

# PHOTO, PENCIL, AND FOUND-OBJECT COLLAGE

Students make a collage by combining detailed observations (using writing, drawing, and numbers), a photograph, and parts of found natural objects. They then compare drawing and photography as ways of recording data.

## Time

Introduction: 10 minutes  
Activity: 30 minutes in the field  
and 30 minutes back in the classroom/  
home  
Discussion: 15–20 minutes



## Materials

- Journals and pencils
- Digital or instamatic camera
- Color printer (back in classroom or home)
- Glue sticks and tape



## Teaching Notes

Using a camera can encourage observation and memory, or shut it down. When people passively take a “snapshot” of an object, they tend to pay it little attention and remember few details. However, if they actively use a photograph to highlight the aspects of an object that they find the most interesting, their memory of the object is improved, even of details they did not focus on.



We can help students learn to take photographs deliberately, using the process as an opportunity for observation. This activity forces students to make decisions about what to show in the photo and how to frame the shot, taking into account the kinds of information that photography is best at capturing. This additional effort will help them remember the phenomenon more deeply and create a more complete record of it.

Photography and drawing are both powerful tools in the natural sciences. Neither one is necessarily better. They are different, each with its own strengths and weaknesses. Drawings are selective; the artist chooses which details to include or exclude. They also take time to produce and require deep observation. Photographs evenly record data across the image without bias, can be produced instantaneously, and do not necessarily require us to observe; however, photography can also become a valuable naturalist’s tool and an opportunity for observation.

While waiting patiently to photograph a heron in a certain pose, you can notice its typical postures, preferred locations, and common behaviors. When photographing a streambed, you must decide how far away or close up to take the photograph, excluding or including different details. In the process, you are more likely to notice these details. When we discuss how to approach taking photos thoughtfully with students, cameras can become tools for active observation, used together with drawing and writing to create a powerful record of information.

In this activity, students draw and take a photo of the same phenomenon, then compare the types of information that each method captures. Students engage in discussion about the strengths and weaknesses of each medium, and the types of information each is ideal for capturing.

## NATURAL PHENOMENA

In this exercise, groups of four to five students will observe a natural object together. Find some small to mid-sized objects that can be easily drawn, photographed, and sampled by these groups. A shrub with flowers or fruit works well. If collecting is not an option, students could omit this portion of the activity and instead focus on a landscape feature, plant, or other phenomenon.

