PIVOT 4A LEARNER'S MATERIAL

QUARTER 2
Science
G4

MELC -based SLM

DepEd CALABARZON
Curriculum and Learning Management Division

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The Editors

PIVOT 4A Learner's Material
Quarter 2
First Edition, 2020

Science
Grade 4

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Guide in Using PIVOT 4A Learner's Material

For the Parents/Guardians

This module aims to assist you, dear parents, guardians, or siblings of the learners, to understand how materials and activities are used in the new normal. It is designed to provide information, activities, and new learning that learners need to work on.

Activities presented in this module are based on the Most Essential Learning Competencies (MELCs) in English as prescribed by the Department of Education.

Further, this learning resource hopes to engage the learners in guided and independent learning activities at their own pace. Furthermore, this also aims to help learners acquire the essential 21st century skills while taking into consideration their needs and circumstances.

You are expected to assist the children in the tasks and ensure the learner's mastery of the subject matter. Be reminded that learners have to answer all the activities in their own notebook.

For the Learners

The module is designed to suit your needs and interests using the IDEA instructional process. This will help you attain the prescribed grade-level knowledge, skills, attitude, and values at your own pace outside the normal classroom setting.

The module is composed of different types of activities that are arranged according to graduated levels of difficulty—from simple to complex. You are expected to :

a. answer all activities on separate sheets of paper;

b. accomplish the **PIVOT Assessment Card for Learners on page 38** by providing the appropriate symbols that correspond to your personal assessment of your performance; and

c. submit the outputs to your respective teachers on the time and date agreed upon.

Parts of PIVOT 4A Learner's Material

	K to 12 Delivery Process	Descriptions
Introduction	What I need to know	This part presents the MELC/s and the desired learning outcomes for the day or week, purpose of the lesson, core content and relevant samples. This maximizes awareness of his/her own knowledge as regards content and skills required for the lesson.
	What is new	
Development	What I know	This part presents activities, tasks and contents of value and interest to learner. This exposes him/her on what he/she knew, what he/she does not know and what he/she wants to know and learn. Most of the activities and tasks simply and directly revolve around the concepts of developing mastery of the target skills or MELC/s.
	What is in	
	What is it	
Engagement	What is more	In this part, the learner engages in various tasks and opportunities in building his/her knowledge, skills and attitude/values (KSAVs) to meaningfully connect his/her concepts after doing the tasks in the D part. This also exposes him/her to real life situations/tasks that shall: ignite his/ her interests to meet the expectation; make his/her performance satisfactory; and/or produce a product or performance which will help him/her fully understand the target skills and concepts .
	What I can do	
	What else I can do	
Assimilation	What I have learned	This part brings the learner to a process where he/she shall demonstrate ideas, interpretation, mindset or values and create pieces of information that will form part of his/her knowledge in reflecting, relating or using them effectively in any situation or context. Also, this part encourages him/her in creating conceptual structures giving him/her the avenue to integrate new and old learnings.
	What I can achieve	

This module is a guide and a resource of information in understanding the Most Essential Learning Competencies (MELCs). Understanding the target contents and skills can be further enriched thru the K to 12 Learning Materials and other supplementary materials such as Worktexts and Textbooks provided by schools and/or Schools Division Offices, and thru other learning delivery modalities, including radio-based instruction (RBI) and TV-based instruction (TVI).

WEEK 1

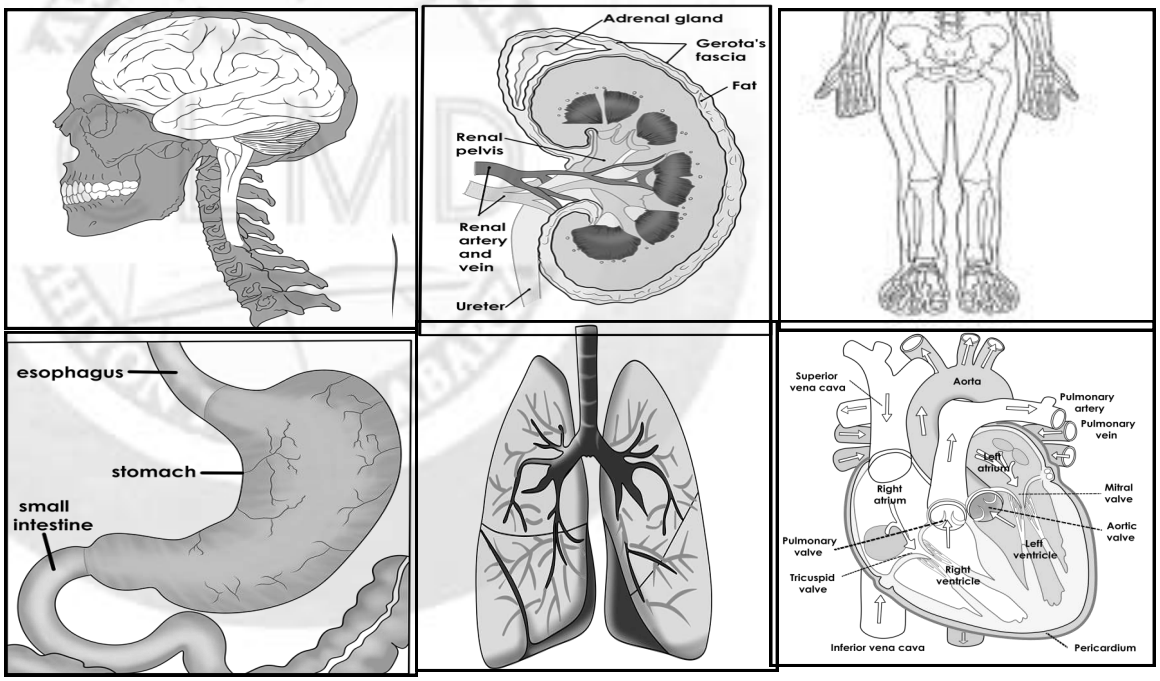
Major Organs of the Human Body

I

Lesson

Our body is composed of different parts that work together to do life processes.These body parts are called **organs**. Bones, stomach, heart and lungs are examples of organs that play important roles for us to live. For example, we cannot stand straight if we have no bones that will support our body. We will not be able to breathe without the coordinated functions of the respiratory and circulatory organs in our body. Therefore, all the organs in our body have equal importance. This lesson will give you understanding on how to **describe the main function of the major organs of the human body**. Identifying them will guide you on how to take care of them and live a longer life.

Examine the pictures below. What are the major organs of the human body? Name each of the organ that is familiar to you. Can you describe the functions of each organ?



These major organs are important to perform all our daily activities. They **work together** like machines helping us to respond to sudden changes in the environment and to interact with other people. From these reasons, we need to take care of our organs by having **healthy foods** and **exercise**. We need balanced diet in every meal with the go, grow and glow foods. We also need physical activities to use up the stored energy and regulate the different internal processes. If we do not take care of our organs, we will experience **diseases** that will greatly affect our daily life activities.

D

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Our body is composed of different types of bones. **Bones** are structural foundation for us to stand straight and form the shape in our body. They also serve to protect most of our internal organs. For instance, the skull helps to protect the brain, the backbones protect the spinal chord and the ribs that form the cage shield the heart and lungs. The pelvic bones support our body when we are sitting.

The bones in our body are also connected with each other. The point where the two bones meet and connect is called **joint**. Our joints and muscles allow our bones to move. Together with joints, **muscles** form the fleshy part that enable the body to move. They also give shape and form to our body and protect the delicate organs. **Voluntary and involuntary** muscles are its two main types in terms of movement.

