NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Reinstein Woods Environmental Education Center
93 Honorine Drive, Depew, NY 14043
P: (716) 683-5959 I F: (716) 686-0210 I ReinsteinWoods@dec.ny.gov
www.dec.ny.gov

Dear Educator:

Thank you for your interest in Reinstein Woods' environmental education programs. You have scheduled the program "CSI: Critter Sign Investigation" as an in-school program. In this packet, you will find an overview of the "CSI: Critter Sign Investigation" program and post- visit activities to supplement your program.

We feel that our program will be of more value to students if related classroom activities are done after the lesson. The enclosed activities and resources are designed to reinforce concepts learned during the program.

The New York State Department of Environmental Conservation is currently sponsoring educational workshops for teachers. These workshops include Project WILD—a program that emphasizes awareness, appreciation, and understanding of wildlife—and Project WET, an education program that teaches about water resources. We also offer Project Learning Tree trainings for educators in grades PreK-12. To learn how you can attend a workshop to obtain these materials for use in your classroom, please contact Reinstein Woods or visit http://www.dec.ny.gov/education/1913.html.

We hope that this information is helpful to you and your students, and feedback is encouraged. Please take some time to complete and return the program evaluation following the lesson. We look forward to seeing you soon!

Sincerely,

Reinstein Woods Environmental Education Center Staff

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Reinstein Woods Environmental Education Center
93 Honorine Drive, Depew, NY 14043
P: (716) 683-5959 I F: (716) 686-0210 I ReinsteinWoods@dec.ny.gov
www.dec.ny.gov

CSI: Critter Sign Investigation

Grades: 4 – 8
Length: 45 min.
Maximum Students: 25

Standards

State learning standards addressed through our program are listed below. Any standard marked by an asterisk is best met by completing the included post-lesson activities.

2017 P-12 Science Learning Standards

Science and Engineering Practices
Obtaining, Evaluating, and Communicating Information*

Disciplinary Core Ideas
LS1.A: Structure and Function
LS2.A: Interdependent Relationships in Ecosystems
LS2.C: Ecosystem Dynamics, Functioning, and Resilience
LS1.D: Information Processing

Cross Cutting Concepts:
Structure and Function

ELA/Literacy*
W.4.2.,W.4.3; W.5.2, W.5.3; W.6.2, W.6.3; W.7.2, W.7.3; W.8.2, W.8.3

Excellence in Environmental Education: Guidelines for Learning (K-12)
Strand 1-- Questioning, Analysis and Interpretation Skills
Strand 2.2—The Living Environment

Objectives:

Students will understand that…

1. Scientific evidence is based on quantitative and qualitative observations. (Grades 5-8 or as requested).
2. Observations of animal signs can be used to learn how animals meet their needs.
3. Animal signs reveal interdependent relationships in ecosystems.

Background:

Animals leave behind signs that provide an observer with insight into their behavior and needs. We can look for food left behind, such as a chewed pine cone or sapsucker holes, as well as food that has been processed, including animal scat and owl pellets. These clues tell us information about what animals eat and their role in the local food web. Sounds of birds, frogs, and insects help us identify species of our forests, fields, and ponds. Nests, holes, and unique animal homes show how animals obtain shelter and a safe place to raise young. They often reveal a relationship between plant and animals species.

It can be hard to be objective when looking at these clues. Our brains are wired to make connections and conclusions to determine the source of these various signs; however, it is good scientific practice to gather information by making simple observations using our five senses. Observations can be quantitative, or measurable, such as measurements of size and weight, the number of holes, or the pitch of a sound. Observations may also be qualitative, or describable, including descriptions of color or taste. Scientists can use these observations to make an inference, or a conclusion about what happened.

MYSTERY TRACKS :

Observation vs. Inference

Grades: 4 - 5
Length: 20 min.
Subjects: Science, ELA

Materials:

- ☐ Track Story Panels
- ☐ Whiteboard or Student Journals
- ☐ Paper
- ☐ Pencils

Background:

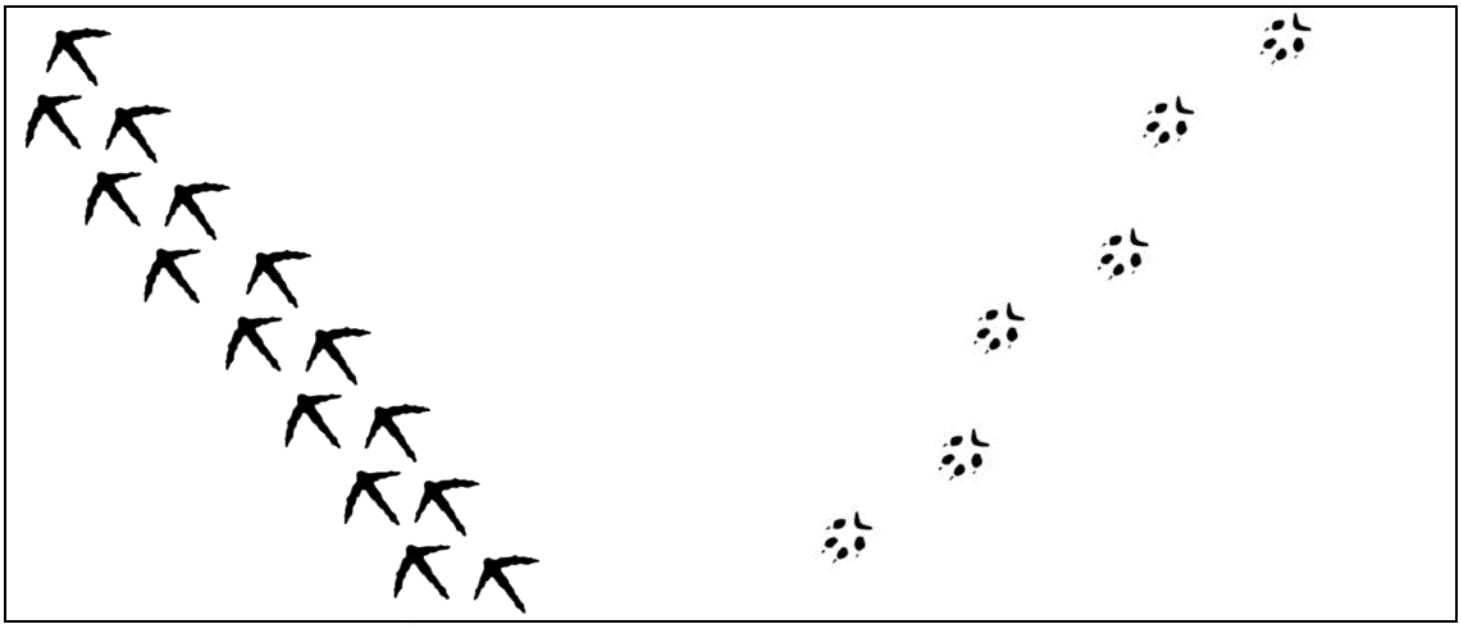
All scientific data is based on observations. It is important that young scientists understand the difference between **observation** and **inference**. **Observations** are statements that are based on one or more of your senses: what you see, hear, taste, smell, or feel. **Inferences** are statements that explain or interpret what was observed. For example, it is an inference to assume a turtle draws its head into its shell because it is trying to protect itself. After observing a turtle draw in its head several times when the turtle is approached or handled, you may infer that it is doing so to protect itself.

