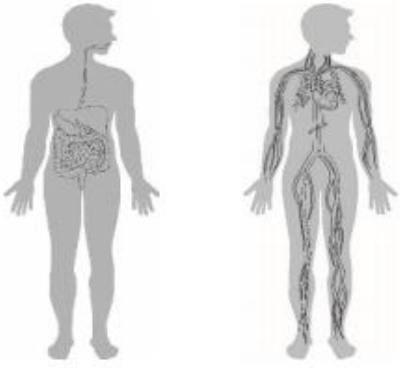
The human body systems interact to perform several functions for the whole organism. Give the functions of the body when two systems work together.

1. 

2. 

3. 

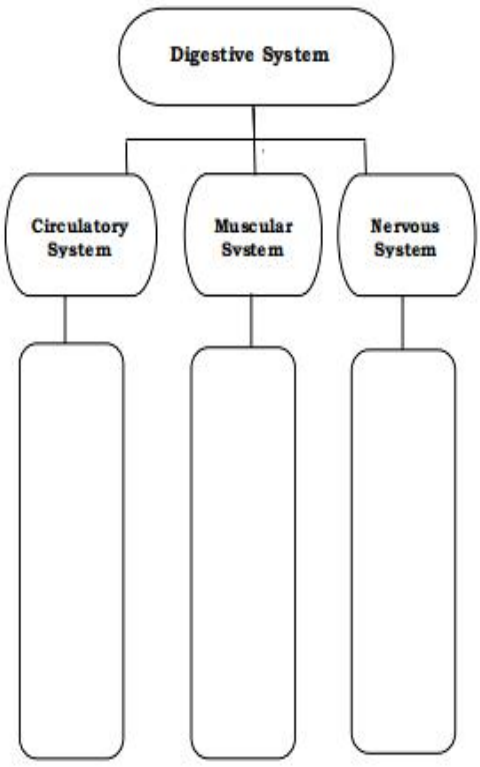
4. 

5. 

Activity 3

Complete the table by writing the relationship of the given organ to the different organs of the body.

1.



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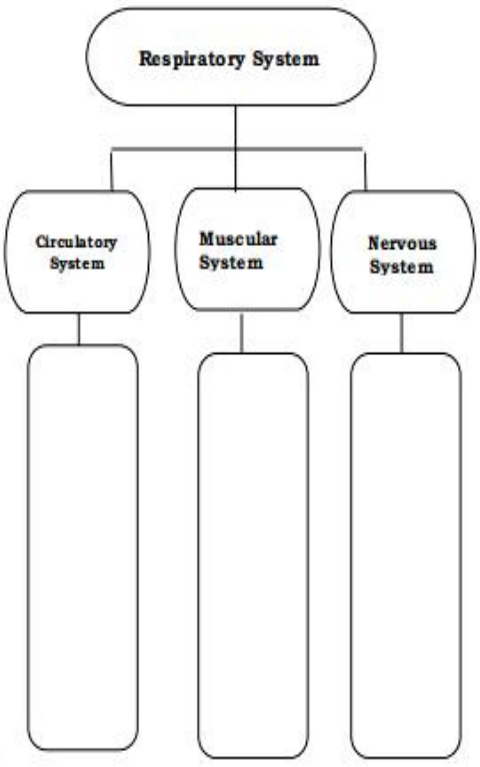

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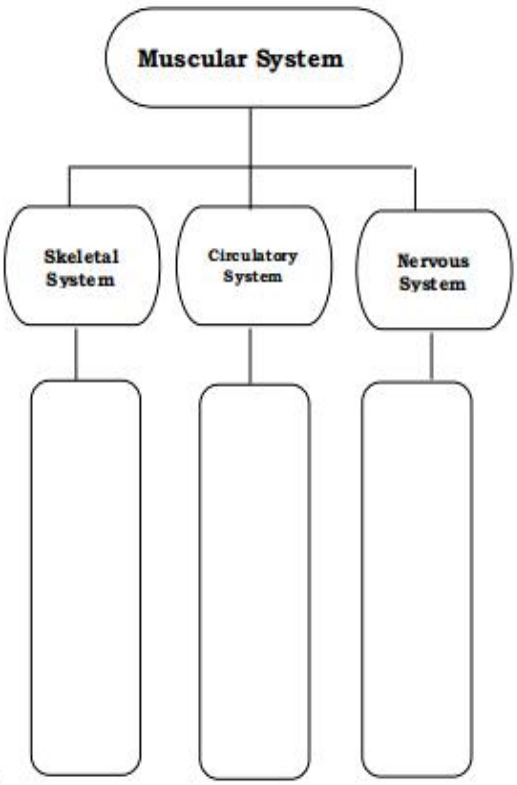

