African Safari Web Activity

Reflection

NSTA 3b: Inquiry: To show that they are prepared to teach through inquiry, teachers of science must demonstrate that they engage concepts and relationships from their observations, data, and inferences in a scientific manner.

This lab focuses on the concept that organisms in an environment are all connected to the living and non-living components of their ecosystems and that all ecosystems that make up the biosphere are connected to each other. During the activity, the student's build a web based on relationships. Although the relationships are often predator/prey, I also included symbiosis, parasitism, and decomposition. The organisms that make up the web are diverse, from large flagship species, to birds, insects, and fish. Each card has a short description describing the animal such as eating, territorial marking, grooming, dying, defecating, and other natural phenomena that exhibits the diversity of animals, their behaviors, and their relationships with each other.

Once the activity is over the students are asked what they learned based on the activity and the web they created. The concepts discussed are diversity, interconnection and ecosystem stability. Eventually, endangered species are "cut out" of the web to represent extinction and the web falls apart. This further illustrates the concepts and forces the students to this of the "bigger picture" of human disturbances and ecosystem health.

NSTA 4a: Issues: To show that they are prepared to engage students in studies of issues related to science, teachers of science must demonstrate that they engage students successfully in the analysis of problems, including considerations of risks, costs, benefits of alternative solutions; relating these to the knowledge, goals, and values of the students.

In the elaborate section of the 5-E modeled lesson, the students discuss the human induced causes organisms become endangered and ecosystems become threatened. The African Safari is especially threatened by climate change, desertification, droughts, poaching, and habitat loss. The students discuss how the organisms that depended on a recently extinct organism are directly affected, and all other organisms in the ecosystem are indirectly affected. The students then discuss ways that these threats could be mitigated, both on a large scale and on a community and individual basis. Topics could include recycling, energy efficiency, ecological footprint and hunting quotas and laws.

For the evaluation section, the students must relate what they have learned about the African ecosystem to the ecosystems that make up their community. They are required to write a research paper on an endangered species in their state, provide evidence on why it is a vital part of the local "web," and research why it is becoming endangered. The students must them investigate litigation already in place to help this species, and present a novel way these efforts can be improved or expanded.

NSTA 6b: Curriculum: To show that they are prepared to plan and implement an effective science curriculum, teachers of science must demonstrate that they plan and implement internally consistent units of study that address diverse needs and abilities of students.

This lesson encompasses a wide required knowledge base (LS 5,7,8,9,12). By integrating several Virginia SOL's in the same lesson, the students are better able to see big pictures and integrate specific concepts.

NSTA 7a: Science in the Community: To show that they are prepared to relate science to the community, teachers of science must demonstrate that they involve students successfully in activities that relate science to resources and stakeholders in community or to the resolution of issues important to the community.