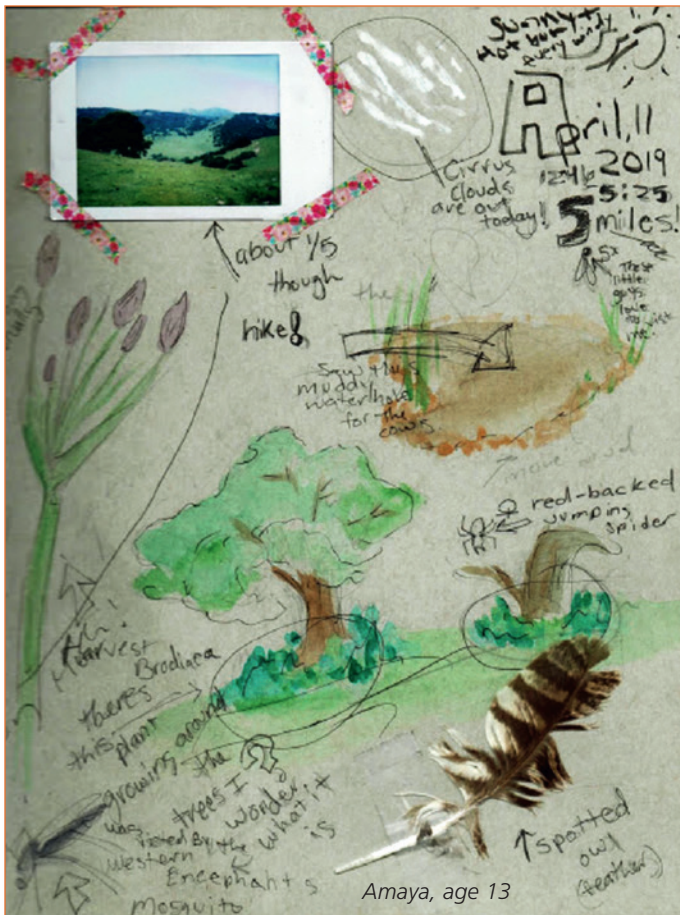
## PROCEDURE SUMMARY

1. Mark a place on the page to add a photo.
2. Use words and pictures to record observations of a subject.
3. Make a decision with your group about how to photograph the object.
4. Paste the photo into your journal.
5. (Optional) Paste a found object into your journal.

## DEMONSTRATION

When the whiteboard icon appears in the procedure description: Draw a double-page spread of





Amaya, age 13

Tape photos and interesting found objects into your journal.

journal pages. Mark off a place to paste a photograph on the left side. Trace around a leaf or other found object to reserve a place to add the object to the page. Demonstrate using writing, drawing, and numbers to record information in the remaining space.

## PROCEDURE STEP-BY-STEP

**1. Tell students that they will use drawings and photographs to record observations of a natural subject, then ask students to list the kinds of details that are captured through each modality.**

- "We are going to explore a phenomenon using drawings and photographs to record our observations."
- "Each of these approaches captures a different kind of information. Please discuss with a partner: What kinds of details can you capture in a photograph? What about a drawing with written notes?"
- "We are going to compare these two ways of recording information as we explore a natural object."

**2. Give students a moment to block off a rectangle for a photograph in their journals.**

- "Open your journal to a new double-page spread. On the left side, block off a four-by-six-inch rectangle. We will paste a photograph into this space when we return from the field."



**3. Tell students to divide into groups of four or five, select an object to focus on, discuss how to record information about it in their journals, then begin using words, pictures, and numbers to document what they notice.**

- "In a moment you will divide into groups of four or five. You and your teammates will observe an object and discuss how to best record information about it in your journals."
- "Then, each of you should use words, pictures, and numbers to document in your own journals what you notice about the object. Leave the rectangle for the photograph blank."

**4. Explain the procedure for taking turns with the camera, and how groups should thoughtfully make decisions together about the angle, focus, and details of the photograph they will take.**

- "As you work, I will come around with a camera."
- "So often, we take snapshot photographs without taking the time to slow down and make decisions about what we are trying to capture."
- "As a group, you will be able to take one photograph of your object. You will need to figure out what view and angle will be the most useful for describing the object or some significant detail on it. You will also need to decide how close up to take the photograph. These decisions will affect what you are able to capture in the photograph."
- "You will need to make these decisions together, so listen to one another's ideas, and share the reasoning behind your ideas."
- "For example, you might say, 'I think the holes in the petals are an important detail, so I think we should take a photo at this angle, because it will show the holes well.'"

**5. Tell students to begin observing and recording notes in their journals, and discussing their approach to taking the photograph.**

**6. While students are working, circulate among the groups, asking them about what angle to take the shot from and how zoomed in the shot should be. Then take the photograph with a digital camera and record which group's photo it was.**

**7. (Optional) Once students have completed their observations and field notes, have them glue or tape a collected sample of their natural object into their journals.**

*Note:* Wet plant samples should be pressed and dried in the pages of a thick, heavy book (phone books work well) before being glued into a journal.

- "Please take a moment to collect one or more parts of the real object that can be taped or glued into the journal. Samples that are relatively dry and flat work the best."



