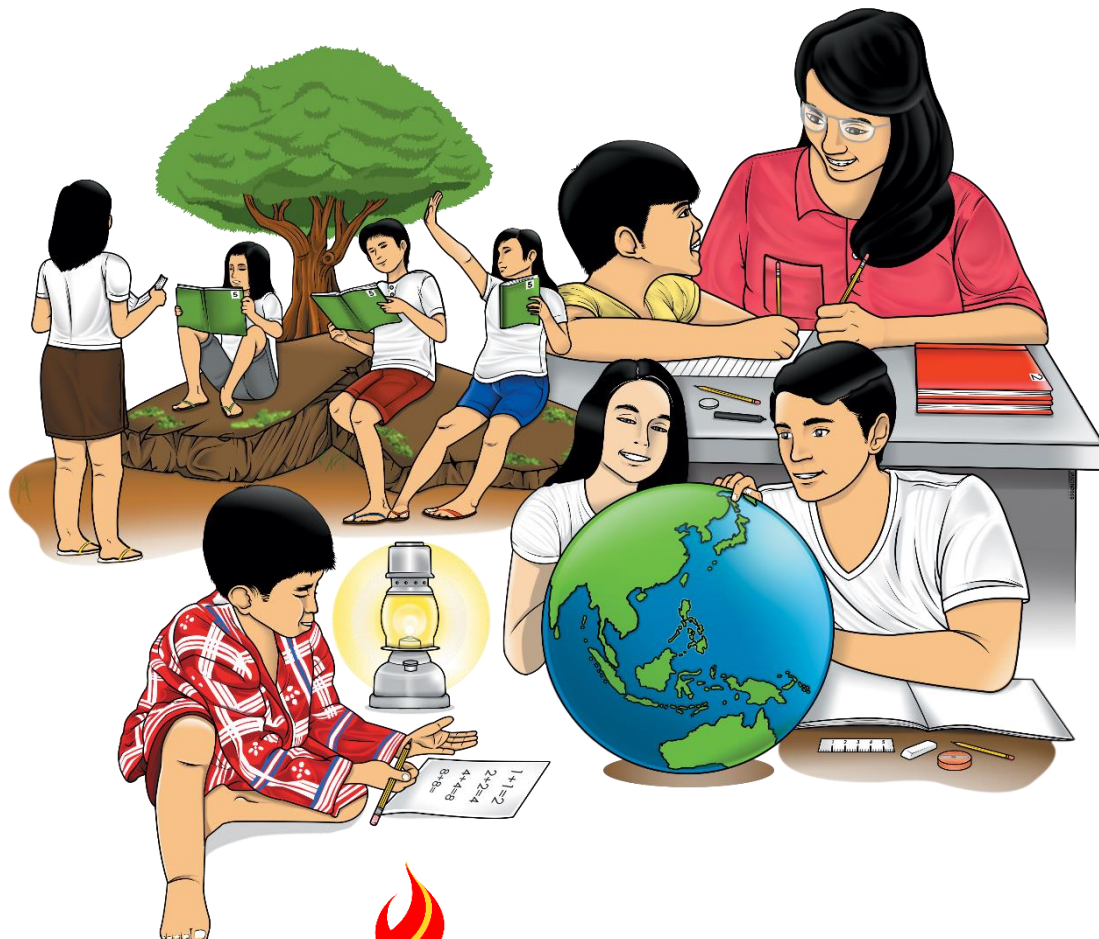


Science

Quarter 2 – Module 5:

“Where Do I Begin?”



Science – Grade 4
Alternative Delivery Mode
Quarter 2 – Module 5 “Where Do I Begin?”
First Edition, 2020

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Science
Quarter 2 – Module 5:
“Where Do I Begin?”

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. 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.



What I Need to Know

The life cycle of an organism pertains to the sequence of developmental stages that undergoes on its way to adulthood. Mammals, reptiles, amphibians, birds, fish, insects and other invertebrates have their own unique way of reproducing life and becoming an adult.

Metamorphosis of tadpoles into frogs and caterpillars into adult butterflies are some amazing examples of transformation from the egg to their adult stage.

Thus, this module was written to help you compare and illustrate the stages in the life cycle of some animals. Series of activities were provided that can help you attain your learning targets. Please be guided by the instructions in each activity.

This lesson will focus on:

Lesson 1- Stages in the life cycle of organisms (S4LT-IIg-h-13)

After going through this module, you are expected to:

- compare the stages in the life cycle of organisms; and
- illustrate the different stages in the life cycle of the organisms.



What I Know

A. Directions: Find the 5 words hidden in the maze below that are arranged vertically and horizontally. Use the given clues to get the correct words. Write them in your notebook.

