

Student Experience at _Newt Monitoring Sites at Paradise Creek in Sequoia National Park_

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The Big Picture

Learning Goal(s):

Explain what is needed for the Sierra newt to survive as a species into the future. ~~and develop possible methods for us (as observers/students/park managers) to observe their adaptations to a changing climate in this location.~~

Success Criteria:

- **Expert**
 - Explanation uses multiple sources and shows understanding of the local habitat, local hydrology, climate and weather, and newt life cycle and needs.
 - Methods developed are designed to be recorded over years, capture the phenophases of recorded individuals, draw from other monitoring programs of similar species, and are tested in the field.
- **Practitioner**
 - Explanation uses...
 - Methods developed are...
- **Apprentice**
 - Explanation uses...
 - Methods developed are...
- **Novice**
 - Explanation uses basic information and understanding of general needs of wild animals and local newt life cycle phases.
 - Methods developed may be basic and based on one other similar species project that has been researched.

Learning Progression:

- **Phase 1**
 - **Learn about the area: climate and seasons, topography, hydrology, Paradise Creek, Sierra newt life cycle. Visit area.**
- **Phase 2**
 - **What is phenology? Use examples of other (familiar?) plants and animals. Use examples of newt phenology.**
- **Phase 3**
 - **Explain the difference between weather and climate.**
- **Phase 4**
 - **Analyze existing phenological monitoring projects for newts/amphibians.**
- **Phase 5**
 - **Create a monitoring plan based on research and analysis.**
- **Phase 6**
 - **Peer feedback and field testing of plan**
- **Phase 5**
 - **Adjust monitoring plan based on feedback and field test**

The Task

Describe the Task/Experience:

Students will hike to Paradise Creek to monitor and record their observations of Sierra newts. Along the way, 3 ranger-guided stops will address the (1) place: climate and topography, (2) Sierra newts life cycle and specific questions from students, and (3) instructions on how to effectively, safely, and responsibly handle and monitor the newts while addressing why we are doing this project.

It is expected that teachers will provide students with background knowledge on phenology and the parks life zones using the pre-visit materials. It is also strongly encouraged that teachers use the post-visit materials to extend learning to connections in students' home town.

Formative Assessment Checkpoints/Adjustments:

Checkpoint	Checkpoint Method	Possible Adjustment
Paradise Creek setting: Topography and Seasons/climate	Questioning	Expand knowledge/observation by: --Point out specific characteristics in the view and ask students to describe them --ask students to compare foothills to their valley climate (very similar)
Sierra newts life cycle and basic needs	Discussion (why did they put things in certain order...) and Observation (did they align phases)	Clarify using activity on: --Phenophases (life cycle phases) --order of phases --needs in environment
How to monitor and handle newts	Written Response (students record observations)	Clarify by using examples as we find them (ie-see this and record "adults in water")

The Learning Plan

Hook/Engagement Question:

- How will you elicit evidence from this question?
-

What do you notice around us? What is the landscape/topography like? If you had to survive here, what would you need?...where would you go?

---Responses for questions, what do they notice,

Breakdown of Activities within the Experience:

- How will you elicit evidence from each activity?
- What will you do if students are not where you want them to be?

Materials/Resources:

Key Vocabulary:

Phenology

Phenophases

Topography

Climate vs Weather

Aquatic

Terrestrial

