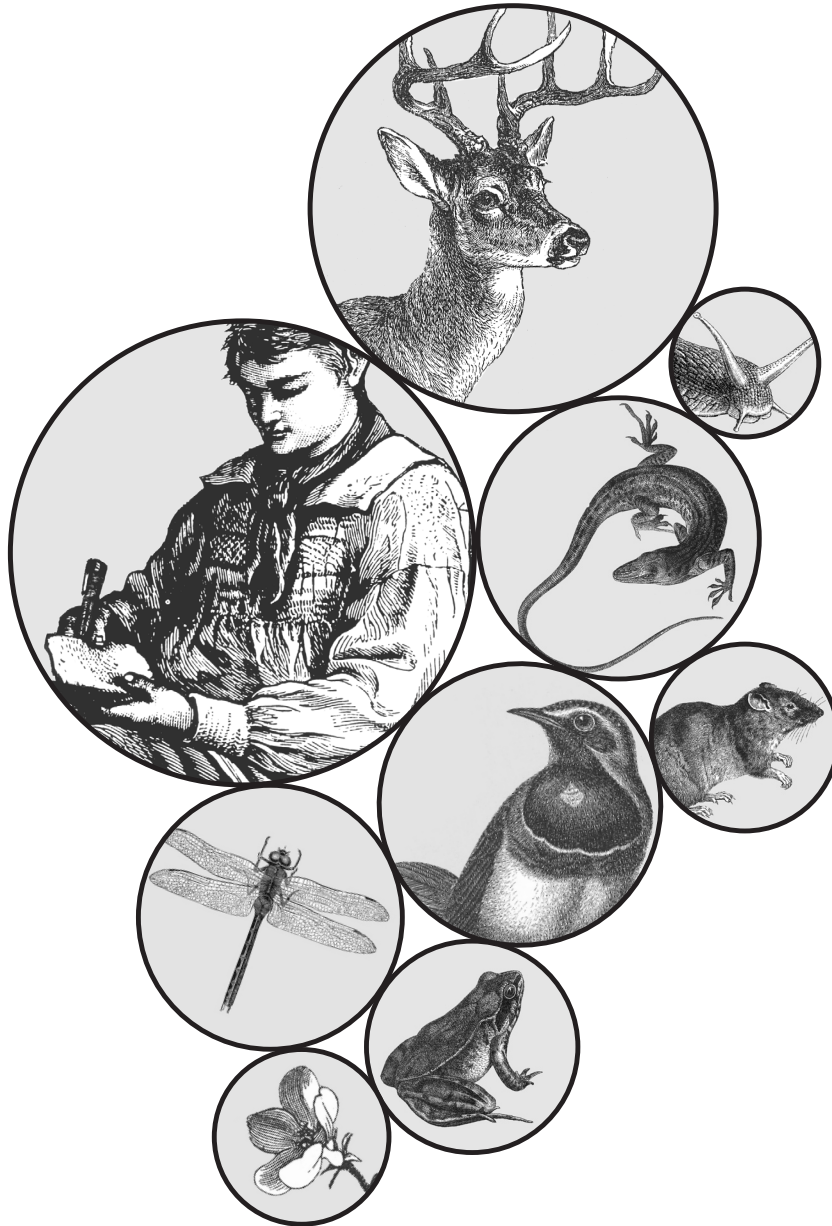


First Hand Learning™

MY FIELD JOURNAL

A Journal for Recording Observations About the Natural World



A 44 Page Notebook with Alternating Lined & Blank Pages



First Hand Learning, Inc. (FHL) is a nonprofit organization dedicated to promoting inquiry-based teaching and learning from direct experience. For more information on First Hand Learning and its *Object Lessons* program, visit us on the web at: www.firsthandlearning.org or contact us directly at: First Hand Learning, Inc. 2495 Main St., Suite 559, Buffalo, NY 14214, (716) 831-8722

USING A FIELD JOURNAL

The Benefits of Keeping a Field Journal

Nature journaling is a multifaceted activity that directly involves the record keeper in observing natural phenomena, recording what seems to be important, and drawing conclusions from evidence.

By carefully recording detailed observations over time (days, months, or years) journalists create rich storehouses of information. They then sift through, organize, and analyze the data to answer questions, support hypotheses, and ultimately add to our scientific knowledge.

A sample journal lesson about lawn plants is outlined below.

Tip

When considering subjects for the beginning journalist to study, select stationary objects that are small enough to be drawn actual size. Small plants, rocks, leaves, nuts and seed-pods are all excellent choices.

RECOMMENDED TIME

1 Field Session

2 Class Sessions (1 before and 1 after the field trip)

OVERVIEW

Students begin by predicting the number and types of plants they might expect to find growing in the schoolyard lawn.

