

Title of Lesson Plan	Dichotomous Keys
Prepared By	Karen Malhiot
City and State	Fox Point, Wisconsin
Grade Level(s)	3-5
Keywords	Science – Classification
Brief Description	<p>This lesson will be broken down into two parts. In the first part the students will write a dichotomous key for a set of small objects. Having completed this key they will assess whether the key is accurate and efficient.</p> <p>In the second part of the lesson the students will use a dichotomous key for Wisconsin trees to identify a variety of campus trees. Then the students will simplify the key for easy identification of Sugar Maple trees. This simple key will be used to identify trees for a later unit on maple syrup.</p>
Total Time Required	2- 40 minute class sessions
Setting	<p>Session One: classroom.</p> <p>Session Two: Campus Forest</p>
Lesson	N/A
Materials Needed	<p>Session One:</p> <ol style="list-style-type: none"> 1. Group of small objects for each student or team of students 2. Student notebooks <p>Session Two:</p> <ol style="list-style-type: none"> 1. Wisconsin Tree Identification Books or websites such as the <i>Key to the Trees of Wisconsin</i> created by the University of Wisconsin Green Bay at: http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/tree_key000.htm
Standards Addressed	<p>Science Performance Standard B Grade 8 Science, Standard B: Nature of Science Performance Standards - Grade 8 By the end of grade eight, students will:</p> <p>B.8.4 Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world</p> <p>B.8.5 Explain ways in which science knowledge is shared, checked, and extended, and show how these processes change over time</p>
Procedure	<p>Session One:</p> <ol style="list-style-type: none"> 1. Begin by explaining what a dichotomous key is and how it is used to identify different species. (Dichotomous Key: a key to identification based on a series of decisions, each involving a choice between two alternate identification characteristics. Source: extension.usu.edu/forestry/UtahForests/Trees_BotanicalGlossary.htm) 2. Model how to create a dichotomous key. (For example you

	<p>could have 5 students come to the front of the class and create a key based on two alternative choices until you have 5 unique outcomes- choices could be female/male or brown hair/ not brown hair). This is a good time to explain that there are many combinations that can all lead to a correct key, but that some will be more efficient than others.</p> <ol style="list-style-type: none"> 3. Pass out notebooks and sorting items to each student or group of students. Ask them to create the most efficient and accurate dichotomous key for their items on the sheet provided. Have the student create the key in their student notebook and take a picture of the key with objects showing their solution. 4. Once students have created their keys have them switch with other groups and evaluate each others work. Have them brainstorm questions that will focus the evaluation. (Do you get the same results? Is the key easy to follow why or why not? Is they key designed efficiently?) 5. End with a discussion of what it takes to create a good key and how they can be used. <p>Session Two:</p> <ol style="list-style-type: none"> 1. Explain to the student that we are going to identify several of the trees in the school forest. Discuss the reasons for doing this. Part of the reason will include the identification of sugar maple trees for future units on maple syrup. 2. Choose a tree and work as a group to go through the key to identify the tree. If possible use different keys to identify the tree and compare them. 3. Have students work in groups to identify 3-5 trees including a sugar maple. <p>Extension: Have students create a Dichotomous Key to identify the campus trees for use by other grades and classes as they use the forest.</p>
Assessment	Assessments will be formative and include checking the Dichotomous Keys created by the students and looking at their assessment and reflections on their keys. The students will also be asked to identify 3 campus trees to see if they can correctly use a Dichotomous Key.
Literature Cited/References	<p><u>The Illustrated Book of Trees: The Comprehensive Field Guide to More Than 250 Trees of Eastern North America</u> by William Carey Grimm and John T. Kartesz</p> <p><u>Trees of the Northern United States and Canada</u> by John Laird Farrar</p>
Forestry Tour	Lake States 2008

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