WACKY WEBS BIOLOGY H

Rationale

To understand the ecosystem in which the condor lives, students will brainstorm food webs with native and non-native plants and animals.

Objectives

1. Students identify characteristics of a food web and ecosystem
2. Students understand the lifestyle of a scavenger

Aligned Standards

NGSS: Asking Questions, Defining Problems, Communicating Information; Patterns, Causation, and Stability, Change
LS1.B: Life cycles in the ecosystem including the condor have unique predator, prey, scavenger, and producer relationships.
LS2.C: Illustrating the dynamics in the condor's ecosystem: availability of energy/food resources is demonstrated with predator, prey, scavenger, and producer relationships.

Time

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

Vocabulary

ecosystem
extinct
endangered
species
habitat
food web

Materials

Yarn
ID cards

Tech Integration

Feeding photo library

PROCEDURE – DAY 1

CREATE (20 minutes)
Give each student a card with an animal or plant from the list on the following page. Each card can be made into a necklace with one piece of yarn. Creating their necklace allows students time to think individually about their animal or plant.

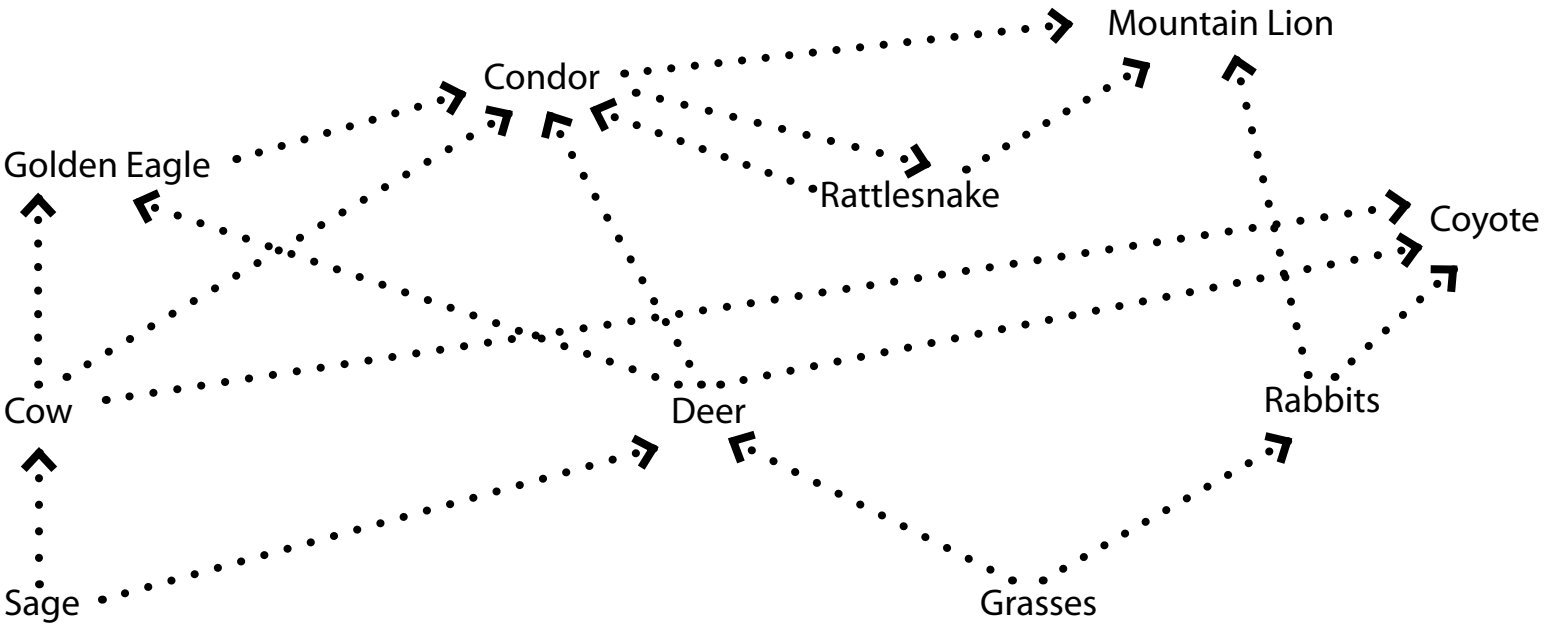
PLAY (30 minutes)
Begin the activity by freeze dance/jumping jacks, etc. Ask the students what fuels their activity.
Transition from energy/fuel for the body into energy for the ecosystem.