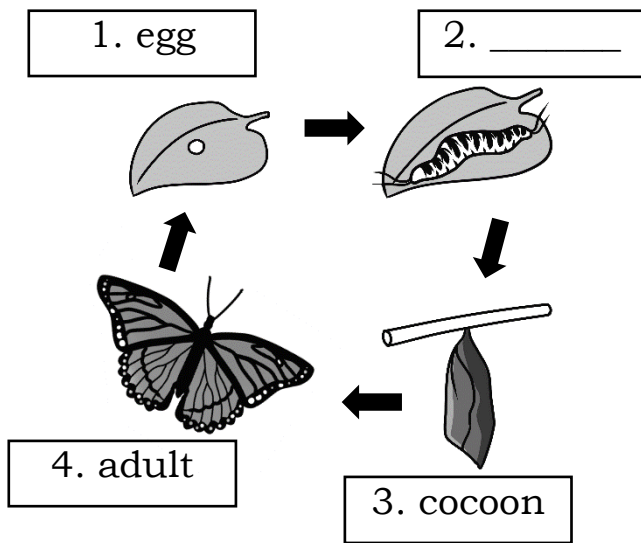
C	O	C	O	O	N	Y
X	L	Y	J	Y	Y	V
B	A	C	H	H	M	E
G	R	L	L	N	P	G
D	S	E	E	D	H	G
U	A	D	A	B	M	L

- _____ 1. A part of a plant which can grow into a new plant.
- _____ 2. A covering or case made by some animals to protect themselves or their young as they develop into adults.
- _____ 3. It is usually smaller but looks just like the adult.
- _____ 4. An oval or rounded body surrounded by a shell.
- _____ 5. A circle of events that repeats in a regular pattern.

B. Directions: Identify the missing stages of the life cycle of different organisms shown in the pictures. Choose your answers from the box below. Answers can be repeated. Do it in your notebook.

