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# Who Are You?: Tree ID

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## Purpose:

- In this activity, students will be introduced to dichotomous keys and learn how to use them to identify unknown tree species. Data collected with the aid of dichotomous keys will allow the students to see how biodiverse an area is and how that relates to ecosystem health.

## Objectives:

- Students will identify sample plant specimens by recognizing key features through the use of a dichotomous key.
- Students will demonstrate how to use a dichotomous key by correctly identifying species in a given area.
- Students will create a plan to increase biodiversity in a given area and defend the plan to their peers.

**Time Required:** 1 hour

**Appropriate grades:** 4<sup>th</sup> – 9<sup>th</sup>

**NGSS and Common Core Standards:**

**3-LS4-4:** Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

**MS-LS2-5:** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

**HS-LS2-7:** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

## Materials:

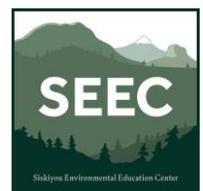
- Dichotomous keys (15 - provided)
- Sample cards with photos and specimens (20 - provided)
- Sample cards answer key (provided)

## Activity:

<b>Introduction</b>	Have everyone in the class raise their hand. Explain that you will ask a series of yes/no questions, and students should put their hand down if the answer is no. Ask questions like: Do you have blonde hair? Do you have blue eyes? Are you wearing a red shirt? Does your name start with an "A"? Continue asking
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	<p>questions until only one student has their hand up.</p> <p>Explain that this line of questioning singled out one student - this is the only student in the class that answered “yes” to all of the questions. If we wanted to, we could design a string of questions that corresponded to each individual student in the class. This is an actual method that scientists use to classify plants or animals that they find. Scientists call this questioning tool a “dichotomous key.”</p>
<b>Body</b>	<p><b>Introduction to Keys</b></p> <p>Hand out dichotomous keys and tree samples to students. Explain how to use the key. Have groups key out their species and confirm that they got it right. Practice for several minutes. Remind students that it’s okay if they don’t figure it out correctly on the first try. Using dichotomous keys can be tricky!</p> <p><b>Field Survey</b></p> <p>Have students do a field survey outdoors. Establish a survey area for students to study. In small groups, have students key out all the tree species they can within the survey area.</p> <p>Collect class data, making note of how many individuals of each species were identified.</p> <p>Talk about biodiversity and why it matters. Based on the class data, was your site very diverse? Why or why not? What does this mean for the health of your site?</p> <p>Have students design a plan to increase biodiversity at the site.</p>
<b>Closure</b>	<p>Have students share their plans with the class.</p> <p>The class can vote on their favorite plan, focusing on actions that will help make their site healthier and more biodiverse.</p> <p>Reiterate the importance of biodiversity, and how keys are an important tool to help beginners learn to notice the parts that make up the whole ecosystem.</p>

## Modifications:

- **Elementary:**

- Work through one of the sample specimens together as a class to ensure better understanding of how to use the dichotomous keys. Before participating in this activity, it may be beneficial to introduce students to the various leaf shapes and their names.



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● **High School:**

- Once you feel your students have a solid understanding of how to use a dichotomous key, have them make one of their own. Restricting the key (i.e. only conifers and no deciduous trees) could help make this assignment easier. Keys can also be made for most organisms (i.e. flowers, mammals, rocks, etc.)