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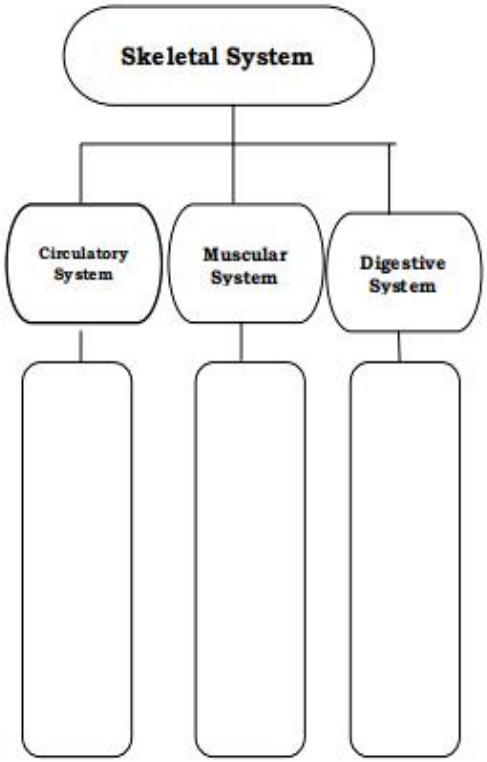

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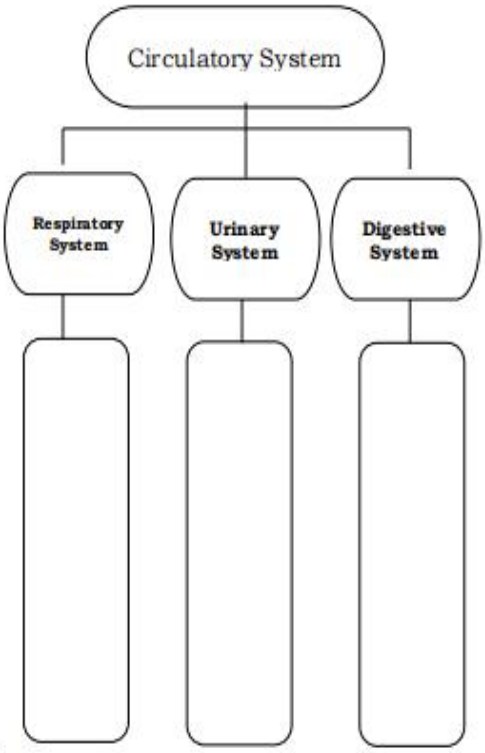

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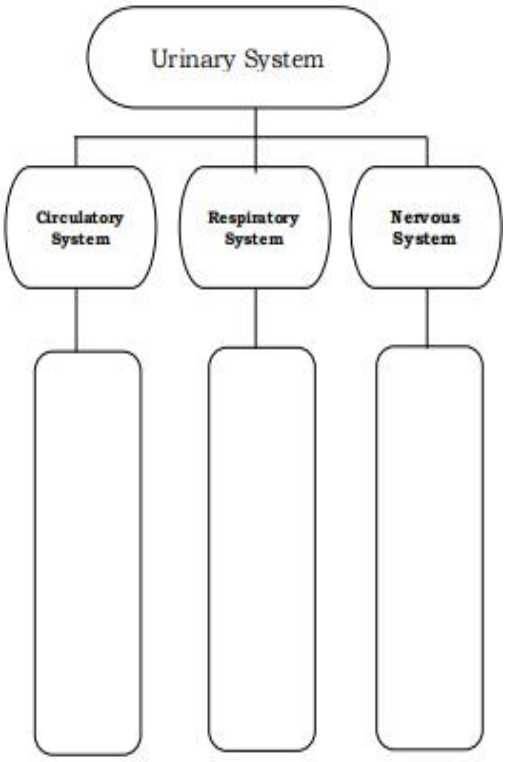