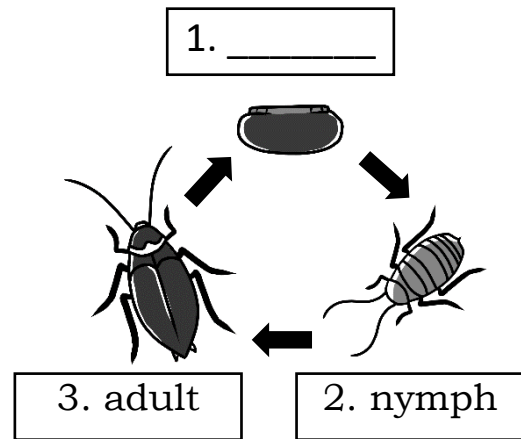
A. Animals

egg	larvae	leaf growth	egg mass
hatching	tadpole	seed	developing flower



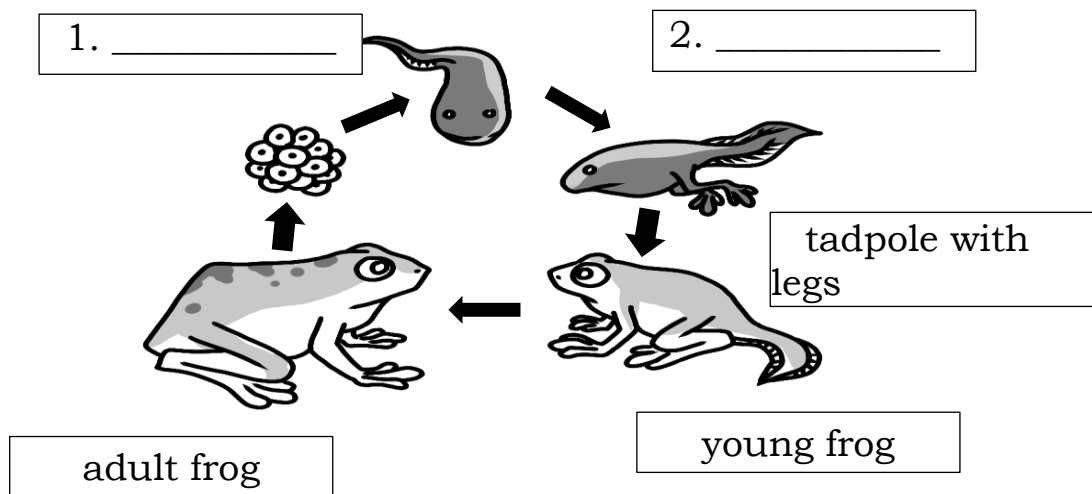
Illustrated by: Jotham D. Balonzo

1. Life cycle of a Butterfly



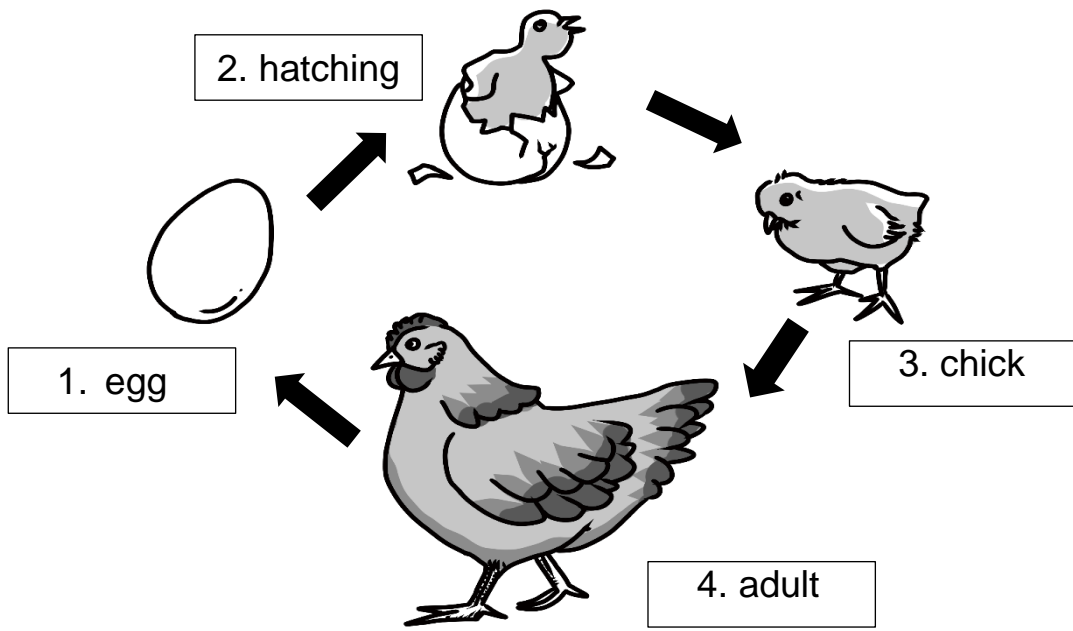
Illustrated by: Jotham D. Balonzo

2. Life cycle of a Cockroach



3. Life cycle of a Frog

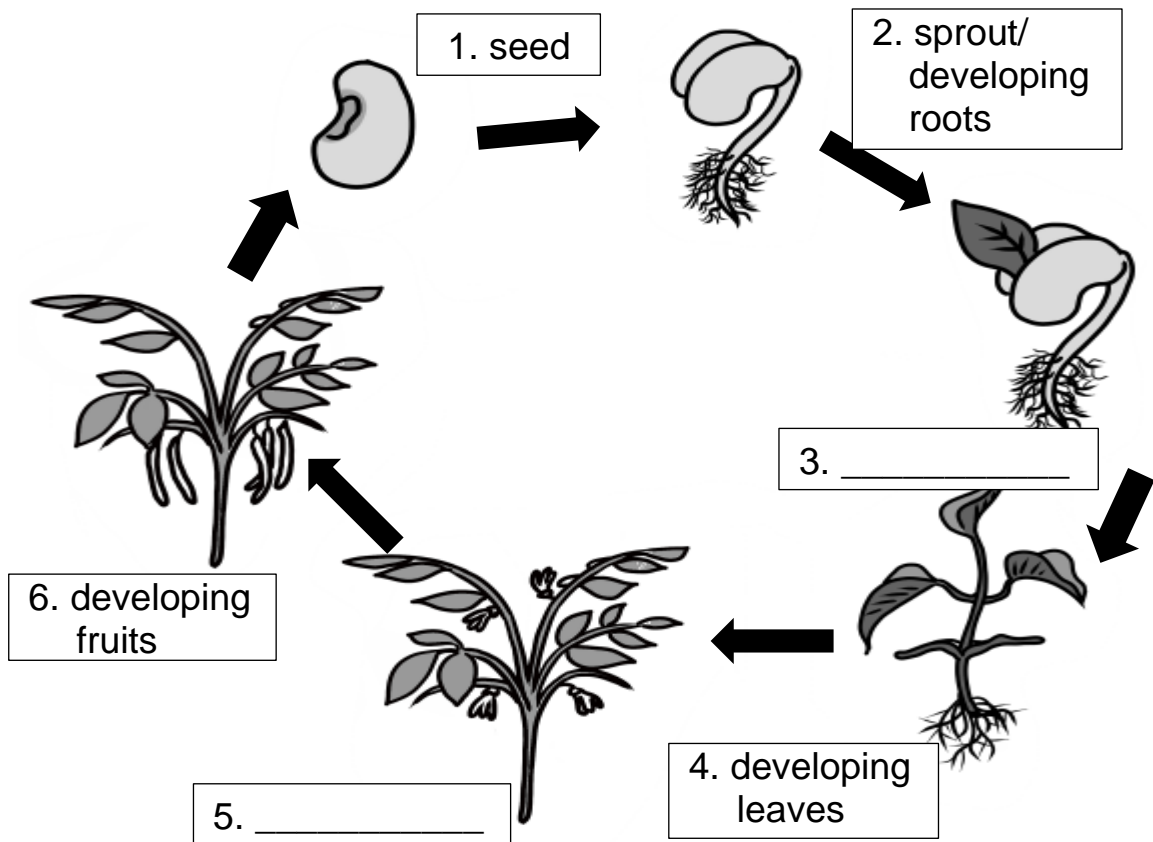
Illustrated by: Jotham D. Balonzo



Illustrated by: Jotham D. Balonzo

4. Life cycle of a Chicken

B. Plants



Illustrated by: Jotham D. Balonzo

Keep on trying, I know you can do it!

Lesson

1

“Stages in the Life Cycle of Organisms”

Have you wondered how different organisms undergo changes in appearance or how they looked like when they are young and adult? In this lesson, you will be provided with varied activities where you can learn that animals and plants undergo different stages before they become adult.



What's In

Directions: Match the specialized structure of the following plants. Choose your answer from the box below. Write your answers in your notebook.

thorns	smell	buoyant leaves
waxy leaves	hairs	long roots

1. rose - _____
2. durian - _____
3. euphorbia - _____
4. gabi - _____
5. water hyacinth - _____
6. radish - _____
7. nettles or *lipang aso* - _____
8. pine apple - _____
9. cactus - _____
10. makahiya - _____

Congratulations!-You can now proceed to the next activities.



What's New

Note to Parent/Guardian: Guide your children while doing the various activities in this module. Remind them to observe precautionary measures and to be careful in handling the materials while performing the activity.

To the Learner:

Directions: Perform each activity and answer the questions that follows. Write your answers in your Science notebook.

