SCI10-CD1 Curriculum Connections: Science 10 Climate and Ecosystem Dynamics

Overview: An individual’s culture helps form their view of their relationship with the natural world. In this class students will learn about a traditional view of the four directions (Sacred Circle), review the energy flow of plants to animals, and examine their individual values in relation to how they view the natural environment.

Material Required: 1. Food Web worksheet (provided)  
2. Hackie sack or bean bag or small ball

Objectives: Students will:
- identify how organisms in an ecosystem obtain food for life processes.
- be able to define the difference between a food web and food chain.
- be able to describe their personal relationship with the environment.

Opening: First Nations culture and religion rely heavily on a belief in the power and mystery of the four directions. The North is represented by the color white. It brings winter with its cold, fierce northern wind. The South is represented by yellow. It is known as the healing wind because it heals the land, brings new life and allows the birds to return and raise their young. The East is represented by red. It keeps the sun and releases it every morning for its journey across the heavens. The West is represented by the color black. It takes the sun every night and returns it to the East so a new day will dawn. The west is the keeper of the spirits.

These four directions are honored for their gifts to humankind. They explain the seasons in a traditional way referring to the cycles that drive human existence.

(The teacher should draw the directions on the board, with colored chalk if possible, forming a circle.)

(Information taken from Askiwina by Doug Cuthand)

Native philosophy is centered on the Sacred Circle, the inter-connectedness that brings balance to the world.
**Development:** In this class we are going to examine food chains. We are then going to explore our personal views of our relationship with the environment in which we live.

Write on the board the title- “Food chain versus Food web”

Students take down the following notes:

- a food chain is how energy passes from one living thing to another, for example: Sun – green plants – herbivores – carnivores – decomposers – green plants

- food webs are interrelated food chains in an ecological community. In other words, food chains overlap at many points to form interconnected food webs. Using an example of an “insects – reptiles – hawks” food chain, hawks can also feed directly on insects and other birds that feed on insects. Some reptiles also prey on birds, so the result is that the food chain becomes a web.

Give the students the review worksheet, “A Food Web” (see next page). After they complete it, correct it as a class.
Food Web

Name:__________________

Use the picture above to answer the following questions. Please write your answers in the space provided.

1. Identify the organism(s) that are producers?

2. Identify the organism(s) that are consumers?

3. List some of the food chains by writing the organism's name and drawing a line then writing the next organism in the food chain.

4. How many food chains can you find in the above food web?
Students have now reviewed some of the simple processes in nature. Next have them think of their relationship with the natural world. There is more to human beings than simply being consumers on earth. Tradition dictated that before a person used a plant or animal, thanks was given to the Creator. All parts of the animal were used. Nothing was wasted. Today in society we see much waste and environmental degradation.

Let’s examine our own views of how we as individuals value the natural world around us. Have the students take some time to answer the following question:

“What I value about nature”

Possible answers:  
- the peace of walking through a natural environment  
- economic gains from trapping  
- recreation time in camping and fishing

Once the students have listed their own feelings about what they value, have them share them with the class.

**Activity:** Elements Game--To conclude the class, have the students stand in a circle and participate in a traditional activity that will help them sharpen their nature-awareness skills.

Select a person to go into the middle of the circle. The person in the middle calls out one of four words: EARTH, WATER, AIR or FIRE. The person in the middle throws the hackie sack to someone in the circle. The person catching the sack must name something living in the element called out by the person in the middle, e.g. Earth-bear; Water-shark; Air-hawk.

If FIRE is called out, the person catching it says nothing and returns it as soon as possible to the middle person. You have 10 seconds to give an answer, and no repeats! If you can’t answer, you go in the middle.

**Closing:** In this class we reviewed the basic energy flow through food chains and food webs. We talked about the traditional philosophy of the interdependence of nature and the Sacred Circle of life. We looked at our own views of how we personally feel about and view nature. These views help explain how people act and make choices. This can help us to re-examine the choices we make with regards to nature and our environment.