Outdoors, students work in teams to study small plots of lawn. They tally the number of different plants they find growing and each student selects one plant for close examination. They record in their field journals the information gathered.

Back indoors, students continue to make observations, develop new questions, and record their findings. Then the class analyzes the study data and attempts to draw conclusions based on the evidence. Students pose new questions and make decisions about how they might further investigate.

ASPECTS OF INQUIRY

Students **make predictions** based on previous knowledge. They **observe, measure, and record data**. Then they **analyze** their findings, **develop new questions, draw preliminary conclusions, and determine** how they might investigate further.

BIG IDEAS

The lawn community is comprised of a diverse population of plants and animals. This diversity reveals how organisms compete and collaborate to survive and reproduce.

BACKGROUND INFORMATION

Typically, the lawn is the most common habitat found in a schoolyard. At first glance, the lawn appears to be comprised of just one type of plant (grasses). However, upon closer inspection it reveals a great diversity of plants and animals. Environmental conditions and the nature of the surrounding habitat determine the variety and types of plants growing in the lawn. For example, a lawn located in the sun that is used for play will support different plants than a shady, less disturbed area that borders a woods.

The lawn is a human controlled environment. Without maintenance, it follows a process of succession until a forest community finally replaces it. Thus, plants compete with each other for limited resources and must also outperform in the contest with humans. In the following lesson, students examine plants that have (over time) adapted traits enabling them to be successful despite frequent mowing, foot traffic, and pesticide use.

MATERIALS

- 1 Field Journal per student
- 1 hand lenses per student
- Chart paper and markers
- Clipboards for outdoor recording
- Sharpened pencils with good erasers
- Tape measures
- Field Guides
- Small plastic bags
- Colored pencils*
- Ultra-fine permanent markers*
- Sitting mats*
- Items such as hangers, hula hoops, or lengths of string* to help mark off individual study sites.
- A backpack to organize your equipment *

* optional

GETTING READY

- Plan for a field trip to the schoolyard. Select a study area large enough that pairs of students can work in individual plots. Be sure the study area has not been treated with chemical pesticides. Pesticides are not only hazardous to students, they directly affect the diversity of plants and animals in a given area.
- Survey the site for potential hazards such as trash, poison ivy, or holes in the ground.
- Determine how you will set the boundaries for mini-study areas.
- Prepare a chart for the opening discussion. Label it “What Kinds of Plants Grow in a Lawn?”

IN THE CLASSROOM

1. Explain to the class that they are going to begin a study of plants that grow in the schoolyard lawn. Hang the chart you have prepared and invite students to share their ideas. Accept all student ideas, and do not be concerned if their ideas are vague or incomplete at this point. Pose the

following questions:

- How many different types of plants do you think grow in the lawn? Record their predictions.
- What plants are they? Make a list.

following questions:

Prior Knowledge

Save the chart as a record of prior knowledge. Return to the chart later to compare your findings and add to the list.

2. Distribute the Nature Journals and have students write their names on the outside cover. Point out the measuring tools on the back cover and then open to the Table of Contents. Let students know that this should be filled in as they go along so that they will be able to retrieve data easily. Turn the page to the sample journal entry. Ask students to study the entry and help you identify the key components. Explain that the remaining pages are for their own written descriptions and labeled drawings.

Recording Basic Information

Journal entries should include basic information such as the date, place, time of day, weather, wind direction, amount of light, any first impressions students may have of the site (what you hear, see, or smell), and other variables that might affect animal behavior or plant growth.

3. Let students know that you will evaluate their journals at regular intervals to assess progress and also provide guidance when needed. As a class, develop a rubric or set of agreed upon criteria. Refer to the lesson section entitled **ASSESSMENT** for suggestions.

4. Divide the class into working teams of two to three students.

OUTDOORS

1. Take students outdoors to the site you have selected and set the boundaries. Have the class look at the lawn area as a whole and describe what they see. Does it all look the same? If some areas appear different ask students to describe those differences and think about why they appear different. Ask students to suggest locations that might be good to include in their study (shaded areas versus sunny areas). Have them offer reasons why.

2. As a class, identify and assign study plots. Distribute materials for marking boundaries. Allow time for teams to explore their study plots. Have them begin recording basic information (date, time, etc.).

3. Next, instruct teams to count and record the number of different plants they find growing within their study plots. Then have each student select one plant to study in-depth.

4. Have students continue recording data in their journals. Consider using the following prompts:

- Describe your plant's habitat. Is it found growing under the shade of a tree, in a low, wet area of the lawn, or bordering the sidewalk or pavement?
- How do you think this plant got here?
- Do you notice other plants of this type growing in your study plot? How many? Which types of plants seem to be the most common? Least common?

