

## **MODULE 5: FIELD TECHNIQUES**

### **Practicum 1: Identifying Species using a Dichotomous Key**

#### **Introduction**

A dichotomous key is an important scientific tool, used to identify different organisms, based on the organism's observable traits. Dichotomous keys consist of a series of statements with two choices in each step that will lead users to the correct identification.

#### **Objectives**

The dichotomous key exercise will help students learn about classifying and differentiating between species. It is a skill that can be applied to any group of organisms, including those in a newly encountered environment.

#### **Directions**

Students will work together to try and find the correct scientific name for each organism pictured at the end of the exercise by provided using these dichotomous keys provided. Working in teams, use the Dichotomous key below to identify the group of plant species and the group of animal species. Specify the path you used to get to each species' identity to verify your answer. Write the name of the identified species in each box under the species picture.

Animal Dichotomous Key - Identify the 6 species.

1a) Has legs – Go to step 2

1b) Does not have legs – Go to step 3

2a) Has 6 legs – Go to step 4

2b) Has more than 6 legs – Go to step 7

3a) Has wings – Go to step 5

3b) Does not have wings – Go to step 6

4a) Has wings – Go to step 5

4b) Does not have wings – *Lasius niger*

5a) Has wings enclosed in a protective casing - *Coccinella septempunctata*

5b) Has wings unprotected - *Apis mellifera*

6a) Has a hard segmented body – *Tenebrio molitor*

6b) Has a soft segmented body - *Lumbricus terrestris*

7a) Has 8 legs – *Tegenaria duellica*








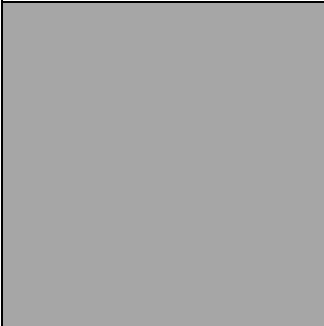

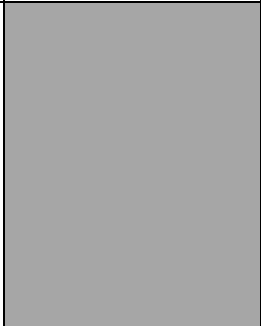


### Plant Dichotomous Key

Identify the 14 species pictured. Find the plants, and bring samples of the parts you used to identify them back to the class for discussion.

1. Is the plant woody or herbaceous? Woody (Go to 2) Herbaceous (Go to 3)
2. Is the plant a shrub? Yes, it is a shrub (Go to 4) No, it is a tree (Go to 5)
3. Does the plant produce flowers? Yes, it does (Go to 6) No, it does not *Nephrolepis spp.*
4. Does the plant have simple leaves? Yes, it does (Go to 7) No, it has compound leaves (Go to 8)
5. Is the plant a native species? Yes, it is native (Go to 9) No, it is an exotic (Go to 10)
6. Are parts of the plant edible? Yes, we eat parts of it (Go to 11) No, it is not edible (Go to 12)
7. Are the plant's leaves margins lobed? Yes, the simple leaf margins are lobed *Myrianthus libericus*. No, the simple leaf margins are not lobed *Mareya micrantha*
8. Are the compound leaves ovate? Yes, the compound leaves are ovate shaped (A shrub with compound ovate leaves: CLASS TO INPUT NAME) No, the compound leaves are not ovate shaped (A shrub with compound leaves that are not ovate: CLASS TO INPUT NAME)
9. Does the plant's bark have medicinal uses? Yes, the bark is medicinal *Amphimas pterocarpoides*. No, the bark is not medicinal *Lophera alata*
10. Is the plant a timber species? Yes, this exotic is a timber species (Exotic pine species which is planted around FTI campus: CLASS TO INPUT NAME) No, this exotic is not a timber species (Go to 13)
11. Which parts of the plant do we eat? We eat the roots *Manihot esculenta*. We eat the fruit *Abelmoschus esculentus*
12. Are parts of the plant used for building? Yes, we use it for roofing (Thatch species that is used for roofing: CLASS TO INPUT NAME) No, it is not used for building (Any grass species on campus: CLASS TO INPUT NAME)
13. Is the plant a cash crop? Yes, it is a cash tree crop *Theobroma cacao*. No, it is not a cash tree crop (Acacia species found on FTI campus: CLASS TO INPUT NAME)

Species images (Missing ones to be added by course cohort Feb 2024)

<p>A</p> 	<p>B</p> 	<p>C</p> 	<p>D</p>
<p>E</p>	<p>F</p> 	<p>G</p> 	<p>H</p>
<p>I</p> 	<p>J</p> 	<p>K</p>	<p>L</p>
	<p>M</p> 	<p>N</p>	

## Practicum 2: Navigating with a compass

### Introduction

Spatial data is important in record taking and information gathering. Navigation skills, with and without tools, are essential for complete monitoring. This practicum will lead the students through exercise on how to use a Map and Compass.

### Objective

This practicum focuses on learning how to collect and compile field data.

### Directions.

#### *Exercise 1: Going from Point A to Point B*

This is probably the most common use of a compass. It assumes that you already know where you are on a map and that you know where (on a map) that you want to go. From a marked point on campus (or several marked points), students can "discover" what a series of azimuths "point to" from that marker (i.e. water tower, prominent building, flag pole, etc.).

1. Turn the compass wheel until "N" is next to the notch in the front of the compass.
2. Orient the map to the compass. Line up the edge of the compass with the edge of the map. Rotate both map and compass together until the magnetic needle is aligned with the "painted" needle under the compass housing. The map is now oriented so the "north" side is really pointing north. Don't move the map anymore! But you can move the compass.
3. Line up the edge of the compass along the route you wish to follow from Point "A" to Point "B". You'll have to move the compass. Be sure the front of the compass is going the same direction that you want to travel.
4. While holding the compass firmly against the map, turn the housing until the "magnetic" needle is directly above the "painted" needle. Read the azimuth at the notch in the front of the compass wheel. That is the azimuth you must follow in the field.
5. Stand at Point "A" in the field (a known place on the map that is easy to find in the field).
6. Check to be certain that your compass wheel is set to the pre-determined azimuth (azimuth on the wheel is next to the notch in the front of the compass).
7. Keeping the compass flat and in front of you, turn your body until the magnetic needle is directly above the painted needle. The compass is now pointing in the direction that you want to go.
8. Identify something in the distance that is in-line with where the compass is pointing (not in line with the direction the magnetic needle is pointing!).
9. Walk towards that "something". Regularly check your compass (step 7) to make sure you are not straying from the pre-determined direction.
10. Repeat steps 7-9 until you locate Point "B".

*Exercise II: Practicing Traverses*

A simple traverse can be set up in an open field next to the school by marking the turning points with wire stakes or other markers. More than one simple traverse can be set up, with a team of students at each traverse, or a team of students beginning at different turning points of the same traverse.