Standing in a large circle, with the teacher starting as the Sun, throw the ball of yarn to a student while holding onto the end and explain the relationship (predator/prey/scavenger/producer or habitat relationship) between the Tosser and the Catcher. Each time the ball of yarn is thrown, the student throwing it holds onto her end so that a web is formed. Try modeling this activity with a few students at first. Then begin again and continue unit a giant web is formed and all students have named one relationship. There must be a direct relationship between the Tosser and Catcher or the game begins again.

Ask the students what would happen if one species were eliminated due to a natural or human cause.
Illustrate this by having that student drop his hold on the yarn. Emphasize role of scavenger.

Variation: have high school/older students lead the creation of webs in small groups.

Condor Food Web Example



IN THE ECOSYSTEM

PREY
Deer
Cow
Elk
Pig
Rabbit
Sheep

PREY AND PREDATOR
Rattlesnake

PREDATOR
Bobcat
Mountain Lion
Black Bear

PREDATOR AND SCAVENGER
Golden Eagle
Coyote
Raven

SCAVENGERS
California Condor
Turkey Vulture

PLANTS/PRODUCERS
California Poppy
Black or white Sage
Coast Live Oak Tree
Manzanita
Sycamore Tree
Poison Oak
Mugwort

Before you begin

Prep ID cards and a ball of yarn. ID cards can be made into necklaces. Wrap the yarn around a tennis ball so that it is easier to throw and catch.

What to do

Building upon the previous two lessons, social interactions and the scavenger life-style provide context for local ecosystems. The interplay of energy and food resources can be demonstrated with the predator, prey, and scavenger relationships.

Create

Begin by giving each student a card with an animal or plant from the list from the box titled "In the Ecosystem." If time permits, allow the students to create a necklace from their ID card. This will allow the students time to think individually about their plant or animal. They may decide to do a drawing of their plant or animal on the card. Walk around the classroom as the students create the necklaces to answer any questions. Help the students to figure out if their plant or animal is a consumer, producer, predator, scavenger, prey, or any combination of these.

Introduce new vocabulary words as they come up. An animal that is considered "prey" is hunted or caught by another animal. Predators are animals that do the hunting and catching of smaller or weaker animals. Scavengers are animals that eat left over parts of dead animals. Producers are usually plants. These plants create nutrients or food from a process that includes energy from the sun. Consumers cannot make their own food so they consume producers or other consumers.

Play

Have the students stand in a large circle in the classroom or the schoolyard. When the students are in the circle, have them do 30 seconds of jumping jacks. Ask the students what fuels their jumping jacks. Listen for the students to answer with ideas of energy or fuel for the body. Transition from fuel for the body to fuel for the ecosystem. Explain that, similarly to the way energy is needed to fuel exercise, energy is transferred within an ecosystem to fuel the included species.

Still standing in a circle, with the teacher starting as the "Sun," throw a ball of yarn to a student while holding on to the end and explain the relationship between the Tosser (the teacher) and the Catcher (eg. California Poppy). In this example, the Poppy uses the sunlight to produce energy. The teacher uses this explanation as justification for the toss. The Catcher (California Poppy) then becomes the Tosser and tosses the yarn to the new catcher while still holding on to the yarn. The toss justification should be given during or after the toss. Each time the ball of yarn is thrown, the student throwing it must hold onto her end so that a web is formed. (Variation: try modeling this activity with a few students first.) Any relationship explanation can be given between the Tosser and Catcher. There must be a direct relationship between the Tosser and Catcher or the game begins again. Continue the game until a giant web is formed and all students have named one relationship.

Ask the students what would happen if one species were eliminated due to a natural or human cause. Illustrate this by having the student drop his hold on the yarn. Emphasize the role of the scavenger. Highlight any time the condor or turkey vulture or another scavenger was mentioned as cleaning up the remains of a dead animal.

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

OPTIONAL EXTENSION:
Create a Native Plant Garden in the schoolyard to visit for this lesson and others. Students can encourage native plant life, learn watering and drought techniques, and observe native plant and animal species.

ELL MODIFICATION:
Translate vocab words in Spanish and give an image for each word.

OPTIONAL EXTENSION:
Invite parent volunteers or high school students to participate in the activity. Have the volunteer lead the creation of webs in small groups.

OPTIONAL EXTENSION:
If time permits, debrief the activity by having the students draw a food web in their journals. An example food web is given in the Lesson Overview resource page. Make sure the arrows point the correct way. Arrows point the direction in which energy flows.

ELL MODIFICATION: Use images and/or Spanish words for the food web.