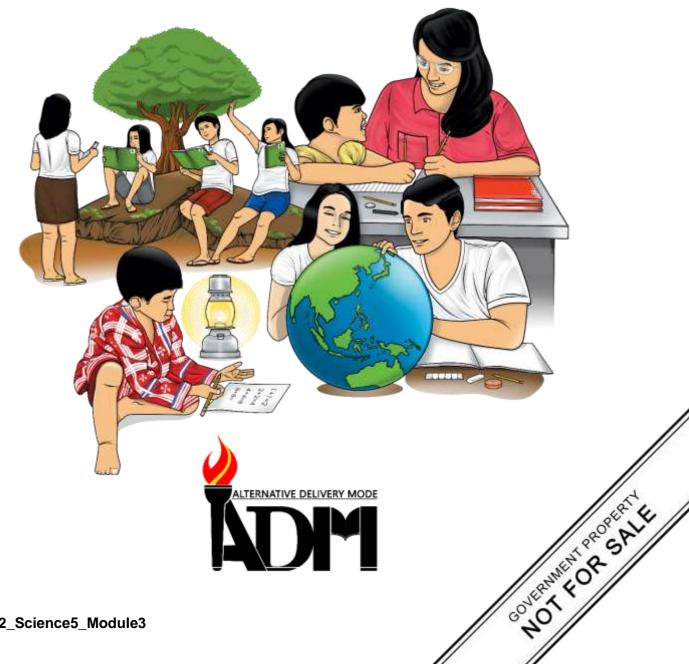




## Science Quarter 2 – Module 3: **Modes of Reproduction** in Animals



#### Science – Grade 5 Alternative Delivery Mode Quarter 2 – Module 3: Modes of Reproduction in Animals First Edition, 2020

**Republic Act 8293, Section 176** states that: No copyright shall subsist in any work of the Government of the Philippines. However, prior approval of the government agency or office wherein the work is created shall be necessary for the exploitation of such work for a profit. Such agency or office may, among other things, impose as a condition the payment of royalties.

Borrowed materials (i.e., songs, stories, poems, pictures, photos, brand names, trademarks, etc.) included in this module are owned by their respective copyright holders. Every effort has been exerted to locate and seek permission to use these materials from their respective copyright owners. The publisher and authors do not represent nor claim ownership over them.

Published by the Department of Education Secretary: Leonor Magtolis Briones Undersecretary: Diosdado M. San Antonio

#### **Development Team of the Module**

Writers: Editor: Reviewers:	Diana B. Cinco, Juliet B. Belches, Mary-Joy H. Gallaron Rex C. Briones, Ronald R. Cabigon Allan Garnace, Rhea A. Alconaba, Genie S. Lacanaria, Marella G. Guial		
Illustrator:	Braderick C. Bollozos		
Layout Artists:	Ismael T. Posion, Bella C. Alberca, Henrissa M. Sible,		
	Ryan R. Tiu,Mary Grace N. Prologo		
Management Tea	m:		
	Ramir B. Uytico	Manuel P. Albaño	
	Arnulfo M. Balane	Henrietta T. Managbanag	
	Rosemarie M. Guino	Sherlita A. Palma	
	Joy B. Bihag	Felicidad T. Espinosa	
	Ryan R. Tiu	Ismael T. Posion	
	Rowena T. Vacal	Mauricio M. Catan	
		Socorro B. Ausa	

#### Printed in the Philippines by \_\_\_\_\_

#### Department of Education – Regional Office No. VIII

Office Address:	Government Center, Candahug, Palo, Leyte
Telefax:	(053) - 832-2997
E-mail Address:	region8@deped.gov.ph

5

# Science

## Quarter 2 – Module 3: Modes of Reproduction in Animals



### **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-bystep as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge of lessons in each SLM. This will tell you if you need to proceed with completing this module or if you need to ask your facilitator or your teacher's assistance for a better understanding of the lesson. At the end of each module, you need to answerthe post-test to self-check your learning. Answer keys are provided for eachactivity 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 howthey 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 teacher or facilitator.

Thank you.