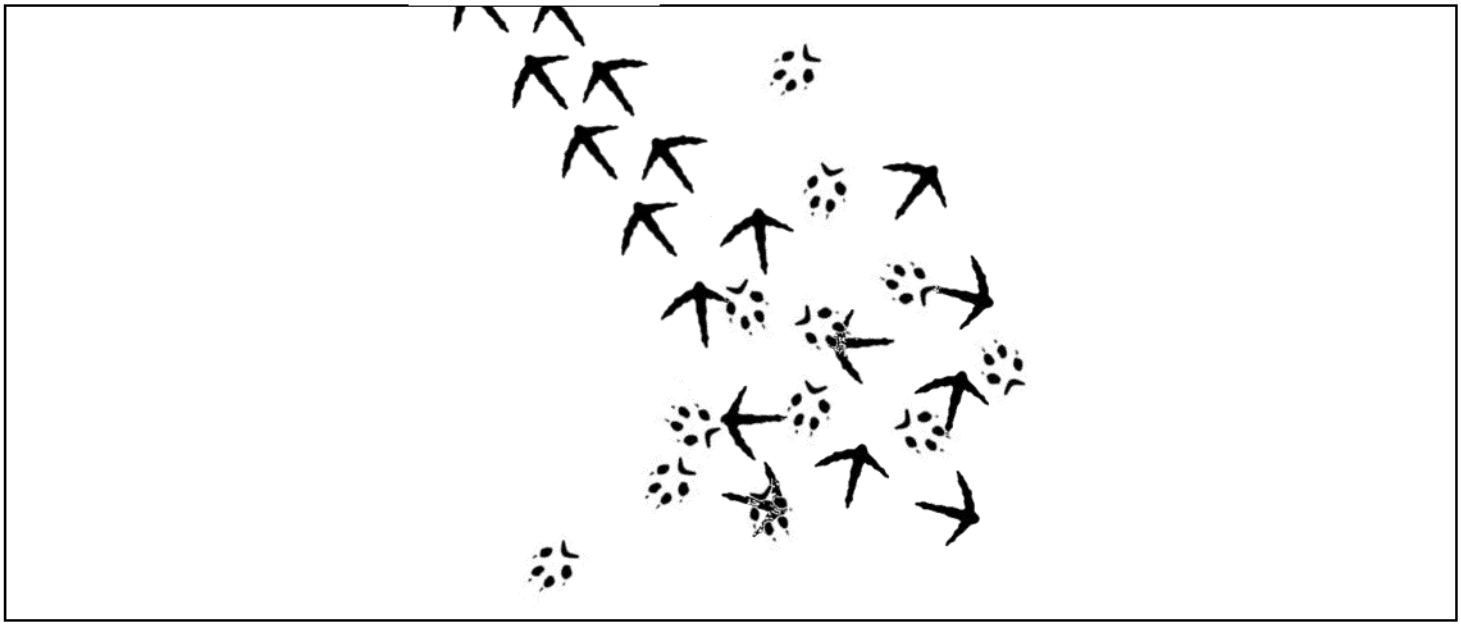
Procedure:

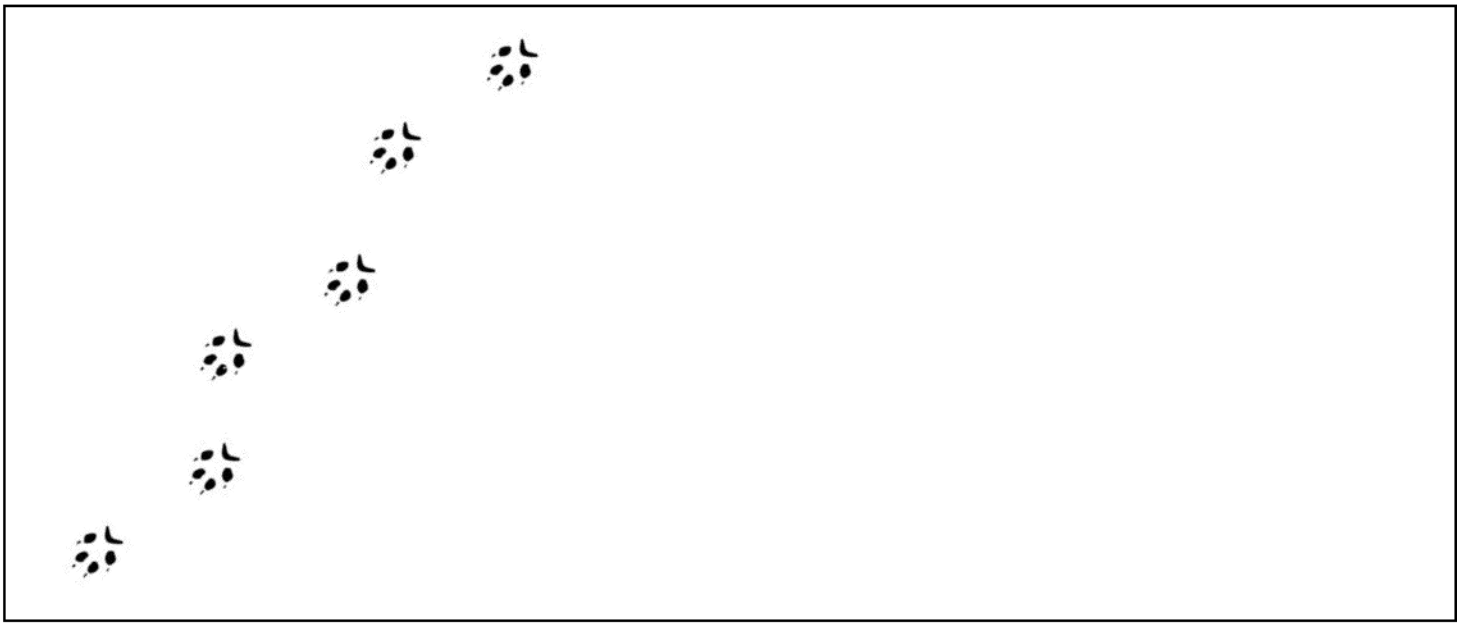
1. Show the students the first panel in the track story below.
2. As a class or in individual notebooks, have students come up with three observations and one inference for the scene.
3. Introduce the next panel. Repeat with three observations and one inference for all three panels.

