

Session 1: Exploring Moro Canyon

Focus: Changing Landscapes
Grade Level: 7
Session Length: 45-60 minutes

Driving Questions

- How has the landscape in Moro Canyon changed over time?
- Is Moro Canyon worth protecting?

NGSS Links

- Asking Questions

Systems Thinking Characteristics

- Identifying System Components & Processes

In the first session of Project Crystal Code, students are introduced to the phenomena of how Moro Canyon's landscape has changed over time.

Students divide into their research teams and set up their field notebooks for the unit. Then, research teams are tasked with exploring Crystal Cove State Park's Moro Canyon virtually. They explore the unique coastal sage scrub ecosystem, ask questions about how the landscape has been impacted by humans, and reflect on why we might want to protect it.

Learning Outcomes & Assessments

<i>By the end of this module, students will be able to...</i>	<i>You can assess this using...</i>
1. Use a field guide to identify plants and animals in Crystal Cove State Park's Moro Canyon.	Field notebooks
2. Compare and contrast coastal sage scrub and degraded landscapes in Moro Canyon.	Observations of class discussion
3. Describe how the history of Moro Canyon has affected and changed its landscape.	Field notebooks; Observations of class discussion

Session Overview

Section	Description	Length	Format
Launch	Students watch a short video of Kaitlin, who introduces them to Project Crystal. They then divide into their research teams and set up their field notebooks, which they'll use throughout the project to take notes and track their thinking.	10-20 minutes	Whole class
Explore	Students use Thinglink to go on a virtual hike through Moro Canyon and use their field notebook to record their observations about the ecosystem.	20 minutes	Research teams or individual
Share	Students share their thoughts and observations on the Thinglink with their research team members.	10 minutes	Research teams
Reflect	In their field notebook, students reflect on what they've learned so far, and whether they think it is important to protect Moro Canyon.	5-10 minutes	Individual

Virtual Materials

- Session 1 Google Slides Presentation: <http://bit.ly/3c7xw4d>
- Session 1 Thinglink: <http://bit.ly/2MIICb0>
- Session 1 Field Notebook Template (optional): <http://bit.ly/3qiTeWG>

Each student will need...

- A device with internet access (a computer, smartphone, or tablet will all work!)
- Field notebook and pencil

Before You Start Teaching

- Copy over the [Session 1 Slideshow](#) to your own Google Drive account. Test to make sure that the videos work. (If not, you may have to check the permissions on the Crystal Cove Conservancy Youtube Account.)
- In your copy of the Session 1 Slideshow, update [Slide 3](#) so that it reflects the sessions you plan to run with your class.
- Decide how you want to divide your class into research teams. In your copy of the Session 1 Slideshow, update [Slide 6](#) with your chosen directions.
- Decide how you want your class to set up their field notebooks. In your copy of the Session 1 Slideshow, update [Slide 8](#) with your chosen directions.
- Decide how you will host the Share Discussion for the session. In your copy of the Session 1 Slideshow, update [Slide 13](#) with any specific guidelines you have for science discussions.

Learning Sequence

Launch

Getting Started (10-20 minutes)

1. Open the *Session 1 Slideshow* and play the video on *Slide 2* for your class. In this video, students will meet Kaitlin, who will introduce them to Project Crystal Code and give a brief overview of what they'll do throughout the unit.
2. After you've finished the video, reiterate to students that your class has been asked to help protect the Crystal Cove State Park's Moro Canyon. Continue to *Slide 3*, which gives an overview of the entire unit, and *Slide 4*, which describes what students can expect to do today.
3. Next, it is time to divide your class into their research teams, which they'll work in throughout the project. In *Slide 5*, Kaitlin will introduce the concept of why scientists often collaborate together in research teams. Play the video for students, and then move onto *Slide 6* to divide them into their teams.
4. Next, students will need to set up their field notebooks for the project. The video in *Slide 7* introduces the concept of a field notebook. Play the video for students, and then move on to *Slide 8* to share instructions with students.
5. Finally, the students can meet the team members from UC Irvine, Crystal Cove State Park, and Crystal Cove Conservancy that they'll be working with during the project. Play the video on *Slide 9* to meet the team!

Explore

Exploring Moro Canyon Virtually (20 minutes)

1. Now that students have divided into their research teams and set up their field notebooks, tell them it's time to start exploring Moro Canyon. Advance to *Slide 10* and play the video of Kaitlin, who will describe the Thinglink and their task.
2. Move on to *Slide 11*, which will give students directions on using the Thinglink.

Reiterate the directions for students: They are to explore the Thinglink individually and take notes in their field notebook as they go. As they click on the points of interest, they'll be able to identify plants and animals, learn about the history of the park, or reflect on their thoughts and experiences during their virtual hike.

If you feel that it would be helpful, open the Thinglink and demonstrate how to move around it using your mouse. Click on the first location on the map to open up a 360 image, and click on the icons to show pictures and videos, or the arrow to move to the next location.

3. Give students 15-20 minutes to explore the Thinglink individually.

Share

Thinking About Moro Canyon's Changing Landscape (10 minutes)

1. After the students have had a chance to explore the Thinglink, have the class come back together. Kaitlin will introduce discussions on *Slide 12*. After, move on to *Slide 13* to review guidelines for science discussions. You can host the discussion as a whole class or break students into their research teams.

2. Move onto *Slide 14* and ask each team to discuss the questions and record their thoughts in their field notebooks.

Give students about five minutes to share their thoughts on the questions on Slide 14, then move onto *Slide 15* for five more minutes of discussion. If you have had students talk in their research teams and there is time, bring the class back together for a few minutes at the end so teams can share their initial thoughts with the whole class.

Reflect

Reflecting on Session 1 (5-10 minutes)

1. Tell students that they have one last task. In the slideshow, advance to *Slide 16* and play the video, where Kaitlin will introduce why it's important for scientists to take time to reflect on how our thinking is changing.

2. Move on to *Slide 17*, which will share reflection questions. Ask students to spend five minutes reflecting on their experiences today in their field notebook.

3. Finally, if you are able, thank the class for their time today. Tell them that when you gather again, they will start diving deeper into the specific research project they will be helping with in Crystal Cove State Park!