## What I Need to Know

This module was designed and written in consideration of you, learners, within the level of your knowledge and capacity to learn new skills in Science 5. It will serve as an aid to learn new ideas through various activities that are contextualized and simplified to suit your level of understanding of the concepts.

Every organism exists as the result of reproduction. Reproduction means to procreate or produce offspring, that is to reproduce. It is a biological process by which an organism reproduces offspring that are similar to its parents. It enables and ensures the continuity of species from one generation to the next. Furthermore, it is a fundamental feature of all known as"Life".

At the end of the module, you will describe the different modes of reproduction in animals such as butterflies, mosquitoes, frogs, cats, and dogs.

Explore and enjoy learning this module.

*Note:* All of your answers to the different activities should be written on a separate sheet of paper.



### What I Know

Directions: Read each of the numbered items carefully, then choose the letter of the correct answer. Write your answer on a separate sheet of paper.

- 1. When does reproduction take place?
  - A. when offspring makes adult
  - B. when parents make offspring
  - C. when offspring is an actual copy of the adult
  - D. when offspring is an actual opposite of the adult
- 2. Which organism undergoes the canine "heat" cycle?
  - A. dog
  - B. insect
  - C. parrot
  - D. turtle

3. Which animal reproduces sexually by laying eggs in water?

- A. butterfly
- B. cat
- C. chicken
- D. frog
- 4. Which of the following organisms **SHOULD NOT BE** in the group?
  - A. frog
  - B. jellyfish
  - C. mollusk
  - D. seahorse

5. What process takes place when a sperm cell fuses with an egg cell?

- A. combination
- B. fertilization
- C. hibernation
- D. interaction

6. Which of the following looks like its parent-animal when born alive?

- A. bird
- B. butterfly
- C. cockroach
- D. goat

- 7. Chicks are hatched from eggs. Goats are born alive and appear like their parents. Frogs undergo many changes as they grow. What are you able to infer from these observations?
  - A. all animals are born alive
  - B. all animals are hatched from eggs
  - C. different animals move in several ways
  - D. different animals reproduce in numerous ways
- 8. Which is **NOT TRUE** about reproduction in animals?
  - A. some animals reproduce sexually
  - B. fertilization can happen outside a female animal's body
  - C. all animals reproduce with the same mode of reproduction
  - D. fertilization occurs inside the body for a few female animals
- 9. Fishes/Frogs produce thousands of offspring to \_\_\_\_\_.
  - A. produce food for predators
  - B. increase the chance of some surviving
  - C. maintain the population of every species
  - D. ensure that there are many brothers and sisters
- 10. Animals reproduce to \_\_\_\_\_.
  - A. make new animals
  - B. get food from its young
  - C. get rid of unhealthy animals
  - D. satisfy their obligation as species



## What's In

The beginning of a brand new life is a stimulating event. The sight of a butterfly emerging from its pupa, a chick making its response to the cracked shell, or a dog giving birth to puppies. The ability of an organism to produce a new life is one of the characteristics that distinguish living things. This ability is called reproduction.

Reproduction is integral to the survival of all animals. They have to produce offspring of their kind to ensure the continuity of their species. Without the process of reproduction, the lifetime of any animal would come to an end.

Directions: Read carefully each of the following statements on reproduction. Write **TRUE** if it is correct and **FALSE** if it is incorrect.

- 1. A zygote is formed through fertilization.
- 2. A new human individual develops from a cell called a gamete.
- 3. Reproduction is to reproduce or produce new organisms of the same type.
- 4. Sexual reproduction is making a copy of the organism with a single parent.
- 5. The reproductive system is the collection of internal and external sex organs in both males and females.



What's New

## Directions: Read and understand the riddles below. Identify what animal is being described in each riddle. Choose your answer from the pool of options in the box.

