

GALLERY OF CALIFORNIA NATURAL SCIENCES

TEACHER GUIDE GRADES 8–12

The Oakland Museum of California welcomes you and your students to explore the Gallery of California Natural Sciences. This guide provides some suggestions for how to support students' use of the student guide during your field trip.

TEACHING AND LEARNING GOALS

Through the Gallery of California Natural Sciences student guide, students will:

- Come away with a better understanding of California's diverse geology, hydrology, and biology.
- Explore the ways in which different communities interact with nature across varied habitats.
- Recognize and express how they have the power to make change in their communities and state.

GALLERY CONTENT

The overarching theme of the Gallery of California Natural Sciences is “Changing California,” which emphasizes how California’s landscapes have changed over time, are influenced by communities of people, and continue to evolve through climate change and conservation efforts. The journey begins in Oakland and continues through mountains and deserts all the way to the ocean. Explore California’s biodiversity hotspots through dynamic 360° displays, microscopes, maps, photomurals, and thousands of specimens.

In alignment with the *Next Generation Science Standards*, this student guide highlights themes of evolution, human impacts, and ecosystems.

UNDERSTANDING THE STUDENT GUIDES

These guides:

- Promote student-driven work including student choice and interests. Students are prompted to consider particular topics/themes, but are given the opportunity to choose what to focus on within the exhibition.
- Encourage student conversation and reflection about these topics to help students process their experience in the exhibition.
- Are intended to help teachers, chaperones, and students plan their self-guided visit to the Gallery of California Natural Sciences.

FACILITATION SUGGESTIONS

- Bring enough printed copies of the student guide, writing surfaces, and pencils for each student. The student guide is designed for 8.5x11 paper. A limited number of printed student guides will be available at OMCA’s School Group Entrance. No pens are allowed in the galleries.
- The student guide was designed for student and teacher choice. Each section can be used independently—mix and match a few pages, or use them all. (**OPTION:** Include students in the planning. Share the student guide pages with students and have them help select which to use.)
- Encourage student conversation and exploration in the gallery, and lend support only when needed or requested.
- Allow students to work in pairs or small groups. If any student(s) seems to be struggling with the prompts, check in with them and encourage them to work with a peer to solve any challenges.
- Try to create a safe space for dialogue. The guide encourages students to work with a partner, however, participation in dialogue should be voluntary. Encourage students to participate however they’re comfortable.
- If your group is in eighth grade or above, allow small groups to move through the exhibition freely, making sure a chaperone is in sight. If they encounter challenges or have completed the guide, have them check-in with you. If younger, work as a group and establish a system for moving through the exhibition together.
- Mix it up. Break students into groups and have them start their journey in different sections, rotating through the gallery in teams.
- When you see the “conversation bubble” icon, students are encouraged to discuss the question with a partner.

“Conversation bubble” icon:



The following online resources may help you better prepare to facilitate your students’ gallery experience:

- Explore more OMCA teacher resources:
[OMCA LEARN webpage](#)
- View the National Science Teaching Association’s student-friendly short films on climate research:
[Our Beautiful Planet](#)

VOCABULARY LIST

Some of the following words or phrases may appear in the gallery or come up during student conversation. It may be valuable to discuss some of these with your students ahead of time, and/or do research on any that are less familiar to you:

adaptation
agriculture
behavior
conservation
consumption
creek
culvert
desert
development
drought
ecosystem
enhance
environment
habitat
indigenous
irrigation
mountain range

natural processes
observation
organism
pollution
population
preserve
sanctuary
season
shoreline
source
stakeholder
urban
water cycle
watershed
wetland
wilderness
wildfire

NEXT GENERATION SCIENCE STANDARDS AND ESSENTIAL QUESTIONS

Within each section of the gallery, students can explore different standards of the *Next Generation Science Standards*. To help you choose which sections of the gallery are best for your class to explore, here are some of the standards relevant to each section.

OAKLAND

- NGSS Life Science Standard: HS-LS2-6, HS-LS2-7
- NGSS Earth and Space Science Standard: MS-ESS3-3, MS-ESS3-4, HS-ESS3-1, HS-ESS3-4
- **Essential Question:** How has human development impacted the environment in Oakland?

SUTTER BUTTES

- NGSS Life Science Standard: HS-LS2-6, HS-LS2-7, HS-LS4-6
- NGSS Earth and Space Science Standard: MS-ESS3-4, HS-ESS3-1, HS-ESS3-3
- **Essential Question:** How have different communities interacted with nature in Sutter Buttes?

SHASTA COUNTY

- NGSS Life Science Standard: HS-LS2-7
- NGSS Earth and Space Science Standard: MS-ESS2-4, HS-ESS3-4
- **Essential Question:** How does our water consumption affect other parts of the California watershed, both near and far?

YOSEMITE VALLEY

- NGSS Life Science Standard: HS-LS2-6, HS-LS2-7
- NGSS Earth and Space Science Standard: MS-ESS3-4
- **Essential Question:** Who benefits from designating certain areas as “wilderness”?

TEHACHAPIS

- NGSS Life Science Standard: HS-LS2-6, HS-LS2-7
- NGSS Earth and Space Science Standard: MS-ESS3-4, HS-ESS3-1, HS-ESS3-3
- **Essential Question:** How do humans contribute to rapid changes in rural areas?

COACHELLA VALLEY

- NGSS Life Science Standard: HS-LS2-7
- NGSS Earth and Space Science Standard: MS-ESS3-4, HS-ESS3-1, HS-ESS3-3, HS-ESS3-4
- **Essential Question:** How do human activities challenge your perception of life in the desert?

CORDELL BANK

- NGSS Life Science Standard: HS-LS2-6, HS-LS2-7
- NGSS Earth and Space Science Standard: MS-ESS3-4, HS-ESS3-3, HS-ESS3-4
- **Essential Question:** How do our neighborhoods connect to the ocean?