Activity 1: "Arrange Me"

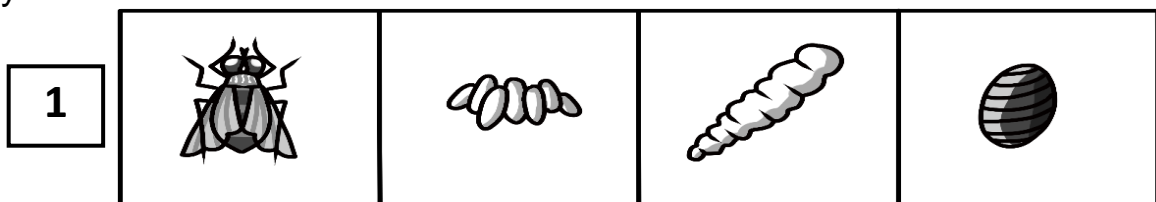
What you need:

- pencil, notebook, paper
- set of pictures of the stages of development of fly, mosquito, and butterfly

What to do:

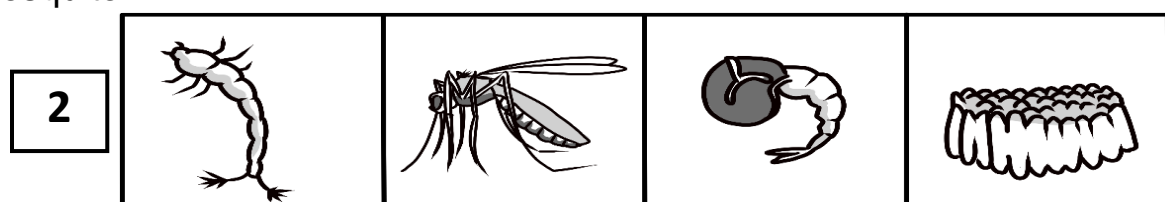
1. Observe, then arrange the mixed pictures showing the stages of development of fly, mosquito and butterfly.
2. Copy the table in your notebook and draw them in the proper column.

Fly



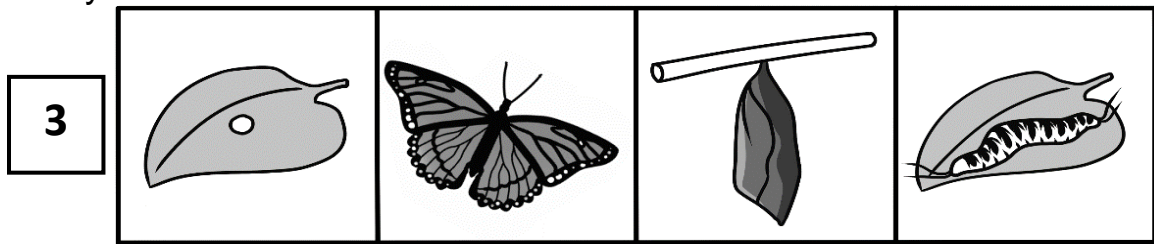
Illustrated by: Jotham D. Balonzo

Mosquito



Illustrated by: Jotham D. Balonzo

Butterfly



Illustrated by: Jotham D. Balonzo

Life Cycle of Insects with Complete Metamorphosis

Animals	Egg	Larva	Pupa	Adult
Fly				
Mosquito				
Butterfly				

Guide Questions:

1. What is metamorphosis?
2. What are the stages in the life cycle of complete metamorphosis?
3. When do we say that a certain life cycle can be considered a complete metamorphosis?

Activity 2: “What’s Next?”

What you need:

- pencil, notebook, paper,
- illustrations of different stages of louse, grasshopper and cockroach

What to do:

1. Observe, then arrange the mixed pictures showing the stages of development of louse, grasshopper and cockroach.

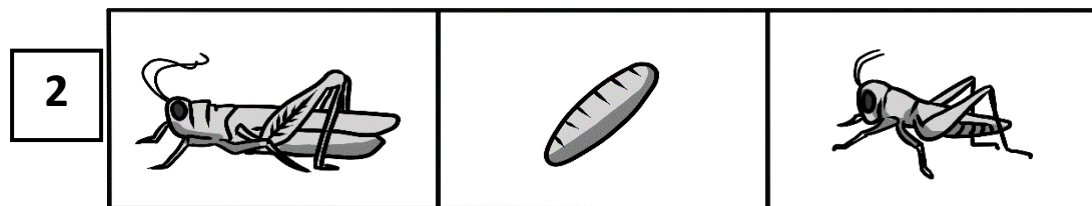
2. Copy the table in your notebook and draw them in the proper column.

Louse



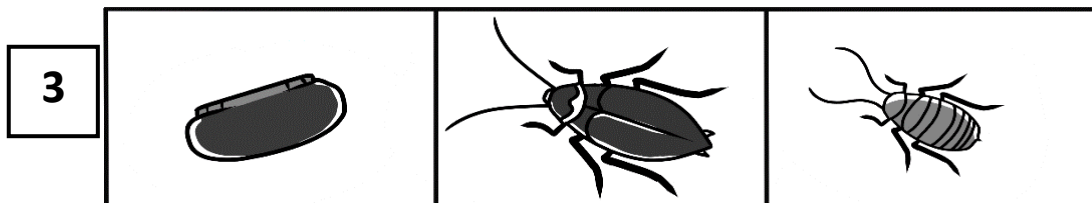
Illustrated by: Jotham D. Balonzo

Grasshopper



Illustrated by: Jotham D. Balonzo

Cockroach



Illustrated by: Jotham D. Balonzo

Life Cycle of Insects with Incomplete Metamorphosis

Animals	Egg	Nymph	Adult
Louse			
Grasshopper			
Cockroach			

Guide Questions:

1. What stages are found in the incomplete metamorphosis?
2. When do we say that a certain life cycle can be considered an incomplete metamorphosis?
3. What makes incomplete metamorphosis different from complete metamorphosis?