Butterfly	Cat	Dog	Frog	Mosquito

- I lay eggs in water
   I like to hop around
   I'm green but I'm not a leaf
   I have a long tongue but I'm not a giraffe

   What am I?
- 2. I start as a caterpillar
  I go through metamorphosis
  I feed on nectars but I'm not a bee
  I'm colorful but I'm not a rainbow
  What am I?
- 3. I bite and suck people's bloodI am an insect but I'm not a spiderI spread disease but I'm not a sneezeI lay eggs in stagnant water during the breeding cycleWhat am I?
- 4. I have legs and tailsI am your best friendI use my nose to sniff foodI get pregnant when the "heat" cycle period occursWhat am I?
- 5. I have four legsI eat fish if you feed meI have just one, but with eight to spareI ovulate every 1-3 weeks with contact stageWhat am I?

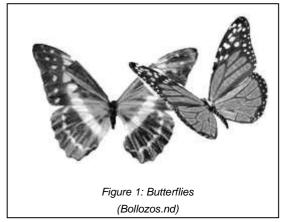


How do animals like butterflies, cats, dogs, frogs, mosquitos grow in number?

Animals, through reproduction, grow in number. **Reproduction** is the process by which an organism/s reproduce another individual (offspring) that is biologically similar to the organism. The butterflies, cats, dogs, frogs, and mosquitos are examples of animals that reproduce **sexually**.

**Sexual reproduction** takes place when sex cells from two-parent animals (one male and one female) unite to create a new animal through **fertilization**. The fertilized egg is called a **zygote.** Examples of animals that undergo reproduction are butterflies, cats, dogs, frogs, and mosquitos. The animals mentioned above reproduce sexually though they have different means of reproducing.

The following are their **modes of reproduction**:



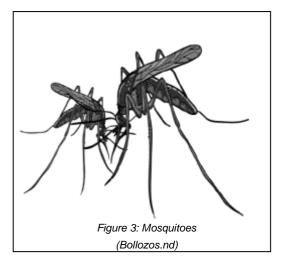
The mating begins when the male butterfly detects a female butterfly releasing pheromone at close range. When the female accepts the male, the male attaches to the female's abdomen, injecting a sperm packet into her stomach that she stores until she decides to lay eggs. They will persist on a courtship flight during mating which will last for an hour or more. As the eggs pass down the female butterfly's egg-laying tube, the sperm fertilizes them. The female butterflies

can only mate once throughout their lives, although male butterflies can mate more than once. Also, a female butterfly lays from 100 to 300 eggs, about four days, during her life. After being laid, the eggs hatch for about four days. When the first hatch, the larvae are less than 1 centimeter (cm) which grow to be about 5 cm.



All frogs reproduce sexually. It is outside the female's body of the frog that fertilization takes place. The female releases her eggs and, therefore, the male releases his sperm at the same time. The male and female get into a mating posture, called *amplexus*, by climbing onto the female's back and clasps his forelegs around her middle to ensure that the sperms reach the eggs. They will stay in this position for hours or perhaps days until the female releases as few collectively or as many as several hundred eggs. Some frogs mate in the tree branches, over a stagnant pond, and streams. Most of their eggs are found in calm or still

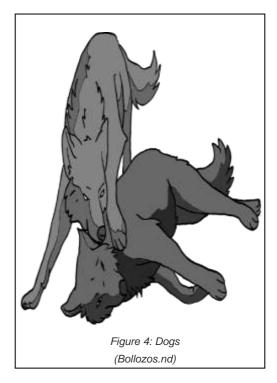
bodies of water to stop getting too rumbled about in infancy. Usually, the eggs will hatch about 6-21 days (average) after being fertilized. The gestation is approximately 33 days, for frogs give birth 33 days after a successful mating.



Reproduction by mosquitoes begins with the courtship. During mating, the male deposits sperm into the female through a little pouch in her abdomen. The female sucks the blood used to feed the fertilized egg. After mating and sucking down some blood, the female will rest for a few days to lay eggs in water, swamps, or anywhere with sufficient moisture.

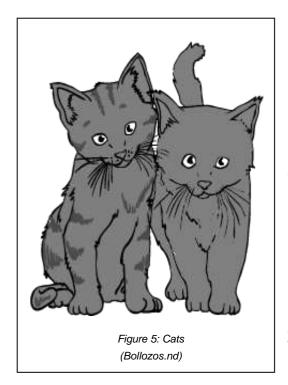
Male mosquitoes only live for a week and don't have any purpose after mating with a female so mosquitoes only copulate once. The

female mosquito only requires the sex cells of 1 male for the remainder of her life to produce a few batches of eggs. Female mosquitoes lay eggs inside containers holding water. Eggs can hatch from some days up to many months after being laid. In just 2-3 days, the pupae transform into adult flying mosquitoes. Thus, the whole life cycle of the mosquitoes from an egg to an adult stage takes approximately 8-10 days.



