

Tolerance, Habitat, and Niche

Why does a frog live in a pond and not the desert?



Students, write your response!

Why does a polar bear live in the arctic and not on a tropical beach?



Students, write your response!

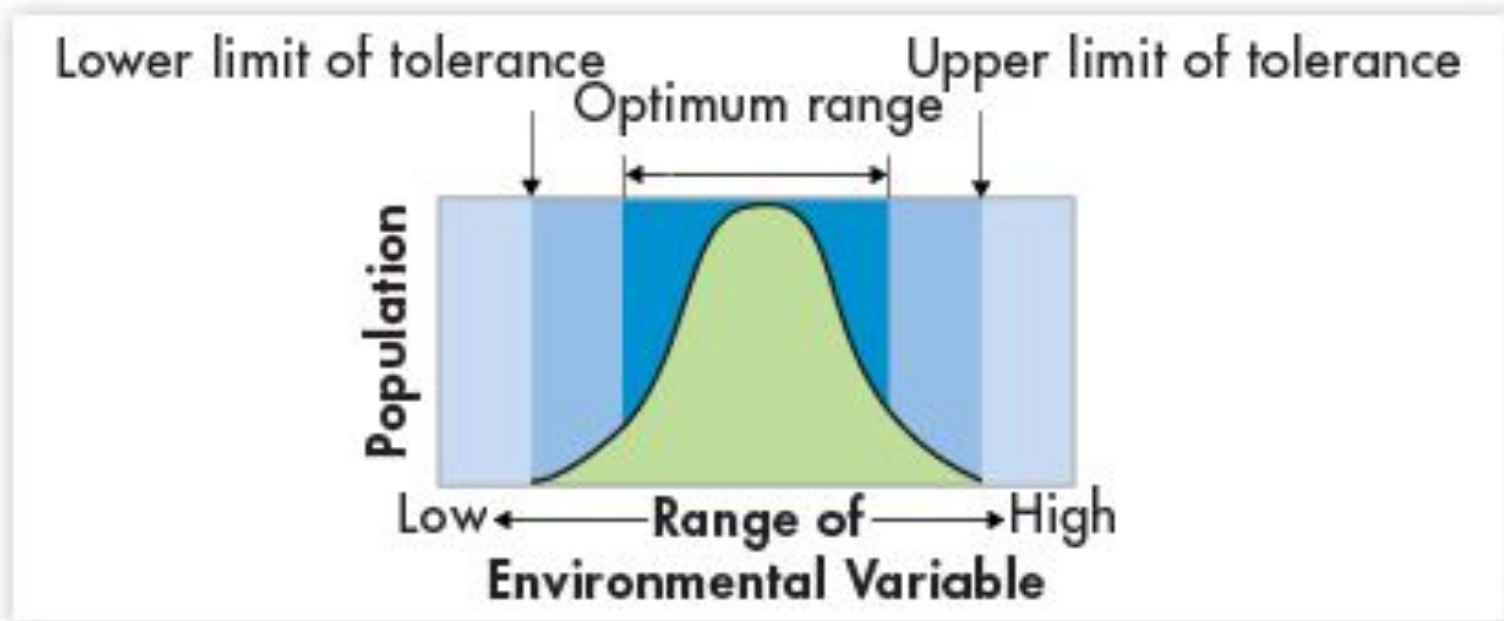
What determines where an organism lives?



Students, write your response!

