

# Biodiversity Lesson Plan 4

## BioBlitz Project and Field Journal Introduction

Teacher: Elena Martin

Grade Level: 9-12

Date: Summer 2016

<b>AZ Science Standard:</b>	<i>Strand 1: Inquiry Process. Concept 1: Observations, Questions and Hypotheses. PO 1. Evaluate scientific information for relevance to a given problem.</i>
<b>AZ College and Career Readiness Standards:</b>	<i>RST 9-10.RST.1. Cite specific textual evidence to support analysis of science and technical texts, attending to precise details of explanations or descriptions</i>
<b>Enduring Understandings/ Essential Questions:</b>	Biodiversity (the variety of life on Earth): All Ecosystems contain a variety of life that is interdependent. How is biodiversity affected by human behavior? How does decreased/increased biodiversity affect life on Earth? How are humans dependent on biodiversity?
<b>Content Objective:</b> <i>Math Reading Writing Other:</i>	<i>Students will be learn what is a Bioblitz and how they will work in teams to make species observations and contribute research grade observations to the citizen science project, iNaturalist, and keep a field journal</i>
<b>Language Objective:</b>	Descriptive words used to identify species.

<b>Vocabulary</b>		<b>Materials</b>		
BioBlitz		<ul style="list-style-type: none"> <li><i>iNaturalist Project Handout</i></li> <li><i>BioBlitz powerpoint</i></li> <li><i>Technology Survey Handout</i></li> <li><i>How to Keep a Field Journal readings 1, 2</i></li> </ul>		
<b>Seasonality</b> <i>Any time</i>				
<i>Monsoon</i> July-Sept.	<i>Autumn</i> Oct.-Nov.	<i>Winter</i> Dec- Feb.	<i>Spring</i> Mar.-Apr.	<i>Dry Summer</i> May-June
<b>Guiding Questions:</b> What is a BioBlitz?				

# **Biodiversity Lesson Plan 4**

## **Anticipatory Set:**

Introduce students to the concept of a BioBlitz and have them brainstorm how they could go about doing one on campus.

Give students a map of campus divided into section and as them rank the areas in terms of which they think will be more diverse. Save the maps to compare at the end of the study

## **Activity/Investigation:**

1. Have students read the instructions for the iNaturalist project and review for understanding
2. Technology Survey: Have student fill out the Smart Phone survey and organize teams of 3 to 4, making sure there is at least one smart phone per group.
3. Introduce the concept of the field journal by showing them examples and having them read the "How to Keep a Field Journal 1 and 2". Have students underline the main ideas and circle words that are unfamiliar.

## **Closure Question:**

Why do scientists use field journals? What techniques can you use that will help you in your study of biodiversity?

Name \_\_\_\_\_ Period \_\_\_\_ Date \_\_\_\_\_

iNaturalist Username \_\_\_\_\_ Points: \_\_\_\_\_ Due: \_\_\_\_\_

## Ecology Biodiversity Project

Purpose: To observe and document biodiversity in our ecosystem while participating in a greater citizen science project.

Your group will be responsible for a field journal, plant press, and *iNaturalist* observations within our project titled “\_\_\_\_\_”. We will spend time on computers, in the classroom, and outdoors. Our field day(s) will be on \_\_\_\_\_. You will make excellent use of class time and work on this project outside of class time as needed. I expect that you will enjoy this project and do a fabulous job.

You will work both independently and with your group. Everybody will experience each aspect of the project but each group member will have one focus area (“duty”). Your final project includes your field journal, plant press, and *iNaturalist* observations which will all be turned in together at once from your group on the due date. Groups and individuals will earn points for participation, attitude, and effort. Each member of the group must double check each of the other group members’ species identification for accuracy.

Partner: \_\_\_\_\_ Duty: \_\_\_\_\_ phone/email: \_\_\_\_\_

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### DUTIES:

**Photographer & Web Person:** *This person will be responsible for the group’s final iNaturalist observations. This person should be the one with either an iPhone or Android smartphone with the iNaturalist application installed OR a digital camera along with a GPS device (or be able to accurately drop Google pins) and access to the internet ([www.inaturalist.org](http://www.inaturalist.org)). This person will also be responsible for identifying species.*

**Official Lab Notebook Journalist:** *This person will be responsible for the group’s “official” field lab notebook and follow the sample notebook format. This person will also be responsible for identifying species. (For Field notebook guidelines, read: [http://www.amnh.org/learn/biodiversity\\_counts/read\\_select/hs/fieldjnl.htm](http://www.amnh.org/learn/biodiversity_counts/read_select/hs/fieldjnl.htm))*