We need to eat food to gain energy for our daily activities. We get the energy and nourishment from food through **digestion**. The food is chemically digested through our **stomach and intestines**. After digestion, the food is broken down into simpler form (nutrients) that is used by the body. The stomach has layers of muscles responsible for the squeezing of food as they contract and relax. During this process, special substances like **enzymes** are mixed to convert the squeezed foods into smaller forms. Then, the mixture go directly to the **small intestine** that is about 7 meters long for final digestion and absorption. The small intestine chemically changes the mixture by adding digestive juices and other enzymes that converts food into nutrients (molecules). The small intestine has layers that act like **filters**. They just absorb (let the substance to pass through) those that are essential to the body. Nutrients are the absorbable form of food that is carried by the **blood** to different parts to be used up by the body for different life activities. The **heart** pumps blood throughout the body. **Kidneys** remove excess fluids and waste products in the body through urine.

Learning Task 1: Do the activity below. Answer the guide questions in your notebook.

Materials: strainer, clean cloth and a mixture of salt, flour (any available powder), and water.

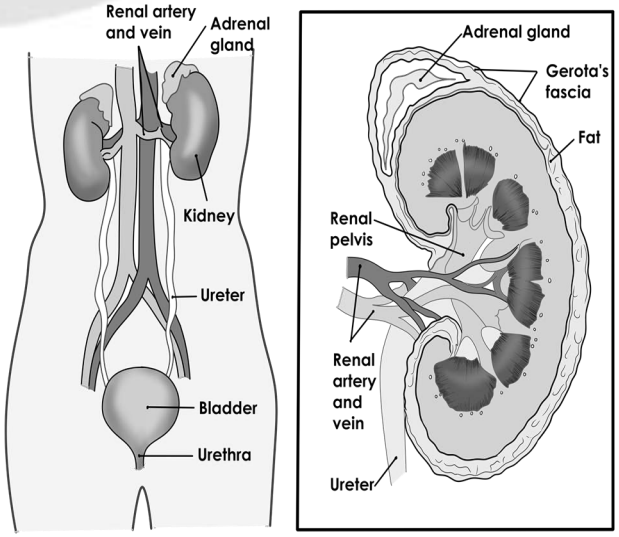
Procedure:

1. Set the clean cloth on the strainer.
2. Pour the mixture to the strainer with cloth.
3. Observe what will happen.

Guide Questions:

1. What happened to the mixture as it is poured into the strainer with cloth?
2. What materials pass through the cloth ?
3. What materials remained on the cloth?
4. In our body, what organ can perform the same process?

Our body needs to eliminate unnecessary substances that has entered into the system. The process becomes possible through the bean-shaped organ called **kidney**. Every human being has a pair of kidneys responsible for the disposal of waste materials like **urea** from the blood. To make this possible, the kidney has filtering units called **nephrons**. In general, the kidney has two functions. First, it removes the liquid waste solution from the blood in the form of **urine**. Second, they also keeps stable and balance the other substances and the salts in the blood, and produce **hormones** that aid in the formation of blood. Some of the major waste materials that are being eliminated by kidneys through **excretion** are excess nitrogenous wastes, water and salts. The illustration below shows the location and the different part of the kidney.



The location and structure of kidneys

Learning Task 2: Do the activity below. Answer the guide questions in your notebook.

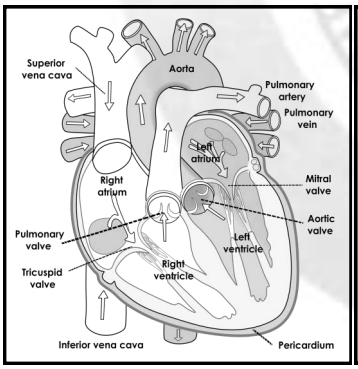
Procedure:

1. Press your middle and index fingers slightly on your wrist.
2. Set a 1 minute time to count and record your pulse rate.
3. Do 10 jumps .
4. Record your pulse rate again.

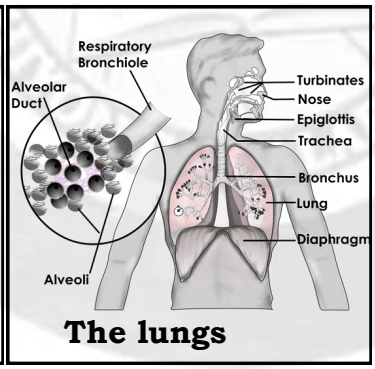
Guide Questions:

1. Describe your pulse before and after the activity.
2. Is there a difference in pulse rate before and after jumping? Why?
3. What is the effect of doing an exercise to your heart?

The heart is a hollow muscular organ protected by the chest cavity. When the **cardiac muscles** involuntarily contract, the heart works and can easily pumps blood to distribute nutrients from small intestines and oxygen from the lungs to the different parts of the body. Every time we do physical activities, the pulse or heart beat is higher than when we are in the resting stage like when we are sitting or sleeping. This is because exercise can increase the contraction of the heart muscles. Examine the structures of the heart and lungs in the given illustration below.



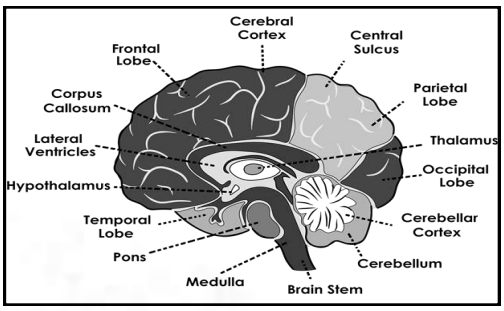
The human heart



The **lungs** are part of the respiratory system. It supplies oxygen in the body necessary for respiration or exchange of gases. Our pair of lungs coordinate with the heart by oxygenating the blood that will pass through it. The lungs through **air sacs** secure the quality of oxygen by filtrating them leaving the good ones in the blood and exhausting the waste gases like carbon dioxide out of the body.

Another organ that is very important is our **brain**. It is considered as one of the highly complex organ. It is found in the head protected by the skull with soft tissues called **meninges** and **cushioning fluid**. It contains billions of units of neurons for the processing of information. It is considered as the CPU (Central Processing Unit) of the body for its main function is to process and interpret the information (stimuli) it receives and send back the most appropriate reaction of the involved body parts.

The brain controls and coordinates all the types of muscles for balance, responses and physical activities. Most importantly, the brain is responsible for **learning and acquiring skills** (writing, dancing, singing, drawing, etc.).



E

Learning Task 3: Connect the organs of the body listed in column A with its function in column B. Write the letter of the correct answer in your notebook.

Column A	**Column B**
1. brain	A. absorbs water and electorlytes
2. heart	B. absorbs nutrients from food
3. lung	C. pumps blood around the body
4. stomach	D. filters blood and produce urine
5. small intestine	E. gets O_2 and remove CO_2 from the blood
6. kidney	F. allows humans to move
7. bone	G. controls thoughts, memory and other organs
8. muscle	H. supports and protects other organs
9. blood	I. transports the nutrients and oxygen to the lungs and tissues
10. large intestine	J. temporarily stores foods

A

Learning Task 4: Do the activity below**.** Use materials that are available at home. Answer the guide question.

Procedure:

1. Make a bookmark of any shape made from available materials.
2. Write the name of the organ, its function and some steps in taking good care of your organs.

Guide Questions:

1. What are the major organs of the human body important?
2. Choose one major organ and write its importance in your body.

How Do Organs Work Together

Lesson

I

Organs of the body work together for us to walk, run and play. An organ cannot work alone without the help of other organs. For instance, we need all the major organs when we do household chores. We need to breathe in oxygen through our nose going to our lungs. We need to digest food to have source of energy. In movement, bones and muscles works coordinately in washing dishes and clothes. In this lesson, you will communicate that the major organs work together to make the body function properly.

