The Single Concept Field Trip

A collection of quick single-topic outings focusing on nature and ecology

by Clarke Birchard and Alan Crook

Grade levels: K-5

Subject areas: multidisciplinary

Key concepts: natural cycles and patterns, seed dispersal, adaptation, classification

Skills: observation, inference, analysis, synthesis, problem solving, creative writing, drawing

Location: outdoors

Time: 10 minutes or more per activity

Can ten minutes outside make a difference? You bet it can. There is good evidence that immediate contact with the outdoor environment leads to effective learning and makes school more engaging and relevant to students. An easy, quick, and fun way to make that contact is by taking short single-concept field trips to the schoolyard or a nearby park. Such trips can be used to stimulate sensory awareness, introduce key concepts, or provide concrete examples of textbook lessons. They can also overcome many of the logistical problems that often keep classes indoors. As Helen Ross Russell states in her classic book *Ten-Minute Field Trips*, “There are many important advantages to using the school grounds as the main base of operations. There is no scheduling problem; no waiting for a date; no need to hurry or interrupt a classroom topic; you can go for ten minutes several times a day if it suits the topic; and the number of field trips is limitless.”

Following is a selection of “single topic” outings that may be completed in 10 to 30 minutes on or near the school grounds. Some outings could be extended for longer periods, or they could be joined in various sequences to form the “script” of longer, themed trips taken near the school or as part of an outing to a park or conservation area. Some of the suggestions are very simple and concrete, while others involve higher-level thinking or more abstract concepts. Just remember that these outings should be connected to larger learning goals rather than undertaken in isolation. Always look for ways to reinforce the experience and link it to the curriculum through discussion or some method of physical record keeping.

Relationships

Look for evidence of things that need other things. After listing and discussing a number of examples, have students find examples that fit the following categories:

- two things that cannot get along without each other (two-way relationships)
- one thing that cannot get along without the other (a one-way relationship)
- one thing, process, or event that is the direct cause of another
- one thing, process, or event that is the result of another

Classroom link: In the classroom, have students create a web or a mobile that shows examples of these relationships. Illustrate it with students’ drawings, digital images from the trip, or with physical representations such as leaves, twigs, stones, and feathers.

Note: When collecting natural objects, ensure that taking them will not have a negative impact on the surrounding area. Return the items where they were found when the class has finished using them.

Changes

Find evidence of changes taking place. Students may not be able to see the changes and so will have to infer them from the observable evidence. Ask students to find changes that fit the following categories:

- something that is getting bigger
- something that is getting smaller
- something that is getting more complex (e.g., a sprouting seed or an insect egg, cocoon, or pupa)
- something that is getting simpler (e.g., parts of plants or animals that are decaying)
- something that is harming something else (a value judgment, of course)
something that is benefiting something else
changes that follow predictable patterns and repeat regularly (cycles)

**Extension:** Provide students with pencils, index cards, and string. Have them make tags on which to record their predictions of change (e.g., “4 cm at widest point on April 7; will get bigger” or “Will turn yellow in September”). Students can attach the tags to the items and check later to see if their predictions were correct.

**Classifying**
Classify natural objects in a variety of ways:

1. Give students bags and have them gather many different kinds of leaves, pebbles, or other natural objects.

2. Spread the objects on a table or on sheets of plastic for sorting. It is best to sort natural objects on site so that they can be returned to their source immediately afterward.

3. Ask students to suggest categories into which the items could be sorted. Initially, allow them to come up with their own criteria. Then, through discussion, move them toward an understanding of the usefulness of observable physical characteristics (e.g., big, small) and the difficulty of qualitative characteristics (e.g., pretty, ugly).

4. Have students sort the objects into the categories that have been agreed on. For example, leaves could be sorted according to whether they are smooth-edged or jagged, simple (one part) or compound (more than one part); pebbles could be sorted according to whether they are rounded or angular, colored or plain, harder than a nail or softer than a nail.