Dogs experience a heat cycle that lasts for 3 weeks. It is the period when they ovulate and might get pregnant which is common every 5 -12 months. During the primary week (Proestrus cycle) female's vulva (outer part of their reproductive organ) swells and secretes blood and aromas that attract males. They act moody during this stage to both people and other dogs, swinging from affectionate to "snappy" and appear to like to "tease" the males cruelly: they'll lift their tail to permit a sniff, but will bite the male's head if it tries to mount. Within the second week (Estrus cycle) her vulva will still be swollen, but her vaginal discharge will usually stop having visible blood in it, she will ovulate and is very ready for reproduction. Lastly, in week 3 (Diestrus cycle), or the last stage being in heat, the female has already ovulated and is losing

interest in reproduction. The length of pregnancy in dogs is 61-65 days, usually with an average of 63 days. This means that about 63 days after a dog is impregnated it will have its offspring. The female dogs should always be bred with a smaller male dog.



Cats, just like dogs, can go into heat at any time of the year. They stay in heat for about 5-15 days. Cats keep going back into heat every 1-3 weeks until they ovulate and are unlikely to ovulate until there is contact with a male cat. This means that they ovulate (pass an egg) only when they are bred. Reproduction begins through the estrous (reproductive) cycle when they reach puberty. The ovulation occurs until there is contact with a male cat. When in heat they make more noise or meows louder and more frequently. They become much more affectionate toward people, weave in and out of their legs, rub against them, shake their pelvis, and rolls on the floor, and "flag" their tail. Cat pregnancy lasts about 63-65 days. So, as young as 4 months or 6 months old a female cat can have kittens.

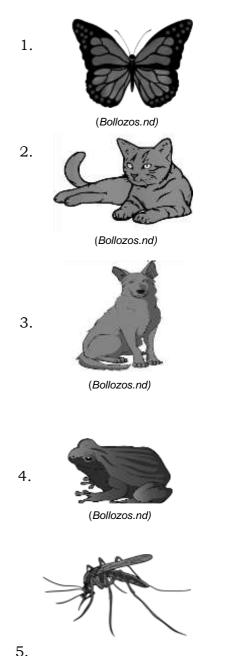


What's More

#### Activity 1

Directions: Presented below are pictures of animals that are capable of sexual reproduction. Match the images in column A with the corresponding modes of reproduction described in column B. Write the letter of the correct answer on your answer sheet.

#### Column A



(Bollozos.nd)

#### Column B

- A. In a mating posture called amplexus, the female releases her eggs and the male releases his sperms at the same time.
- B. Through a small pouch in the female's abdomen, the male deposits sperm into it.
- C. The mating begins when the male animal detects a female animal releasing pheromone at a close range.
- D. The estrous cycle is present when the female of this animal gets into heat at any time of the year and is likely to ovulate until there is contact with a male animal.
- E. A heat period that would last for 3 weeks is being experienced by the females of this animal.
- F. The reproduction can take place with only one parent, either the male or the female.

#### Activity 2

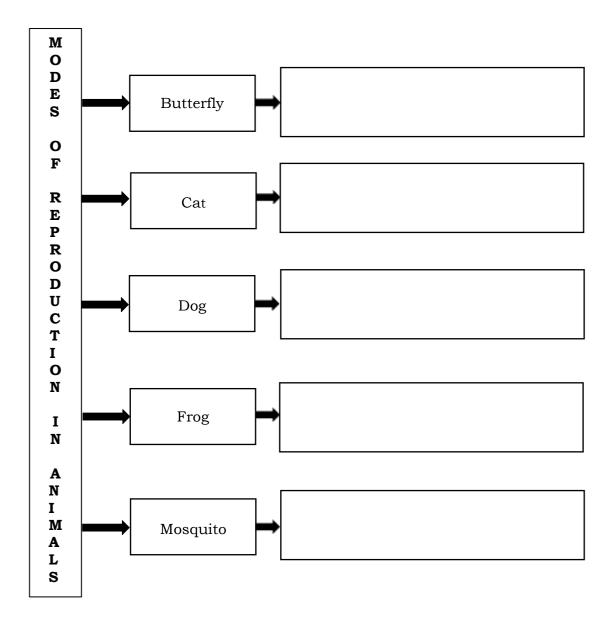
Directions: Fill in the blanks with the name of animals having the mode of reproduction described below. Choose your answer from the word box.