**Botanist, Communicator, “Go To” Person:** *This person will be responsible for the group’s plant press, field guide books, and other materials. This person will also search for observations to alert the photographer and/or journalist as needed. This person will also be responsible for identifying species.*  
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Materials needed for **each** class during the span of the project include:

- Field lab notebook (one issued per student, one in each group is “official”)
  - Plant press (one per group)
  - iPhone or Android phone OR digital camera (at least one per group).  
**Note:** phone/camera owners should bring any needed cables and chargers. \* The free “iNaturalist” application must be downloaded.
  - USB/flash drives (for photographs, etc.)
  - Hand lenses - optional
  - Binoculars (on our field days) – if you have them
  - Covered shoes/boots and long pants (on our field day) – required
- READ the grading outline again and again so you understand how your group will be graded.

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Name \_\_\_\_\_ Period \_\_\_\_ Date \_\_\_\_\_

**Technology Survey** *Simply put an "X" in the appropriate "Yes" or "No" box.*

	YES	NO
Have an iPhone or Android smartphone?		
Own a phone with a camera?		
Own a digital camera (or could borrow one if needed)?		
Familiar with GPS (Geographical Positioning System) devices?		
Have experience managing digital photographs?		
Have experience with Google Maps?		
Have experience with Facebook?		
Have experience with Imagur?		
Have experience with Flickr?		
Have designed a website or blog?		
Have an email account?		

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Name \_\_\_\_\_ Period \_\_\_\_ Date \_\_\_\_\_

**Technology Survey** *Simply put an "X" in the appropriate "Yes" or "No" box.*

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Have experience with Facebook?		
Have experience with Imagur?		
Have experience with Flickr?		
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Have an email account?		

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## **HOW TO MAKE FIELD NOTES**

Your objective is to create an accurate written record of your field activities, investigations, observations and thoughts. You should record date and location information in a very detailed manner so that others can know exactly when, where, and under what conditions your work was done. This will enable you or others to return to the same areas in the future to verify findings and observe changes over time.

### **GENERAL FORMAT**

Follow this format in your field notes:

1. Field notes should be divided into two sections: Journal and Species Accounts
2. Write on one side of the paper. Leave a generous left margin as shown in the examples.
3. Write your name in the upper left-hand corner
4. Write the year in the upper right-hand corner underneath your name.
5. Write the day and month in the upper left margin.
6. Write “Journal” in the top margin of your journal pages, and the name of the species in the top margin of your species account pages.
7. Write in complete sentences and paragraphs. You can think of field notes as a letter to a friend or relative explaining what you saw. Or think of them as a letter to someone visiting the area 20 years later who is unfamiliar with the area.

### **FOR THE JOURNAL SECTION:**

1. Put a heading on the top line of each page which identifies your location. You should include specific site, city, county and state. Underline the heading. (Joseph Grinnell underlined his location with a wavy line.)
2. Note the purpose of the trip (Why?)
3. Note who went on the trip with you (Who?).
4. Note the time of day of each important observation (When?).
5. Information about the places you visit should be written so that someone unfamiliar with the area can find your exact location using maps and your description. Tell where you started and where you went. Include what road or trail you walked on, or the general route you took if you did not follow a road. (Where?).

6. Include notes on the weather, elevation, topography, geology, soil, water, vegetation types, plant phenology (what life stage they are in), and evidence of disturbance (fire, grazing, cultivation, etc.) (What?).

7. Be accurate. If you have to guess about something, identify your guess as a guess. It is appropriate to speculate about things and to ask questions. Do include your feelings, intuitions and thoughts! Just be sure you don't mislead a reader into thinking your thoughts are facts!

8. Be detailed and quantify your data as much as possible. "Saw some ducks on the pond" is not as useful as "saw 12 pintail (7 males and 5 females) on the southeast end of Olcott Lake about 5 m from the shore."

9. Sketches and drawings can be very useful. Rough sketches and diagrams add details and depth to your notes.

10. You may take temporary notes on a smaller field notebook, then transcribe your notes into your permanent journal. You should transcribe as soon as possible after you leave the field, and always the same day as your trip.

## **SPECIES ACCOUNTS**

1. Create a page for each species you observe. This is the place for more detailed descriptions and observations of an individual or group of one particular species. Include sights, sounds, smells, textures, patterns, sizes, shapes, colors, and movements. Include numbers of individuals, sizes, frequencies and behaviors.

## **GRADING**

Your field notes will be graded according to a 4-point rubric.