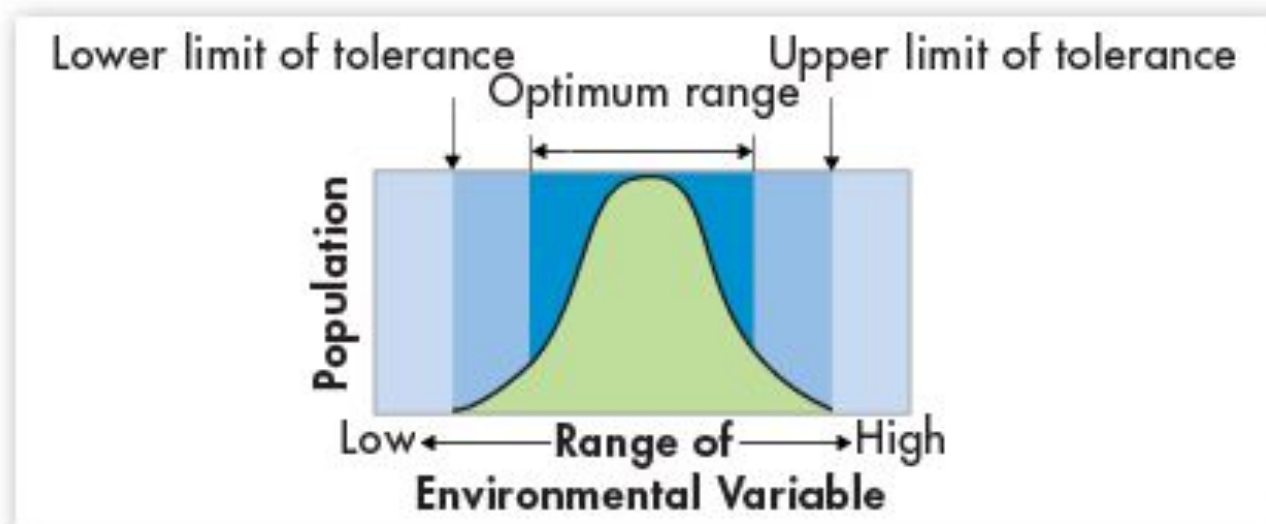
Tolerance

- Every species has its own **range of tolerance**.
- Tolerance is **the ability to survive and reproduce under a range of environmental circumstances**.



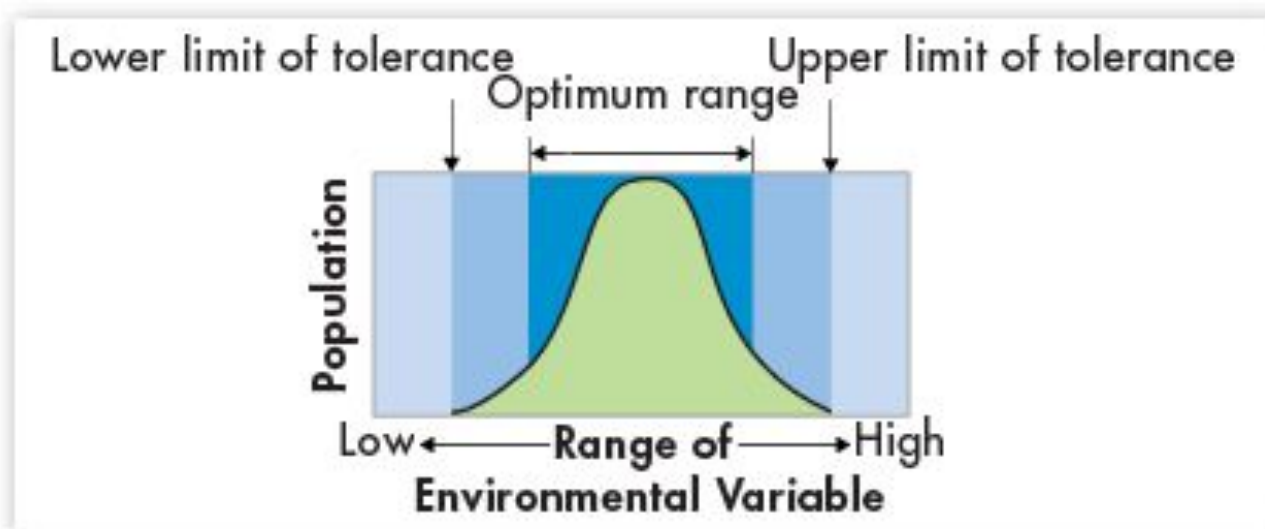
Tolerance

- When an **environmental condition**, such as temperature, extends in either direction beyond an organism's **optimum range**, the organism experiences **stress**.
- The organism must expend **more energy** to maintain homeostasis, and so has **less energy** left for growth and reproduction.

