

Leafy Spurge Activities

Flying Flies - Before and After
Play Audio Track #8
(20 minutes)

Levels
Grades 3-6

Subjects
Science, Language Art

Skills
Interpreting, Identifying, Illustrating, Discussing

Concepts
Structure and functions of living things

Objectives
Students will learn the biology behind predation by insects and host plants.
Students will learn life stages of insects in and their sites of attack on host plants.
Students will learn how insect predation impacts host plant populations.

Materials (20 student class-size)
What's in Your World? CD audio track #8 (inside the back cover) - 1 per class
flash card of leafy spurge tip gall midge - 1 per student (inside the back pocket of the What's In Your World? tool kit)
drawing paper; crayons/markers

Time Considerations
Preparation - 5 minutes
Activity - 20 minutes

Lesson Overview
• Life Stages. Tip Gall Midge Points of Attack (20 minutes)

Background
The female tip gall midge lays her eggs on the tips of leafy spurge leaves. Once her eggs hatch, the larvae eat the leaves and attack the plant's cells causing it is swell up and cover them--forming what is called a "gall". The abnormal plant tissue, the gall, and the larvae's reduction of leaves can decrease the plant's ability to grow and produce flowers and seeds. Over time, fewer flowers and seeds means fewer numbers of live plants. Land managers purposefully introduce the leafy spurge tip gall midge to stop the spread of leafy spurge.

Other insects attack other parts of the plant such as the seedheads and the roots. Land managers release several species of biological control insects so that more parts of the plant are weakened.
Can you name five leafy spurge bio-agents?

TIP GALL MIDGE. POINTS OF ATTACK LESSON DETAILS

STEP ONE. Tell the students to locate the *Not All Alien Invaders Are Bad* leafy spurge flash card in the back pocket of the *What's In Your World?* activity tool kit. (photocopies of leafy spurge and the tip gall midge are also adequate) Pass out the drawing paper, crayons, and markers. Tell the students to draw the leafy spurge plant as large as they can on the drawing paper. Ask the students--*How many leaves will your leafy spurge drawing have? What will they look like after the tip gall midge feeds on their end points? What do you think a "gall" looks like?*

STEP TWO. Ask the students to discuss how plants and insects survive by reproduction processes. (plant shoots that form from seeds or root propagules; insect larvae that forms from eggs--before becoming an adult such as a fly or moth) Ask the students--*What do you think a host plant is? When your parents "host" a party, what do you think that means? Can a plant offer itself up as dinner?*

Leafy spurge becomes the "host plant" when it's leaf tips become the feeding site and it's other parts become the nesting site for the tip gall midge.

STEP THREE. Leafy spurge provides the tip gall midge as it grows from egg to larvae and into the adult fly with necessary habitat--food and cover. In exchange, the tip gall midge weakens the "host plant" by eating its leaves, causing abnormal plant tissue cells to grow and form the gall. The gall cuts off food supplies that the plant needs to form flowers and seeds. Ask the students--*What happens to the tip gall midge when all its food is gone? Because the midge can only lay its eggs on leafy spurge, where will it lay its eggs if there are no more leafy spurge plants? Where can the midge go to survive? What will happen to the population of leafy spurge tip gall midges?*

STEP FOUR. The tip gall midge will leave the stie to find another source of food. Because it is host specific, the tip gall midge may not find food of cover and die. Leafy spurge plants continue to grow below ground where we can't see them. Buds on the roots will over time send up new shoots and leafy spurge will grow back. Once there are more leafy spurge plants, land managers may re-distribute the insects to keep leafy spurge from spreading where it is not wanted.