

# Biodiversity Lesson Plan 1

## Part 1: Introduction to Biodiversity

Teacher: Elena Martin

Grade Level: 9-10

Date: Summer 2016

<p><b>AZ Science Standards:</b></p> <p><b>AZ College and Career Readiness Standards:</b></p>	<p><i>Strand 3, Concept 1: Changes in Environments, PO1: Evaluate how the process of natural ecosystems affect and are affected by humans</i></p> <p><i>Strand 4: Life Sciences, Concept 3: Interdependence of Organisms; PO1: Identify the relationships among organisms within populations, communities, ecosystems, and biomes. PO2: Describe how organisms are influenced by a particular combination of biotic (living) and abiotic (non-living) factors in an environment.</i></p> <p><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></p>
<p><b>Enduring Understandings/ Essential Questions:</b></p>	<p>Biodiversity (the variety of life on Earth): All Ecosystems contain a variety of life that is interdependent./</p> <p>How is biodiversity affected by human behavior?</p> <p>How does decreased/increased biodiversity affect life on Earth?</p> <p>How are humans dependent on biodiversity?</p>
<p><b>Content Objective:</b> <i>Math Reading Writing Other:</i></p>	<p><i>Students will learn how biodiversity is defined, why it is important, and what how it is impacted by human behavior.</i></p>
<p><b>Language Objective:</b></p>	<p>Students will define and give example of words relevant to the study of Biodiversity</p>

<p><b>Vocabulary</b></p>		<p><b>Materials</b></p>		
<p>Biodiversity, habitat, ecosystem, niche, endemic, old world, evolution, organisms, exotic, species, extinction, sustain</p>		<p><i>Pre-test with vocab and matching definitions</i></p> <p><i>Film "Biodiversity: Expressions of Life"</i></p> <p><i>Introduction to Biodiversity, by Kim Franklin</i></p>		
<p><b>Seasonality</b> <i>Fall or Spring</i></p>				
<p><i>Monsoon</i> July-Sept.</p>	<p><i>Autumn</i> Oct.-Nov.</p>	<p><i>Winter</i> Dec- Feb.</p>	<p><i>Spring</i> Mar.-Apr.</p>	<p><i>Dry Summer</i> May-June</p>
<p><b>Guiding Questions:</b> What is biodiversity and how do we depend on it?</p>				

**Anticipatory Set:**

Ask students to write a response to the following questions

**How do you define biodiversity, and how do you depend on it in your daily life?**

Think-Pair-Share

Have students share and compare answers with their neighbors and reflect on how they were similar/different, then add to their answers.

Choose students randomly to share their answers – write a list of ideas on the board.

**Activity/Investigation:**

**Pretest:** Have students take the Biodiversity “Words and Concepts” pre-test to self-assess prior knowledge.

Introduce Biodiversity concepts with the ASDM Power Point presentation by Kim Franklin (and/or film “Biodiversity: Expressions of Life”)

Have students finish matching terms and answering questions on pre-test after listening to lecture and or film. Check answers as a class.

Have class further research the question, “Why is Biodiversity important and how do we depend on it?”

Ask students to research, discuss, and write a page summarizing all or some of the following points:

- Give some examples of the variety of biologically diverse forms of life that exist on Earth.
- Name some of the diverse types of habitats in which life exists.
- How do humans depend on other life-forms? Give some specific examples.
- What are some of the reasons that increasing numbers of species are becoming extinct?
- What are some of the solutions to the problem of biodiversity loss?

Make a list of your sources, and support your claims with evidence;

**Closure:**

Work together to construct a collaborative explanation of what students understand about biodiversity based on new information they’ve learned. Record this explanation and save it until the end of the unit. At that time you will develop another explanation and compare the two.

Tell students that in this project they will be learning the tools and methods scientists use to study biodiversity, such as observing, measuring, collecting, classifying, recording and analyzing data, and communicating findings to each other. With these skills, they will study an outdoor site (at their school or a chosen field site, or both) in great detail, looking primarily at arthropods and plants, but also birds and reptiles and mammals when possible. The goal is to participate in citizen science and contribute quality observations to a project called *iNaturalist*, as well as present their findings to the class.

**Biodiversity Words and Concepts:** From the list below, select the right word for the following definitions:

Biodiversity	niche	evolution	species
Habitat	endemic	organism	extinction
Ecosystem	Old World	exotic	sustain

- \_\_\_\_\_ The way of life of a species within its ecosystem
- \_\_\_\_\_ A natural system made up of a community of living things and the physical environment where they live.
- \_\_\_\_\_ A non-native.
- \_\_\_\_\_ The process by which organisms become different from generation to generation.
- \_\_\_\_\_ The physical place where an organism lives.
- \_\_\_\_\_ A species which is native to a certain area and lives only there.
- \_\_\_\_\_ A group/population of similar organisms that can interbreed to produce fertile offspring (unless they reproduce a sexually)
- \_\_\_\_\_ The variety of organisms and ecosystems.
- \_\_\_\_\_ To keep in existence, to maintain.
- \_\_\_\_\_ The disappearance of a species, either locally or total (global).

What are the three main causes for the loss of biodiversity?

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

Give three benefits of biodiversity

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2. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

### Biodiversity Concepts Summary

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

Partners: \_\_\_\_\_

Sources (websites, lecture notes, films):

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Research, take notes, discuss then write a page summarizing the following points below:

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Make a list of your sources, and support your claims with evidence.

Summary: