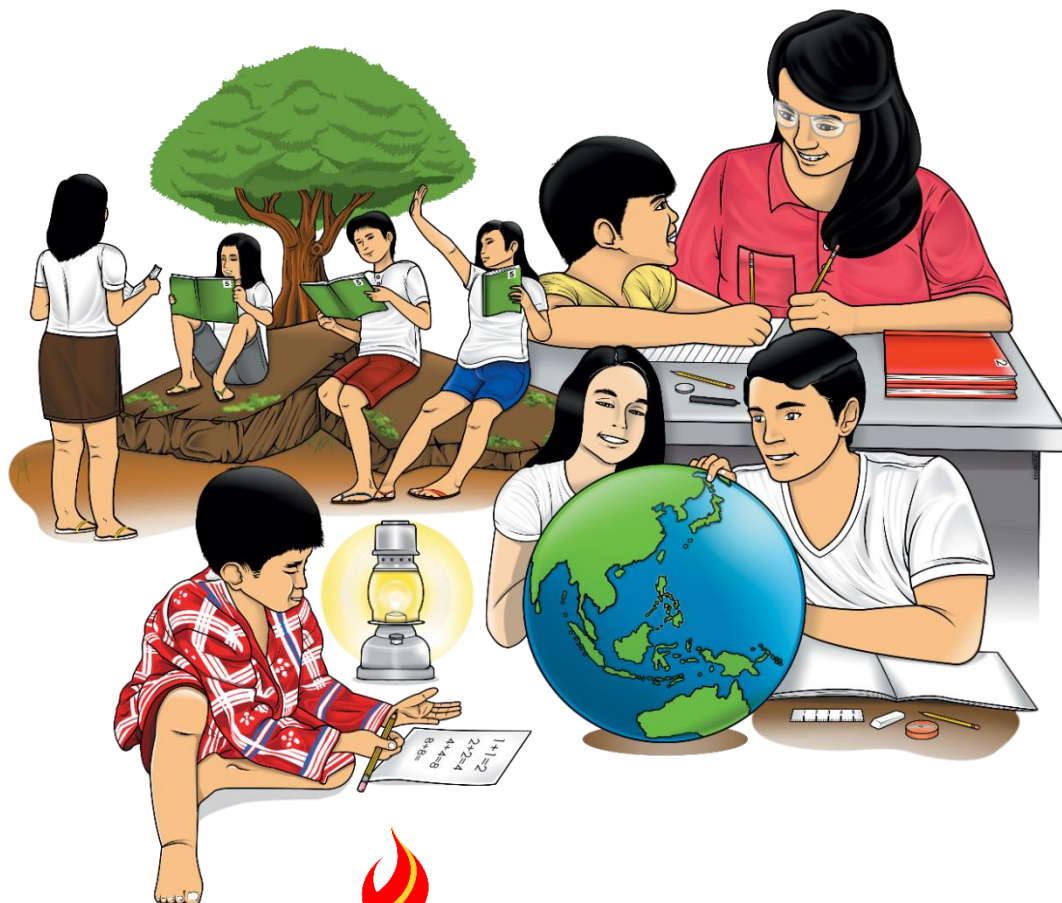


Science

Quarter 2 – Module 7:

“Beneficial or Harmful?”



Science – Grade 4
Alternative Delivery Mode
Quarter 2 – Module 7: “Beneficial or Harmful?”
First Edition, 2020

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Science
Quarter 2 – Module 7:
“Beneficial or
Harmful?”

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 discussions are carefully stated for you to understand each lesson.

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

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or 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 keys 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, Notes 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. 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 teacher or facilitator.



What I Need to Know

In the previous lesson, you learned how living organisms constantly interact with the kind of environment they have. Biotic and abiotic components in the environment interact and depend with one another. Their relationship may cause either beneficial or harmful interactions in the environment called ecosystem. These interactions can greatly affect the way they live and move in their surroundings.

This lesson will focus on:

Lesson 1 –The effects of the interactions among organisms in their environment (S4LT-IIi-j-18)

After going through this module, you are expected to:

1. describe the effects of interactions among organisms in their environment; and
2. infer the possible effects of interactions shown in situations presented.