butterflies	cats	dogs	
frogs	mosquitoes	turtle	

- 1. Reproduction begins with courtship. During mating, the male deposits sperm into the female through a small pouch in her abdomen. After mating and sucking down some blood, the female will rest for a few days to lay eggs in water, swamps, or anywhere with sufficient moisture. This mode of reproduction happens to
- 2. Sexual Reproduction begins when the male and female animals release pheromones or sex stimulants into the environment. As the female lays the eggs they are fertilized by the stored sperm and wrapped in a cocoon. This is how \_\_\_\_\_\_ reproduce.
- 3. Reproduction begins the stages during the "heat" cycle. The males are most fertile when fully mature. They act moody during this stage to people and show affection to their partner. When the females of this kind of animal ovulate, they get pregnant. This mode of reproduction happens in \_\_\_\_\_\_.
- 4. Reproduction begins through fertilization. The fertilization happens outside the female's body. Both males and females release their eggs and their sperm at the same time. The male climbs onto the female back and clasps his forelegs around her middle which mating posture called amplexus. This is how \_\_\_\_\_\_ reproduce.
- 5. Reproduction begins through the estrous (reproductive) cycle when it reaches puberty. This animal is likely to ovulate until there is contact with a male animal. The female animal becomes much more affectionate toward people, weaves in and out of their legs, rubs against them, shakes her pelvis, and rolls about on the floor, and "flags" her tail. This mode of reproduction happens in \_\_\_\_\_.

#### Activity 3

Directions: Copy the diagram below and write inside each corresponding box a brief description of the animal's mode of reproduction.





## What I Have Learned

Directions: Express your understanding of the lesson in this module by supplying each blank with a word to complete the paragraphs. Write your answer on a separate sheet of paper.

I learned that animals grow in number through the process called (1)\_\_\_\_\_\_. Reproduction is the process by which an organism creates an offspring that is similar to it. Some animals such as the butterflies, cats, dogs, frogs, and mosquitoes reproduce (2)\_\_\_\_\_.

The (3)\_\_\_\_\_\_takes place when sex cells from two-parent (male and female) unite to form a new animal through (4)\_\_\_\_\_\_. The fertilized egg is called (5)\_\_\_\_\_\_. Examples of animals that undergo sexual reproduction are butterflies, cats, dogs, frogs, and mosquitoes. Though these mentioned animals reproduce sexually, they have different ways of reproduction.



What I Can Do

Directions: Read and answer the question in each item below. Write your answer on a separate sheet of paper.

A. What animals are found in your community with the same mode of reproduction as dogs, cats, butterflies, frogs, and mosquitos? List one for each.
 (5 points)

Example of Animals	with the same mode of reproduction as:
	Dogs
	Cats
	Butterflies
	Frogs
	Mosquitos

B. Given the chance to have a pregnant pet at home, how are you going to take good care of it? Write your answer on a piece of paper.

Your composition will be rated based on this rubric. Consequently, use this rubric as a guide when working on your assignment and check it again before you submit it.

10.	1		I	
Features	5 Excellent	3 Good	1 Poor	
Content and Organization	The ideas are very informative and well organized	The ideas are somewhat informative and well organized	The ideas are not informative and poorly organized	
Spelling, Punctuation, & Grammar	There are no spelling, punctuation, or grammatical errors.	Few spelling and punctuations errors, minor grammatical errors.	So many spelling, punctuation and grammatical errors	



#### Assessment

Directions: Read each of the numbered items carefully, then choose the letter of the correct answer.

