

I've Got You Under My Skin

Subject(s): Life Science

Grade Level: 4th - 12th

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Time Required: 1-3 days

Lesson Objectives:

Students will explore bark-infested samples and predict what has caused the galleries after which a background discussion will ensue. A simulation activity will culminate the lesson.

Skills: Analysis, observation, prediction, and creative writing

Concepts: Interdependence between insects, trees and people; supply and demand; costs and benefits; forest management; insect life cycles, graphing

Materials Needed:

Bark samples (actual or pictures), fate cards, jars of bugs, dice, game markers

Preparation:

-Gather bark samples and other materials, make Fate Cards, explore Internet for additional material
Contact -State Dept. of Lands offices or US Forest Service offices for leaflets on beetles and insect pests

Culmination Activity: “To Bug or Not to Bug, That is the Question.”

Procedure:

-Display bark beetle galleries. Ask students, “What do you see?” Accept all brainstorming suggestions. We think that some students may think the galleries are a form of ancient writing, when in fact they are a type of insect writing or telling of their history from which we have learned much.

-Teach about the Douglas-fir beetle, Forest Management Practices (including supply and demand, cost and opportunity cost).

Art: Students make own galleries. Have them create galleries that depict their lives. Use Scratch Board, meat plates, etc.

Internet: Students conduct additional research to determine cause of other tree damage.

Drama: Students act out different perspectives of situation, i.e., that of the beetle or the tree. Conduct a debate. Sides to be taken include: forester, private land owner, environmentalist and don't forget the beetle.

Writing: Students write Haiku or put together a leaflet detailing background information regarding the beetle, forest practices, etc.

Assessment Opportunity: Paper: Develop review questions based on student research

Group: Create Jeopardy game to include questions and terms and concepts covered during the session.

“To Bug or Not to Bug, That is the Question” Fate Cards (write on index cards or create on word processor)

Sex cards: Male, Female

Season cards: Winter, Spring, Summer, Fall

Condition of Tree Stand cards:

Overabundance of beetles present

Under-abundance of beetles present

Type of Trees in Stand cards:

Monoculture – mainly Douglas-fir

Wide variety of trees planted

Pheromones Present cards:

Attractant

Detractant

Condition of Stand cards:

Recently diseased

Overcrowded

Healthy

Weather cards:

Heavy snowfall

High rainfall

Drought

Extreme cold

Just right for Douglas-fir beetle

Danger cards:

Stand is logged

Fire

Abundance of predators

(woodpeckers, larger beetles)

Traps

No dangers

Play: Each student begins the game with two markers (perhaps m&m's) that represent adult Douglas-fir beetles. With each turn of a card, they die or survive. Those who survive advance to the next category. If they are fortunate enough to survive all categories, they roll a die to determine their number of offspring, multiply their roll by 10 and collect that number of markers. They then run through the fates as adults. This continues as time allows. Students chart their progress and compare their results with others.

References

Field Guide to Disease and Insect Pests of Idaho and Montana. Publication # R1-89-564.

Tree Defect Guide. Department of Forest Resources, University of Idaho.

1001 Questions Answered about Trees. Rutherford Platt. ISBN 0-486-27038-6.

Project Learning Tree Secondary Environmental Education Program, The Changing Forest: Forest Ecology. American Forest Foundation.

State Forester Forum, Douglas-fir Beetle in Idaho, Insects and Diseases. No. 18, January 1999. Idaho Department of Lands.

Forest Pest Leaflet, Douglas-Fir Beetles in British Columbia. ISBN 0-662-23498-7.

Health of Idaho's Forests, USDA Forest Service, Northern Region, Report No. 99-4.