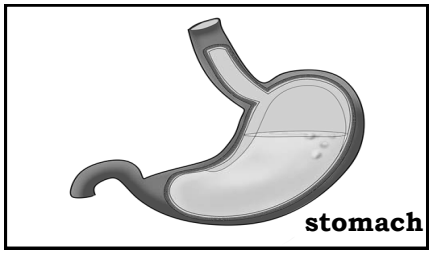
D

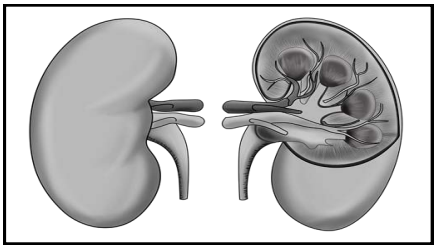
Learning Task 1: Given below are daily activities that you usually do during this pandemic. explain how the different organs work during these activities. Write your answer in your notebook.

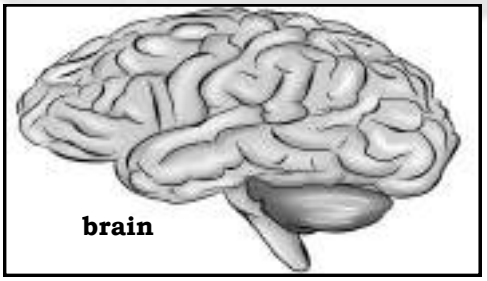
1. Planting vegetables and ornamental plants	3. Helping your mom in cooking your *Adobo* and *Sinigang*
2. Watching *koreanovela* and KPOP artist concerts.	4. Play cellphone games like Mobile Legends (ML).

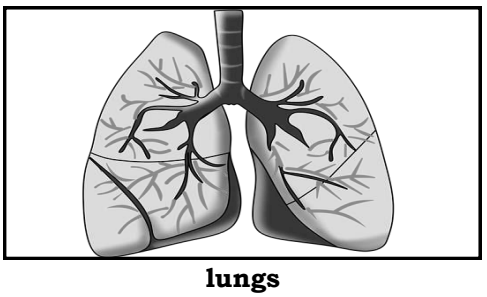
E

Learning Task 2: Predict what will happen to other organs and to your body if the following organs undergo malfunction .

1. 

2. 

3. 

4. 

1. What happens to the body when one organ is not working properly?

A

Learning Task 3: Balance diet is one of the keys to maintain a healthy body. Healthy body means that all organs are working properly. Make a meal plan for breakfast, lunch and dinner. Copy and complete the table in your notebook.

Meal	**Food and Drinks** *(include the amount if possible)*	**Time**
Breakfast		
Lunch		
Dinner		

Learning Task No. 4: Write your reflection on how the organs works together to maintain a healthy body. Write your answer on a separate answer sheet.

I understand that

_____

_____.

I realized that

_____

Learning Task No. 5: Write your idea on the saying, *"We are what we eat." Write your answer in a separate sheet of paper.*

_____

_____

_____

_____.

Body Structures of Animals for Adapatation and Survival

WEEK 3

I

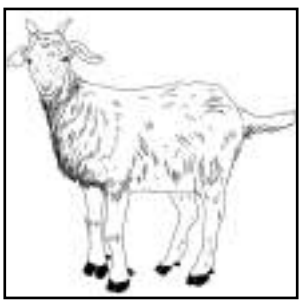
Lesson

There are different animals around us. They live everywhere. There are animals that live on land and there are also living in water. Have you ever asked what makes them possible to live in those places? What if we try to change their habitat (the place where they live). We put the fish on land and the chicken in water. What would happen? In this lesson, you will **infer that body structures help animals adapt and survive in their specific habitat.** Animals have different ways to survive and adapt to their environment. This adaptation truly takes time.

During this time of pandemic, people has coping mechanisms that enable them to survive. These may be behavioral, structural and physiological adaptation. Our skin color enables us to adapt in the ultraviolet rays from the sun.

Animals have body structures that enable them to live in water and on land. Like for example, animals can live in water (aquatic animals) because they have **scales, outside skeleton, shells and gills**. **Scales** are used for protection from diseases and harmful objects and for swimming. Most fishes have scales. Lobsters and shrimps have outside skeleton called **exoskeleton** while mussels and oysters have **shells.** To breathe, **gills** are organs responsible for breathing in the water. Through years, all animals that happened to live in water are able to adapt. **Adaptation** is process of developing structures or organs for animals to survive.

On the other hand, animals have also structures that help them adapt on land (terrestrial animals). Some animals like dogs, cats, and monkeys are covered with **fur** to keep them warm. Others like birds are covered with **feathers** for them to have ability to fly. Some like worms have **smooth skin** for breathing. In general, most of animals have body coverings for **protection.** They have also parts for movement like **legs** for walking, swimming and running and **wings** for flying. Most of them have lungs for breathing.



Examine the pictures of the animal above. What are the body structures that make these organisms survive in their environment?

D

Food is a basic need for the animals to survive. Body parts such as **paws, claws, and mouthparts** like **beak and teeth** are used to get food. Others use **sticky tongue, movable jaws and sucking tubes**. It can be said that animals with the same mouth parts eat the same food. For example, those animals with **flat teeth** like carabao, cow and rabbit eat grass. Those that have **sharp pointed teeth** like lion and tiger eat meat or other animals. Other animals like bears (grizzly bear and polar bear) have both types of teeth that they use in eating both plants and meat.

Learning Task 1: Study the pictures of animals that live on land and in water. Study their body structures that enable them to adapt in their habitat. Copy and complete the table below in your notebook.


1. Fish


2. Carabao


3. Snake


4. Rooster


5. Duck


6. Crab


7. Dolphin


8. Pig


9. Eagle


10. Cow

Name of animal	Body structure for Adaptation	Habitat (L-Land/W-Water)
1. 2, 3. 4. 5. 6. 7. 8 9. 10.		

E

Learning Task 2: Study the body structures of animals in column A. Match each structure in column A that is correctly associated to animals in Column B. Write the letter of the correct answer in your notebook.

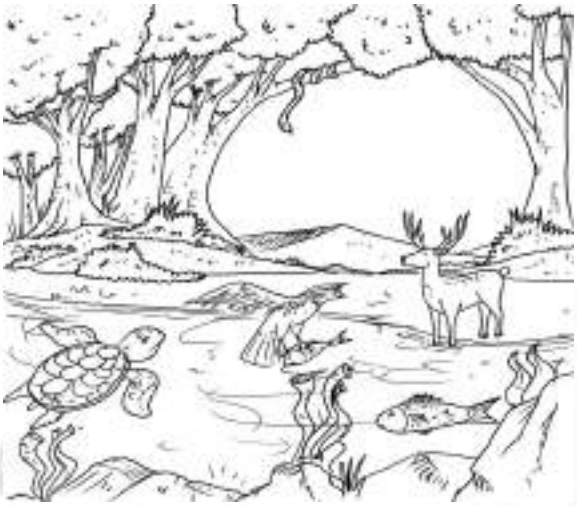
Column A	Column B
1. wings	A. butterfly
2. fur	B. leech
3. beaks	C. stingray
4. exoskeleton	D. eagle
5. shell	E. lobster
6. gills	F. horse
7. smooth skin	G. clam

Learning Task 3: Animals use body parts to eat. Complete the table below by filling in the correct word.

Animal	Food	Body Parts Used in Getting Food
1. 		
2. 		
3. 		
4. 		
5. 		

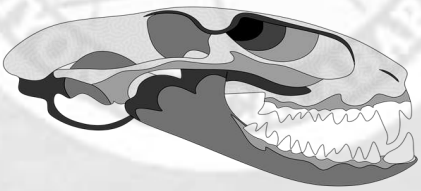
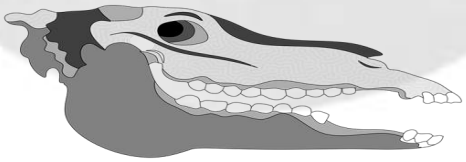
A

Learning Task 4: Study the picture below. Name the animals, their body parts and uses of these body parts for their survival. Complete the table below in your notebook.



