

Rationale

To understand the amount and range of flight of the condor, students will observe and track flights of specific condors.

Objectives

1. Students understand the capabilities of a condor's flight in day periods
2. Students collect and track data of condor flights

Aligned Standards

NGSS: Asking Questions, Defining Problems and Analyzing Data and Using Mathematics; Causation and Scale and Stability, Change
LS 4.C: Condors are adapted for long-range flight in their habitat.
LS 2.C: Condors have adapted their range from the availability of resources, the population of condors, and the changing physical landscape of their habitat.
3.MD.B.4: Measuring Lengths

Time

One-day lesson
Teaching time: one hour (approximately)

Vocabulary

habitat
range
forage
endangered
extinct

Materials

Maps

Tech Integration

Maps illustrating historic range and current range
Use Google Earth to look at the geography of the region

PROCEDURE – DAY 1

IMAGES (15 minutes)

Show students the image of Condor 513's flight. Class should locate Fillmore, familiar cities, and familiar landforms. They should discuss the distance traveled, the range they recognize, and the size of the condor (relative to Biology C).

EXPLORE (40 minutes)

Depending on student level, students rotate through stations.

Station 1: Students arrange the printed photos of condor 107's flight in sequence order.

Station 2: Students measure the distance traveled of condor 513. They should measure point to point, writing in the distance in miles in between points. Estimates of distance traveled can be displayed in poster form where each student records his or her estimation of distance traveled. (There is a measurement scale at the bottom of the image to use.)

Station 3: (This station can be a daily class activity.) Students predict, track, and measure the flight of condor 648, given the successive map images.

Before you begin

Prep a digital display of the image of Condor 513's flight from the Map photo library.

Create three distinct stations around the classroom. Prep Station 1 with printed images of Condor 107's flight from the Map photo library. The images can be in a pile on the station's table. Prep Station 2 with a printed image of Condor 513's flight. This station works best with the largest size print of Condor 513's flight available. Add rulers and string to this station as tools for measuring.

Prep Station 3 with printed images of Condor 648's flight found in the Map photo library. Place images individually in folders with the sequence number written on the front of the folder. Place a sheet of paper in the folder where students can write down their predictions for the condor's flight. During the activity, students will look at one image at a time and try to predict the flight path of the condor. The folders act as a hiding mechanism so that the students do not see the next image in the sequence before completing the station's tasks with the previous image.

What to do

Images - Display the image of Condor 513's flight. Ask students to describe what they see. Students should be encouraged to explain what a map shows to viewers, what the data (dots and lines) are documenting, how the scale at the bottom right of the image can be used, any landmarks they recognize, what the stars represent, and what the colors on the map represent. Assist the students in locating familiar cities on the map.

When the class has become familiar with the map, explain the stations that are set up around the classroom. Give the students directions for each station. Split the class into three groups and explain they will have 10 minutes at each station.

Explore - At Station 1 students are to arrange the printed photos of Condor 107's flight in order. The nine photos on the table at Station 1 are out of order and need to be lined up in sequence correctly. This can be done on a long table or on the floor. The teacher should monitor the station as she walks around the classroom. At this station, ask the students to point out familiar cities. Ask the students where the condor is traveling: through the mountains or along open fields? Ask students to name reasons why a condor would fly in mountainous areas instead of valleys. Remind students about the importance of nesting sites.

At Station 2 students are to measure the distance traveled of Condor 513. Using rulers or string, students should measure point to point, writing down the distance in miles in between points on a separate paper or journal. Remind students that there is a measurement scale at the bottom of the image.

Have the students use rulers and help them convert inches to miles based on the scale. Students using the string to measure Condor 513's flight may want to place the string on the image and cut pieces the same length as the distance from one point to the next. These pieces of string can then be lined up in a straight line and measured by the scale at the bottom of the image.

Estimates of distance traveled can be displayed in poster form where each student records his or her estimation of distance traveled.

At Station 3 students are to only open one folder at a time, starting with folder number one. Tell the students that in each folder they will find an image of one day in the flight of Condor 648 and a prediction page. Instruct the students to discuss Condor 648's flight for that day. They should discuss what type of landforms she saw on her flight and any cities that may be near her flight path. Then the students should, individually or as a group, write down their prediction of the next day's flight on the Prediction Page found in the folder. Predictions might include: "Condor 648 will fly over Fillmore" or "Condor 648 will continue to fly in areas of mountains."

Walk around the classroom and monitor the students' progress at each station. After 10 minutes, have the students rotate to the next station. When each group has visited each station and completed the activity, have them return to their desks. As a class, discuss the correct sequence for Condor 107's flight. Hold up the chart of estimates from Station 2 and discuss difficulties in measuring Condor 513's flight. Open the folders from Station 3 and discuss predictions. Ask the students what informed their predictions.

OPTIONAL EXTENSION 1:

Use Station 3 as a daily warm up during the week. Open one image a day and discuss what Condor 648 might be up to and where she might go the following day.