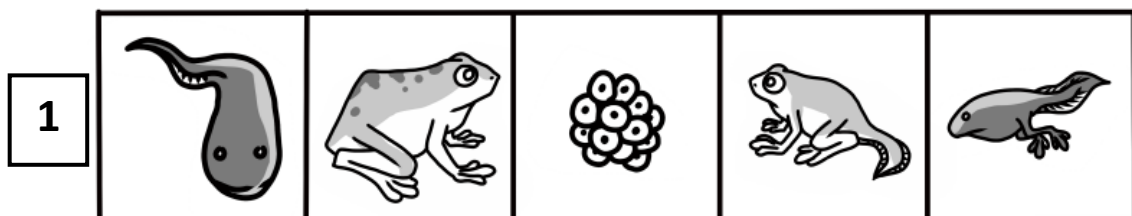
Activity 3: “The Frog’s Life”

What you need:

- pencil, notebook, paper
- set of pictures of the stages of development of frog and chicken

What to do:

3. Observe, then arrange the mixed pictures showing the stages of frog and chicken
4. Copy the table in your notebook and draw them in the proper column.

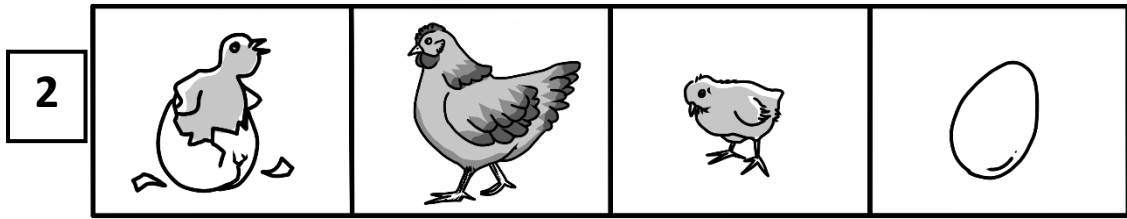


Illustrated by: Jotham D. Balonzo

Frog’s Life

Egg mass	Tadpole	Tadpole with legs	Young frog or frog let	Adult Frog

Activity 4: “The Life of a Chicken”



Illustrated by: Jotham D. Balonzo

Life of a Chicken

Egg	Hatching	Chicks	Adult (<i>Hen or Rooster</i>)

Guide Questions:

1. What are the life stages found in the life cycle of egg laying animals like frog and chicken?
2. What is the first stage of their life cycle?
3. How do we know that a certain life cycle belongs to an egg laying animals?

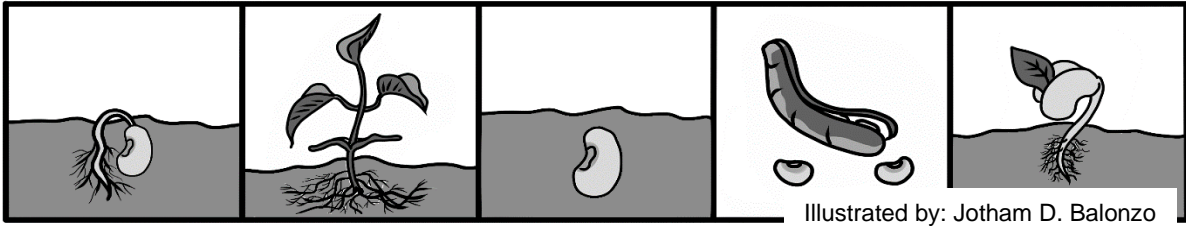
Activity 5: “Life Cycle of a Bean Plant”

What you need:

- pencil, notebook, paper
- set of pictures of the life cycle of a bean plant.

What to do:

1. Observe, then arrange the mixed pictures showing the proper sequence of the life stages of a bean plant. Draw them in your notebook.
2. Copy the table in your notebook and draw them in the proper column.



Life Cycle of a Bean Plant

Seed scattered, absorbs water and ready to grow	Roots develop pushing out the seed coat	Seedling grows out (new plant) of the ground	Stem and leaves grow toward sunlight	Flower develop and make new seed

Guide Questions:

1. What are the life stages found in the life cycle of a bean plant?
2. What is the first stage of their life cycle?
3. Compare the life cycle of the animals and the plants, what is the first stage in their life cycle?
4. What do you think are the factors affecting the growth of a plant?

