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# Herpapalooza Xtreme!

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## Purpose:

- 1) To connect students to local amphibian species and their habitats.
- 2) To introduce the idea of citizen science with Amphibian monitoring, and the benefits of this kind of work.

## Objectives:

- 1). Learn to identify some of the local amphibian species and their preferred habitats.
- 2) Develop research skills like data collection and analysis.
- 2). Understand some of the real conservation issues surrounding amphibians.

## Logistics:

**Timing** - This lesson for 6th to 8th graders will last on sight for roughly three hours including a lunch break (this does not include the transportation times of driving or hiking). The full lesson is intended to be a full day field trip. In addition, students will have a prior homework assignment before conducting surveys. Allow 15 minutes to assign this on the day prior, and 30 minutes for student presentations before surveys begin.

**Location** - This survey needs to take place near productive wetland habitats like Willow-Witt Ranch, Hobart, or Parsnip Lakes. The location will have to be decided on at least a week in advance so that the wooden planks can be set out to attract herps

**Time Required:** 3.5 hours

**Appropriate grades:** 6th-8th

**NGSS and Common Core Standards:**

MS-LS2-1 Ecosystems: Interactions, Energy, and Dynamics

Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS2-2 Ecosystems: Interactions, Energy, and Dynamics

Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-4 Ecosystems: Interactions, Energy, and Dynamics

Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.



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before the day of the lesson. The introduction and conclusion activities can take place in the classroom.

**Season** - Spring into Fall depending on the weather and elevation of the site.

**Teacher Prep** - If giving this lesson to a teacher, make sure to give them good advice on where and when to go to find amphibians. Also, give them advice on amphibian identification so that they can make sure their students are correctly identifying everything. Consult Michael Parker on best locations and times of year, and what the likelihoods are of seeing certain herps. Make sure to send out an email to the teacher well in advance of the lesson to give them pro tips of identification, collection, data recording, and teaching strategies.

## Materials:

Equipment - sturdy dip-net, binoculars, rain boots, camera, scale, tape measure, field guides, hand lens, data sheets, clipboard, and writing utensils.

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Native Southern Oregon Herps Folder

- Provided - sturdy dip-net, binoculars, rain boots, camera, scale, tape measure, field guides, hand lens, data collection worksheets, clipboard, writing utensils, and Native Southern Oregon Herps Folder.
- Not Provided - clothing (rain jacket, rain pants, warm layers).

## Activity:

<b>Introduction</b>	<b>Introduction:</b> What Species Live Here? (10 minutes in class the day before and 30 minutes on the day of the class.) <ul style="list-style-type: none"><li>- The Day before the Amphibian Surveys, assign students different Amphibian species from the Amphibians vs. Reptiles Native Southern Oregon Herps Folder. (10 minutes)</li><li>- Have students research their species and prepare to give a brief introduction to their Amphibian and its habitat.</li><li>- On the day of the survey, have students give a brief (3 minute max) presentation to the class about their species.</li><li>- Research resources can be found in the Southern Oregon Herps Folder &amp; in the link provided below.</li></ul>
<b>Body</b>	<b>Main Activity: Amphibian Surveys</b>



(If there are two instructors in the group, split the group in half and have one instructor start with upland while the other starts with aquatic, and then switch. Or you can just move from wetland to upland study as a whole group.

**Wetland Study (1 hour, 45 minutes)**

Equipment - sturdy dip-net, binoculars, rain boots, camera, scale, tape measure, field guides, hand lens, data sheets, clipboard, and writing utensils.

Split your class into teams of about three - ideally, give each group a dip net, a pair of binoculars, a scale, tape measure, a field guide, hand lens, recording worksheet (see below), clipboard, and writing utensil. Have them go through each step.

**Survey Steps**

- 1) Scanning - use binoculars to observe frogs basking in the sun - also important to note if turtles or garter snakes are present (garter snakes are predators of amphibians so they may be an indication). (5 minutes)
- 2) The Slow Creep - slowly walk toward the body of water and visually search for places where amphibians are likely to be. Record the species and # of individuals. Make sure to look for all life stages (egg, larvae, subadult, and adult), and in all microhabitats (on vegetation, logs, banks, rocks, pond bottom). (5 minutes)
- 3) Dip-netting - try sweeping the net in all microhabitats (pond bottom, in the shadow of vegetation, near the bank, etc) First, give a tutorial on how to properly use a dip net. (Dipnetting, identification, and data recording will all take 70 minutes, but students should take a lunch break in the middle of this)
- 4) Identification - Use field guides and measurement devices to identify your amphibian.
- 5) Record Data - Record the number of individuals of each species and specify what life stage each individual is (larvae, subadult, adult). record how long your survey lasts and what percent of the amphibian habitat was surveyed in the time given.
- 6) Debrief - How was your experience today? Do you think we collected valuable information? Was there anything that surprised you? (25 minutes to go over the worksheets and discuss findings)