• Describe the habitats that surround your study plot. Do you think this plant can be found in these surrounding habitats? Why or why not?

• How do you think this type of plant might change in one week, one month, and six months?

5. At this point, suggest that students snip or pinch off their study plants as close to the base as possible so that they can bring them back to the classroom for further study.

Conservation Tip

Naturalists suggest that before picking a wildflower, you first make sure that there are other like-plants (eight to ten is a good rule of thumb) growing in the surrounding areas. This will ensure future plant distribution.

BACK IN THE CLASSROOM: EXAMINING THE STUDY PLANTS

1. Have students use hand lenses and measuring tools to examine their plants more closely. Ask: What information can we gather about our plants by observing them very closely? Have them record their findings in their journals. Here are a few suggestions:

- What parts make up your plant (stem, leaves, etc.)? Describe these features.
- What colors do you notice? Do the colors suggest anything to you about the plant? (For example, green stems and leaves suggest that the plant is alive.)
- Describe the shape and texture of the leaves, stems, or flowers. (Do their shapes have obvious functions?)
- Does your plant have a smell? If so, what does it smell like?
- What can you count or measure (length, width, circumference, weight)?

Tip

When planning key questions, try to develop questions that encourage students to make predictions, use their senses, quantify their observations, make comparisons, and identify patterns.

2. Have students record their observations by making simple line drawings and writing detailed descriptions of the individual features of their plants. Encourage them to try to draw everything actual size.

TEACHER'S NOTE

While students were drawing, I walked around to see how they were progressing. For those who finished the task quickly, I encouraged them to add more detail, sketch their subjects from different views, or focus in on a particular characteristic (a flower petal, leaf, or seedpod). I also offered colored pencils so they could refine their drawings. For those who were obviously struggling, I reminded them that this was not an art exercise or test, but rather an opportunity to learn to observe more closely and to take pleasure in the nature world.

3. Ask students to record in their journals any new questions that come to mind as they continue their investigation.

ANALYZING THE DATA

1. Invite students to share and compare their journal records with one another.
2. Create a class chart to illustrate findings. Have each team describe their plot habitat and tell the number of different types of plants they found growing. Refer back to the initial chart entitled, *What Kind of Plants Grow in a Lawn?* Ask students to compare their findings to the initial class predictions.
4. Have students lay all the plants out on a table and separate the different kinds. Ask:
 - How many different types of plants have you collected in this study?
 - What features helped you tell these plants apart?
 - How do these findings compare to the initial class predictions?
 - Were the plants found growing in the shaded areas the same as those found growing in the sun?
 - What other ways could we sort the plants into categories (for example, all plants with flexible stems, or all flowering plants)?
 - How does plant diversity benefit other organisms? (Many different animals can live on or feed upon the variety of plants in the lawn.)
 - How do humans affect the growth and reproduction of these plants? What features or adaptations help them survive and reproduce?

This question is one example of the many possible investigations that can extend beyond this initial lawn study. Other questions might include:

- What would happen if our study plots were left unmowed for a month?
- What animals depend upon the plants in a lawn community? What needs do these plants provide for?

TEACHER'S NOTE

During our lawn study, I set up a center with field guides. When children had free time, I encouraged them to attempt to identify their study plants using only the data they had recorded in their field journals. This exercise not only added to their knowledge, it pointed out the importance of keeping detailed records.

4. Challenge students to draw preliminary conclusions about the diversity of lawn plants based on the study evidence. For example, they may simply determine that the lawn is comprised of more than just grasses. Or, they may conclude that a greater variety of plants grow in the sunny versus shaded areas of the lawn.

EXTENSIONS

1. Revisit the lawn in a week and again in a month. Direct the students to use their journals to locate the same kind of plant. Have them record the changes that have occurred.
2. Have students help you design a similar investigation to determine the variety of animals that can be found living on the surface of and underneath the lawn.

ASSESSMENT

JOURNAL

Review students' journal entries using the rubric you have created. Or, you may follow the suggested evaluation criteria outlined below:

- Is the entry complete? Has the student included important information?
- Is it clear? Is the writing legible? Are the drawings understandable?
- Is the entry an accurate representation of the study subject?
- Has the student made use of new vocabulary and used it appropriately?
- Has the student generated questions for further investigations and recorded personal reactions or original ideas?
- Has the student developed hypotheses or theories for explaining what he or she sees? Have these ideas evolved over the course of the investigation?
- Is the journal well organized? Can the student retrieve information from it?
- Does the journal provide evidence of the student's growth over time? Do the entries become increasingly clear, complete, and detailed?

DISCUSSION

Use discussion sessions to gain an understanding of students' baseline abilities to make predictions, infer from observable evidence, and to draw conclusions based on the data.

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