

Name: _____

Salamander Synthesis

Developed by Kaylynn Wohl, 2020. University of Oregon Environmental Leadership Program.

All creatures have adaptations to survive in their habitat. Whether they can breathe underwater with gills (like the *northwestern salamander*) or breathe through their skin (like the *black salamander*), salamanders have adapted to their habitat to survive according to their forest or woodland environments. Oregon is full of a variety of salamander species and only commonly, one newt species (the rough-skinned newt). Did you know that all newts are salamanders... but not all salamanders are newts? So what's the difference?

Salamanders have long tails with soft, moist skin while newts have dry, rough skin and external gills and only live in the water. Salamanders can live both on the ground and in the water. Newts are usually on the small side, but some salamanders (like the blotched tiger salamander) can be quite large.

Refer to (<https://myodfw.com/wildlife-viewing/species/salamanders-and-newts>) for more information.

Definitions:

adaptations - the process by which a species becomes fitted to its environment; it is the result of natural selection's acting upon heritable variation over several generations

niche - the position or function of an organism in a community of plants and animals; the role of that organism

habitat - type of natural environment in which a particular species of organism lives, eats, reproduces, etc.

salamander - group of amphibians typically characterized by a lizard-like appearance, with slender bodies, blunt snouts, short limbs projecting at right angles to the body, and the presence of a tail in both larvae and adults

newt - salamander in the subfamily *Pleurodelinae*; semiaquatic (returns to water every year to breed) , alternating between aquatic and terrestrial habitats

Directions: You just got hired at Oregon Department of Fish & Wildlife as a scientist, and your first assignment is to create a new species to be introduced to the Willamette River. You've been asked to create a salamander. You will pick 3 adaptations that your new species have developed according to the Traits and Adaptations table provided below.

Then, with your imagination, give your species 3 new *adaptations* or characteristics that are not on the table (these are completely up to you, Scientist). Then, write a paragraph statement on why you chose those *adaptations* and what they're useful for; describe your species. What is their *habitat* like? What do they eat or what eats them? What is their *niche*, or role, in their new community at the Willamette River?

Draw and color your new salamander, and then give your species a name.

Step one: Use the provided species as examples to select (circle or highlight) 3 total *adaptations/* characteristics. Be unique in your choices, and don't choose all 3 within the same row (horizontal).

| Salamanders | Traits and | | Adaptations |
|--|--|--|--|
| <u>Black Salamander</u> (<i>Aneides flavipunctatus</i>) | 1) grows up to five-and-a-half inches in total length | 2) black with a smattering of bronze or green specks across the top of their heads, backs, tails and legs | 3) lungless and breathes through their skin |
| <u>Northwestern Salamander</u> (<i>Ambystoma gracile</i>) | 1) Solid, smooth brown skin that is wet; grows to almost 10 inches in total length | 2) Common in Oregon but rarely seen because they live underground; live in moist crevices within logs or rodent burrows for shelter from weather and predators | 3) When disturbed, make a ticking sound and stands in a defensive posture |
| <u>Oregon Slender Salamander</u> (<i>Batrachoseps wrighti</i>) | 1) Females grow about 12 percent larger than males; brown body with big red splotches, black belly with large white flecks | 2) lungless and breathe through their skin; live mostly underground or within rotting logs, rather than within water | 3) Occasionally clump together in groups to remain damp |
| <u>Blotched Tiger Salamander</u> (<i>Ambystoma mavortium melanostictum</i>) | 1) olive-colored blotches outlined in black with gray undersides; thick bodied and can grow up to 13 inches in | 2) live almost entirely on land in grasslands and shrub-steppe habitat (a type of low-rainfall natural grassland); only | 3) found in field, forests, prairies, and other soft ground lands, where they can hideaway under |

| | | | |
|---|---|---|---|
| | total length | returns to water to breed. | the tree leaves, or underground; breed during monsoon season |
| <u>Rough-skinned Newt</u> (<i>Taricha granulosa</i>) | 1) dry granular skin (most other salamander species have moist smooth skin); brown head and bright orange belly | 2) powerful neurological poison in their skin and eggs to protect them from predators | 3) migrate long distances between their breeding and non-breeding habitat (spring and fall) |

Step two: Using your imagination, come up with 3 more traits, characteristics or adaptations that your species has and why those traits are useful.