Animal	Body Parts	Uses

Learning Task 5: Study the two given pictures. Name an animal that may have similar teeth based on the illustration. Name also the food being eaten by that animal.

Teeth	Animal	Food
1. 		
2. 		

Learning Task 6: Animals need to protect themselves from danger to survive. They use different mechanisms and strategies to prolong their life in the wild where strong competition happens. Name the body parts of each animal that protect them from any harm in their habitat.

1. octopus	
2. butterfly fish	
3. scorpion	
4. turtles	

Specialized Structures in Plants

I

Lesson

Plants, like animals live on land and in water. Plants that live on land are called **terrestrial plants** while those that live in water are called aquatic **plants.** They exist in different kinds and sizes. Plants are food makers and are fed by some animals.

In this lesson, you will learn how to **identify the specialized structures of terrestrial and aquatic plants.**

Do you have a garden at home ? Do you know at least 10 plants in your area? Now, write at least 3 plants and complete the chart below.

Name of Plants	**Describe and draw.**			
	Stem	*Roots*	*Leaves*	*Flower*
1.				
2.				
3.				

1. What are the structures common among these plants?
2. What are the structures that are not similar to each other?
3. How do these structures help the plants to survive in their environment?

Plants that grow on land are called **terrestrial plants.** There are big and small plants. There are plants that have **woody** trunk while others have **soft (herbaceous)** stem. Other plants bear flowers and some do not. Terrestrial plants grow in different places. They can grow directly on soil and few are seen on rocks.

Other plants cling to the fence and most number of plants are found in the field. Plants living in different places are exposed to varied conditions. However, their structures are suited to particular needs. For example, forest plants tend to grow tall and sturdy.

Shapes and sizes of the leaves are also important. Plants like bananas have big, broad leaves to efficiently energy from the sun. Plants have also waxy leaves to prevent them from dehydration as a result of too much exposure to the sun. There are also some plants that are able to retain or store water especially in the dessert. Cactus is the best example of desert plant.

The roots of the plants also play big role for survival. They have also different shapes and sizes. These characteristics are always based on the purpose.

D

Learning Task 1: Study the two pictures. Describe these two plants by completing the table below. Copy this in your notebook.

A.

B.

Name of Plants	**Description**			
	Stem	*Roots*	*Leaves*	*Flower*
A.				
B.				

Guide Questions:

1. What are the parts common between plant A and plant B?
2. What can you say about the plant A? Plant B? What are common in them?

Plants that live on and in (submerge or floating) water are called aquatic plants. They are plants that have successfully adapted in aquatic habitat. They are also called **hydrophytes**. Aquatic plants can only grow in water and muddy soil. Some of the plant specialized structures are bulb, runners, torn, hairs, fibrous roots, buoyant leaves, tubers, spines, spongy stem and long roots.

E

Learning Task 2: Based on the given plant pictures, identify the specialized structures and their possible use.

		
Plant Name:	Plant Name:	Plant Name:
Specialized Structure:	Specialized Structure:	Specialized Structure:
Use:	Use:	Use:
		
Plant Name:	Plant Name:	Plant Name:
Specialized Structure:	Specialized Structure:	Specialized Structure:
Use:	Use:	Use:

Plant also have specialized structures in order to adapt well in their environment. **Specialized structures** are unique parts of the plants that serve special functions for them to live longer despite of the condition.

A

Learning Task 3: Do the activity below**.** Using available materials at home, grow a plant in a pot or available area. Answer the guide questions below.

Materials:

Pot or any garden container garden soil available garden tool available plant for replanting or growing

Procedures:

1. Prepare pot, soil, and your favorite plant.
2. Set the plant (it may be a stem, seed, leaf) in the pot with soil.
3. Sprinkle enough amount of water.
4. Observe the growth of the plant in two weeks.

Guide Questions:

1. What are the changes that you observe in the plants? Copy the table and record your answer in the table below.

Day	Part of the Plant	Observation (s)
5		
10		
14		

2. Draw your favorite structure of the plant. What makes this structure important?

Learning Task 4: Write a two-sentence reflection on specialized structures in plants in your notebook.

I understand that_____.

I realized that _____.

Stages in the Life Cycle of Organism

I

Lesson

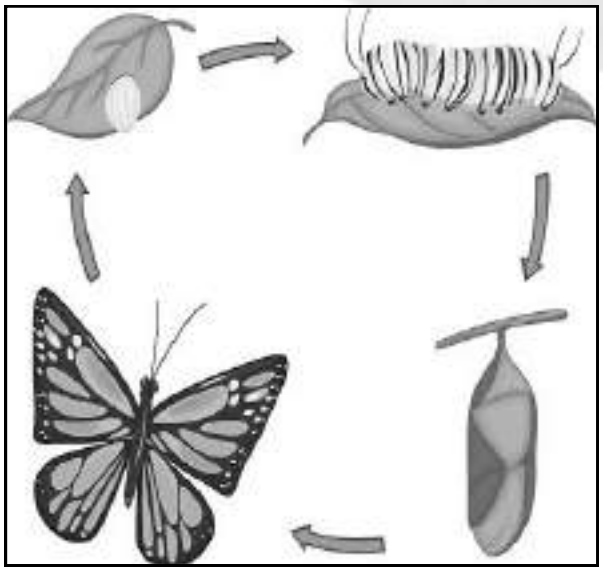
Insects are part of nature. Most of them are small but they help to maintain a balance environment. They belong to the largest group in the animal kingdom. Scientists believes that there are over 1 million kinds of insects on our planet. They can live in the coldest and hottest place of earth.

Insects can be both helpful and harmful in our daily living. They help in the pollination of crops and decaying of organic matter (biodegradable). In contrast, there are also few insects that spread diseases and damage plants and crops. Most of them are food of other animals. Having these facts about them, it is important that you learn about how they grow and develop into their full form. In this lesson you will learn to **compare the stages in the life cycle of organisms**. There are stages that insects undergo before they can fly, walk, crawl and interact in the environment.

Every insect follows different stages of development from an egg to a fully grown organism. This process is called **metamorphosis.** Metamorphosis is a biological process by which an animal undergoes physical development (changes) after it is being hatched or birth. It is part of the life cycle of most insects. A life cycle refers to involving one life span of the organism. Aside from change in physical appearance and some body structures, insects also shows changes in their manner and behavior of interacting the environment. Complete metamorphosis possessed by lady bug, housefly, mosquito and butterfly, usually starts from an egg. When the egg hatched, larvae will come out and turn into pupa and finally into an adult. These are the stages in the life cycle of some insects.

The stages in the life cycle of some insects are egg, larva, pupa and adult.

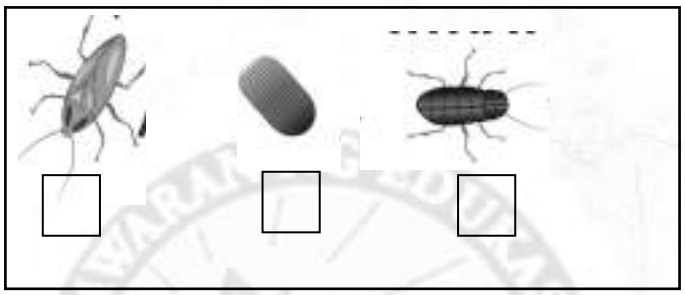
1. Egg.
2. Larva.
3. Pupa.
4. Adult.