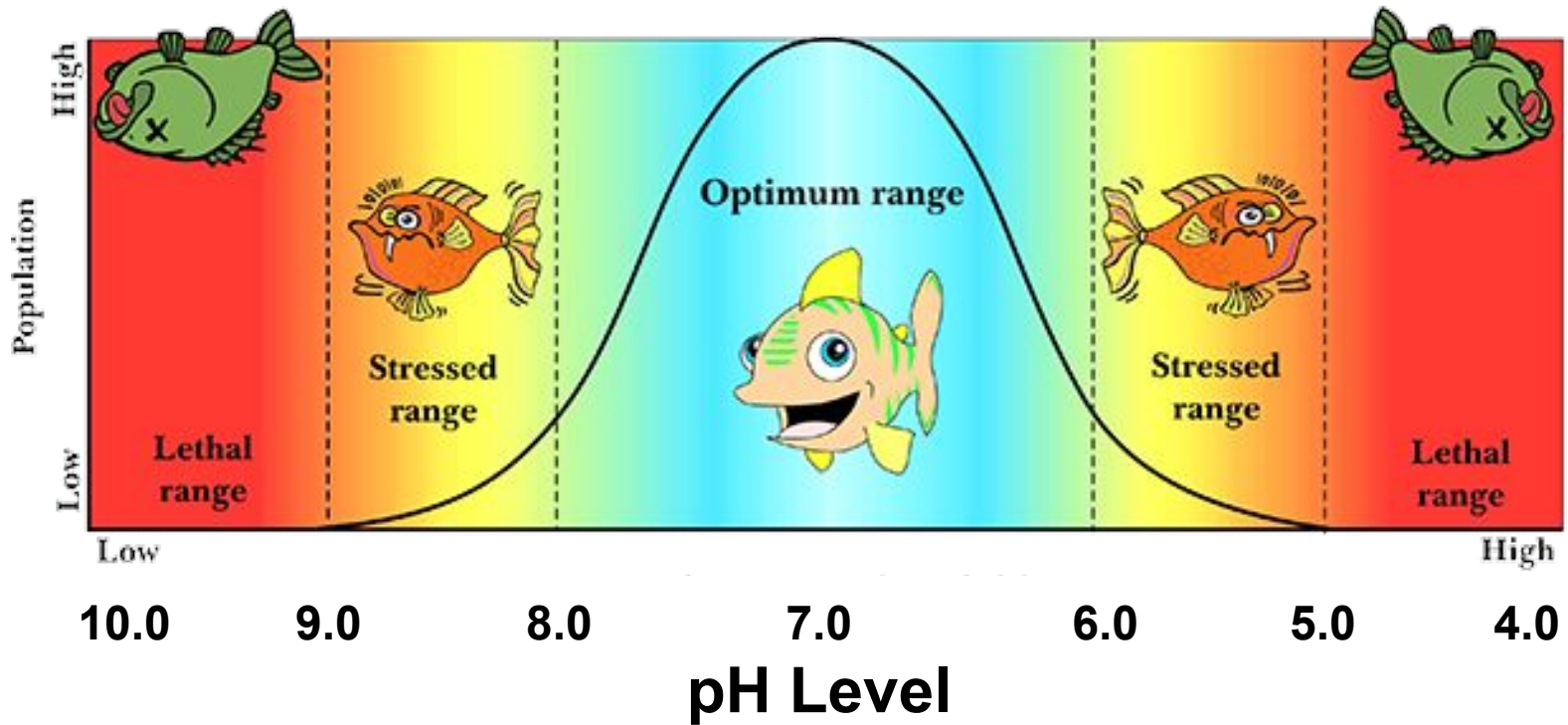


Tolerance

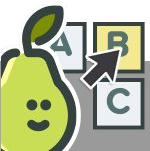
- Organisms have an **upper and lower limit of tolerance** for every environmental factor.
- Beyond those limits, **the organism cannot survive**.