**Upland Study (45 minutes)**



	<p>Equipment - Camera, scale, tape measure, field guides, hand lens, data sheets, clipboard, and writing utensils.</p> <p>Set-up - (at least a week in advance) - set boards of wood on the ground in moist forested areas to attract lungless salamanders. These salamanders are often found under large pieces of bark below large trees in moist forested environments. The wooden boards do well to simulate this and often provide refuge for salamanders. Otherwise, run this activity the same as you did for the wetland one)</p> <ol style="list-style-type: none"> <li>1) Identification - Use field guides and measurement devices to identify your amphibian.</li> <li>2) Record Data - Record the number of individuals of each species and specify what life stage each individual is (larvae, subadult, adult). Record how long your survey lasts and what percent of the amphibian habitat was surveyed in the time given.</li> <li>3) Debrief - How was your experience today? Do you think we collected valuable information? How could this information be used?</li> </ol>
<p><b>Closure</b></p>	<p><b>Conclusion - 25 minutes</b></p> <ul style="list-style-type: none"> <li>- Discuss current threats to amphibians: Climate change, habitat loss, etc. See background section for more information and resources.</li> <li>- Discussion Questions: <ul style="list-style-type: none"> <li>- How these threats could impact reptile/amphibian populations</li> <li>- Did you see evidence of this during your surveys? Why or why not? How might your results differ from a more urban habitat?</li> <li>- What can we do, individually or as a community, to protect these species?</li> </ul> </li> </ul>

## Modifications:

- **Elementary:** For the introduction, rather than have students research and present species, choose a few examples from the Southern Oregon Herps Folder to go over as a class to introduce students to some of the amphibians they may encounter. Give a longer safety and amphibian respect talk. There isn't enough equipment for everyone to use everything at the same time, so think about ways that you can share equipment to make all students happy. The dip net and binoculars will be competitive items. Also, have these students use the 4-6 grade worksheet.



- **Middle School:** Make sure these students take this activity seriously. They will be interacting with real amphibians, so they should exercise extreme care.
- **High School:** Push students to really identify their amphibian and defend their conclusion. Give highschoolers a more advanced worksheet to gather data with.
- **Length altering:** Teachers may prefer to do an abbreviated lesson that doesn't take up the entire school day. To do this, they may choose to omit the herp presentations (subtract 10 minutes from the day prior, 30 minutes from the field day). Also, the upland study can be omitted (45 minutes), and the conclusion can be done in class later (25 minutes). You do the math!

This lesson was created in December 2021 by Tori Wood and Nolan Richard.

## Background Information

### Introduction

Give this link to students as a resource for researching their species:

<https://myodfw.com/wildlife-viewing/species/amphibians>

### Amphibian Surveys

"A Standardized Protocol for Surveying Aquatic Amphibians" - Elkhorn Slough Coastal Training Program

- [http://www.elkhornsloughctp.org/uploads/files/1172879165Fellers\\_Standardized\\_Survey\\_Protocol.pdf](http://www.elkhornsloughctp.org/uploads/files/1172879165Fellers_Standardized_Survey_Protocol.pdf)

### Conclusion

Threats to amphibians include habitat loss, invasive species, and climate change. Human activities and encroachment can damage wetlands and other important habitats that amphibians rely on. Rising temperatures and drought caused by climate change can also negatively impact amphibians. Because amphibians rely on pooled water for reproduction, drought can inhibit their ability to reproduce. Their prey also often relies on having plenty of water available, so less water can cause prey to decline as well. Rising temperatures could affect hibernation patterns and make habitats unsuitable. Lastly, invasive species such as bullfrogs can out compete and even prey on native species.

All information about threats to amphibians was found at the link below. Visit this site for more detailed information on threats to amphibians:

<https://www.nps.gov/articles/reptiles-and-amphibians-threats.htm#:~:text=Habitat%20loss%20and%20degradation%20is,vehicle%20use%20in%20terrestrial%20habitats.>



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## Data Recording Worksheet (4-8th grade)

Date:

Time:

Location:

Species Found	# of Larvae	# of adults	Habitats found

Do you think any of the data you collected could be useful for a scientist? If so, why?

What was your favorite amphibian you saw? Why?

Would you ever want to come back and do this again?



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## Data Recording Worksheet (High School)

Date:

Time:

Location:

Species Found	# of Larvae	# of subadults	# of adults	Habitats Found

Do you think any of the data you collected could be useful for a scientist? If so, why?

What is an amphibian that you could have possibly seen today, but didn't?

What was the trickiest amphibian to identify? Why?

Do you think more classes should take their students to collect data in the field?



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