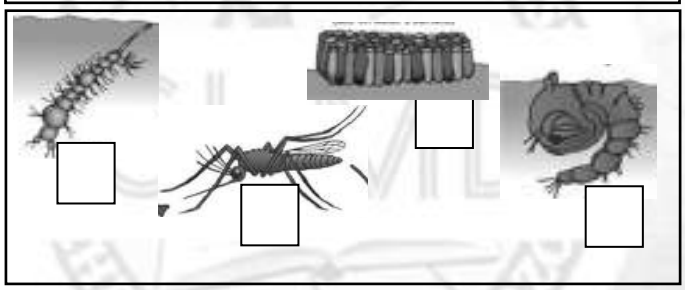


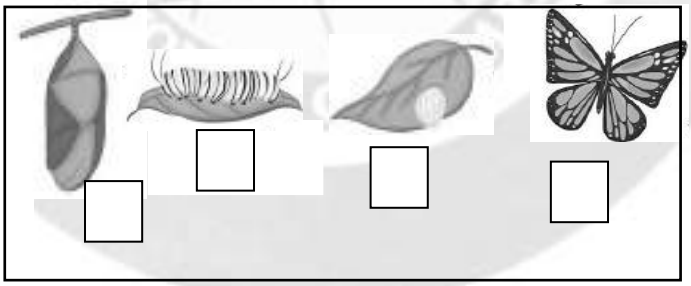
D

The life cycle of insects follow a developmental process. They grow differently compared to higher form of animals like dogs and cats.

Learning Task 1: Analyze the pictures below. Arrange them according to the correct sequence of development by putting number in the box. Answer the guide questions in your notebook.







Guide Questions:

Insect Name:

What can you say about this insect?

_____
_____

Insect Name:

What can you say about this insect?

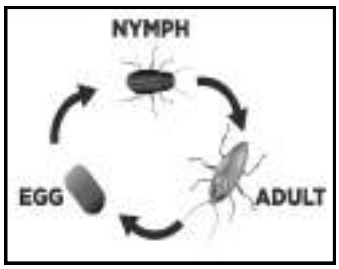
_____

Insect Name: _____

What can you say about this insect?

_____

Some insects develops by means of gradual metamorphosis. It is slightly different from the previous process that instead of four, the organism develops through three stages. Like the complete metamorphosis, the insect starts as eggs. These eggs are sometimes in case or covered with protective layer. When the eggs hatch, nymphs go out like small adult insect but usually have no wings. Nymphs normally molt and change their exoskeleton (hard body covering) as they grow until they become a full adult. The insect is in adult stage when they no longer undergo the process of molting and have a permanent exoskeleton and wings. Their primary purpose is to mate with other insects to reproduce.



Learning Task 2: Draw and label the life cycle of a housefly and grasshopper in the boxes below.

A. housefly

B. grasshopper

There are also animals that lay eggs like birds. For instance, a chicken develops from an egg. To understand how a chicken grows, this simple task will help you.

Learning Task 3: Prepare and look for these materials if available in your place. If these are not available, make us use of the drawing below.

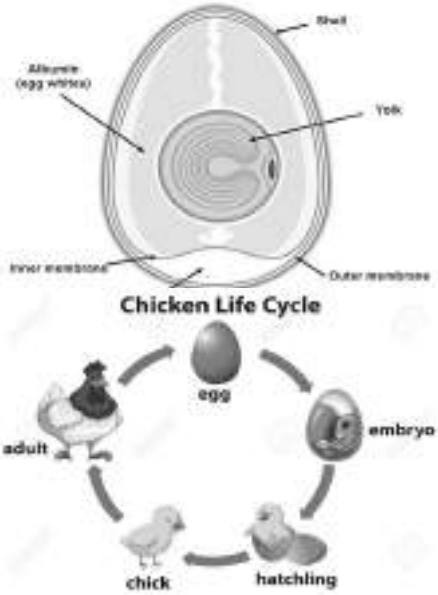
EGG	**OBSERVATION** *(Describe the shell, egg white (albumin) and yolk)*
Raw	
Boiled	
Balot	

Guide Questions:

1. Based from your observation, What parts of the egg are involved in the development of a chick? _____

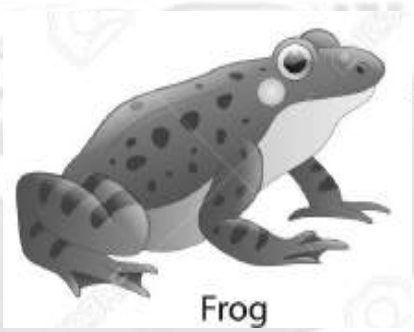
2. What is the function of the albumen in the egg? _____

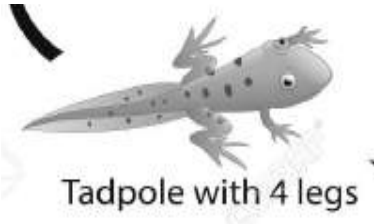
All birds like chicken, ostrich, and eagle lay their eggs to start a new generation of their species. Eggs has three basic parts: **shell, albumin and yolk.** The shell isolates the internal parts from the environment and somehow protects the eggs from external forces. The materials inside after days or weeks (21 days for chicken) develop into a new organism. The thick albumen helps to maintain the egg yolk in its position and prevent it to scramble. Scrambling of yolk inside due to external forces may result to unsuccessful development of the bird. The yolk serves as the food of the developing bird.

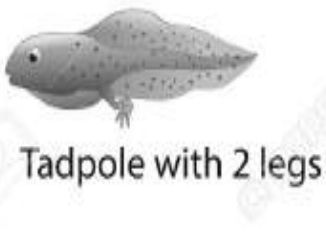


Frogs also developed from eggs. Like birds, they also follow different life stages.

Learning Task 4: Analyze the pictures below. Write the number that corresponds to the life stages of a frog. Use number 1 for the first stage and so on. Write your answer in your notebook.





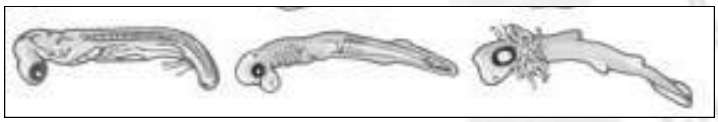


E

Learning Task 5: Make a survey of insects in your house. You can also go to your yard to search for more insects. Do this activity following the table below.

Name of Insect	Stages of Life Cycle				Complete/
1.					
2.					
3.					
4.					
5.					

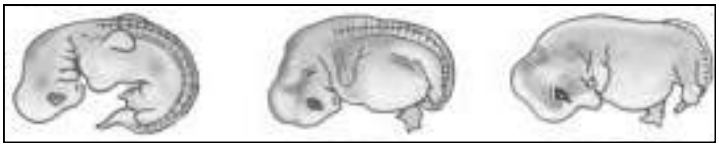
Learning Task 6: Using books and other learning resources, identify the animals in the given pictures. Describe each picture to show the differences in their stages of development. Write your answer in your notebook.



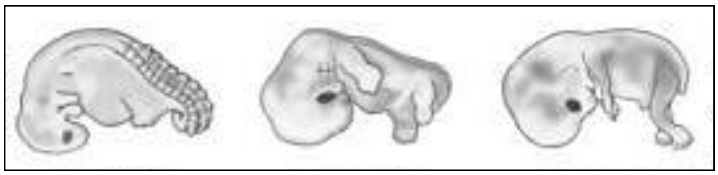
1.

2.

3.



4.



5.

