Ecosystem Unit: Created by Rachael Coleman 2017

Vocabulary and small activities to do for each standard

6.4.1
The less diverse an organisms diet the more likely they are to go extinct

Pandas only eat bamboo article
https://www.worldwildlife.org/stories/giant-panda-no-longer-endangered

List of species in Utah
https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=UT&status=listed

The table below lists the 17 endangered and threatened animal species believed to or known to occur in the state. The word "entire" after a name indicates that the species occurs throughout the state.

[hide]**Endangered animal species in Utah**	
Status	**Species**
Endangered	Ambersnail, Kanab Entire (Oxyloma haydeni kanabensis)
Endangered	Chub, bonytail Entire (Gila elegans)
Endangered	Chub, humpback Entire (Gila cypha)
Endangered	Chub, Virgin River Entire (Gila seminuda (=robusta))
Endangered	Flycatcher, southwestern willow Entire (Empidonax traillii extimus)
Endangered	Pikeminnow (=squawfish), Colorado Entire, except EXPN (Ptychocheilus lucius)
Endangered	Sucker, June Entire (Chasmistes liorus)
Endangered	Sucker, razorback Entire (Xyrauchen texanus)
Endangered	Woundfin Entire, except EXPN (Plagopterus argentissimus)
Threatened	Cuckoo, yellow-billed Western U.S. DPS (Coccyzus americanus)
Threatened	Lynx, Canada Contiguous U.S. DPS (Lynx canadensis)
Threatened	Owl, Mexican spotted Entire (Strix occidentalis lucida)
Threatened	Prairie dog, Utah Entire (Cynomys parvidens)
Threatened	sage-grouse, Gunnison entire (Centrocercus minimus)
Threatened	Tortoise, desert Entire, except in Sonoran Desert (Gopherus agassizii)
Threatened	trout, Greenback Cutthroat Entire (Oncorhynchus clarki stomias)
Threatened	Trout, Lahontan cutthroat Entire (Oncorhynchus clarkii henshawi)

Source: *U.S. Fish and Wildlife Service*, "Listed species believed to or known to occur in Utah"

6.4.2, 6.4.3, 6.4.4

Abiotic Factors – dead stuff like rocks (why might these be valuable to an ecosystem)?

Biotic Factors – living or once living things (soil is both biotic and abiotic)

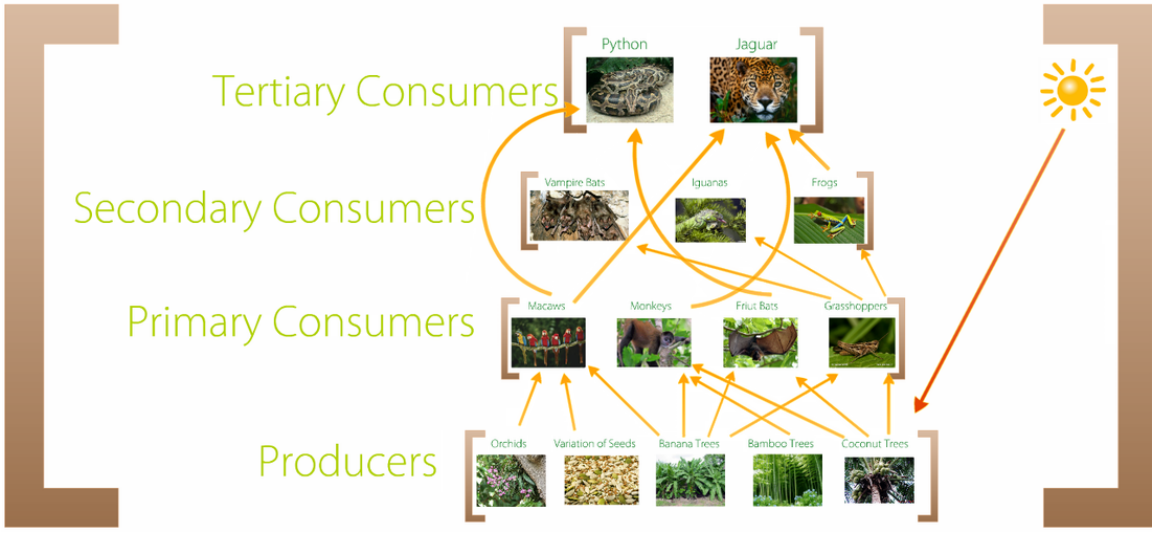
Symbiotic relationships **Symbiotic relationships** are a special type of interaction between species. Sometimes beneficial, sometimes harmful, these **relationships** are essential to many organisms and ecosystems, and they provide a balance that can only be achieved by working together.
Cards with food web

Predation- one gains, one looses (usually dies)

Mutualism – (think win win) both gain

Commensalism- one gains the other isn't affected

Most food webs don't include the sun (it's understood, unless at the bottom of the ocean). Most food webs don't include recyclers (like fungi) which makes the food web more like a cycle of energy.



Different ecosystems in Utah
Forest - deciduous, coniferous or oftentimes a mixture of both, in which some trees shed their leaves each fall, while others remain evergreen year-round. In the far north, just south of the Arctic, boreal forests -- also known as taiga -- feature abundant coniferous trees.

Ecosystem Unit: Created by Rachael Coleman 2017

Grassland – in temperate regions, although they can exist in colder areas as well, as is the case with the well-known Siberian steppe. Grasslands share the common climactic characteristic of semi-aridity. Trees are sparse or nonexistent, but flowers may be interspersed with the grasses. Grasslands provide an ideal environment for grazing animals.

Desert - The common defining feature among desert ecosystems is low precipitation, generally less than 25 centimeters (10 inches) per year. Not all deserts are hot -- desert ecosystems can exist from the tropics to the arctic, but regardless of latitude, deserts are often windy. Some deserts contain sand dunes, while others feature mostly rock. Vegetation is sparse or nonexistent, and any animal species, such as insects, reptiles and birds, must be highly adapted to the dry conditions.

Freshwater ecosystems - can be found in streams, rivers, springs, ponds, lakes, bogs and freshwater swamps. They are subdivided into two classes: those in which the water is nearly stationary, such as ponds, and those in which the water flows, such as creeks. Freshwater ecosystems are home to more than just fish: algae, plankton, insects, amphibians and underwater plants also inhabit them.

Marine ecosystems- differ from freshwater ecosystems in that they contain saltwater, which usually supports different types of species than does freshwater. Marine ecosystems are the most abundant types of ecosystems in the word. They encompass not only the ocean floor and surface but also tidal zones, estuaries, salt marshes and saltwater swamps, mangroves and coral reefs.

I would have students get in pairs and lead class in creating a food web for the ecosystem that they drew (from the above list). And discuss what would happen if a part of the food web were to disappear and what causes parts of the food web to disappear.

I We

6.4.5

http://researchquests.org/cleveland-lloyd/

Wolves in Yellowstone 6.4.2
Start at 20 second (1-20 is about the big bang)
https://www.youtube.com/watch?v=5Iddy0CVILg

Tamarisks on the Colorado Article 6.4.5
http://www.westword.com/news/photos-colorado-river-battle-against-a-serious-enemy-invasive-tamarisk-5887768

Yellowstone Fire of 1988 Article and video 6.4.5
http://www.yellowstonepark.com/1988-fires-yellowstone/

Utah Lake Dumping 6.4.5 (it has youtube links and a handy (what looks to be good) ready to use lesson)
http://utahlake.gov/wp-content/uploads/2011/04/2-GB-The_Business_of_Abusing_a_Lake.pdf