

Plant and Animal Life Cycle Drawings



Photo Credit: Arne Heijenga

Grade Levels

3-5

Overview

Instead of the traditional circle-shaped life cycle drawings that you see in many books, this activity shows you a way to have your group/class use their species observations to draw a life cycle for one or more species. For this exercise, the drawing is stretched out in a line and matched to the dates on a calendar year. (If you aren't able to observe all phenophases, you can estimate, based on guidebook information).

Background

Phenology is the study of the timing of life cycle events, done mostly through personal observations.

Real-world Connection

Observation skills are necessary for scientific study and are included throughout the elementary SOL standards. In addition, observation skills are necessary for all aspects of learning academically, socially, and emotionally.

Citizen Science Connection

This activity can be completed with or without a *Nature's Notebook* account. Completing it with an account can provide an opportunity to teach students about the importance of citizen science, and how their contributions help us to better understand the world around us.

Learning Objectives

Participants will be able to:

- Students learn about the life cycles and life history of local plant and animal species.
- Students learn about the timing of individual species' life stages.
- Students practice making observations in the field and collecting and recording data.
- Students gain experience collaborating and communicating with their peers towards a common goal.

Next Generation Science Standards

| LS: Life Science | | | |
|------------------|---|---------|---|
| | Grades 3-5 | | Grade 5 |
| 3-LS1-1 | Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death | 5-LS2-1 | Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. |
| 3-LS3-2 | Use evidence to support the explanation that traits can be influenced by the environment | | |

Conducting the Activity

Materials

Resources needed

- Field materials such as flagging tape, plant markers, pens for writing, hand lenses
- Identification guides for local plant and animal species
- Science notebooks
- (optional) Computers with Internet connection
- (optional) Bird feeders and seed if you would like to observe bird phenophases
- (optional) Binoculars and digital cameras

Engage

Connect to prior knowledge

- Ask students about ways they have noticed that plants and animals change from season to season.
- Think about what they have previously learned about food webs. How do seasons affect availability of food for plants and animals?
- Discuss observation, and way that scientists observe and record the natural world.

Estimated Time

Two 20-30 minute class periods for preparation and planning

10-20 minutes on a weekly basis to record data on datasheets

30-40 minutes to plan and begin creating the timeline calendar

Two 30-40-minute class periods to finalize the calendar and write up summary

One 30-40-minute class period for presentation(s) of findings and group discussion

RESOURCES

Adapted from:

Signs of the Seasons: A New England Phenology Program

Plant and Animal Life Cycle Drawings By: Beth Bisson, Medea Steinman, and Esperanza Stancioff

NOTES ON ACTIVITY

Conducting the Activity

Explore

Hands-on learning

1. Find a location that would be easy to access on a weekly basis to find at least one plant or animal species to observe. Use a field guide to properly identify the species
2. Decide on when and how to collect the data. If you will be observing a number of different species, you may wish to assign small teams to keep track of 2 or 3 species each.
3. Mark individual plants you are observing; establish a schedule and system for making regular observations.
4. Ask students to establish a science notebook or journal to be used in the course of this project. Talk about basic information that should be included in a science-minded journal. This depends on the activities and research but might include things like dates, weather information, careful observations of species, phenophases, behavior, predictions and hypotheses, drawings, samples (pressed leaves or flowers) or notes about the process and any limitations.
5. When phenophase changes are observed, or when anything notable occurs, record these observations through notes and photographs and drawings. These could be used later to embellish your life cycle timeline/calendar.
6. Draw out a timeline on a large sheet of paper. Using your recorded notes, with dates of phenophases, establish the life cycle timeline of the species on your blank timeline. Students can paste photo prints and/or drawings of the phenophases onto the calendar in the appropriate places.
7. Guide the students in a discussion about what their field observations and investigations have turned up. What happened with respect to timing of phenophases? What do the findings tell them with respect to ecology and climate in their locale?
8. Make plans to present the life cycle drawings and the findings to other student groups. Help your students think about how to share their findings and discuss their experiences and observations.

Explain

Listening and communicating understanding

- Ask participants to reflect on their field experience, the data collection system, and the preparation of the timeline. Reflect on what worked well and what they could do differently next time. Ask them to talk about any ways their expectations about the life cycle timing were or were not met. Can they speculate about possible reasons or causes?

Extend

Group projects, real world connections

1. The teacher can open a Nature's Notebook account and create a site for the students to monitor. They can print out datasheets for the species they are observing.
2. The teacher can enter the data collected by the students online, and use the visualization tool to show how observations become data that scientists use to answer questions about the world around them.
3. The visualization tool can also be used to show students when phenophases are shown at different times of year - they can use this to complete their life cycle drawing for the months that they can't observe phenophases themselves.
4. Students can come up with their own questions that can be answered using their data.

Evaluate

Summarize, check for understanding, assess

- Collect the students' science notebooks or journals to see how well they recorded their observations and understood the process and the data they collected. Do they seem more comfortable with the process of making observations and collecting data in the field? Save examples of student work for reference the next time you try this activity.