- 1) _____

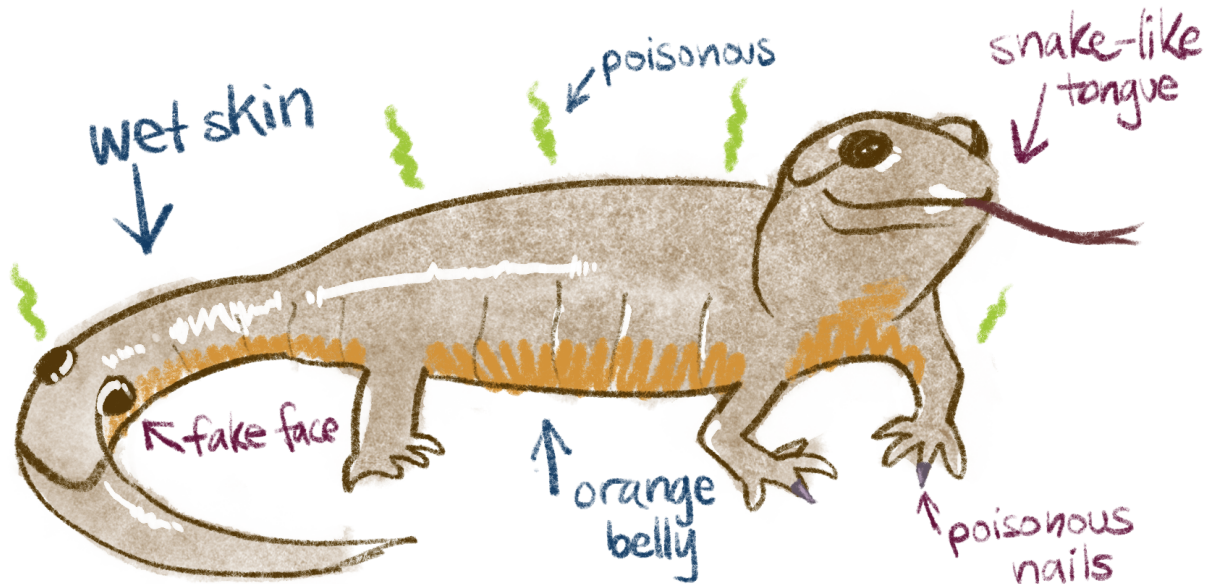
- 2) _____

- 3) _____

Step three: On the blank page provided (on page 6), synthesize your salamander species by drawing and coloring it. Label/ diagram all 6 of your traits. Feel free to use resources like Google images to see what the salamanders in the table look like.

Step four: Write a short paragraph below and provide the name for your salamander species. Describe why the 6 total traits and characteristics are useful to this creature before the Oregon Department of Fish & Wildlife accepts your species blueprint and releases them to the Willamette River. Refer to the example provided (on page 5), but don't recreate it.

Example:



Example drawn by Daisy Jones

This is the Two-Faced Salamander. It has wet skin like all salamanders do, but it has the orange belly of the rough-skinned newt. The bright color helps attract mates while the wet skin helps it stay cool on warm days. Since salamanders have lizard-like features, I gave it a snake tongue to help catch the river gnats and other bugs in the air. The poisonous nails are a defense mechanism developed to attack its predators. Also like the rough-skinned newt, it has poisonous skin since it doesn't like being held by humans. It has important duties at the Willamette River (like picking up trash and protecting its other amphibian friends) so they can't waste its time with being held or played with. The face on the tail is what gives it its name. It's useful in fooling its predators so it can attack while keeping its actual face out of reach. The tail is also super strong for smacking predators and clearing its pathway when walking.