**Extension:** In a diverse, deciduous woodlot, have students collect as many leaves as they can in a specified period of time (30 seconds to three minutes, depending on ease of collecting). Then ask them to sort this random sample into as many different categories as they can. Count the number of leaves in each category and rank the categories accordingly. Which type of leaf is the most common? Which is the least common? What does this say about the relative dominance of various tree species in the woodlot? **Caution:** Inspect the area for poison ivy/oak before beginning this exercise.

**Classroom link:** In the classroom, have students graph the results of their leaf classification and find the percentage that each type represents.

**Seed travelers**
Provide each student or group of students with an egg carton for collecting seeds. Challenge them to collect a seed that hitchhikes, a seed that blows in the wind, a seed that travels by tummy (has “fruit” around it), a seed that spins like a helicopter rotor, a seed case that explodes, and any other kinds of seeds that you can think of. Alternatively, have students make seed “magnets” by stuffing old tube socks with newspaper. Tie a long string to the end of each sock, and drag it through a field or along the edge of a woodland. Use magnifying lenses to study the seeds that adhere to the socks.

**Classroom link:** Have students try to sprout some of the seeds they have collected on a piece of moist filter paper. If the students have used sock collectors, have them pull out the newspaper, place the ends of the socks in a dish of water, and watch their socks sprout!

**Signs of the seasons**
Have students find signs of the seasons and either collect objects or make drawings to represent them. Seasonal signs might include the following:

- **Fall:** colored leaves, cricket songs, flocking birds, cool air, drifting seeds
- **Winter:** snow, ice, leafless trees, animal tracks in snow, empty bird nests, icicles
- **Spring:** warm air, melting snow, growing buds, spring flowers, singing birds
- **Summer:** hot sun, leafed-out trees, busy insects, young birds, animal tracks in mud

**Classroom link:** In class, create a collage of collected items and images for each season, and compare. What’s similar? different? Why?

**Nature sounds**
Have students create sound maps:

1. Ask students to stop, close their eyes, and listen to all the sounds they can hear, such as wind, rain, crickets, frogs, birds, and footfalls. If it is windy and trees are nearby, have students put one ear against the trunk of a tree, plug the other ear with a finger, and listen to the creaks and taps as the tree is tossed and bent by the breeze.

2. Have students mark a dot in the center of a piece of paper to represent themselves. Then ask them locate each sound they hear on the map and draw the sound using symbols or combinations of vowels and consonants that approximate the sounds.
Classroom link: In class, compare the sound maps. Ask students to recreate some of the sounds on their maps and find out if others heard it, or heard it the same way. Relate the sounds of nature to the sounds of various instruments.

Untimely ends … new beginnings
Look for signs of destruction or death in nature, such as a fly caught in a spider web, a rock or sidewalk cracked by a tree root, a tree cut or blown down, something burned by fire, an animal killed by a car, a leaf eaten by an insect, or a flower stepped on by a human. Many examples may be found of human activities and the built environment bumping up against the natural environment, but some of the interactions may be entirely natural. Ask students whether they think these “untimely ends” are good or bad, and have them explain why. What ends may lead to new beginnings? Photograph or sketch any evidence of these new beginnings, and create a class display. Go back to visit the site later to see what changes have taken place.

Movements
Have students focus on movement in nature. Look for moving clouds; things blowing in the wind; flowers that open and close; things that fly, walk, run, hop, jump, or gallop; things that grow larger or get smaller; things that flow, and so on. Ask students to work either individually or in small groups to imitate or interpret some of these natural motions, and have others try to guess what is being represented.

Discards
Look for things that have been left behind, such as droppings, litter, tracks, the crumbs left after a meal by birds or mammals (including humans), cocoons, snakeskins, insect molts, egg cases, etc. Have students become detectives, asking questions such as: What animal might have left the item behind? What is the evidence? What happened here? Discuss the similarities and differences between nature’s discards and humans’ discards. Collect any litter that is found and take it back to the classroom.

Classroom link: In the classroom, analyze the litter by classifying, counting, and graphing each type. What is the most common type of litter? Where did it come from? Who might have left it there? Is there any way to reduce littering (more waste cans, less packaging, educating litterbugs, etc.)? Try to do it!