Tolerance

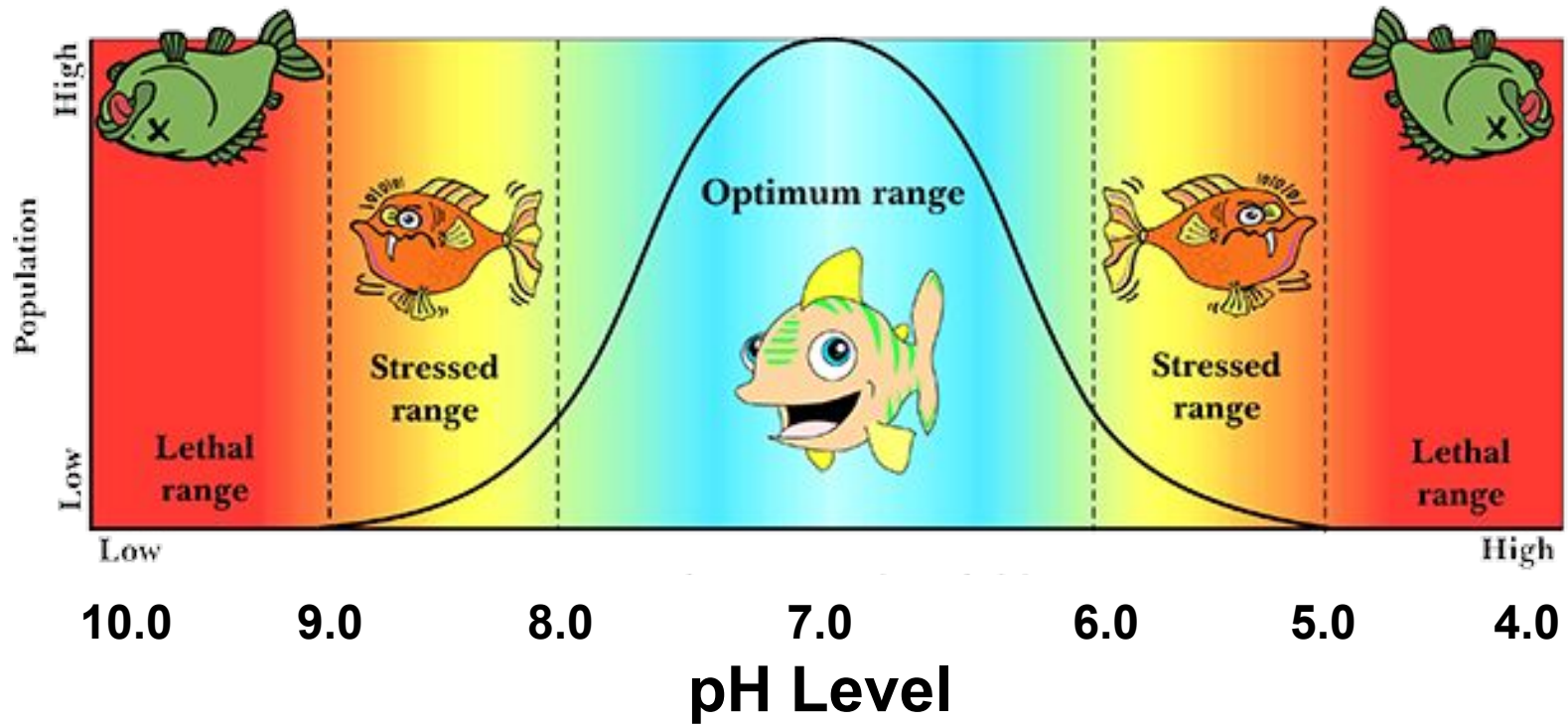


What is the optimum pH range for this fish population?

