

---

# Reptiles vs. Amphibians

---



## Purpose:

Better understand reptiles and amphibians - their differences, native species, anatomy.

## Objectives:

- Students will be able to identify organisms as amphibians or reptiles.
- Students will be able to create a new, somewhat realistic reptile/amphibian based on known characteristics
- Students will be able to list at least 3 characteristics that are similar and different between amphibians and reptiles.

## Materials:

- From Kit: Amphibian vs. reptile worksheet
  - Station 1: Skin
    - Reptile: produce net bags
    - Amphibian: jar of goop/gak
  - Station 2: Eggs
    - Box of “reptile eggs” in sand
    - Jar of water bead “amphibian eggs” \*PLEASE NOTE INSTRUCTIONS ON JAR
  - Station 3: Life Cycle
    - 3 life cycle cards (frog, salamander, reptile)
    - Adult & juvenile cards (lizard, snake, frog, salamander)
  - Station 4: Examples
    - Amphibians vs. Reptiles Native Southern Oregon Herps Folder
      - Pick 4-5 different examples of amphibians and reptiles for this station
- Not Provided:
  - Notebook paper
  - Colored pencils

## Time Required:

### Appropriate grades:

### NGSS and Common Core Standards:

6-8.RST.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually

MS-LS4-2.

Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

## Activity:



**ENVIRONMENTAL  
EDUCATION** GRADUATE  
PROGRAM  
SOUTHERN OREGON UNIVERSITY

<p><b>Introduction</b></p>	<p><b>Word Dump (5 minutes)</b></p> <ul style="list-style-type: none"> <li>● On the white board create two columns (one for reptiles and one for amphibians). Have students share any word that comes to mind for either group of animals. They might say slimy for amphibians, or dangerous for reptiles. In any case, this activity serves to get students thinking about what they already know about this group of animals and tells the instructor what their level of knowledge is on the subject.</li> </ul>
<p><b>Body</b></p>	<p><b>Stations Activity (55 minutes)</b></p> <ul style="list-style-type: none"> <li>● Split students into 3 groups and designate each group a <b>station</b> (Skin, Eggs and Life Cycle). Once the groups have been established and been given the appropriate materials, have the groups look over their materials and fill out that section of the worksheet. Each group should discuss how their given topics differ between reptiles and amphibians (12 minutes) Remember to rotate twice so each group gets to each station. (Note: give each group another couple minutes at the last station because they will present on it)</li> <li>● <b>Bring groups together for a Science Symposium:</b> Have each group take turns sharing with the class what they learned. (10 minutes). They will present on the last station they were at, and they will present on three things - 1) What is an advantage for reptiles, and an advantage for amphibians in regard to how their skin is, how they reproduce, and what their life cycle is? What was something that surprised you?</li> <li>● Have students return to their seats. Given this new information about reptiles and amphibians, have students <b>create their own creature</b>. Each student must draw their own Amphibian or Reptile, and label the characteristics of their animal which defines them. (10 minutes) A diagram with labeled reptile/amphibian will be provided (optionally drawn on whiteboard before class) <ul style="list-style-type: none"> <li>○ Optional (have students share their drawing of a reptile/amphibian to the class).</li> </ul> </li> <li>● Give examples of several reptiles and amphibians native to this area. Activity: pass around native reptile/amphibian cards from the Southern Oregon Native Herps folder that have pictures of a native reptile/amphibian along with some facts about it - students will be in small groups and will have to take turns reading the information on the</li> </ul>



	card (after 1-2 minutes have groups pass their card to the next group) (8 minutes)
<b>Closure</b>	<p><b>Herp Jeopardy (15 minutes)</b></p> <ul style="list-style-type: none"> <li>• Have students put away their worksheets, but if they like they can use their drawing. Write the following sentences on the board with blank spots. Put all the students into teams, and play this just like jeopardy the TV show, however you choose the question and each correct word is worth exactly 1 point. You can start at the top and work your way down - You can either have students guess letters to make it easier (better for young students) and then have them guess words, or you can start with them guessing words. You can also play non-competitively. It's up to you exactly how you want to run it!</li> </ul> <ol style="list-style-type: none"> <li>1. Frogs undergo _____ when they turn from a tadpole to a frog.</li> <li>2. A Native Reptile that is currently threatened is the _____.</li> <li>3. Amphibians _____ through _____.</li> <li>4. Reptile eggs don't _____ like amphibian eggs do.</li> <li>5. Reptiles and Amphibians are known as _____ and the study of them is called _____.</li> </ol>