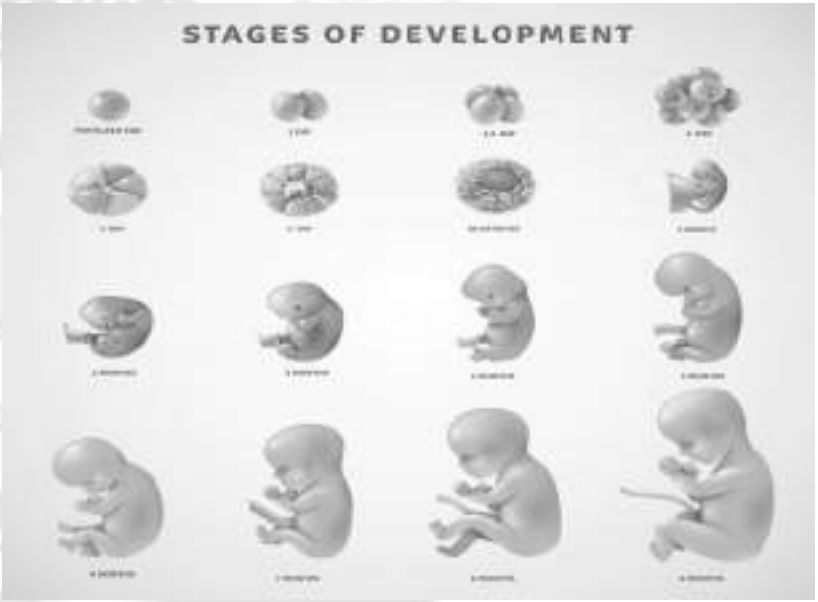
Guide Questions:

1. What can you say about the early stages of different animals?
2. Do you observe similarities? Explain.

A

Learning Task 7: Study the pictures . Answer the guide questions below.

Fertilized egg develops into a hollow ball of cells called blastocyst. In four weeks, we become embryo. We turn to fetus after eight weeks. It requires a total of nine months in the mother's womb for a baby to develop and ready to be born. The next stages after you are born are (1) **infancy**, (2) early **childhood**, (3) middle **childhood**, (4) **adolescence**, (5) early **adulthood**, (6) **middle adulthood** and (7) old age.



Guide Questions:

1. Describe the visible changes that you can see in the pictures ?
2. What parts are visible in the last 4 pictures ?

Effect of the Environment on the Life Cycle of Organisms

WEEK 6

I Lesson

The environment plays an important role in the life cycle of organisms. Along the developmental process, organisms interact with non-living materials such as water, air and soil as primary components of their habitat. As organisms grow, it is also expected that they socialize with other organisms which may be their means of food. Just like us, we need water and food. We also need clothes and shelter. That is why the environment are important for us to grow and perform our roles based on the species we belong. In this lesson, you will **describe the effect of environment on the life cycle of organisms**. Through the discussion, you will be able to determine the things an organism does to survive.

Take a walk inside your house. Go to the window to look for other things. List down the things that catch you attention. Determine if these things are living or non living. Look at the pictures below. Which picture shows that it is a living thing? Non living thing?

Flower vase and fresh flowers

computer

dog

Electric **girl**

The environment is composed of **biotic and abiotic** factors or its components. Biotic factors are those 'things' that have life. In contrast, abiotic factors are components that have no life. The interaction of these two factors affect much the development of an organism (it may be a plant, an animal, or a microorganism). Organisms may interact from one another in beneficial ways. But there are also some interactions that harm other organisms. Organism to organism relationship may also be affected by the habitat's physical conditions such amount of sunlight, water and food. In general, these actions and reactions (cause and effect) happens naturally to maintain a balance ecosystem.

Ecosystem is a complex unit of the environment wherein these biotic and abiotic interactions and organism to organism relationships happen. The study of different interactions as living things relate too.

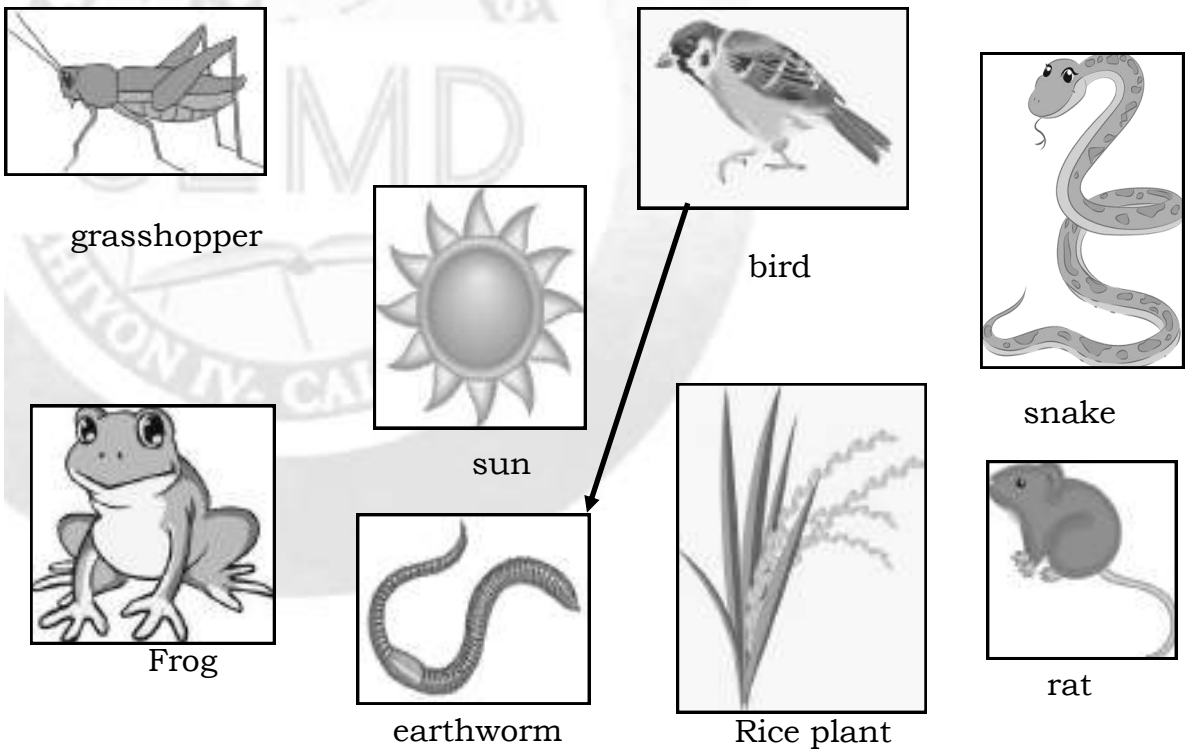
An ecosystem is the largest level of organization. It portrays the most complex interactions of all plants, animals, and microorganisms with the physical (abiotic) environment. Abiotic factors such as climate, amount of sunlight (temperature and energy), water, air and nutrients affect greatly the way of living of organisms.

D

The ecosystem is primarily composed of six components. These are the sun (source of sunlight), producers (plants), abiotic substances (water, soil, air, etc.), primary consumers, secondary consumers and decomposers. These components naturally connect to one another to sustain life in the ecosystem.

Food is essential for every living organisms to carry out life processes and essential interactions. The environment where these organisms live are important for their survival. This can be the source of food that they can depend on for their survival. Can you identify where these organisms get their energy (food)?

Learning Task 1: Examine the pictures below. Draw the following animals in your notebook using the illustrations as guides. Connect these animals to show what they eat and they are being eaten by other animals



Guide Questions:

1. What will happen to all organisms if there is no sunlight?
2. What is the effect of plants in the life of other organisms in the environment?

E

Learning Task 2: Among the pictures given in Learning Task No. 2, identify the following:

Primary source of energy: _____
Producer: _____
Primary Consumer: _____
Secondary Consumer: _____
What component or element of ecosystem consumes dead organisms that help fertile the soil? _____

A

Learning Task 3: Write a two sentence reflection on the effect of plants to animals in their life cycle .

I understand that_____.

I realized that_____.

WEEK 7

Interactions Among Living Things in Their Environment

I Lesson

Living things interact in the environment based on their functions and roles. In the previous lesson, you learned about how organisms relate to one another and how abiotic components control these relationships. In this lesson, you will **describe some types of beneficial and harmful interactions among living things**. Interactions among organisms may be either harmful or beneficial depending on the effect of one to another.