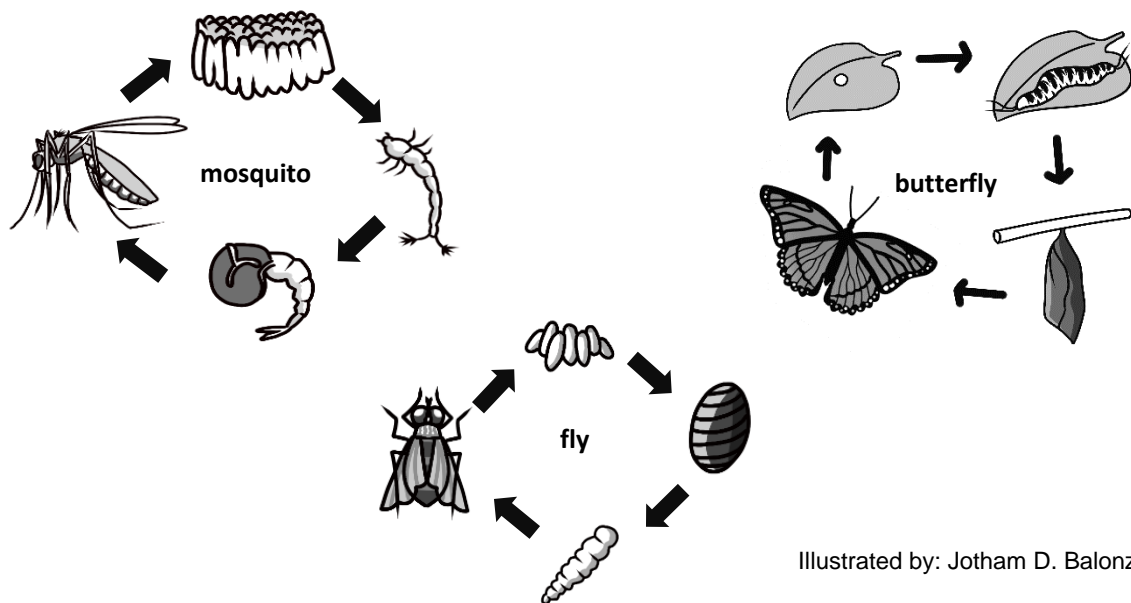
Congratulations! You did well today.



What is It

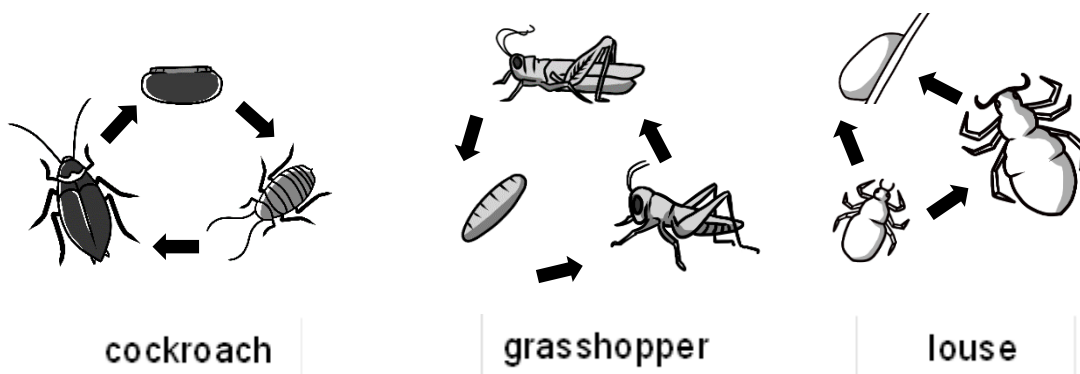
Points to Remember:

Life Cycle of Organisms with Complete Metamorphosis



Illustrated by: Jotham D. Balonzo

Life Cycle of Insects with Incomplete Metamorphosis



Illustrated by: Jotham D. Balonzo

- Metamorphosis is a biological process by which an animal physically develops after birth or hatching. It is a part of the life cycle of the most insects. A life cycle is a period involving one generation of an organism and change form, usually (but not always) accompanied by change of habitat or behavior.

There are two types of metamorphosis: complete and incomplete metamorphosis.

A. Complete metamorphosis

Most insects go through the four stages of complete metamorphosis, including the lady bug, housefly, mosquito, and butterfly. It has four stages. These stages are:

1. **Egg** is the first stage in the life cycle of insects undergoing complete metamorphosis. A female insect lays egg.
2. **Larvae** is the second stage of the life cycle. Larvae hatch from egg but do not look adult insects. For instance, the larvae of butterflies are caterpillars.
3. **Pupa** is the third stage of complete metamorphosis. In this stage larvae make cocoon around themselves, and become busy changing into their adult forms. They do not eat during this time. This can take few days, or in some cases months.
4. **Adult** is the last stage of complete metamorphosis. After a period of time, larvae is nothing like it was, and exits the cocoon or larval body as an adult.

B. Incomplete Metamorphosis

Some of the insects go through stages of gradual metamorphosis, including the mayfly, cicada, grasshopper, aphid, louse and cockroach. These include:

1. **Egg:** A female insect lays egg. Sometimes the eggs are group and protected by a covering or case.
2. **Nymph:** The eggs hatch into nymphs. Nymphs look like small adults, but usually don't have wings. They eat, grow, and change. As this occurs, they gradually begin to look more and more like adult.
3. **Adult:** Once the nymph has grown to an adult size, they stop molting. Generally, adults are the only stage in an insect's life when it has wings. Adult's primary interest is mating.

C. The Frog's Life



A mother frog lays a cluster of eggs covered with a jelly-like substance called egg mass in water. The male frog drops sperm on the eggs and will be fertilized.



During the life cycle, the embryo transforms into a tadpole. The tadpole has gills to breathe, a mouth to eat and a tail to swim like a fish.



The tadpole's hind legs grow after the development of organs.



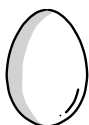
In this stage, the tadpole with legs metamorphoses into a young frog and has a small tail stuck in the body.



The young frog develops lungs, forelimbs, hind limbs and transforms into an adult frog.

