

Life in the Zone

Rangers in the Classroom—Pre-visit Lesson Plan



Grade Level: 6th

Setting: Classroom

Duration: 55 min —1 hour

Standards Addressed:

Science:

1.f, 2.a, 2.b, 2.c, 2.d

Listening and Speaking:

1.4, 1.7

Visual Arts:

2.1, 2.2

Introduction:

Welcome to Rangers in the Classroom! We are looking forward to visiting your class for our Life in the Zone program about the life zones within Sequoia and Kings Canyon National Parks. To help prepare your class for the ranger visit, we have created a pre-visit activity to introduce your students to some of the concepts we will cover in our program. If you are interested in additional preparation, the program outline includes a vocabulary list and can easily be found on the website at:

<http://www.nps.gov/seki/forteachers/index.htm>.

By exploring a few concepts and vocabulary words with your students prior to our visit, you will help us hit the ground running.

Have fun and we'll see you soon!

Materials:

- ° Scratch paper
- ° Poster paper for each group
- ° Crayons, colored pencils, or markers

Instructions:

1. Read "Geologic History of the Sierra Nevada Mountains" to the class.
2. Organize students into six groups.
3. Pass out a different "A Snapshot in Time" handout to each group.
4. Have the students read the handouts and design a poster sketch on a separate piece of paper.
5. Approve students' sketches of posters — ensure that their sketches are in line with plant and animal communities of their assigned geologic time, and geologic events. Instruct students to create final poster versions.
6. When students have completed their posters, ask them to deliver a three minute presentation about their geologic time to the entire class.

Life in the Zone

Rangers in the Classroom—Pre-visit Activity



Geologic History of the Sierra Nevada Mountains

In a few days we are going to have a special guest in our classroom. A Park Ranger from Sequoia and Kings Canyon National Parks will be visiting our class to teach us a little about the Sierra Nevada Mountains to the east of us.

In order to help us prepare for the ranger's visit, we will build a timeline of the geologic history of the Sierra Nevada Mountains. We will break up into six groups and each group will be assigned a point on the timeline.

Each group will receive a description of what the mountains looked like at its assigned time, and what kinds of animals and plants could have been found there at that time.

Your task will be to create a poster showing what you think the Sierra Nevada Mountains looked like during your assigned geologic time. Your poster should include several different animal or plant species that lived in the area at that time.

Once finished, groups will present the posters to the class and we will then construct an illustrated timeline to show the ranger when he or she comes to our classroom.

Life in the Zone

Rangers in the Classroom—Pre-visit Activity

“A Snapshot in Time”



500 Million Years Ago

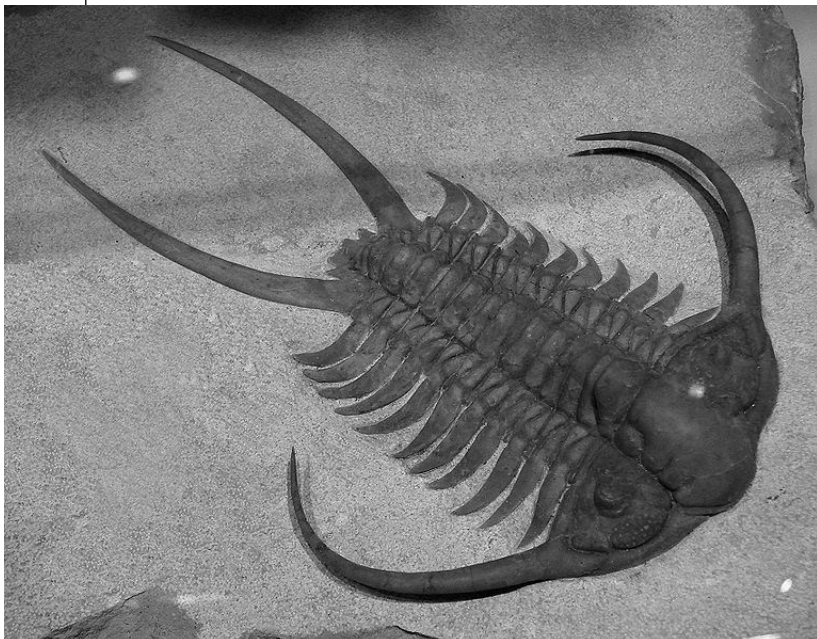
Cambrian Period

The Sierra Nevada Mountains and all of California are under water at the bottom of a shallow ocean. The Pacific Plate pushes under the North American Plate, causing numerous earthquakes and underwater volcanoes. There are very few plants, mostly just algae. Animal species are fairly simple, and include trilobites, sponges, and coral.

Sponges and Coral



Trilobite fossil



Life in the Zone

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“A Snapshot in Time”



400 Million Years Ago

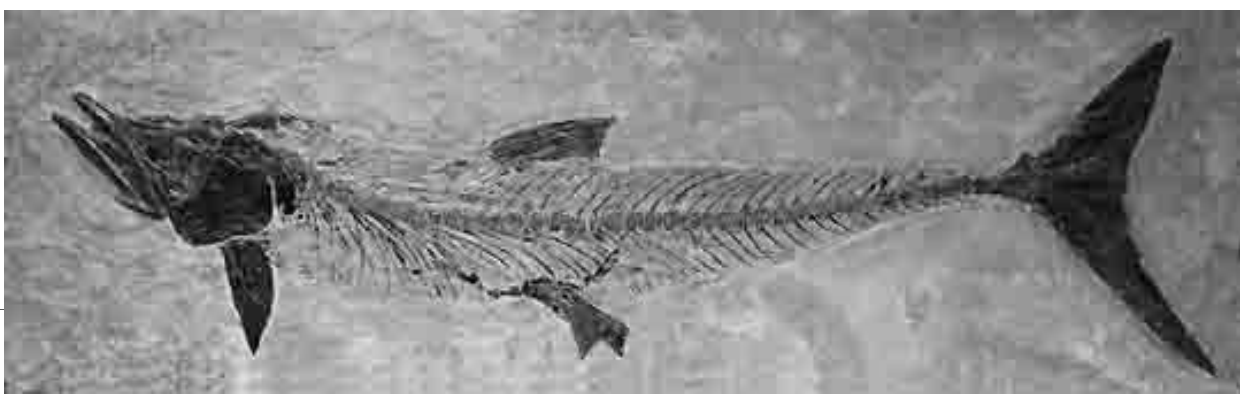
Devonian Period

Heavy volcanic activity has pushed the crest of what would become the Sierra Nevada Mountains above the surface of the water. This formed a series of small islands. Large plants and some early trees can be found on land. Algae and seaweed can be found in the ocean surrounding the island. The sea is home to several species of armored fish and shellfish. On land there are some primitive insects.

Plant life during the Devonian Period



Bony Fish fossil



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50 Million Years Ago

Eocene Epoch

Erosion wears the mountains down to small rolling hills. Large rivers flow through the hills and into the sea. The climate is tropical: warm and wet like a jungle. Large trees and rainforests cover much of the land. Some small mammals and many different reptiles roam the land.

Eocene forest and various mammals



Eocene stream with various reptiles



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20 Million Years Ago

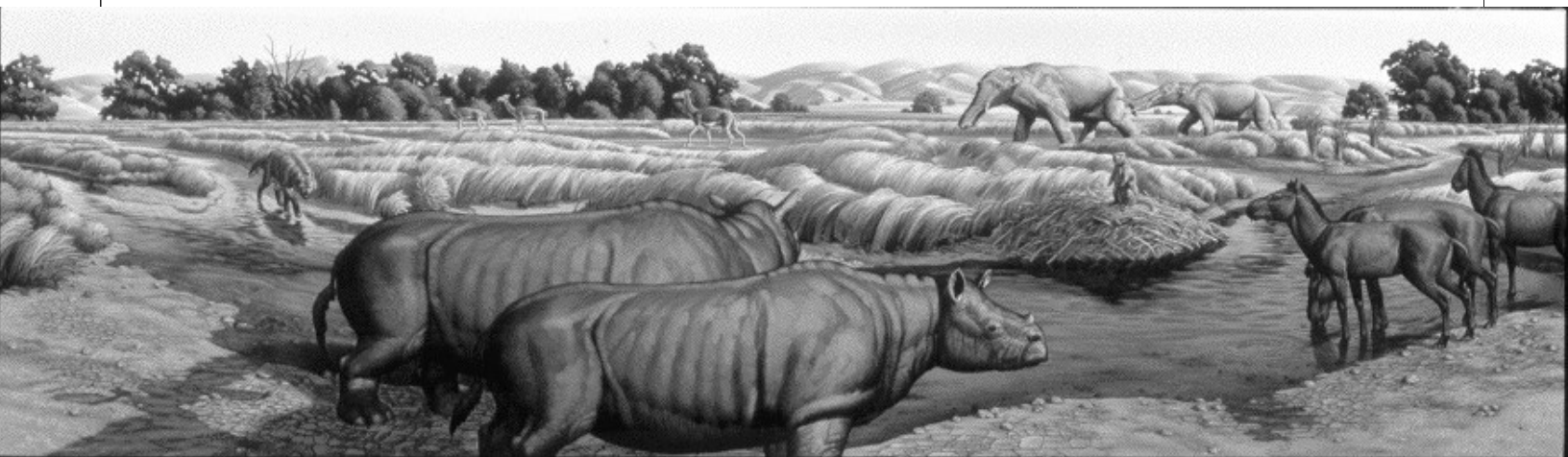
Miocene Epoch

Heavy volcanic activity marks this period. Lava and volcanic mud flow down the mountain, filling in the central valley. Lava and mud flows may restrict plant growth in some areas. Grasses, shrubs, and trees are common. Early versions of horses, dogs, camels, wild pigs, and elephants roam the land.

