

Lesson Plan 2: GIS Tutorial and Activity 1 – Honing In On Habitat

Unit Question: What role does the California condor play in the California ecosystem, and how do changes in the ecosystem impact condors over time?

Science and Engineering Practices:

- Building and using models
- Engaging in argument from evidence

Teacher Prep: Complete Google Earth Tutorial and ensure Google Earth application is downloaded on student computers/tablets. Share GPS Data with students. Print or share [GIS Tutorial data sheet](#), and [GIS Datasheet](#) with students.

Lesson: (Two class periods)

Day 1

Warm up: [Watch](#) California condor enthusiast and volunteer Stephanie Herrera share her love for condors

- Have students write what they wonder on post it notes for the question board

1. Intro

- Class discussion around the question: *How do biologists use science to learn about the condor's environment?* (Possible answers: observing condors, GPS, etc).

*What we actually do on Refuge: visual observations, GPS, radio tags, biological exams

- One way the Wildlife Biologists from the Santa Barbara Zoo and Fish and Wildlife Service monitor condors, is by tracking them with a GIS program, like Google Earth. These programs show us maps (or models), with data, from GPS units like the ones in our phones, that is used daily to track and save California condors.

Teacher: *"We will work as condor biologists, looking for patterns, to answer the question: What role does the California condor play in the California ecosystem, and how do changes in the ecosystem impact condors over time? To do so, we will use Google Earth, a GIS program. First, we need to learn how to use the program a little."*

2. Learning a Geographic Information System (GIS) – all supporting files* found at [CondorKids website](#)

- Follow [GIS Tutorial Videos](#) Password: *Gymnogyps*

*GPS Data from FWS Park Ranger: hoppermountain@fws.gov

Day 2

1. Warm Up: [Watch](#) condor biologist, and expert, Joseph Brandt looking for condor nests in Southern California

- Have students write what they wonder on post it notes for the question board

2. Intro:

- Assign Students the condor they will monitor over the next 4 weeks (or longer). If possible, assign different classes the same birds (so you will be able to compare students' data for accuracy).

* Note: there is no answer key to this because we are looking at real live data.

- Share [CACO Photo Book](#)

3. Using a GIS – Google Earth (week 1 data)

- Give each student in the group one [GIS Datasheets](#)
 - Students will use the same datasheet throughout the lesson
- Have them collect data for their assigned condor.
 - Teacher will enter the student's data into the [Teacher Database](#). Or have a student representative from each group enter the data into the Teacher Database.
- After the activity, have students write 1-2 additional questions that they have (based on what they observed from the GIS activity) on Post-Its. Have students add their questions to the question board.

4. Class Discussion (after the activity): Guiding Question: How would you describe the California condor's environment, or habitat?