Illustrated by: Jotham D. Balonzo <file:///C:/Users/DEPED/Desktop/MOST%20impt/sentence-sheetFROG.pdf>

D. Life Cycle of a Chicken



Every chicken starts its life by hatching from an egg.



The shell of an egg protect the egg yolk and the egg white. The egg white protect the developing chick or embryo, while the egg yolk provides the embryo with proteins and vitamins to help the embryo grow strong and healthy.



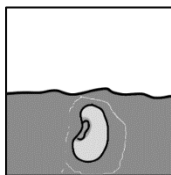
The hen lay her egg for 21 days after which they hatch. In the 21 days that embryo (*developing chick*) develop feathers and beak to enable the chick to break out the shell when the time is right.



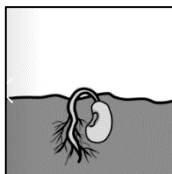
6 months later the chick grow into an adult. The male chicks grow into rooster and the female chicks grow into hen.

Illustrated by: Jotham D. Balonzo

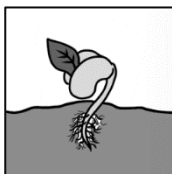
D. Germination of a Seed



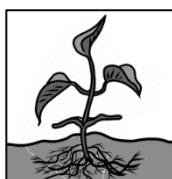
The seed scattered at the soil, absorb water and nutrients from it and ready to grow.



The seed developed roots and pushes out from the seed coat.



The seedling grows out from the ground (*new plant*). This time it uses the energy from the sun to make their own food through their leaves, the process is known as **photosynthesis**.



Leaves, stem and branches developed and grow toward the sunlight. The leaves make food for the plants.



The new plant develops flowers and fruit and produces new seeds.

Illustrated by: Jotham D. Balonzo

<https://in.pinterest.com/pin/235594624237040956/>



What's More

Activity 1: "Let's Compare"

A. Directions: Complete the table below by comparing the stages in the life cycle of the organisms. Write your answer in your notebook.

Organisms	Stages in the life Cycle			
butterfly				
Fly				
mosquito				
cockroach				
Frog				
Chicken				
Plants				

Activity 2: "Draw Me"

B. Directions: Illustrate the different stages of organisms such as:

- Plant
- Choose one from the animals that you have studied.



What I Have Learned

Directions: Complete the graphic organizer of the life cycle of organisms using the word bank below. Answers can be repeated. Write your answer in your Science notebook.

cockroach mosquito grasshopper	butterfly fly, frog, chicken	Complete Metamorphosis
egg		larvae
metamorphosis	Incomplete Metamorphosis	adult
nymph		pupa

Life Cycle of Organisms

A. Animals:

1.

is divided into:

2.

3.

is a biological process by which an animal physically develops after birth or hatching.

-is a biological process organisms develop into four stages from beginning to end

-a change in body form having only 3 stages from beginning to end

it includes:



- 4.
- 5.
- 6.
- 7.

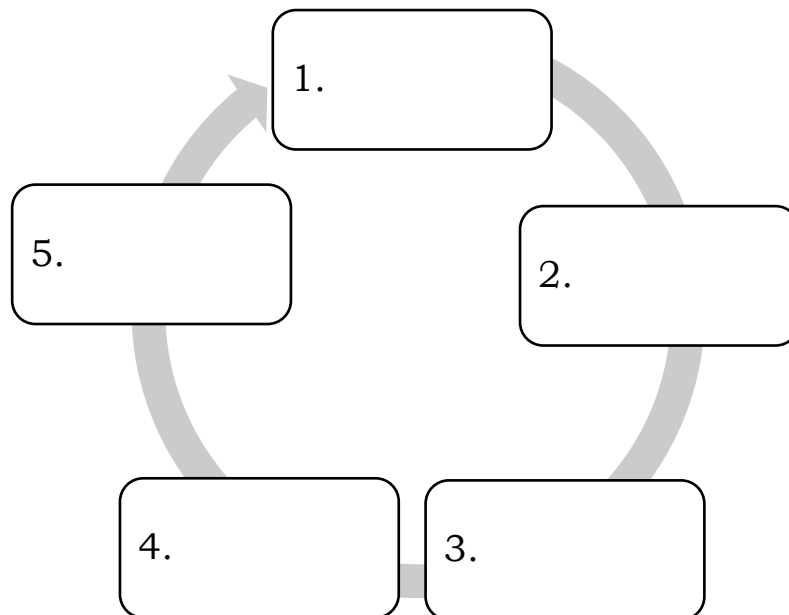
it includes:



- 8.
- 9.
- 10.

B. Plants

Direction: Draw and label the plant life cycle in order from beginning to end.





What I Can Do

Directions: Read and answer the following questions briefly. Write your answer in your Science notebook.

1. Are cockroaches, mosquitoes, lice, and flies useful or harmful animals? Why?
2. At what stage of their life cycle are you going to eliminate them? Why?
3. How does seed germination help farmers produce another plant?

Very good! You are now ready for the next activity.



