Organic Agriculture Integration in Basic Education Curriculum
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Science IV
Life Cycle of Animals that are Useful and Harmful to the Farmer's Crop

GRADE LEVEL: Grade IV
SUBJECT: Science and Organic Agriculture
TOPIC: Life Cycle of Animals that are Useful and Harmful to the Farmer's Crop

PREREQUISITE:
DURATION: 1 to 2 sessions

I. LEARNING OBJECTIVES

A. Science objective

1. Describe the life cycle of some animals.
   Example: frog, butterfly, mosquito, short-horned grasshopper, rat

B. Organic Agriculture objective

Determine the stage of the life cycle of some animals that are useful and harmful to the farmer's crop.

II. MAIN CONCEPTS & SKILLS

1. **Life Cycle** is a period in the life of an animal from time it becomes a fertilized egg to reproduction and death.
2**. Metamorphosis** is the series of changes in the form during the development of an animal from egg to adult.
3. **A frog** undergoes several stages: egg, larva or tadpole, young frog, adult
4. **A butterfly** Frogs typically laid their eggs in water. The eggs hatch into aquatic larvae called tadpoles that have tails and internal gills. The life cycle is completed when they metamorphose into adults.
5. **A mosquito** the mosquito goes through four separate and distinct stages of its life cycle: Egg, Larva, Pupa, and Adult. Each of these stages can be easily recognized by its special appearance.
6. **Short-Horned Grasshoppers** have antennae less than half the length of the body. Short-horned grasshoppers are often called locusts, particularly when migrate . They are also the one's cause huge crop damage.
7. **Rats** has the following stages: Mothers and babies, Adolescence, Adults. Rats are a worldwide pest due to their capacity to cause structural damage, to spread life-threatening diseases, and to compete with man for food.

MATERIALS NEEDED

- Enlarged diagram of the different life cycles of a frog, mosquito, butterfly, short-jawed grasshopper, and rat
- Manila paper
- pen

III. PROCEDURES

A. Preparatory Activity:

1. Review: Where do some animals develop?
2. Motivation: Show some picture of a baby, a child, a teenager, and an adult. Tell them that those pictures illustrate the life cycle of a person. Point out the life cycle means life story.

B. Developmental Activities

1. Presentation:

Observing and comparing the different life cycles of animals through the illustration shown by the teacher.

2. Group the class into two and do activities.

Group the class into five and do activities.

Group I Activity

Observing the eggs of a frog

Get some frog's eggs with the help of an adult. Put them in a big transparent jar filled with water and some water plants. Observe the changes that occur to the eggs. Describe the changes that you have observed day to day on your notebook.

Group 2 Activity

Observing the eggs of mosquitoes

Put water in a glass jar and the jar in the dark corner of your house or classroom. Leave the jar undisturbed for a day. Look the water using a hand lens after a day had passed. Observe if there are mosquito eggs laid in the water. If mosquitos are found in the jar cover the container with cloth gauze. Observe and record the changes that happen to the eggs until the mosquito develops into adult.

Group 3 Activity

Observing the eggs of butterfly

Get some eggs of butterfly with the help of an adult. Put them in a big transparent jar with leaves of the plant. Observe the changes that occur to the eggs. Describe the changes that you have observed day to day on your notebook.

Group 4 Activity

Observing the eggs of short- jawed grasshopper

Get some eggs of grasshopper with the help of an adult. Put them in a big transparent jar with leaves of the plant. Observe the changes that occur to the eggs. Describe the changes that you have observed day to day on your notebook.

Group 5 Activity

Observing the rats

Study and analyzed the illustration of the life cycle of rat. Describe the stages of the life cycle of rat.

Write what you have observed in your notebook.

Process Guide for pupils:

Each group will discuss assigned activity. They will answer the following guide questions for discussion.

Group I activity

- At what stage is a frog like a fish?
- Are the frogs useful or harmful animals? Why?
- Base on the illustration, let the pupil explain the life cycle of a butterfly. Point out what it is in the pupal stage when a larva weaves a cocoon.
- In what stage in the life cycle of butterfly is harmful to farmers? Why?
- In what stage in the life cycle of butterfly is useful to farmers? Why?
- Ask the pupils if they have bitten by a mosquito. Let them observe if there are mosquitoes inside the classroom. Tell the pupils to observe the water in the flower base inside the room. Let them describe what they see in the water.
- What are the properties of soil with rich in organic matters?

1. Each group will present the result of their discussions. Other members of the class will ask questions after each presentation.

Achieving the Objectives

Objective	**This is achieved by**
To describe the life cycle of some animals.	Using a chart, enlarged diagram of the different life cycles of animals.
To describe the change in animals as they develop and grow.	Using a diagram and observation during the activity.
To determine the stage of the life cycle of animals that is useful and harmful to the farmers.	

Assessment

Arrange the pictures in order. Teacher will present some pictures containing the different stages of animals like frog, butterfly, mosquito, short-jawed grasshopper and rat.

Assignment: (Extension Ideas)

Differentiate complete and incomplete metamorphosis. Give examples of animals that undergo each kind of change.

RESOURCES

Lesson plan in Science and Health IV Based on RBEC SEMP-2/TEEP-2 2008 Edition

Science for Daily Use IV Teacher's Manual pages 29 to 35
Buena A. Lozada and Augusto T. Mendoza
Authors

Resource Manual on Integrated Production and Pest Management (IPPM) in Rice
World Education (INGO) Philippines Inc.