What I Know

A. Directions: Arrange the following jumbled letters to form the hidden words. Write your answers on your notebook.

1. LAHRMFU –
2. BINEFILECA –
3. EECFTFS –
4. SIGORAMSIN –
5. NITRECATONI –

B. Directions: Draw a happy face (☺) if the following interactions show beneficial effects among organisms and sad face (☹) if not. Write your answers in your notebook.

- ____ 1. competition
- ____ 2. mutualism
- ____ 3. predation
- ____ 4. parasitism
- ____ 5. commensalism

C. Directions: Write **beneficial** if the effect being described in the following interactions among organisms is good and **harmful** if it is not. Write your answers on your notebook.

- ____ 1. aphids on the flowers
- ____ 2. a heron feeding on a carabao's body
- ____ 3. too many fishes inside a small aquarium
- ____ 4. orchids attached on a tree trunk
- ____ 5. cattle being attacked by lioness

How did you find the activity? Try to find out below:



Great job! You got it.

Lesson

1



“Effects of the Interactions among Organisms in their Environment”

Hello there! How are you? It’s nice to know you’re ready for another exciting adventure. In the previous lesson you’ve learned the different types of beneficial and harmful interactions among living things. Do you know that these types of interaction are great factors in their survival rate in the environment?

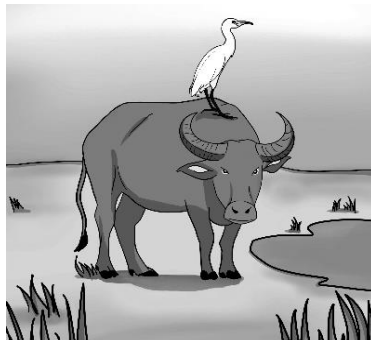
In this lesson you will be provided with activities in order to know that certain types of interaction will result to either harmful or beneficial effects. Let’s start the fun and adventure of learning. Enjoy!



What’s In

Directions: Draw a heart  if the picture shows **beneficial interaction** and a square  if not. Write your answers on your Science notebook.

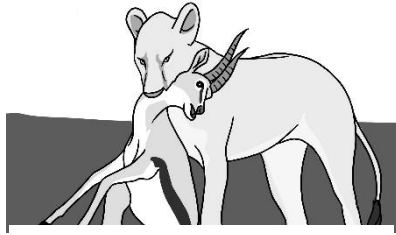
____ 1.



____ 2.



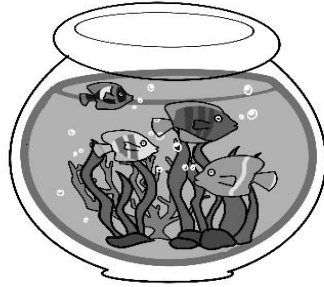
_____ 3.



_____ 4.



_____ 5.



_____ 6.



Illustrated by: Kristal Grace C. Ilao


Perfect! You did great.



What's New

Directions: Describe the effects of the kind of interactions among organisms in the table. Write your answers on your notebook.

Activity 1: “Describe How Organisms are Affected”

Type of interaction	Effects/Possible effects of interaction
1. 	

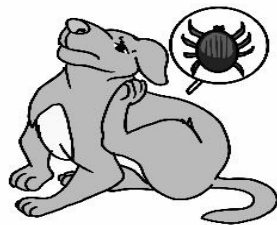
2.



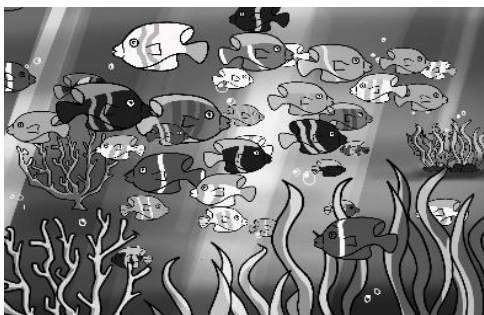
3.



4.



5.