Patterns and shapes
Have students look for shapes in nature, such as circles, stars, lines, and triangles, and for patterns, such as waves and radiations. Record as many as possible through sketches, rubbings, or photos. To help students focus on the shapes and patterns, provide frames made from index cards, or “telescopes” made from toilet paper tubes.

Classroom link: In class, have students sort the shapes into major groups and count the number in each group. Order and graph the groups by total number or percentage. Combine the items in each group, or the items from several groups, into larger works of art.

Coverings and textures
Have students sensitize their fingers by rubbing them lightly over fine sandpaper. Then have them gently touch a variety of natural objects with only their fingertips. Objects to touch might include rocks, trees, feathers, leaves, seeds, nuts, fruit, and small animals (e.g., insects, frogs, salamanders, worms, and small fish that can be caught with a dip net and carefully touched with wet fingers). In pairs, have one partner touch something while blindfolded, and then, with the blindfold removed, attempt to find the item by sight and then by touch. Collect textures by making rubbings that can be brought back to class.

Adaptations
Look for evidence of the ways in which animals and plants have adapted to their environment. Focus on diggers, climbers, jumpers, flyers, swimmers, runners; and on plants that climb, spread, grow tall, like sun, like shade. What physical characteristics do many or most members of a group have in common? How do some members differ from others in their group? Do they do some things differently? If so, are their adaptations different? For example, all frogs and toads leap about on strong hind legs, but frogs are moist and toads are dry; tree frogs use suction cups on their fingers and toes to stick to and climb vertical surfaces. All flying creatures have wings, but the variations in number, size, material, and structure are almost infinite.

Classroom link: In class, look up other members of a group that you saw on your trip, and see how they solve the challenges of living as they do.
Remnants of yesterday
Look for old nests, leaf skeletons, trails, footprints, naturally dried flowers, tree stumps, old fences and foundations, driftwood, etc. What stories might they tell?

Classroom link: In class, have students create stories that link several of the remnants observed on the field trip.

Miniatures
Go on a hike to find things that can be best observed with a magnifying glass, such as spider webs, flies’ wings, grass blades, and the insides of flowers. Sketch some of these items. Find a log or boulder and take a visual “hike” along it with a magnifying glass held to one eye. Create an interpretive trail by marking interesting things with flags that are attached to round toothpicks (use modeling clay to hold toothpicks to rocks). Invite others to go on your trail.3

Classroom link: In class, have students use their sketches to create an illustrated story of their hike.

Cycles
Find something that is part of a natural cycle such as plant–bud–flower–seed–plant, egg–larva–pupa–adult–egg, or egg–tadpole–frog–egg. Have students draw or tag the object so that they can find it later. Go back several times during the year and identify as many parts of the cycle as possible.

Homes and habitat
Look for the homes of animals, such as nests, burrows, dens, hiding places, and tree holes, and check for any signs of activity. Have students speculate on what animal might live there. Look for places nearby that might provide food, water, and other shelter that the animal might use. Mark these spots with surveyor’s tape in order to help students get a visual sense of the whole area, or habitat, that the animal lives in.

Ten minutes can make a difference. Just stepping out the door can change perceptions and perspectives and awaken the senses. All it takes is a bit of planning, some simple tools, and a little time. ♪

The Ten-minute Toolbox
Simple field-study tools for focusing attention, shifting perspective, enhancing the senses, and collecting objects and information that will extend the learning back in the classroom. Add your own tools to the following basic set:

- **Bandanas:** use as blindfolds or carry-alls
- **Toilet paper tubes, note card frames:** focus on small objects; frame landscape elements
- **Magnifying lenses, bug boxes:** observe objects close up
- **Paper, pencils, chalk, crayons:** take field notes; make maps, drawings, and rubbings
- **Tape recorder, camera:** bring information back to the classroom
- **Surveyor’s tape:** use as a quick identifier; mark borders or boundaries
- **Egg cartons:** collect and organize objects

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Notes
3 Van Matre, p. 80.

References


Roth, Chas. E., Cleti Cervoni, Thomas Wellnitz, and Elizabeth Arms. *Beyond the Classroom: Exploration of Schoolground and Backyard*. University of Massachusetts Press, 1991. (K-6 activities.)


