Pinnacles Field Trip Hike Lesson

To be used with Pinnacles Field Trip Hiking Map and Scripted Guide

Grades: 4-12	**Time Allotment:** ~2 hours for hike	**Subject:** Science
Guiding Question/ Phenomena: What are some of the natural phenomena that can be seen/experienced at Pinnacles National Park?	**NGSS Performance Expectation(s):** - 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. - MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	

NGSS DCI(s):

- ESS1.C The History of Planet Earth- Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)
- ESS2.A: Earth Materials and Systems- Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)
- ESS2.A: Earth's Materials and Systems- The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS-ESS2-2)
- ESS2.C: The Roles of Water in Earth's Surface Processes- Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations. (MS-ESS2-2)

Student Learning Goal

Students will be able to identify and describe the various natural phenomena seen along the Moses Springs- Rim Loop trail at Pinnacles National Park by recording their observations in a field journal.

Supporting Instructional Materials:

- Pinnacles Field Trip: Scripted Guide
- Pinnacles Field Trip Map
    - The hike is approximately 2 miles with 500 feet of elevation gain. It can take up to 2 hours to complete the hike, depending on the group.
- Field journal or note-taking tool (teacher provided- can be a notebook or paper) plus a pencil!

Activities and Sequence:

Background Information: Be sure that students have viewed the Pre-Visit Lessons, especially Pre-Visit Lesson #2: Introduction to Pinnacles National Park so that they know what they can expect to see and what the safety and behavior expectations are while visiting the park.

Hook: We get to visit Pinnacles National Park! Who doesn't love a field trip?

Lesson: Use the Pinnacles Field Trip: Scripted Guide and Pinnacles Field Trip Map to conduct your guided tour of the park.

- Plan on arriving at the park by 10 am.
- Park at the Bear Gulch Day Use Area.
- Be sure to walk in groups of 35 people or less, with an 8:1 student to chaperone ratio.

- Follow the map and guided script on the Moses Springs and Rim Trail. Allow students time to jot down notes/ drawings in their field journals.
- Check to make sure the Bear Gulch talus caves are open before visiting the park. **Bring a headlamp or flashlight** if you plan to explore the caves.
- **Closure**: Once you return to the Bear Gulch Day Use area, you can utilize picnic tables for lunch while asking students to share-out what they learned/wrote about in their field journals.