Illustrated by: Kristal Grace C. Ilao and Jotham D. Balonzo

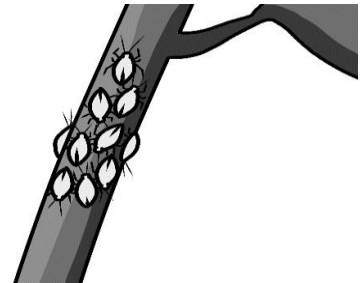
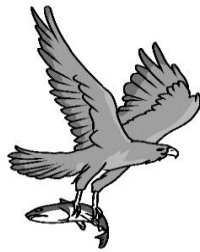
Guide Questions:

1. What organisms are involved in the interactions?
2. Describe the effects of interactions between the organisms in each picture?

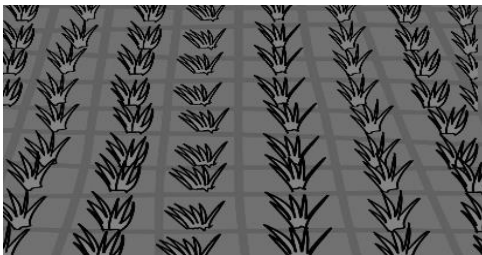
Activity 2: “Guess the Clue”

Directions: Infer the possible effects of interactions among organisms in the following pictures. Write your answers on your notebook.

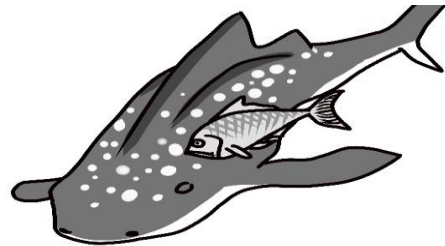
1. :



3.



4.



Illustrated by: Kristal Grace C. Ilao and Jotham D. Balonzo

Wow! What a great effort.

For better understanding of the activities, have time to read and understand the information's below.



What is It

Points to Remember:

Types of Interactions


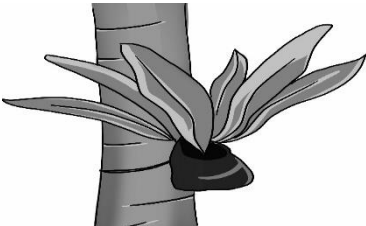
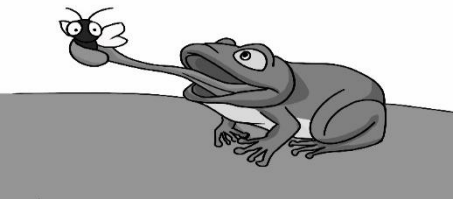


1. Beneficial Interactions

- **Mutualism** – the type of interaction where both species benefit from the relationship.
- **Commensalism** – the type of interaction where one organism benefits while the other is not harmed nor affected.

2. Harmful Interactions

- **Predation** – the type of interaction where one benefits while the other one is harmed or badly affected. The one that usually benefits is called **predator** and the one that is harmed is called **prey**. The sizes of predator and prey population are related to each other. If the number of prey is large, the number of predators decreases, since they have a smaller food supply.
- **Parasitism** – the type of interaction where the organisms that benefit are called **parasites** and the one that is affected is called the **host**. The parasites could be internal parasites which can be found inside the body of a host stomach like ascaris; external parasites which can be found outside of the host body like aphids and ticks on the dog's body. Parasites cannot live alone. They must live in a living host. Some parasites do slight harm to their host. Others can kill their host.
- **Competition** – the type of interaction where organisms compete for food, sunshine, space, shelter, water and other things that they need for survival. Each organism in this kind of relationship is a competitor.

Effects of Interactions among Organisms

Type of interaction	Effects/Possible effects of interaction
<p>1. Mutualism</p> 	<ul style="list-style-type: none"> *nectar of flowers source of bee foods *pollen grains help in fertilization and producing fruits *bees produce honey *trees produce fruits *useful and beneficial to human
<p>2. Commensalism</p> 	<ul style="list-style-type: none"> *tree provide home for ferns *ferns beautify gardens
<p>3. Predation</p> 	<ul style="list-style-type: none"> *the increase and decrease in the number of frogs and insect in the ecosystem eventually create balance in the number of population.
<p>4. Parasitism</p> 	<ul style="list-style-type: none"> *Aside from sucking of blood, mosquito can cause dengue fever and chikungunya.
<p>5. Competition</p> 	<ul style="list-style-type: none"> *plants do not grow well

Illustrated by: Kristal Grace C. Ila

- The types of interaction in the ecosystem where organisms share can have certain effects on their survival rate and the environment as well.
- These effects could either be beneficial or harmful to all organisms and the environment where they live.
- Whether beneficial or harmful effects that happened in the ecosystem, we as humans need to care and protect them and the environment where those organisms live and thrive for the future generations to come.