- 1. What type of reproduction requires male and female sex cells to unite?
  - A. external fertilization
  - B. internal fertilization
  - C. sexual reproduction
  - D. asexual reproduction
- 2. Which is **NOT TRUE** about sexual reproduction in animals?
  - A. it promotes differences
  - B. it has only one parent
  - C. the young animals resemble each other
  - D. animals may hatch from eggs or be born alive
- 3. Which of the following is **TRUE** about the heat cycle in cats?
  - A. cats stay in heat for about 10-30 days
  - B. cats in heat are moody towards people
  - C. cats in heat are quiet and like to lay down
  - D. cats in heat make more noise, louder and more frequent

#### 4. Which of the following **DOES NOT** mate?

- A. cat
- B. pig
- C. lizard
- D. starfish
- 5. What do you call the process formed after the union of a sperm cell and egg cell?
  - A. zygote
  - B. fertilization
  - C. reproduction
  - D. sexual reproduction
- 6. What will happen if animals will not reproduce?
  - A. population will decrease
  - B. organisms will not survive
  - C. organisms will not improve
  - D. organisms will not be able to adapt to their environment

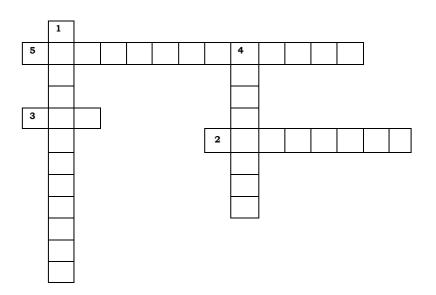
- 7. How many times do female butterflies mate throughout their lives?
  - A. once
  - B. twice
  - C. thrice
  - D. as many times as they wanted
- 8. Animals reproduce sexually to\_\_\_\_\_.
  - A. make new animals
  - B. get food from its young
  - C. get rid of unhealthy animals
  - D. comply obligation to the species
- 9. Frogs get into a mating posture called amplexus to \_\_\_\_\_\_.
  - A. release more eggs in water
  - B. release more sperms for the male frogs
  - C. have better hatching of eggs into tadpoles
  - D. to make sure that the sperms reach the eggs
- 10. Reproduction is important to living organisms because it\_\_\_\_\_.
  - A. controls the body parts
  - B. converts food into nutrients
  - C. collects and removes wastes
  - D. continued the existence of organisms



## Additional Activities

#### **A.** Word puzzle

Directions: Fill out the crossword puzzle below by identifying the correct term being described by the clues in each item. Write your answer on a separate sheet of paper.



#### Down

- 1. a process of producing of its kind
- 4. mating posture of a frog to make sure that sperm reach the egg

#### Across

- 2. the type of reproduction wherein new organism is produced from two parents
- 3. an animal that undergoes canine "heat" cycle
- 5. a process when a sperm cell unites with the egg cell

#### **B.** Fill in the blanks

Directions: Supply each blank below with the correct word/term to complete each sentence. Choose your answer from the list of options inside the box. Write your answer on a separate sheet of paper.

pheromones	heat	mosquitoes	tadpoles	ovulate
------------	------	------------	----------	---------

- 1. Frogs lay eggs in water and the eggs hatch into\_\_\_\_\_that grow into frogs.
- 2. The male butterfly detects a female butterfly releasing \_\_\_\_\_\_at close range.
- 3. Male\_\_\_\_\_usually form large swamps in the air and wait for the females to find them and fly in.
- 4. Cats get into heat at any time of the year and are likely to \_\_\_\_\_until there is contact with a male cat.
- 5. Mature female dogs have an estrus cycle or \_\_\_\_\_\_ that period when they ovulate and are receptive to male dogs and get pregnant.

