



Bioblitz Skillbuilders: Learning and applying the skills of a naturalist

Skillbuilder 5: ID with a Dichotomous Key

Key Question

How can we use observation and classification skills to identify real organisms?

Objective

Students will apply prior knowledge of observation and classification as they **practice** using a dichotomous key to identify trees.

Grades: 6-8

Time: 15 minutes

Location: Classroom

Materials

- Leaves from a few common trees in your area
- Tree Dichotomous key:
 - a. To print (advanced):
 - i. Southeast
http://ftof.freshfromflorida.com/tree_key2.php
<http://alex.state.al.us/uploads/23957/A%20Key%20to%20Common%20Trees%20of%20Alabama.pdf>
 - ii. Northeast
http://www.dec.ny.gov/docs/lands_forests_pdf/treeidkey.pdf
 - Midwest (Wisconsin): <http://www.uwsp.edu/cnr-ap/leaf/Pages/LEAF-Tree-Identification-Cards.aspx>
 - b. For computer use (simple):
 - i. General: <https://www.arboday.org/trees/whattree/>
 - ii. California: <https://urbantreekey.calpoly.edu/>
 - iii. Wisconsin: <http://www.uwsp.edu/cnr-ap/leaf/Pages/TreeKey/treeToIdentify.aspx?feature=Main>
 - iv. Pacific Northwest: http://oregonstate.edu/trees/dichotomous_key.html
- Computer with internet access

Preparation

Collect leaves from as many of the trees from the materials list as possible. You can find most of these in your schoolyard or neighborhood.

Directions

Re-engage the diagram your class created the previous day. Ask a student to describe the process they went through to differentiate their groups. This diagram is an example of a **dichotomous key**, a tool that naturalists use to identify organisms based on defining, observable characteristics.

Explore/Explain: Model using a tree dichotomous key to identify one of the leaves. Ask one volunteer to come up front and start at the beginning of the key. Hold the leaf up for class to see, and as student reads the first step, ask class to observe and choose one of the options. Walk through the process until the students have identified the tree that this leaf belongs to.

Elaborate: Around the room, set out several different specimens. Advise students to use the dichotomous key provided to differentiate leaves to identify important local trees!

Evaluate: Review trees.

Extension/Transference: At home or in local public space, students can collect leaves from two or three of these trees they identified in class and one new species. During the next class period, they should try to use the dichotomous key to identify the “unknown” trees from their yards or nearby public space and record on the board.

Next Generation Science Standards

Performance Expectations

MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems: Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-LS4-1),(MS-LS4-2)

Science and Engineering Practices

- Asking Questions and Defining Problems
- Developing and Using Models
- Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions



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