Sample Observation/Inference Chart

	Observations	Inference
Panel 1	• There are two sets of marks • The marks are moving in opposite directions • One mark has three lines. One mark has four circles.	• The tracks are made by animals. • There is a set of fox tracks and a set of bird tracks.
Panel 2	• There are still two different kind of marks. • Two sets of marks are mixed up in the middle. • The marks do not look paired anymore.	• Two animals met. • The two animals are fighting.
Panel 3	• Now there is only one set of marks. • The marks have the same pattern as they did in the first picture.	• The fox ate the bird. • The fox is carrying the bird. • The bird flew away and the fox kept walking.







FEATURED RESOURCE :

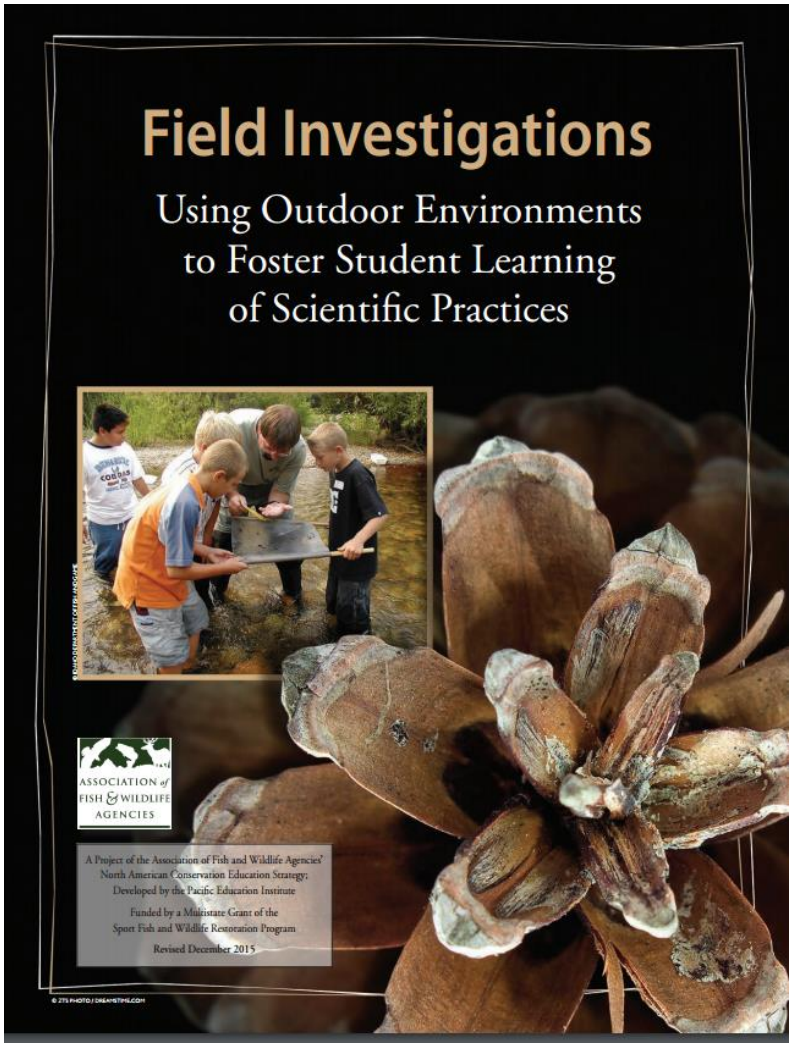
Conservation Education Strategy Toolkit

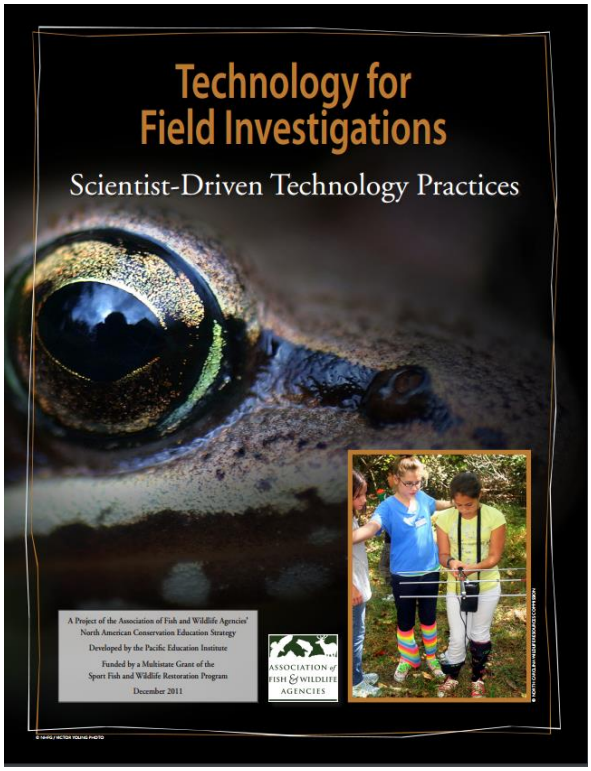
Association of Fish and Wildlife Agencies (AFWA)

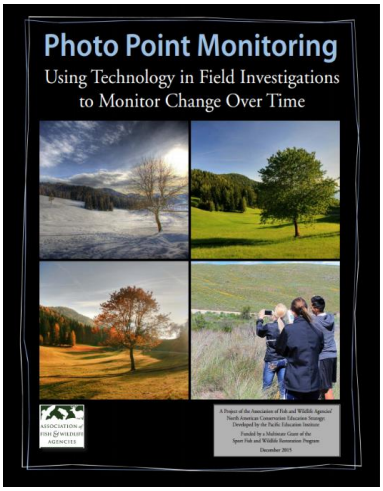
Grades: 4 - 8

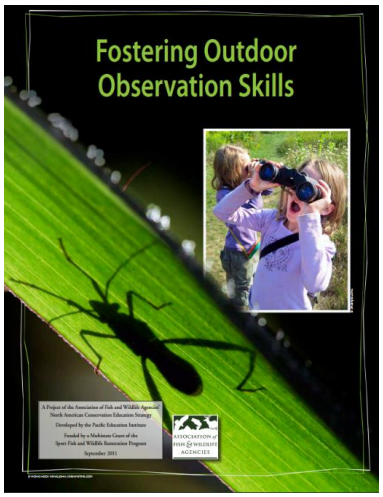
Length: Varies

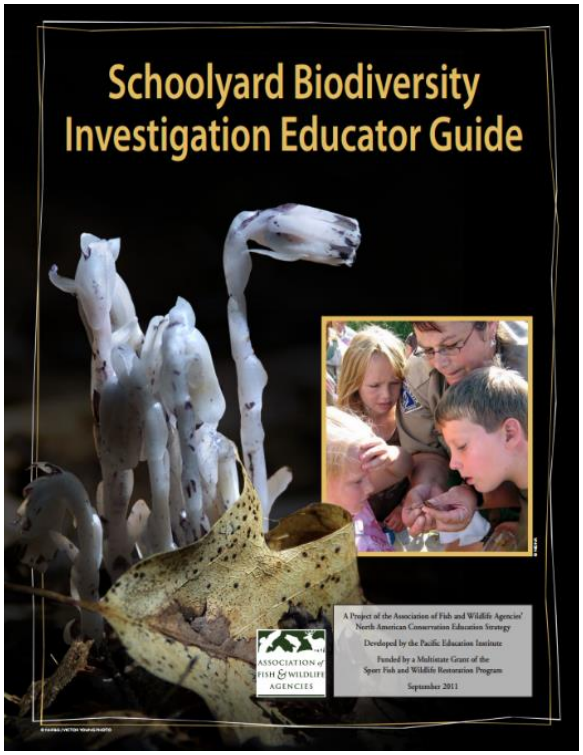
Subjects: ELA, STEM











NATURE JOURNALING :