Volcanic activity



Animal and plant life in the Miocene



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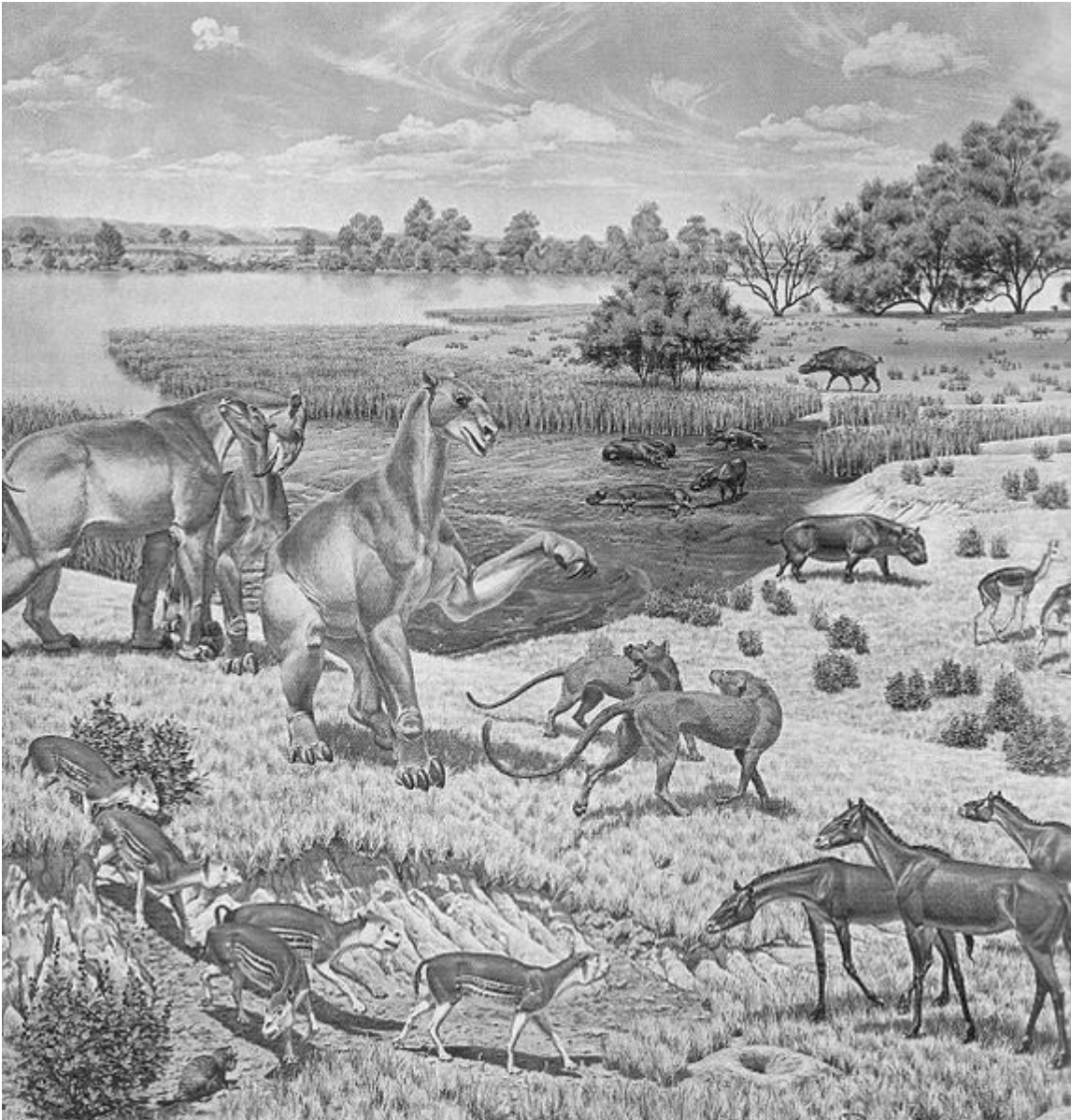


10 Million Years Ago

Miocene Epoch

Strong earthquakes help push the Sierras higher and higher, making the mountain range the fastest-growing in the world. The landscape is characterized by large trees, shrubs, and grasses. Early versions of horses, dogs, camels, wild pigs, and elephants roam the land.

Animal and plant life in the Miocene



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1 Million Years Ago

Pleistocene Epoch

This is the Ice Age. Huge glaciers, ice, and snow cover most of the Sierras. These large glaciers carved many of the deep canyons in the park. In areas free of ice, grasses and trees grow. Woolly mammoths, saber-toothed cats, dire wolves and hyenas roam the lower foothills and valley floor.

Smilodon



Woolly Mammoths