Source: *Abutay, L., Bonao, D., Crucis, E., Eslabra, J., Gramaje, E., Guadamor, M., Hernandez, A., Ilagan, L., Llamera, F., Manawatao, R., Panganiban, H., Rojo, J., Tosco, R., Zape, J., Science Grade 4 Learner's Material, First Edition 2015, Department of Education (2015), page 166-169*

Abutay, L., Bonao, D., Crucis, E., Eslabra, J., Gramaje, E., Guadamor, M., Hernandez, A., Ilagan, L., Llamera, F., Manawatao, R., Panganiban, H., Rojo, J., Tosco, R., Zape, J., Science Grade 4 Teacher's Guide, First Edition 2015, department of Education (2015), page 205-210


Let's check what you have learned so far! Good luck!

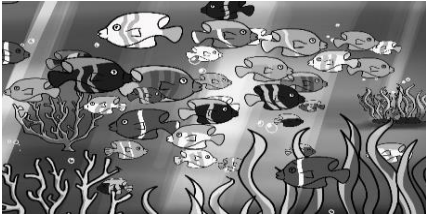


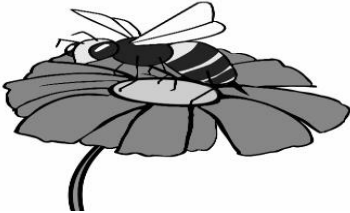


What's More

Activity 1: "Describe the Effects"

Directions: Based from the given pictures of the different interactions among organisms, write the type of interaction shown. Describe the effects of each interaction in the environment. Write your answer on your notebook.

Interactions Among Organisms	Effects
1. _____ 	

2. _____ 	
3. _____ 	
4. _____ 	
5. _____ 	

Illustrated by: Kristal Grace C. Ilao

Activity 2: “Infer the Possible Effects”

Directions: From the given interactions among organisms below, infer the possible effects of each interaction in the environment? Write your answer on your notebook.

1. overcrowded plants in a small pot - _____
2. bug feeding on a leaf of plant - _____
3. insects and flower - _____
4. fish on a shark - _____
5. snake eating a rat - _____

Wonderful! I'm happy to see you working like that.



What I Have Learned

Directions: Complete the statement by supplying the correct word from the box. Write your answers in your Science notebook.

beneficial	mutualism	decrease
harmful	increase	parasitism

I learned that:

The type of interaction between organisms can bring both 1. _____ and 2. _____ effects to the environment. From the interactions 3. _____ is one of the harmful effects and 4. _____ is one of the beneficial effects in their environment. When organisms benefit from each other, there is a possibility to 5. _____ their survival rate.



What I Can Do



Directions: Briefly discuss the given situations below. Do it in your Science notebook.

- One Saturday morning you visited your backyard garden and found out that all of your tomato plants were full of aphids. Describe the possible effects of having pests in your plants.
- Honey comes from the result of interaction between bees and flowers. Describe its effects to humans?

Yes! What a remarkable effort.



Assessment

A. Directions: In your notebook, put thumbs up  if it can bring beneficial effects and thumbs down  if not.

____ 1. bees and flower

____ 2. mosquito and a man

____ 3. ferns on a branch of tree

____ 4. shrubs, trees, grasses in one area

____ 5. lion eating deer

____ 6. too many fishes in aquarium

____ 7. orchids clinging on a tree branch

____ 8. grasshopper and plants leaf

____ 9. ticks on a dog's body

____ 10. carabao and heron

B. Directions: Analyze the following situations. Infer the possible effects of interaction of organisms on themselves or in the environment. Use the table below and write your answer in your notebook.

Interaction of Organisms	Effects/Possible effects
1. elephants fighting each other	
2. barnacles attaching to the body of the whale	
3. the pine beetle laying eggs in the pine trees	
4. the lichen consists of a fungus and an algae growing together	
5. pitcher plant catching insects	



Additional Activity

Direction: Do this in your Science notebook.

