**The Web of Life on the Katy Prairie**Created by Carolyn Klein

**Objective:** To demonstrate the interconnectedness of animals and the environment of the Katy Prairie

**Materials:**
Ball of yarn (look for clearance yarn at a hobby store), large signs for each web component

**Grade level:** 6-12

**Background information:**

Food webs and webs of life are a way to demonstrate the interconnectedness of ecosystem components. This activity provides an example specific to our region. Depending on student grade level, this can be modified to illustrate more or less complex ecological principles.

**Preparation:**
1. Create a sign for each component listed in the web of life. Light colored construction paper works well, or manila folders. On each sign, write the component’s name large enough to be seen at a distance. Including a picture of each component is especially helpful.

2. Determine the number of participants. There are 32 components included in this list. They are presented below in an order which connects each one to the next component. If you have fewer than 32 students, you could eliminate the last few components or have some students hold more than one sign.

**Activity:**

1. Have students stand in a circle. Explain the purpose of the activity is to show the components of the Katy Prairie Ecosystem and to illustrate their interdependence.
2. Hand out the at least one component sign to each student. Hand the ball of yarn to the student with the Sun sign.
3. Tell the students they will show the connection between ecosystem components with yarn. The student with the Sun sign holds the end of the yarn and passes (tosses) it to the next student in the story (Rain). The student with the Rain card should hold onto the yarn and toss the ball to the next student in the story (Big Bluestem Grass) and so on until the web is built. If the web becomes too slack, ask students to step backwards to pull the web tight.
4. Once the web is built (or before and after), you can ask students to analyze ecological components such as
Herbivores, carnivores, omnivores (coyote), scavengers (coyote)
Abiotic vs. Biotic factors
Symbiotic relationships (Commensalism: bison, egret; Predation; Mutualism: nitrogen fixing bacteria, bluebonnet)
Components that would be found in a prairie pothole/bayou
Other relationships that might exist between any of the components (Hawk could eat mice directly, etc)

A place to add people into the web

1. Point out to the students that this web is an over simplification: in reality, each component is dependent on several others, not just one. Ask the student to provide examples.
2. Ask the students to hold the yarn with just one finger (but don’t let go!) so they can feel the pull of the entire web. Ask the students to predict what might happen if one of the components was cut out of the web: how many other components would feel the yard go slack? Would there be some disruptions that would impact the web to a smaller or larger extent? Would there be some disruptions that would impact the web at a faster or slower pace? You could suggest the following disruptions:
	1. Invasive fire ants eat the baby mice
	2. Agricultural pesticides kills off the hawks and owls
	3. Extended drought
	4. Overhunting of bison
3. Using a pair of scissors, cut the yarn leading to and from the organisms you identified in the disruptions above. Ask the students to raise their sign if they feel a change in the yarn’s tension. Ask the students which components would remain if the prairie were bulldozed to create a subdivision. Which might eventually come back? Which might never come back?
4. **Conclusion:** Ask the students to find a partner from the other side of the circle to share what they have learned. How do biotic factors depend on abiotic factors? Is there any component in the web that is not important? Less important? More important? Why is it critical to protect the prairie as a whole?

Note: It will probably be impossible to re-roll the yarn into its original condition. You may want to plan a different use for the yarn later.

The Katy Prairie Web of Life:

**Sun** drives the water cycle causing
**Rain** which waters

**Big Bluestem Grass** which feeds

**Mice** which feed

**Smooth Green Snake** which feeds

**Red-tailed hawk** whose droppings are broken down and dragged underground by the

**Earthworm** which breaks down the waste so the

**Fungus** can finish the decomposition and enrich the

**Soil** where the

**Live Oak** grows and casts shade which cools the

**Bayou** so that more

**Oxygen** is preserved in the water so the

**Dragon Fly** larvae can grow which are eaten by the

**Minnow** which is eaten by the

**Frog** which is eaten by the

**Great Blue Heron** which is bitten by the

**Mosquito** which is eaten by the

**Bat** which is eaten by the

**Barn Owl** whose pellets fertilize the

**Soil** where there are

**Nitrogen Fixing Bacteria** living on the roots of

**Bluebonnets** which are trampled by the

**Bison** which churn up the soil with their hooves and attract

**Cattle Egrets** which follow the bison and pick out the

**Insects** which breathe

**Air** which is also used by the

**Prickly pear** which has purple fruits eaten by the

**Coyote** who will also scavenge after the

**Red wolf** which also eats

**Mice** which eats

**Indian Passpallum grass** which fed the

**Henslow Sparrow** which flies under the

**Sun**