Interactions from one organism to another organism may bring either good or bad effect. There are interactions that both organisms benefit, meaning, they help each other to live. There are also forms of interaction that only one organism is benefiting while others neither get beneficial nor harmful effect.

Mutualism. It is an interaction of two organisms wherein both are getting benefits from each other. The best example is plants and animals in general. Plants give off oxygen needed by animals while animals exhale carbon dioxide needed by plants.

Commensalism. This is an interaction between organisms in which one is benefiting while the one never been affected neither beneficially nor harmfully. The best example is the relationship between orchids and the tree. The orchids is the only one being benefitted from the tree.

Interactions in the environment may also be harmful to an organism. For instance, a caterpillar benefits from the plant by consuming its leaf. In this case, the plant is harmed because the leaves are its primary part for food making.

Predation and Parasitism are two types of interactions that may be harmful when not in proper control. In predation, the predator is an animal that is usually benefited by eating the prey (animal that is harmed). The number of predator is determined by the available prey in the area. In parasitism, parasites are the small organisms that live outside or inside the body of the host (organism that is harmed).

D

Learning Task 1: Fill in the table below. Choose the words from the box.

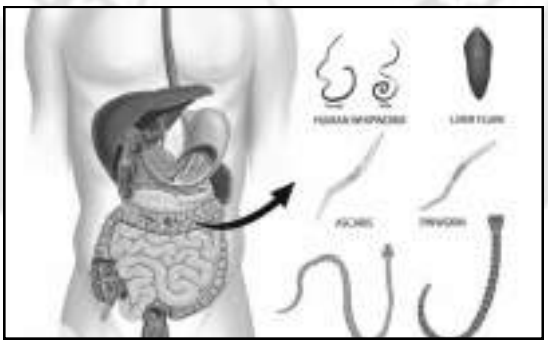
lion	cow	snake	mouse	
bird	earthworm	octopus	shrimp	frog
grasshoppers	shark	fish		

Predator	**Prey**

E

Learning Task No. 2: Examine the pictures below. Answer the guide questions in your notebook.

Picture A

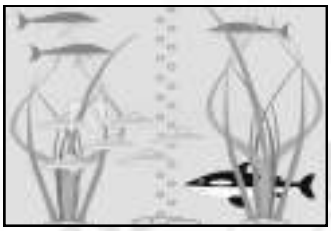


Picture B

Guide Questions:
Refer to Picture A and Picture B

1. What is the type of interaction that exist between these organisms?
2. What organisms are involved?
3. Which organism benefited from the interaction?
4. Which organism is harmed from the interaction?

Learning Task 3: Examine the pictures below. Tell the name of the organisms. Write the relationships that exist between each organism. Answer the guide questions in. Do this in your notebook.

	Organisms	Relationship
	1. _____ _____ 2. _____	_____ _____ _____ _____
	1. _____ _____ 2. _____	_____ _____ _____ _____
	1. _____ _____ 2. _____	_____ _____ _____ _____
	1. _____ _____ 2. _____	_____ _____ _____ _____

Guide Questions:

1. Which of the pictures of organisms show beneficial interaction?
2. When do we say that an interaction (relationship) is beneficial?
3. Which of the organisms are not benefited nor harmed?

A _____

Learning Task No. 4: Write a three-sentence reflection on the effect of environment in organisms. Write your answer In your notebook.

I understand that_____
_____
_____.
I realized that _____
_____
_____.

Effects of Interactions Among Organism

WEEK 8

I

Lesson

An organism cannot exist when they are living alone. An ecosystem should be composed of different organisms for it to survive. Just like you, you In this lesson, **you will describe the effects of interactions among organisms in their environment**. These interactions may be either good or bad but always leading to a balance ecosystem. For instance, too much rats are harmful to the environment. To control their number, snakes and python may eat them and may result to a **competition** between the predators.

Each interaction results to certain beneficial and harmful effects. Species interaction includes mutualism, commensalism, predation, and parasitism that keeps an ecosystem rich in different organisms. Competition happens when organisms compete for food, water, habitat, space, sunlight, and other things needed for survival. Predation is a prey– predator relationship. The animal which is bigger is called the predator that eat its prey, or the smaller animal. Predation is important as it helps other organisms to adapt in the environment, preventing itself to be eaten by other animals for their survival.

There are two types of **effects** that may happen between or among organisms. It may be (1) short-term, like pollination and predation or (2) long-term by which both organisms often strongly influence the evolution of the species involved. Symbiosis is an example of long term effect of interaction. Symbioses range from mutualism which is beneficial to both partners or could be competition which is harmful to both partners. The organisms are called symbionts in a symbiotic relationship.

These biological interactions are important in nature and in keeping the balance of nature. It maintains the food web. A food web shows the food relationship among living organisms and most food webs start with green plants. If biological interaction doesn't exist, many animals would die from starvation as the food web wouldn't exist.

Examine the picture below. What do you think is the relationship that exist between the boy and the dog?

D

Learning Task 1: Study the chart below. Complete your answer by arranging the words in the second coloumn. Write the correct answer in your notebook.

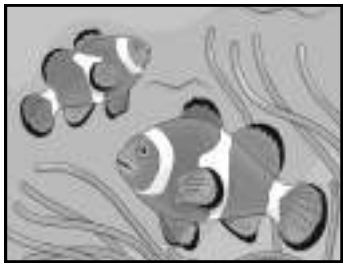
Picture	Interaction	Effect
	MSCMIASOMEL	Orchids to tree: _____ Tree to orchids:
	SMATIUMUL	Plant to bee: _____ Bee to plant:
	NAREPTIDO	Shark to fish: _____ Fish to shark:
	MTISARAPIS	Human to mosquito: _____ Mosquito to human:

E

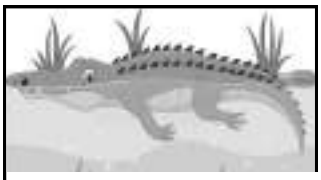
Learning Task 2: Study the pictures below. Describe the interaction that exist between organisms in their environment. Write the effects of interaction on these organisms. Complete the table below in your notebook.

1. Sea Anemone

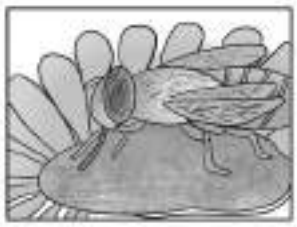
	Interaction	Effects of the Interaction



2. Clown fish



3. Crocodile and fish



4. **Insect and flower**

5. **Carabao and grass**

A

Learning Task 3: At home we have pets like dogs and cats. Just like in nature, you, as the owner has special relationship with your pets. What are the effects of having a pet or plants to you? Can you suggest ways on how to take good care of them?

Effects of Interaction:	**My Pet/Plant**
Ways of Taking Good Care of My Pet/Plant *1.* _____ *2.* _____ *3.* _____	*(Draw your pet and paste it here or paste the* *Print photo of your pet)*

Key to Correction

Learning Task 6

1. Cardiovascular disease 2. muscular dystrophy 3. Chronic Kidney Disease 4. Meningitis 5. Pneumonia 6. Peptic Ulcers

Learning Task 7: *See the rubric for scoring*

Week 2

Learning Task 1

The following organs may be included:
1. bones, muscles, stomach, intestine, brain, lungs 2. brain, muscles, stomach, intestine, lungs 3. brain, muscles, bone, stomach, intestine, lungs 4. bones, muscles, stomach, intestine, brain, lungs Q/A: Item 1 and 3

Learning Task 2

1. There will be no energy to be used by other organ 2. The blood will not be filtered leaving the waste in the blood affecting other organs. 3. Different organ will not work coordinating other organs. 4. There will be no oxygen that will affect other organs. Q/A: The body will not function well and cannot do daily activities.

