



Plant and Invertebrate Investigation Stations

If your park has the staff or volunteer resources, set up stations for students to visit before or after their field inventories to explore plant and invertebrate identification and field tools. Have participants visit stations before they go out to observe and record species in the field. Provide dichotomous keys, field guides, and other tools that researchers use to identify organisms. Participants can observe specimens or replicas of local species, tracks, and more, and experts can share strategies for how to tell similar species apart. Consider also including a station on bird identification and calls and another on mammal tracks and scat.

Separate students into groups of 8-10 for station rotation. Each station is designed for a 15-minute visit and can be modified for more or less time. If time and resources permit, students can visit the stations before their inventories and use new skills during their inventory.

Station A: Plants

1. At this station, students can use dichotomous keys and the iNaturalist app to identify plants to the lowest taxonomic rank. Begin by asking students to observe the environment around them and discuss what they see. Discuss the different habitats found within the park and how each habitat supports different plant communities. Pass around specimens from plants found in the park, pointing out key identification features.
2. Ask students for input on the number of scientifically named plants in the world (310,000; students may have learned this in a pre-bioblitz activity). Now have students make observations about the plants in their surroundings for 30 seconds. Estimate how many species have been found in their park. Then, reveal the number. (See Extending the Learning for instructions on retrieving park species lists.)
3. Next, explain to students that a dichotomous key is a tool for identifying an organism based on its characteristics. The key guides a user through a series of choices of particular traits, which allow identification of the organism. Demonstrate for students how to use a dichotomous key to identify a common tree species using its leaves and seeds/cones. Then, place leaves of local trees around the table for students to practice. The Arbor Day Foundation “What Tree Is That?” guide is an excellent simple dichotomous key with photographs to reinforce vocabulary, and there are Internet, printed, and mobile versions of the guide. Provide additional local identification guides with photos if available.
4. Help students use the dichotomous keys, and then practice using iNaturalist to upload observations of the same plant. Have students photograph the plant using the iNaturalist app, and then click on the “Plants” on the dropdown menu and click through plant taxon groups to the lowest classification possible.

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Station B: Invertebrates

1. At this station, students explore major invertebrate groups based on their characteristics. Tape the names of taxon groups on a large table: worms, mollusks (gastropods and bivalves), and arthropods (insects, arachnids, crustaceans, diplopoda, myriapoda). Provide several sets of Species Cards as resources around the table. Students can use EOL Species Cards to examine the characteristics of invertebrates. Species Card colors correlate to different taxon groups.
2. If possible, provide specimens of local invertebrates to show students. If not possible, use either replicas or photos of local invertebrates.
3. Have students work in pairs or groups of three to match the characteristics of any provided invertebrates to EOL Species Cards. Then, have students work together to move invertebrates around the table in containers to put groups of similar invertebrates together, e.g., all worms, snails and slugs (gastropods), bivalves, spiders, insects, crustaceans, millipedes (diplopoda), centipedes (myriapoda), etc.
4. Next, demonstrate various field tools used to study invertebrates in local ecosystems. To observe or survey organisms in a bush or tree, demonstrate how to use a beat sheet to knock arboreal invertebrates from leaves, branches, and seeds/cones. To observe a flying invertebrate, use a net and butterfly house. To observe ground arthropods, capture them with a net or petri dish. To observe slower-moving mollusks and annelids, use a petri dish or other container that will not harm the invertebrates' sensitive outer layers.
5. If time permits, have students practice using tools in a nearby area. Pass out a beat sheet to one group, a net to another group, and a petri dish to another. Give students 5 minutes to try to find something in the area and make observations on iNaturalist. Before uploading, students can show observations to the larger group and describe what type of invertebrate they found.