Problem-Based Learning Unit Template

Topic

Living Systems

Goals/Objectives/SOL

4.5 The Student will investigate and understand how plants and animals in an ecosystem interact with one another and the nonliving environment. Key concepts include:
a) behavioral and structural adaptations;
b) organization of communities;
c) flow of energy through food webs;
d) habitats and niches;
e) life cycles; and
f) influence of human activity on ecosystems.
5.5The student will investigate and understand that organisms are made of one or more cells and have Distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment. Key concepts include
a) basic cell structures and functions;
b) classification of organisms using physical characteristics, body structures, and behavior of the organism; and
c) traits of organisms that allow them to survive in their environment.
NGSS:
3. Interdependent Relationships in Ecosystems
3. Inheritance and Variation of Traits: Life cycles and Traits
5. Matter and Energy in Organisms and Ecosystems
3-5. Engineering Design

Theme

Effect of an aggressive growing organism on a woodland ecosystem.

Problem Question

How can we identify and determine the effect of an aggressive growing organism/fungus on a woodland ecosystem?

Scenario

The Virginia Department of Conservation and Recreation (DCR) has identified a new organism of an aggressive nature growing in the state parks of Northern Virginia. The DCR has asked for our help in identifying the species and determining the effect of the aggressively growing organism on our woodland ecosystems.

Student Role

Research consultants to the Virginia Department of Conservation and Recreation (DCR)

Resources

Integrated Pest Management- sponsored by Virginia Tech and Clemson University
Department of Entomology- Virginia Tech
Smithsonian Natural Museum of Natural History
Hungry Mother State Park
Dr. Susan Leopold: Scientist that studies plants Botanist
www.explorelearning.com
www.discoveryeducation.com

Culminating Activity

The culminating activity will be to design a plan or device to help eliminate or reduce the spread of the fungus and present this to our local State Park Association.