## Modifications:

- **Elementary:** You may choose to skip the symposium and instead have a short group discussion on what it means to be a reptile or an amphibian.
- **Middle School:** Let students take the lead with the scientific symposium. Allow them the opportunity to relay the information from their station to the class.
- **High School:** Add more advanced biology words to the worksheet. Require students to label their drawing with the reptile/amphibian characteristics they gave their creature.

\*Updated December 2020 by Tori Wood and Nolan Richard



**ENVIRONMENTAL  
EDUCATION** GRADUATE  
PROGRAM  
SOUTHERN OREGON UNIVERSITY

## Background Information

Reptiles and amphibians share a number of similarities, for instance, they are both cold blooded or ectothermic, meaning their body temperatures fluctuate depending on their surroundings, both lay eggs when reproducing, and both are vertebrates (have a backbone). Reptiles and amphibians are in fact distantly related to each other and they do have a lot of similarities, but still there are a few differences between the two. They can be distinguished from each other by their physical appearance and different stages of life.

### ***Skin & Habitat***

Amphibians usually have to stay near water sources or other moist environments to prevent drying out, and have smooth skin. Most amphibians have thin skin that is very permeable (allowing liquids and gases to pass through easily). This is important for two reasons. First, it means that their skin helps them breathe, since oxygen passes easily through it. Second, it means that amphibians lose a lot of water through their skin. This is why most amphibians are found in moist or humid environments, where they can re-load their water reserves.

Reptiles have dry, scaly skin. But they don't need moisturizer! Their special covering actually helps them hold in moisture and lets them live in dry places. Reptile scales are not separate, detachable structures like fish scales. Instead, they are connected in a "sheet," which is the outermost layer of skin. Every so often, this layer of skin is shed and replaced. In some reptiles the skin flakes off in chunks. In snakes, the skin is usually shed in one piece. What about turtles and tortoises? You may not think of their shells as being scaly, but they are! They are complex structures made up of bones and scales that develop from the outer layer of skin. It's natural body armor!

### ***Eggs & Reproduction***

Though both amphibians and reptiles reproduce by laying eggs, the structures of the eggs are different. Reptile eggs have hard, leathery shells, which protect the young, and they are generally laid in nests, or buried underground. Amphibians lay eggs that lack a protective membrane, and are generally



found adhering to the stems of underwater plants. Amphibians fertilize eggs externally, while reptiles have internal fertilization.

### ***Metamorphosis and Life Stages***

Reptiles and amphibian's differences are particularly visible in the stages of life. When reptile eggs hatch, the young look like miniature versions of the adults that they will grow into. An amphibian life cycle, however, is quite different. Upon hatching, many amphibians emerge as a larva, which breathe through gills. At this stage, the young amphibian cannot survive outside water, and has a tail. As it matures, it will increase in size and may lose its tail (frogs and toads), as well as develop lungs that will enable it to breathe on land. Some amphibians have no lungs as adults and "breathe" entirely across their moist skin.

### ***Defense***

Many amphibians can secrete toxins through their skin, which is their primary defense mechanism. Reptiles use their claws and strong tails for defense, as well as their mouths to bite. Some have venom, like the Komodo dragon, Gila monster, bearded lizard, and many snakes. Reptiles also have scales, which act as a sort of armor to physically defend the body.



**ENVIRONMENTAL  
EDUCATION** GRADUATE  
PROGRAM  
SOUTHERN OREGON UNIVERSITY