Schoolyard Observations

Grades: 4 - 8

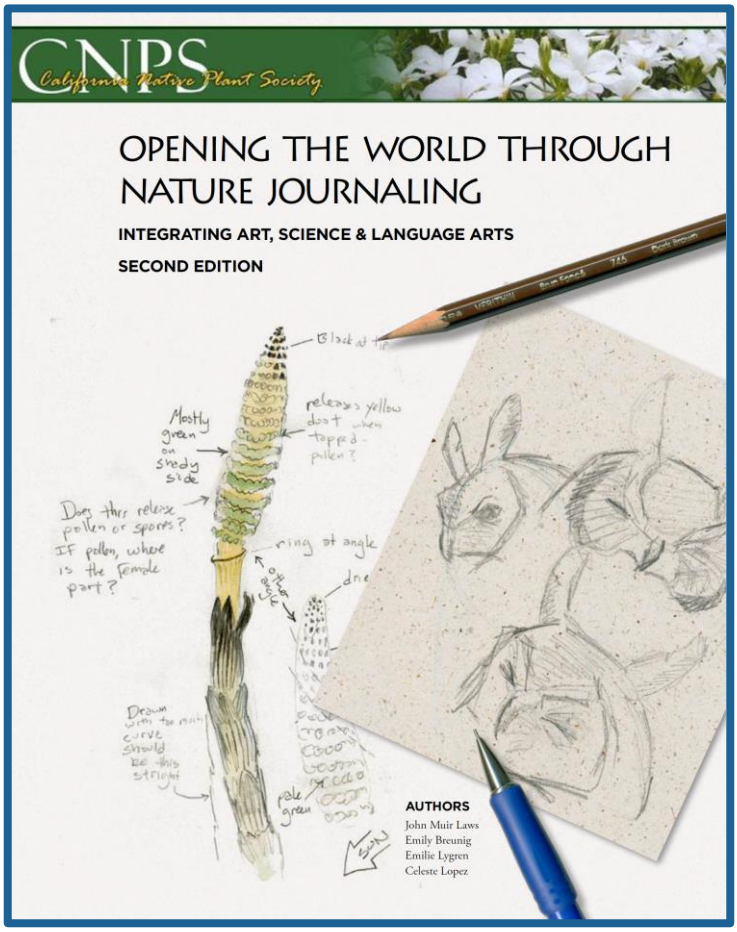
Length: 20+ min.

Subjects: Art, Science, ELA

Featured Resource: *Opening the World through Nature Jounaling: Inegrating Art, Science and Language Arts*

Location: https://johnmuirlaws.com/cnps-curriculum

"These activities teach children to become keen observers of the natural world by drawing and writing about plants and animals in the field. In a set of nested games and activities, students gain confidence in drawing and writing to as a way to gather information. Using a set of key prompts, children and adults also discover a language to create poetry from their observations."



- GROUP OBSERVATIONS
- MAKING A FIELD GUIDE
- TIPS ON TAKING STUDENTS OUTSIDE
- BIODIVERSITY INVENTORY
- POETRY
- MAPPING
- CLASSROOM EXTENSIONS
- …AND MUCH MORE!

5th Grade

NYS GRADE 5 ELA MODULE 2A, UNIT 3: READING AND WRITING LIKE A SCIENTIST: OBSERVING NATURE, CONDUCTING RESEARCH, AND CREATING A FIELD JOURNAL ENTRY

In this unit, students will focus on the literacy skills that scientists need to use in order to take field notes, deepen their knowledge through research, and communicate information in writing.

https://www.engageny.org/resource/grade-5-ela-module-2a-unit-3

Nature Journaling

In the Classroom

Grades: 4 - 8

Length: 20+ min.

Subjects: Art, Science, ELA

Bringing Nature Indoors

- Insect galls (examples)
- Chewed leaves
- Open, unopened, and chewed pinecones
- Decomposing wood
- Bark beetle galleries
- Deer antler
- Insect exoskeletons (dragonfly, cicada, etc)
- Plant seeds and leaves

Please Note: *There are many seemingly ordinary items that require a permit to possess, including many turtle shells, bird feathers, and bird nests. Find out more about educational licenses to collect at www.dec.ny.gov/permits/28633.html*

If you are unable to take students into the field, you can still give them a field journaling experience. Use a collection of the suggested items or the following ten photographs as journaling prompts.

Suggested Field Journal Activity Resources:

Opening the World through Nature Jounaling: Inegrating Art, Science and Language Arts
https://johnmuirlaws.com/cnps-curriculum

Sketching for Observation
www.calacademy.org/educators/sketching-for-observation

Keeping a Nature Journal: Discover a Whole New Way of Seeing the World Around You
ISBN: 978-1580174930
Published by Storey Publishing, 2000
Authored by Clare Walker Leslie and Charles E. Roth

Watching Nature
Ages 9 and up. ISBN: 978-0806995151
Published by Sterling Publishing Co., Inc. 1998
Authored by Monica Russo

How to Keep a Naturalist's Notebook
ISBN: 978-0811735681
Published by Stackpole Books, 2010
Authored by Susan Leigh Tomlinson