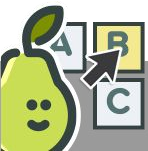


Students choose an option

Tolerance

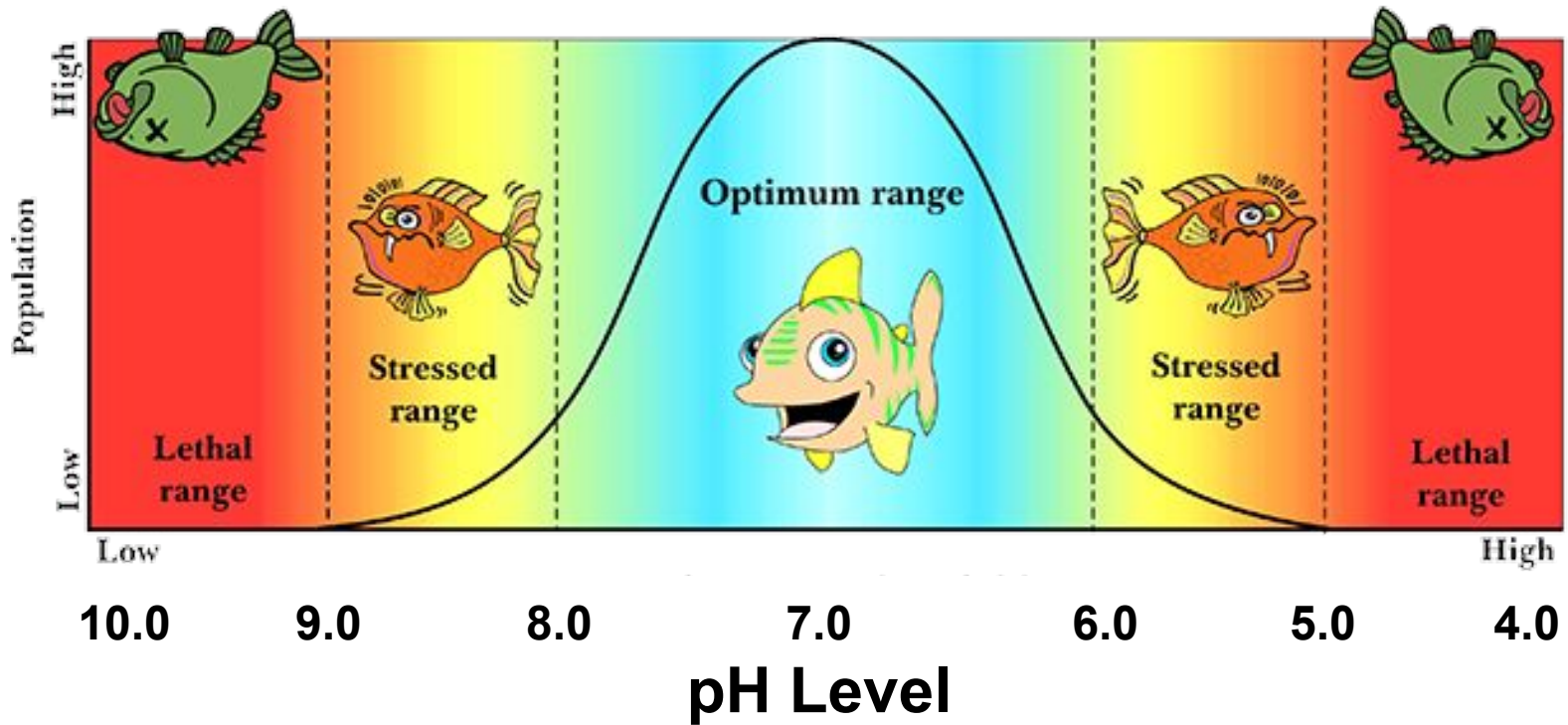


At what pH range will the fish population become stressed?