Learning Task 3-5 Answers may vary.

Week 3

Learning Task 1

1. fish-gills-W; 2. carabao– legs-walking, 3. snake– skin–movement, 4. chicken– feathers-protection, 5. duck– bill–food getting, 6. crab– exoskeletonProtection, 7. dolphin–fins– movement, 8. pig– legs-walking, 9. eagle– wings–flying, 10. cow-legs-walking

Learning Task 2

1. A
2. F
3. D
4. E
5. G
6. C
7. B

Learning Task 3

Fur– bear– land, scale– fish– water (cont.)

Week 1

Opening Activity

(All organs are involved)

Learning Task 1

1. No, it never stand because it has no support 2. It stands alone when I put stick/wires. 3. The wires represents the bones. The papers represents the muscles.

Learning Task 2

1. It breaks down into very tiny pieces forming 'shake' like substance. 2. Yes, the body breaks them down into simpler substances. 3. The plastic bag represents the stomach because it digest the food that we eat.4. The water helps in breaking down of large materials/food when un stomach.

Learning Task 3

1. Some materials passed through the cloth while some were trapped on the cloth. 2. The large particles are trapped on the cloth. 3.Smaller substance and water pass through the cloth. 4. Kidney is the organ that can filter substances (blood) in our body.

Learning Task 4

1. It is because of the flow of blood. The heart pumps the blood to different parts of the body. 2. There is a great difference. There are more pulse when we do activities like jumping. 3. Physical exercise makes the heart contract fast so the blood runs fast also.

Learning Task 5

1. G 2. C 3. E 4. A 5. B 6. D 7. H 8. F 9. I 10. A

Key to Correction

Week 3
Continuation…
4. exoskeleton-lobster-water 5. shell-clam– water 6. gills—stingray– water 7. smooth skin– leech
Learning Task 3
1 *fruits—beak/ bill 2. nectar– long tube 3. fish-pointed teeth 4. grass—flat teeth 5. insect—tongue*
Learning Task 4
1. deer-legs-running, 2. fish-gills-breathing, 3. turtle-hard shells-protection,
Week 4
Learning Task 1
Table: Answer may vary.
Q1. Stem, roots, leaves, flowers Q2. type of stem, roots, leaves and flowers Q3. It helps them to survive.
Learning Task 2
Table: Answer may vary.
Q1. Stem, roots, leaves, flowers Q2. Both of them have long roots and wide and buoyant (able to float) leaves.
Learning Task 3
1. Rose– thorns– protection 2. water lily– buoyant leaves– floating 3. cactus—thorns & spongy stem-protection & water storage 4. onion—bulb– water & food storage 5. sweet potato-tuber– food & water storage 6. strawberry-runners-reproduction
Learning Task 4 and 5
Answers may vary
Week 5
Learning Task 1
1. 3-1-2 cockroach: It has 3 stages of dev.
2. 2-4-1-3 mosquito: it has 4 stages
3. 3-2-1-4 butterfly: it has 4 stages
Learning Task 2
Draw the stages similar to butterfly and cockroach
Learning Task 3
Table: Answer may vary
Q1. Shell, egg white, egg yolk
Q2. to make the yolk stay in place
Learning Task No. 4

6	*1*
3	*5*
2	*4*

Learning Task 5
Table: *Answer may vary depending on the insect listed*
Learning Task 6
1. swim 2. crawl 3. walk 4. walk 5. walk
Q/A: There are similarities in early stages. These similarities are observed during early development stages (embryonic and fetal stages)

Learning Task 7
Answer may vary.
Week 6
Learning Task 1
Connect the following
Grasshoppers—frog, frog-snake, bird-snake, bird-palay, mouse– palay, palay– sun, bird-earthworm, grasshopper-palay
GQ1. There will no source of light energy.
GQ2. There will be nor source of foods.
Learning Task 2
1. Sun, 2. Plant, 3. rat/ bird/ grasshopper, 4. snake/ frog/ bird
Q/A: Decomposers
Learning Task 3 and 4
Q/A: Answer may vary
Week 7
Answer may vary.
Learning Task 1
Lion—cow, snake– mouse, bird—earthworm, octopus-shrimp, frog-grasshoppers, shark–fish
Lion—cow, snake– mouse, bird—earthworm, octopus-shrimp, frog-grasshoppers, shark–fish
Learning Task 2.
1. Picture A– and B-parasitism
2. A– head lice and human B– ascaris-human
3. Head lice and ascaris
4. human
Learning Task No. 3:
plant-bee: benefiting each other,
fish-see weeds: benefiting each other,
orchids-tree: one is benefiting,
Bird-tree: benefiting each other
Q1. Pic 1, 2, & 4,
Q2. When it supports the life of the organism. Q3. Tree
Learning Task 4
Answer may vary.
Lesson 8
Learning Task No. 1
Connect the explanation to commensalism.
Learning Task No. 2
Commensalism—Orchids is benefiting
Mutualism—both are benefiting
Predation—shark is benefiting
Parasitism—mosquito is benefiting
Learning Task 3
Answer may vary.

PIVOT Assessment Card for Learners

Personal Assessment on Learner's Level of Performance

Using the symbols below, choose one which best describes your experience in working on each given task. Draw it in the column for Level of Performance (LP). Be guided by the descriptions below.

☆ - I was able to do/perform the task without any difficulty. The task helped me in understanding the target content/lesson.

✓ - I was able to do/perform the task. It was quite challenging but it still helped me in understanding the target content/lesson.

? - I was not able to do/perform the task. It was extremely difficult. I need additional enrichment activities to be able to do/perform this task.

Distribution of Learning Tasks Per Week for Quarter 2

Week 1	LP	Week 2	LP	Week 3	LP	Week 4	LP
Learning Task 1		Learning Task 1		Learning Task 1		Learning Task 1	
Learning Task 2		Learning Task 2		Learning Task 2		Learning Task 2	
Learning Task 3		Learning Task 3		Learning Task 3		Learning Task 3	
Learning Task 4		Learning Task 4		Learning Task 4		Learning Task 4	
Learning Task 5		Learning Task 5		Learning Task 5		Learning Task 5	
Learning Task 6		Learning Task 6		Learning Task 6		Learning Task 6	
Learning Task 7		Learning Task 7		Learning Task 7		Learning Task 7	
Learning Task 8		Learning Task 8		Learning Task 8		Learning Task 8	

Week 5	LP	Week 6	LP	Week 7	LP	Week 8	LP
Learning Task 1		Learning Task 1		Learning Task 1		Learning Task 1	
Learning Task 2		Learning Task 2		Learning Task 2		Learning Task 2	
Learning Task 3		Learning Task 3		Learning Task 3		Learning Task 3	
Learning Task 4		Learning Task 4		Learning Task 4		Learning Task 4	
Learning Task 5		Learning Task 5		Learning Task 5		Learning Task 5	
Learning Task 6		Learning Task 6		Learning Task 6		Learning Task 6	
Learning Task 7		Learning Task 7		Learning Task 7		Learning Task 7	
Learning Task 8		Learning Task 8		Learning Task 8		Learning Task 8	

Note: If the lesson is designed for two or more weeks as shown in the eartag, just copy your personal evaluation indicated in the first Level of Performance found in the second column up to the succeeding columns, ie. if the lesson is designed for weeks 4-6, just copy your personal evaluation indicated in the LP column for week 4, week 5 and week 6. Thank you.

References

Regional Memorandum No. 306 s. 2020, Guidelines on the Implementation of MELC PIVOT 4A Budget of Work in All Learning Areas for Key Stages 1-4

DepEd Science Learner Material 4. (2014)

For inquiries or feedback, please write or call:

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