What I Know         I. B       6. D         2. A       7. D         3. D       8. C         4. A       9. C         5. B       10. A	נפ יפ פפ ופ	<b>76.1</b> 1. T.T. 16.T. 2. 7.T. 2. 7.T. 3. 7.T. 3.		What's New 1. Frog 2. Butterfly 4. Dog 4. Dog 5. Cat
tivity 2. Pls. der the no bsz of the	Letivity 3 A to the Teachor A to based on Ac all be based on Ac all be baset to consi anners' answer bo anners' answer anners	<b>м</b> ofiu u b VПта b VПта b	Activa I. Mosq 3. Dog 4. Frog 5. Cat	<b>Activity 1</b> 1. C 2. D 4. A 4. A
				What's More
r may vary) r may a chance to have a pregnant prome, I will give her a shelter I will feed the mother pet so that a milk to her young ones. Lastly, my Mom to take care of our pet the way she took care of us.	th n n pet at 1 where th Where th Where th i will tell just like	l <b>Have Learn</b> production xually tilization gote	1. Tel 2. se: 3. Se	<ul> <li>2' B 10' D</li> <li>4' D 3' D</li> <li>3' D 8' V</li> <li>4' C 9' D</li> </ul>
re just sample answers. s may vary based on the animals foumity. voun community.	Jo puix Jo puix JomsuV	tnsnge		4. Amplexus 5. Fertilization
is stoach t <b>he Teacher:</b> The answers	4. Toac 5. Cocł <b>Note to</b>	eromones psquitoes	3. mo	2. Sexually 3. Dog
stid	I. Hors 2. Rabi 3. Moth	lpoles	bet.I n	1. Reproduction
oU ns(	What I С. А.		ivities. B.	Additional Acti



### References

#### A. Books:

- Abracia, N, and et.al. 2014. *Science in our World Textbook.* Quezon City Philippines: Vibal Group Incorporated.
- Hacket, J. et.al. 2016. *Science A Closer Look Textbook.* Quezon City: McGraw-Hill Education and Phoenix Publishing House.
- Sarte, EvelynT. 2016. *Science 5 Beyond Boarders Textbook.* Quezon City Philippines: Vibal Group Incorporated.

#### **B.** Elecronic Resources:

- "Sexual Reproduction in Animals". 2020. *Jagranjosh.Com*. Accessed July 27. https://www.jagranjosh.com/general-knowledge/sexual-reproduction-inanimals-1457941400-1.
- "Reproduction And Sex In Dogs And Cats". 2020. *Animalpetdoctor.Homestead.Com.* Accessed September 23. http://animalpetdoctor.homestead.com/reproduction.html.
- "How Do Butterflies Reproduce?". 2020. *Reference.Com.* https://www.reference.com/pets-animals/butterflies-reproducef291f3be9c5cc24f.
- "How Frogs Work". 2020. *Howstuffworks*. Accessed September 23. https://animals.howstuffworks.com/amphibians/frog4.htm.
- "Mosquito Life Cycle & Breeding | TERRO® Mosquitoes Guide". 2020. Terro.Com. https://www.terro.com/mosquitoesreproduction#:~:text=Reproduction%20Patterns%20of%20Mosquitoes,materi als%20found%20in%20the%20water.
- "Reproduction in Mosquitoes". 2020. *Animals.Mom.Com.* https://animals.mom.com/reproduction-mosquitoes-4694.html.
- "Pregnancy In Cats And Dogs Glendale Veterinary Clinic". 2020. *Glendalevetclinic.Com.* https://www.glendalevetclinic.com/usefullinks/8-news-articles/21-pregnancy-in-cats-and-dogs.
- "Life Cycle Of A Frog". 2020. *Allaboutfrogs.Org.* http://allaboutfrogs.org/weird/general/cycle.html.
- "Monarch Butterfly Biology". 2020. *Fs.Fed.Us*. https://www.fs.fed.us/wildflowers/pollinators/Monarch\_Butterfly/biology/i ndex.shtml#:~:text=A%20female%20Monarch%20butterfly%20lays,to%20be %20about%205%20cm.
- "How Long Are Cats Pregnant? | Petfinder". 2020. *Petfinder*. https://www.petfinder.com/cats/cat-health/how-long-are-cats-pregnant/.

#### For inquiries or feedback, please write or call:

Department of Education – Bureau of Learning Resources (DepEd–BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072;8634-1054;8631-4985

Email Address: blr.lrqad@deped.gov.ph\* blr.lrpd@deped.gov.ph