

Introduction to Dichotomous Keys

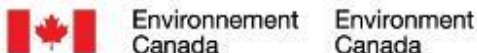


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Activity Name: Introduction to Dichotomous Keys**Ages: 10-14****Activity Energy: low****Length of time: 60 minutes****Number of Participants: 10 – 30****Indoor/Outdoor: Both**

Concept: Students will be introduced to the fundamentals of taxonomy and classification of living things (how, why). The concepts are reinforced through the creation and use of their own dichotomous keys, first in the class using a basic example and then outside using local plants.

Materials Required: A white blanket or sheet, plant samples or access to an outside space with some plant diversity, pencils, notebooks, plant identification books are an asset but not required.

Introduction: Taxonomy is the science of classifying and naming living things. Providing things with names is important for communicating with each other about specific organisms without confusion. There is a world-wide system in place to provide each species of organism with a specific scientific name. In this lesson, students are introduced to the concept and importance of taxonomy, and the concept and use of dichotomous keys. Plants make an excellent subject group for introducing students to the description, naming, and classification of living things. Unlike spiders or birds, they stay in place long enough to observe, describe, and compare physical characteristics. Plant identification is a valuable skill to develop for anyone who visits or lives in a rural environment. Plants have many uses such as for food and as building materials, but they can also be poisonous or harm us in other ways.

Methods:

1. Introduce the topic with some leading questions: Why do we name things? Is it confusing when two different things or people have the same name? Can you name some plants? What do you use the plants for? Can anyone tell me the difference between two plants of their choosing? What other differences can we use to describe plants? Why is it useful to describe plants? Why is it useful to name plants? If we have a plant we don't know the name of how can we find out what it is?
2. Provide an introduction to taxonomy and highlight its importance to biology. Provide examples of taxonomy in action (guide books, plant keys).
3. In-class activity: (see attached PDF). The in-class activity introduces the concept of a dichotomous key using shapes as an example, and gets the students involved by practicing.
4. Outside activity: (see attached PDF). The outside activity builds on the concepts learned in the in-class activity by having the students create their own dichotomous key for eight plant species.
5. If available, show the students an example of a professional identification key. Show examples of keys for other groups of organisms such as amphibians or insects.

6. Closing discussion: Each organism in the world is given a name that is used everywhere in the world so that people can communicate effectively, even people who speak different languages. This is called the scientific name, and contains two parts; genus and species. These names also indicate evolutionary relationships between species.
7. Optional activity: Create a plant collection to document local biodiversity. If you are interested in this activity, we recommend the following reference guide for collecting and preserving plant specimens: <https://www.for.gov.bc.ca/hfd/pubs/docs/wp/wp18.pdf>

Tips for Teachers:

- Having the students come up with their own names for the plants can increase their interest and help them remember the plants.
- A white blanket or sheet helps a great deal in making the samples visible to the group
- This lesson could be followed up with a discussion of taxonomy, phylogenetic relationships, genetics, and adaptation.
- This lesson could be followed up by collecting and drying plant specimens.

Background facts and information:

- Scientists estimate there are approximately 270,000 species of living plants on Earth (Chapman, 2009)

Literature Cited

- Chapman, A. (2009). *Numbers of Living Species in Australia and the World*. Toowoomba, Australia. Australian Biological Resources.