

## Visiting a Meadow Habitat: An Introduction to Field Study

**Summary:** This field journal may be used to introduce students to the concepts of butterflies, other pollinators and their meadow habitat. This journal, to be used on a visit to a meadow habitat in your area, is designed to be incorporated into existing curricula on insects, ecosystems, animal studies or habitats. It should not function as a stand-alone “field trip” experience, but rather, be part of a logical sequence of planned hands-on activities, content sessions and experiences that immerse the student in a topic area.

It is divided into several activities that can be done before your class goes on the field experience, activities that are done in the field, and post-field activities to reinforce what they learned and give the students opportunities for further investigations. If you desire, the questions generated by your students could be crafted into a full-blown inquiry experience.

**Objective:** Students will identify local butterflies and other pollinators through field investigation.

Students will observe organisms that are using the habitat and plants that grow in the habitat and infer the connection between the two.

Students will strengthen process skills by observing in a real world environment, collecting and recording data, communicating with other learners and generating and sorting questions for inquiry.

**Grades:** 3 - 6

**Subjects/Skills:**

Science (botany, biology, ecology), language, art, process skills (observation, recording and collecting data, communicating, applying classroom/laboratory techniques to a real-world study).

**Materials:** Field journals, pencils, clipboards or write-upons, plant field guides, butterfly field guides (Golden Guides or Audubon “First Guides”)

## Preparation

### **Focus Phase 1**

Depending on what aspect of a curriculum to which you are linking, the focus activity for your group will vary somewhat. However, in order to make it a productive field study, the children must be prepared to learn in this new and exciting environment. Assess what your students already know about butterflies. In the journal, you will find a very small amount of background information on the life cycle of the butterfly that may be helpful. You should also review the concept of “habitat” as a place that provides for the needs of a living thing—food, shelter and water.

Explain that scientists such as biologists and ecologists who study organisms in the habitat in which those organisms exist must depend on accurate and detailed field observations. They often record the data they collect in a field journal. Discuss some ways in which scientists record information (charts, graphs, lists, drawings, notes, etc.). Explain that it is also appropriate for scientists to record questions that intrigue them as they study—these questions may be investigated at a later date if they cannot be answered during the time of the field observation.

Remind your students to write their name on their field journal—although, you may want to collect the journals and distribute them at the study site to be sure that no journal is left behind.

It is also productive to have the students engage in predicting something they may see while on the meadow study. And be sure to encourage them to dress appropriately for field study.

### **Focus Phase 2: Field Guide of Common Butterflies**

This field guide is a small compilation of common butterflies that may be found in your community. This field guide was originally developed for habitats in the Eastern United States. Check with your local conservationist or investigate field guides to adapt your version of the journal to your specific location.

Before the students go on their field study, have them look at pictures of the butterflies in field guides or on the Wings of Wonder website and then have the students color the butterflies. This preparation of their own personal field guide will enable the students to be better prepared when they go into the field because they will be familiar with some butterflies and therefore will be better able to identify the organisms they see. This preparation will teach students to distinguish between the subtle and not so subtle differences between species. It is important that the students have some skills in identification before they go out otherwise they will get confused and lose interest quickly.

- On the day of the field trip, please go over basic safety and conduct rules for children.
- Do not capture or handle unknown insects or other invertebrates.
  - Have the children paired into collaborative work groups or teams before you begin at the site.
  - Reinforce that classroom rules of behavior still apply in an outdoor classroom.
  - Remind them that this 'habitat' is a 'home' for many organisms and **it should be treated with care and respect.**

### Site Visit

#### **Exploration Phase 1: Observations and Journal Entries**

(Depending on how you have integrated this field study into your existing curriculum, this phase may also act as an application phase in the learning cycle, enabling students to apply prior knowledge in a new situation.)

This activity will give the students an opportunity to test their observation skills in the field. It is important to remind the students that when they are doing their observations that they should stay in one place for a time and sit quietly so as not to disturb their study subjects.