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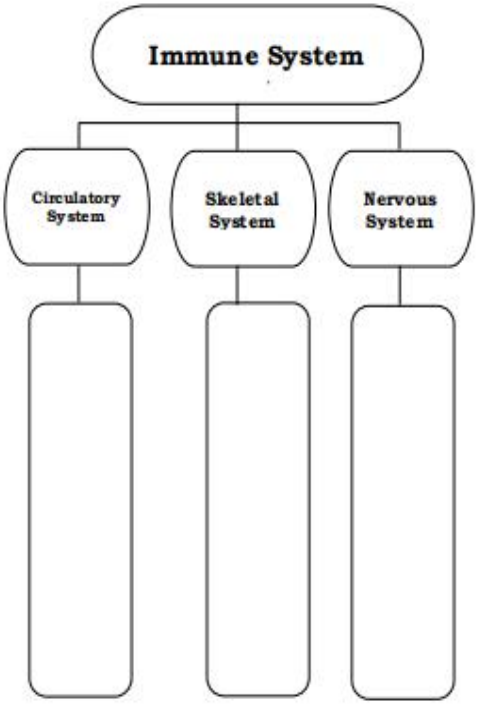

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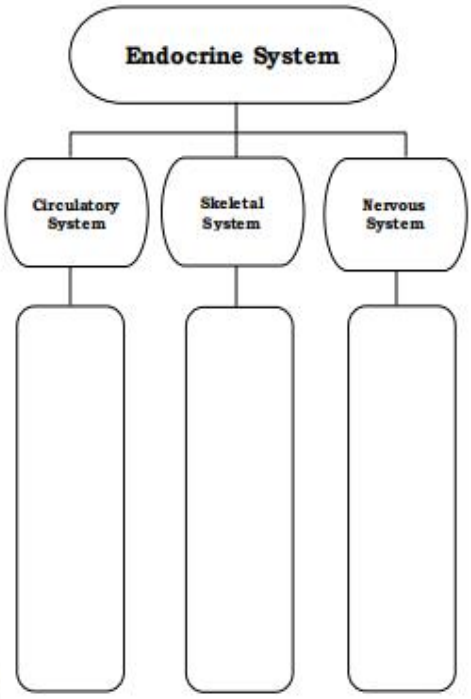

What I Have Learned

Directions: Supply the missing word to complete the sentence. Write your answers on a separate sheet of paper.

1. The digestive system relies on the _____system to deliver the nutrients to the entire body of the organism.
2. The respiratory system provides oxygen to the _____system.
3. Carbon dioxide from cells is delivered from the circulatory system back to the_____ system so it can exit the body.
4. The circulatory system carries the waste from throughout the organism to the _____ system, which takes care of excreting the waste from the organism.
5. The circulatory system and the _____system interact to deliver oxygen to and to remove carbon dioxide from cells.

What I Can Do

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

1. How will you protect your body from pathogens?

_____
_____

2. Write a paragraph on how your body system is working together?

While I am (cite your activity) _____ here is how my body systems are working together.

_____
_____

Additional Activities

Reflection: You can't have one without the other: How can you relate this to your body systems?

RUBRICS

CRITERIA	5 EXCELLENT	3 GOOD	2 NEEDS IMPROVEMENT	1 LOW PERFORMANCE
PURPOSE	Strong voice and tone that clearly addresses the purpose for writing.	Appropriate voice and tone. The purpose is largely clear.	Attempts to use personal voice and tone. Somewhat addresses the intended purpose.	Demonstrates limited awareness of use of voice and tone. Limited evidence of intended purpose.
UNDERSTANDING	Many interesting, specific facts and ideas are included.	Many facts and ideas are included.	Some facts and ideas are included.	Few facts and ideas are included.
GRAMMAR	Journal contains no errors in grammar, capitalization, or punctuation	Journal contains 1- 2 errors in grammar, capitalization, or punctuation.	Journal contains 3- 4 errors in grammar, capitalization, or punctuation.	Journal contains 5 or more errors in grammar, capitalization, or punctuation.

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