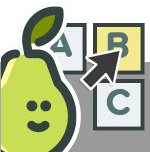


Students choose an option

Tolerance

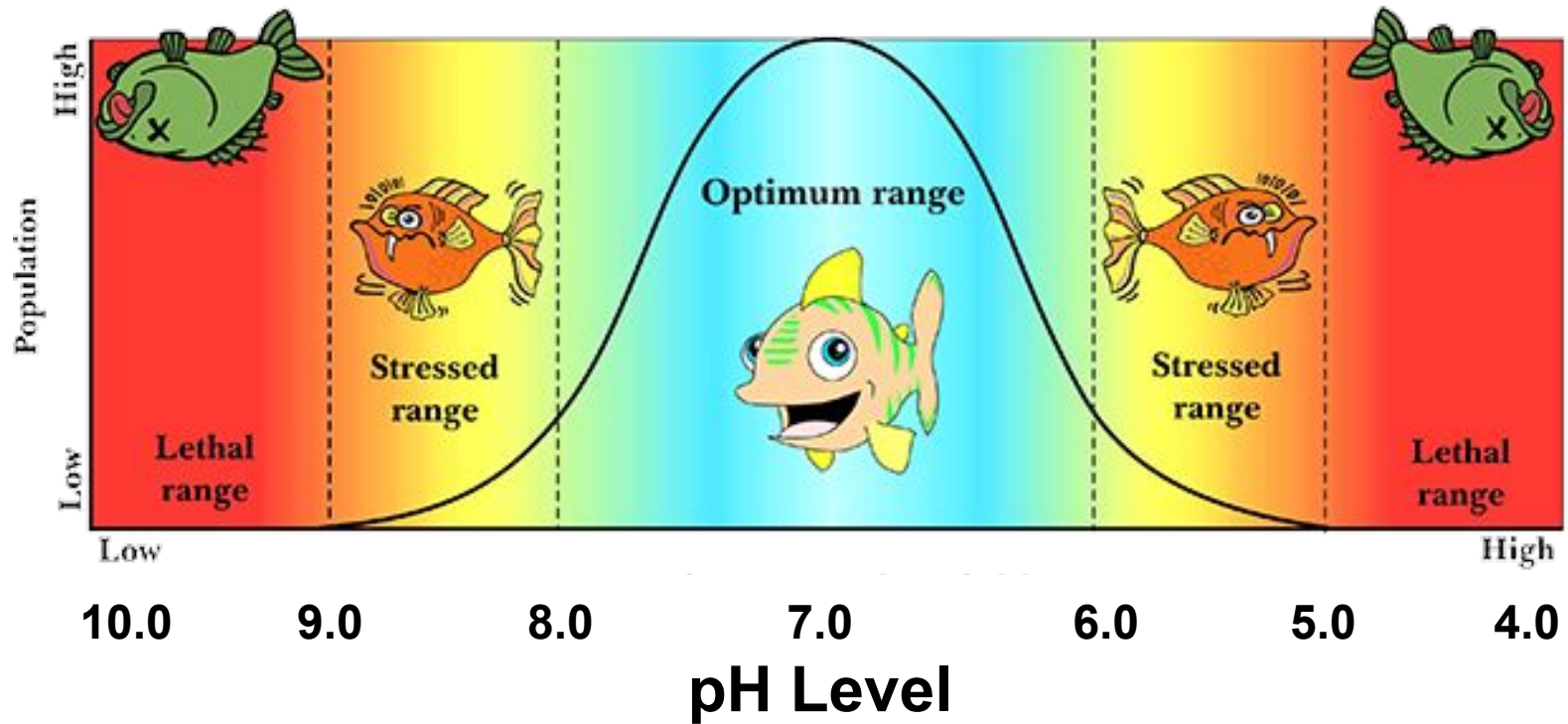


What is this fish population's pH tolerance limit?