Create a journal entry. Choose one plant or animal in nature, and write two types of relationships that the organism has in its environment and the effect of this interaction on the ecosystem.

Congratulations! You did great in this lesson.



Answer Key

Answers to Guide questions:

1. bees and flowers; barnacles on a whale; lions and buffalo; fleas and dog; overcrowded fish in an aquarium
 2. Bees and flower of a guava tree benefits from each other, Barnacles benefits while whale is unharmed, Lions benefits buffalo harmed, fleas benefits while dog is harmed, fishes competing for little space and oxygen.

Type of Interaction	Effects/Possible effects of interaction
1. bee and a flower	Bee transfer pollen grain from one flower to the stigma of another flower, thus resulting more fruits.
2. barnacles on a whale	helps the barnacles to move with the whale to get its food.
3. lions attacking buffalo	The pride of lions will have food for survival but the number of buffalo will decrease.
4. fleas and dog	Fleas will benefit but will be harmed.
5. overcrowded fish in an aquarium	Fish will die due to lack of space and oxygen

ACTIVITY 1. "Describe How Organisms are Affected"

What's New

1.	2.	3.	4.	5.	6.

What's In

A.

1. HARMFUL
 2. BENEFICIAL
 3. HARMFUL
 4. ORGANISMS
 5. INTERACTION

B.

1.
 2.
 3.
 4.
 5.

What I Know

1. harmful
 2. beneficial
 3. harmful
 4. beneficial
 5. harmful

ACTIVITY 2. "Inter the Possible Effects"

What I Have Learned

1. plants do not grow well
 2. plants will die
 3. bees and flower both benefit
 4. fish benefits, shark unharmed
 5. snake will benefits, rat will die

Interactions Among Organisms	Effects
1. parasitism	Mosquito will benefit by sucking blood; man will be badly affected by the itch that a mosquito bites dengue fever and chikungunya.
2. competition	Fish will compete over the resources and space in the aquarium.
3. predation	Frog will benefit while the insect will be harmed.
4. commensalism	Tree provides home for the fern and not harmed, fern will benefit and beautify the garden.
5. commensalism	Bees pollinate and give honey while flowers become fruits; both are useful and beneficial to human.


ACTIVITY 1. "Describe the Effects"

What's More


1. hawk eating fish	harmful	hawk benefits, fish harmed
2. aphids on a plant	aphids benefit, plants die	compete with each other and for the resources
3. rice plants	compete with each other and for the resources	remora fish benefits, shark unharmed
4. remora fish attached to a sharks body	remora fish benefits, shark unharmed	

ACTIVITY 2. "Guess the Clue"

1 – 2 beneficial or harmful
 3. parasitism
 4. mutualism
 5. increase



What I Can Do



Assessment

1. tomato plants will die if left untreated
 2. Bees and flowers interaction help humans because of the honey being produced by the bees and the fruits produced by a tree. Honey produced by bees and fruits produced by trees are both useful and beneficial to human.

A.

1. 👍	2. 👍	3. 👎	4. 👍	5. 👍
6. 👍	7. 👎	8. 👍	9. 👍	10. 👎

B.

1. elephants fighting each other	2. barnacles attaching to the body of the whale	3. the pine beetle laying eggs in the pine trees	4. the lichen consists of a fungus and an algae growing together	5. pitcher plant catching insects
Elephants are harmed or badly affected in the fight which may cause death of other elephants.	This attachment helps the barnacle to move with the whale to get its food	This may harm or cause death of the pine tree	This is beneficial interaction for both fungus and algae. Fungus gets food from the algae and the algae gets a place to live in.	Pitcher plants have foods for survival but this will decrease the number of insects present in the area.

Interaction of Organisms

Effects/Possible effects	
--------------------------	--

References:

Abutay, L., Bonao, D., Crucis, E., Eslabra, J., Gramaje, E., Guadamor, M., Hernandez, A., Ilagan, L., Llamera, F., Manawatao, R., Panganiban, H., Rojo, J., Tosco, R., Zape, J., Science Grade 4 Learner's Material, First Edition 2015, department of Education (2015), page 166-169

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