- b. "Glue or tape your found object into your journal. Add written notes describing what it is and any key observations about it."
- 8. (Back in class or at home) Print out photos and instruct students to cut and paste them into their journals.**
- 9. Point out how field scientists use both photographs and written notes intentionally to capture different kinds of information, and encourage students to do the same.**
- a. "Field scientists sometimes use both written notes and drawings, as well as photographs in their journals."
  - b. "Using both together, and making thoughtful decisions based on what each medium is best at capturing, can lead to a more complete record than using one alone."
  - c. "We can also use both of these approaches in our journals, adding photographs from time to time when they will help us capture significant information."
  - d. "These two approaches do not replace each other; they are just different ways of capturing information."
- 10. Give students a moment to integrate their photographs into their written and drawn observations by adding arrows, circles, and more written notes to clarify observations and connect them to ideas.**
- a. "Let's take a moment to integrate our written notes, drawing, and photograph."
  - b. "This will help clarify our observations and make for an even more in-depth record of this phenomenon."
  - c. "Draw circles, arrows, and written notes directly on top of the photograph to highlight the most important features of the object."
  - d. "You can also use arrows, labels, written notes, or icons to connect what you have already recorded through writing and drawing to what is shown in the photograph."
  - e. "For example, you might use a line to connect a feature you recorded through drawing to where it appears in the photograph, or use writing to describe the difference in the angle of the drawing vs. the photograph."

## DISCUSSION

Lead a discussion using the general discussion questions and (optional) one of the Science and Engineering Practices questions. Intersperse pair talk with group discussion.

*Note:* We recommend discussing the whole series of "General Discussion" questions to fully conclude the activity.

### General Discussion

With students in small groups, prompt them to discuss the questions here and think about the types of information each medium is best at capturing:

- a. "What kinds of information did you capture in your photograph? What kinds of information or observations were you not able to record?"
  - b. "What did you learn or notice about the object through photographing it?"
  - c. "What types of information and observations did you capture through drawing and writing? What kinds of information or observations were you not able to record?"
  - d. "What did you learn or notice about the object through drawing and writing to describe it?"
- Lead a group discussion about the strengths and weaknesses of written notes vs. photographs.
- e. "For scientific note taking, what are the strengths and weaknesses of written notes and drawings, in comparison to photographs?"
  - f. "What kinds of information can be captured in a photograph, but not in written notes or a drawing?"
  - g. "What kinds of information can be captured through written notes and drawings, but not a photograph?"

## Obtaining, Evaluating, and Communicating Information

- a. "When do you think scientists might choose to record information in a photograph during their studies? Why?"
- b. "When do you think scientists might choose to use words, sketches, and numbers to record information?"
- c. "When would it be difficult or inappropriate to collect samples of things you observe?"
- d. "What forms of note taking or recording information are more useful in communicating or explaining ideas to someone else?"
- e. "How could we combine different approaches for recording information to communicate ideas?"
- f. "What are some ways we might thoughtfully include photography in future nature explorations or journal entries?"

## FOLLOW-UP ACTIVITIES

### Finding Opportunities for Collages

Encourage students to look for other opportunities to use both photography and collected samples in their journal. They may find inspiration from looking at collage journals or scrapbooking resources online.

### Looking at Examples

Guide students to look at journals of scientists and naturalists (the Museum of Vertebrate Zoology from the University of California archives is a good source for this) to see examples of

journal pages that integrate photographs with text and drawings to record information. Engage students in conversation about why the authors chose to use these different ways of recording information. Many scientists use photographs to take a snapshot of an exact location of an observation they made, or to record a specific individual's markings along with a drawing, or to capture a landform feature they will study over time. Giving students the opportunity to see how scientists use photographs in this way will offer them ideas about their own journaling.

## Working in Photography

In the future, give students the opportunity to occasionally use photography in their journaling. This could take place during an activity such as *Mapping*, where students snap a photograph of the site they map afterwards; this could also work with *Landscape Cross Section*. Or, in *Change over Time*, students can use photos to capture details along with the drawing. The use of photographs should not replace drawing in the journal; photos should be included thoughtfully as a way to augment what is recorded through drawing and writing.