Students choose an option

Tolerance



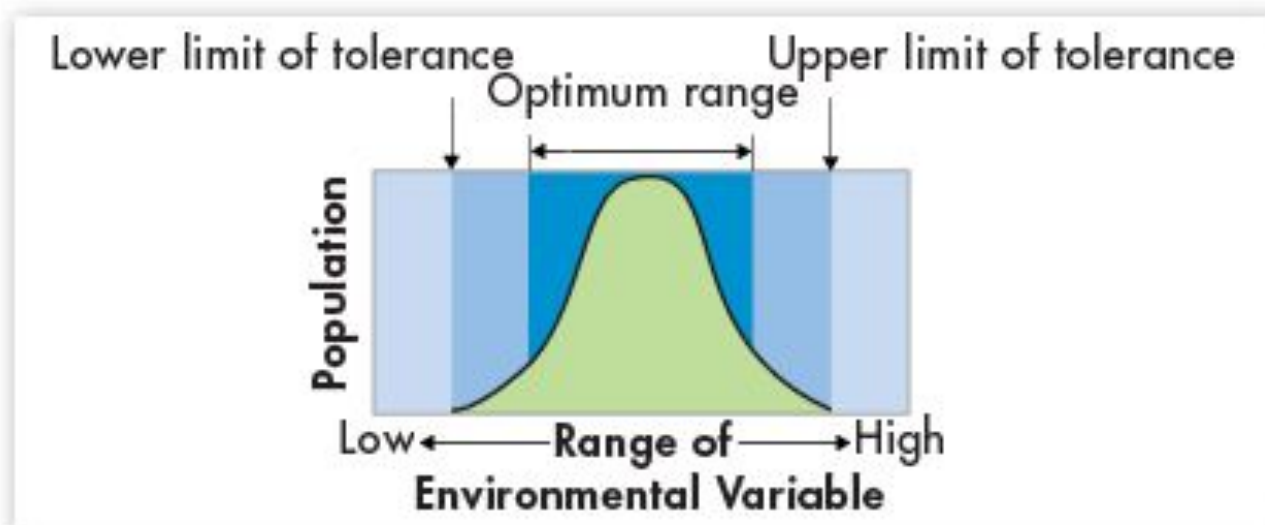
**How might acid rain affect this fish population?
(acid = low pH)**



Students, write your response!

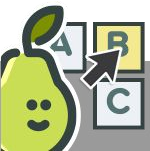
Habitat

- A species' tolerance for environmental conditions helps determine its **habitat**.
- Habitat is **the place where an organism lives**.
- An organism's habitat is its **“address.”**



Habitat

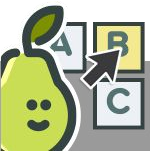
A monkey's habitat is:



Students choose an option

Habitat

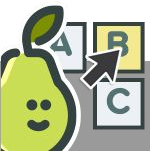
A shark's habitat is:



Students choose an option

Habitat

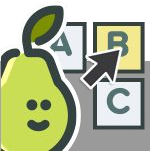
A fungus' habitat is:



Students choose an option

Habitat

A polar bear's habitat is:



Students choose an option

Niche

- An organism's **niche** describes not only the environment where it lives, but ***HOW* it interacts with its environment.**
- A niche is **the range of physical and biological conditions in which a species lives and the way the species obtains what it needs to survive and reproduce.**
- An organism's niche is its "**job**" in a particular environment.

Niche

- Physical conditions of an organism's niche involve **the abiotic factors required for survival.**
 - ✓ Ex. **temperature, water, sunlight**

Most amphibians, for example, lose and absorb water through their skin, so they must live in moist places.

If an area is too hot and dry, or too cold for too long, most amphibians cannot survive.

Niche

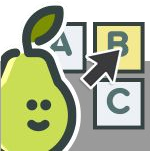
- Biological conditions of an organism's niche **involve the biotic factors required for survival.**
 - ✓ Ex. **diet, mating season, competition**

Birds on Christmas Island in the Indian Ocean, for example, all live in the same habitat but they prey on fish of different sizes and feed in different places.

Thus, each species occupies a distinct niche.

Niche

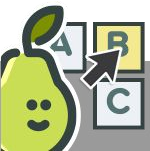
Which organism's niche is to make webs to catch insects to eat?



Students choose an option

Niche

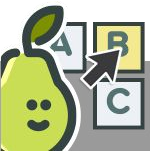
Which organism's niche is to build dams to flood an area to build a lodge?



Students choose an option

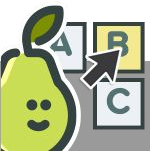
Niche

Which organism's niche is to decompose a dead tree and return nutrients to the soil?



Niche

Which organism's niche is to navigate the ocean and eat plankton and krill?



Students choose an option