Yellowstone Food Web

National Science Content Standards:

Life Science:
• Populations and Ecosystems

Unifying Concepts and Processes:
• Systems, Order, and Organization

Vocabulary:
Producer
Carnivore
Omnivore
Herbivore
Interdependence

Materials:
• Copies of animal sheet
• Color pencils
• Construction paper

Introduction: The students will create a food web diagram. This lesson takes about one or two 80 minute classes to teach the concept and work time on making the assignment.

This can be done prior to or after playing *WolfQuest*.

Objectives:
At the end of this activity, the student will:
1. Demonstrate knowledge of energy flow in an ecosystem.
2. Know that all species depend upon the other for survival.
3. Demonstrate knowledge of terms; omnivores, carnivores, herbivores, and producers.

Procedure:
1. Students should cut out squares and glue onto a large piece of paper forming a large circle.
2. Using the provided data sheet, students should begin to create arrows showing what is eating what. For example, is a wolf eats elk, the student should draw a line connecting the elk box to the wolf box. The arrow shows the flow of energy, in an ecosystem the animal that is eating is obtaining the energy. Thus the arrow for our above example should be pointing towards the wolf, not the elk.
3. Once the arrows are drawn, the students need to determine if each species is a producer, omnivore, carnivore, or herbivore. To demonstrate knowledge students should color all producers green, omnivores blue, carnivores red, and herbivores yellow**.**

Possible extensions:
▪ Allow students to create food web using different materials: string, plastic animals, etc.
▪ Allow students to research and add to the web. Increase amounts of plants, animals.
▪ Allow students to create a food web for an ecosystem in your area. (marine ecosystems, freshwater lakes/rivers, prairies, deserts, etc.)

Procedure (continued):

8. Have students work on critical thinking skills by asking them to examine what would happen if one species was taken away (extinct) from the web. What if something new was added (exotic species)? What effects would that have on the food web?

Snowshoe Hare	Stink Beetle	Western Meadowlark
Berries	Pocket Mouse	Bison
Flowers/Nectar	Spotted Skunk	Roots
Coyote	Monarch Butterfly	Rattlesnake
Deer Mouse	Raccoon	Ground Squirrel
Broad-Tailed Hummingbird	Bull Snake	Elk
Leaves/Grasses	Seeds/Nuts	Wolf
Twigs	Shrubs	Mule Deer

FOOD WEB ASSIGNMENT

ANIMAL	WHAT IT EATS
Stink Beetle	leaves/grasses
Monarch Butterfly	leaves(as a caterpillar), nectar
Broad-Tailed Hummingbird	nectar
Western Meadowlark	insects, seeds
Snowshoe Hare	leaves/grasses, flowers, berries, shrubs
Pocket Mouse	insects, seeds
Deer Mouse	seeds/nuts, berries, leaves/grasses, insects
Ground Squirrel	leaves/grasses, seeds/nuts, berries, insects
Raccoon	fruits, nuts, grass, insects, bird eggs
Spotted Skunk	mice, bird eggs, insects, grasses, berries
Mule Deer	shrubs, twigs, grasses
Bull Snake	ground squirrels, mice
Rattlesnake	ground squirrels, mice
Bison	grasses
Elk	grasses, twigs, berries
Wolf	elk, mule deer, bison
Coyote	scavenger: will eat almost anything animal or vegetable; prefers rodents, rabbits

Using the above data chart, create a food web:
- Cut out each of the organism pictures and glue onto large paper.
- Draw arrows that show the flow of energy. (Arrow goes to the eating animal)
- Color Producers (Green)   [Organisms that produce energy]
- Color Herbivores (Yellow) [Animals that eat only plants]
- Color Carnivores (Red)   [Animals that eat only animals]
- Color Omnivores (Blue)   [Animals that eat both plants & animals]