# Acclimation and Adaptation

Engagement Activity for “Evolutionary Adaptations of Predators in their Environment” Teaching Module
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# ACCLIMATION

**SHORT-TERM RESPONSES**

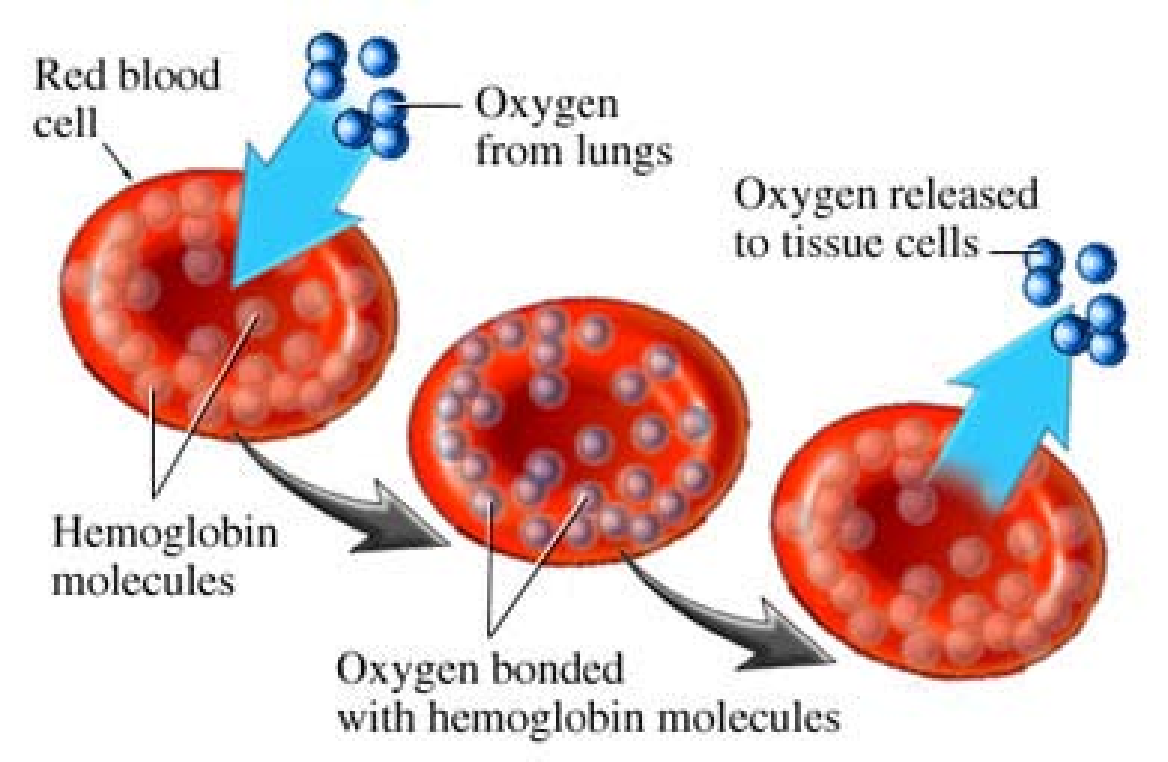
- Improve performance in the altered environment
- Occur within minutes of environmental change
- Easily reversible
- Typically involve pre-existing components within biochemical pathway

**LONG-TERM RESPONSES**

- Improve performance in the altered environment
- May begin within minutes, but is pronounced within days or weeks of environmental change
- Not immediately reversible
- Often lead to a visually different phenotype

# ACCLIMATION

Increase in RBC count in mammals inhabiting high elevation environments where there is less oxygen available.



# ACCLIMATION

## *Amaranthus retroflexus* (Pigweed)

- One species, but metabolism is acclimated to different climates.
- In hot climates (like North Carolina), populations are heat tolerant.
- In colder climates and higher elevations (like northern Canada), they do not have thermal tolerance.

# ACCLIMATION

**Plethodontid salamanders**

Increased metabolic rate with increased temperatures

***Psuedacris triseriata***

Decreased metabolic rate with decreased temperatures

# ADAPTATION

- POPULATIONS become better suited to survive in their habitats
- Occurs over MULTIPLE GENERATIONS

# ADAPTATION

## PLAYING “POSSUM”

## ARTIFICIAL “BIGNESS”

# ADAPTATION

## RESOURCE CONSERVATION

# ADAPTATION

## MIGRATION

# ADAPTATION

**Summer**

**Winter**