Assessment

A. Directions: Read the following questions carefully and write the letter of the correct answers in your notebook.

1. It refers to the way insects develop, grow, and change form.
 - a. Cycle
 - b. Metamorphosis
 - c. Photosynthesis
 - d. Transformation
2. How many life stages are there in complete and incomplete metamorphosis?
 - a. 4 and 3
 - b. 3 and 4
 - c. 4 and 4
 - d. 3 and 3

3. What is the proper order of the life stages in complete metamorphosis of a frog?
 - a. egg, larvae, pupa, adult
 - b. egg, larvae, nymph, adult
 - c. egg, nymph, larvae, adult
 - d. egg mass, tadpole. tadpole with legs, young frog, adult

4. Which of the following organisms undergo complete metamorphosis?
 - a. chicken and frog
 - b. grasshopper and fly
 - c. cockroach and louse
 - d. aphid and grasshopper

5. Which of the following organisms undergo incomplete metamorphosis?
 - a. cockroach and louse
 - b. chicken and frog
 - c. aphid and ladybug
 - d. mosquito and butterfly

B. Directions: Complete the table below by comparing and filling out the missing life stages of the different organisms. Do this in your Science notebook.

Organisms	Stages in the life Cycle				
butterfly	egg	larvae	pupa	adult	
fly	egg	larvae	1. _____	adult	
mosquito	egg	larvae	pupa	adult	
cockroach	egg	2. _____	adult		
frog	egg mass	3. _____	tadpole with legs	young frog	adult
chicken	egg	4. _____	chick	adult	
plants	5. _____	sprout	leaf growth	flower	fruit

C. Directions: Write **true** if the statement is correct and **false** if it is not.

- _____ 1. Sunlight is not a factor in seed germination.
- _____ 2. Plants don't need moisture to germinate.
- _____ 3. Germination is the process in which the embryo gets energy from the stored food in the seed and starts to grow.
- _____ 4. The kind of soil affects seed germination.
- _____ 5. The best kind of soil for plants contain humus.



Additional Activities

1. Think of other animals or insects which undergo complete and incomplete metamorphosis aside from the examples given in the lesson. Draw their life cycle.
2. Give at least 5 ways on how to keep or store the seeds properly. You can ask a nearby farmer if possible.

Congratulations! You did well in this lesson.



Answer Key

What's In

Directions 1
 1. egg 2. cocoon 3. nymph 4. seed 5. cycle

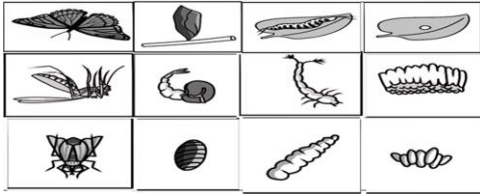
Directions 2
 1. butterfly- larvæ 2. cockroach- 1. egg mass 3. frog-1.egg mass 2. tad pole 4. Chicken- hatching 5. Plants – 1. seed 3. leaf growth 5. develop flowers

What's In

1. thorns 6. smell 2. smell 7. hairs 3. thorns 8. thorns 4. waxy leaves 9. thorns 5. long roots 10. thorns

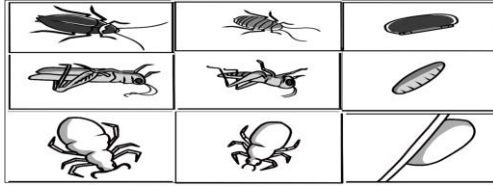
What's New

Activity 1 –Arrange Me



Guide Question:
 1. Metamorphosis- a biological process which an animal physical develop after birth or hatching.
 2. Complete Metamorphosis- egg-larvæ-pupa-adult
 3. The organisms develop from 4 complete stages

Activity 2- What's Next



Guide Questions:
 1. egg-nymph-adult 2. 3 stages 3. Incomplete Metamorphosis has 3 life stages in their life cycle
 Complete Metamorphosis has 4 life stages in their life cycle

Activity 3- The Frog's Life

Activity 4-Chicken's Life Cycle

Guide Question:
 1. Frog- egg mass- tadpole- tadpole with legs-young frog or frog let- adult
 Chicken- egg- hatching – chicks – adult
 2. egg 3. they lay egg

Activity 5-Life Cycle of A Bean Plant

Guide Questions:
 1. seed- root development or sprout- seedlings grow out towards sunlight- stem and leaves grow- flower and fruit
 development- develop or make new seeds
 2. seeds must be planted
 3. animals first stage in life cycle is egg
 Plants first stage in life cycle is seed
 4. soil, water, sunlight and nutrients

What's More

Activity 1: "Let's Compare"

Organisms	Stages in the life Cycle			
butterfly	egg	Larvæ	pupa	adult
fly	egg	Larvæ	pupa	adult
mosquito	egg	Larvæ	pupa	adult
cockroach	egg	nymph	adult	
frog	egg	tadpole	Tad pole with legs	young adult
chicken	egg	hatching	chicks	adult
plants	seed	sprout	leaf growth	flower fruit

Activity 2: "Draw Me"



1. Plants

2. Animals

Pupils answer may vary.



What I Have Learned

A.

1. Metamorphosis

2. complete metamorphosis

3. Incomplete metamorphosis

4. egg

5. larvae

6. pupa

7. adult

8. egg

9. nymph

10. adult

B.

What I Can Do



1. Yes, they can harm people and can cause illness

2. egg, to prevent the eggs from hatching.

3. seeds could become a new plant



Assessment

1. d 2. a 3. d 4. a 5. a

2. Directions

1. pupa 2. Nymph 3. tadpole 4. hatching 5. seed

3. Directions

1. False 2. False 3. True 4. True 5. True



Additional Activities

Pupils' answer may vary.

References

Abutay, Lelani R., et. al. *Science 4 Learner's Material*, 29-37.
Pasig City: Department of Education, 2015.

Abutay, Lelani R., et. al., *Science 4 Teacher's Guide*, 36-48.
Pasig City: Department of Education, 2015.

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