Have the students pick a spot to observe and ask them to record their observations in their own journal. Although, working in small (2-4 students) collaborative groups is encouraged, each student should still have the opportunity to record data for their journal. If the students do not know the name of an organism or it is a kind of butterfly that is not listed in their personal field guide, remind them that it is appropriate to collect as much information as possible, including a detailed description of the subject and can look up the exact name at a later time. There is a small measuring strip printed on the back of the field guide, if student needs to measure an organism for a description. Tell the students that they may use the back cover (**My Notes**) of the journal to record any questions or facts that might be of interest now or later.

As the children work in cooperative groups, the teacher and any assisting adults or teenage mentors should travel from group to group to observe progress. It is important to explain to all volunteers or teachers involved that they should refrain from quickly giving an answer to any questions the children have such as "What is this?" or "What does it do that?" This exploration time is best used to draw out the children's natural curiosity and to build their own powers of observation and other process skills and need time to develop complex thoughts. To help your children through this active learning process, consider answering their questions with your own questions such as:

*"What do you think it is?"*

*"Does it look like anything you've seen before?"*

*"How is it different? The same?"*

*"Why might it do that?"*

*"What do you already know about it?"*



*"Can you look at it more closely?"*

*"Can you think of a better way to describe it that 'small?' (Can you measure it? Compare it to something like your finger or your height?)*

*"What do you think it is doing here?"*

By refraining from giving the pat "science answer" to your students, you gently encourage them to apply classroom learning and past experiences to this new environment. Remind them that many times in science and other disciplines, questions are a very important step in developing our knowledge.

### **Reflection Phase**

Gather students back together and share out some observations. Were there shared observations? Did anyone see anything unique? Did anyone see something that made them wonder?

### **Exploration Phase 2: Studying an Organism**

Next, have the students select a meadow plant and complete the "Studying an Organism" worksheet. Remind them that a good journal entry is one that is so accurately described that it could help the scientist identify that same organism again.

### **Reflection Phase**

Gather students back together and ask them to share some of their journal entries, highlighting when exemplary recording techniques such as:

- Accurate descriptive language was used.
- Several senses (sight, touch, smell or hearing) were used to observe the object. Note: never encourage tasting in science class!
- Measurement or math skills (even estimation) were incorporated.
- When diagrams were draw.
- When draw diagrams were labeled.

During the reflection phase, it is appropriate for a person versed in this content area to provide some colorful information that relates back to the 'big concepts/skills' such as:

- the interdependence of plant and animals life,
- the importance of habitat for organism survival or
- the scientific process of field observation/study.

### **My Wonder Journal**

The *I Wonder...* section of the field journal gives students an opportunity to write down questions they may have at any time during this meadow study. They may have questions when they are first learning about organism identification (creating their field guide) or they may have a question that pops up when they are in the field. If students have not already begun to record "I wonder..." questions in their journal, encourage them

to sit in small groups or alone and generate some questions regarding what they have seen, learned and experienced in the field study.

This *Wonder Journal* can be used to help students begin an active investigation of their own questions, working either in cooperative groups or as individuals. As they investigate these questions, they will develop additional questions, which will spark the students' interest in the complex natural world that surrounds them.

To refine student-generated questions to form investigations, you should sort through the questions with the group. You may wish to identify similar questions that were raised by many individuals or groups to assist in honing in on a particular question for the class to investigate together.

Or, you could sort the questions to encourage the students to think about *how* they could follow up on their inquiries--an important step in the scientific process and the general learning process. Some questions are investigable, others are not; some questions can be refined into investigable questions with some effort.

Following are some questions that you may ask to help your students sort their "I wonder questions" to identify possible investigations or inquiries to pursue:

- Could we find an answer to your question if we observed longer and gather more data? (How long do you think we would have to study this place? Would we have to come back in another season? At night?)
- Could we find the answer to your question by doing research in library or on the internet? (Where might you search? Would you need specialized field guides?)
- [for older students:] Could we design an experiment to investigate your question? (What would it look like? How would we control the variables?)