



WHAT ARE IN THOSE TREE SKIRTS?

*This activity can only be done in May and June because of the gypsy moth life cycle.



OBJECTIVES

Students will:

- 1) identify the complete metamorphosis of the gypsy moth
- 2) classify insects according to the major insect groups
- 3) evaluate daily gypsy moth feeding activities
- 4) design a mechanical tap that is an effective, low cost, and a natural way to destroy gypsy moth

METHODS

Students will identify the gypsy moth and other insects based upon specimens or pictures and descriptions from the major insects groups. The students will then make burlap bands to evaluate the gypsy moth in its natural habitat.

BACKGROUND

The gypsy moth is the major insect of our concern, because of the damage that it can cause to our hardwoods. The gypsy moth is moving across our state causing a potential for the defoliation of tree species, We are using burlap bands to observe them, but they are not the only insect that we will find hiding in the burlap bands.

AGE: Grades 6-12

SUBJECTS: Science, Math

SKILLS: analyzing, comparing similarities and differences, observing, researching

DURATION: two 45-minute periods

GROUP SIZE: groups of 2-3 students

SETTING: indoors

VOCABULARY: metamorphosis

MATERIALS

complete gypsy moth metamorphosis, insects in different stages of metamorphosis, insect identification book, magnifying glass, ruler, worksheet

PROCEDURE

1. Students will obtain an insect identification book, magnifying glass, ruler, specimens or pictures, and a worksheet
2. Students will fill out the questions on the worksheet called insect identification.
3. Students will use the worksheet, specimen or picture, and book to identify the type of insect.

ASSESSMENT

1. Collection of ten identified insects including the gypsy moth.
2. Poster or mounted specimen showing the life cycle of the gypsy moth from egg to adult.
3. Display of injuries caused by the gypsy moth to four different types of trees.

RESOURCES

United States Department of Agriculture. "Gypsy Moth." Pest Alert. NA-FB/P-21. 1994.

McManus, M.L., and D. Twardus. "Identifying Gypsy Moth Early Larval Instars." NA-FB/P-32. September 1989.

McManus, M., N. Schneeberger, R. Reardon, and G. Mason. "Gypsy Moth." Forest Insect & Disease LeaW 162, August 1992.

Brooks, Charley, and David Hall. Gypsy Moth Silvicultural Guidelines for Wisconsin. PUB-FR-1 23 97.

Burlap Bands

MATERIALS:

burlap or similar fabric, sting or rope, scissors, measuring device, graphing paper, tree identification book, insect identification book, worksheets, gloves, masks, clipboard, pencil, and an old can or jar with soapy water for destroying the gypsy moth.

PROCEDURE:

1. Pick four tree species that are preferred, non-preferred, and avoided by the gypsy moth using the tree identification book so that you have twelve trees to band and observe. Now that you have the trees picked out, you need to use the graphing paper to make a map locating and numbering each tree.
2. Measure five feet up from the base of the tree and tie a piece of sting or rope at this height.
3. Measure the circumference of the tree in inches at this height and record here _____ inches.
4. Cut a piece of burlap sixteen inches wide and the length that you found for procedure number 3.
5. Take the piece of string or rope that you tied around the tree in procedure two and untie. Make a mental picture of where the string or rope was. Tie the piece of burlap to the tree loosely so that it is five feet from the base.
6. Straighten the edges of the burlap so that they are even when hanging from the tree.
7. In May and June caterpillars will hide beneath the burlap in the daytime, and can be collected for observation or destroyed. As it gets later into June you may find the different stages of the gypsy moth. You need to fill out the worksheet to keep your data on.

EXTENSION:

1. Students will perform their own burlap bands and observations at home during the summer.
2. Students will write a letter to the county and ask if they can observe trees in the county for public awareness. They will then continue observing the trees year after year and report their findings to the county.
3. Students will compare the results of different colored burlap bands.

RESOURCES:

United States Department of Agriculture. "Gypsy Moth.", Pest Alert. NA-FB/P-21. August 1994

McManus, M.L., and D. Twardus. "Identifying Gypsy Moth Early Larval Instars." NA-FB/P-32. September 1989.

McManus, M., N. Schneeberger, R. Reardon, and G. Mason. "Gypsy Moth." Forest Insect & Disease Leaflet 162. August 1992

Brooks, Charles, and David Hall. Gypsy Moth Silvicultural Guidelines for Wisconsin, PUB-FR-123 97

* Note that Donna Gilson or Dave Schumacher at WDATCP should be contacted about what you are doing. Donna's # (608)224-5130 or Dave's (608)224-4583

Name _____

Gypsy Moth Worksheet

1. What day did you start observing the gypsy moth?
2. Did the time of day have an affect on what you observed? Was there a time that was better than the rest for observing gypsy moth activity?
3. What part of the month did you start observing more gypsy moths?
4. Did the tree damage occur to the tree species that it should have, and what type of tree damage occurred?
5. Did you observe the complete metamorphosis of the gypsy moth? Draw the complete metamorphosis of the gypsy moth?

Name _____

Insect Data Sheet

Sample #
Tree # _____ Date _____ Time _____
Tree Health _____ Length of Insect _____ in or mm
Name of Insect _____

Sample #
Tree # _____ Date _____ Time _____
Tree Health _____ Length of Insect _____ in or mm
Name of Insect _____

Sample #
Tree # _____ Date _____ Time _____
Tree Health _____ Length of Insect _____ in or mm
Name of Insect _____

Sample #
Tree # _____ Date _____ Time _____
Tree Health _____ Length of Insect _____ in or mm
Name of Insect _____

Sample #
Tree # _____ Date _____ Time _____
Tree Health _____ Length of Insect _____ in or mm

Name _____

Tree Inventory Sheet

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Tree # _____
Type of Tree _____ Tree Location _____ Tree Health _____

Height _____ Tree Diameter _____ Crown Spread _____

Name _____

Insect Identification

Example 1 Insect # _____

Description of insect _____

Stage of metamorphosis _____

Location of insect _____

Length of insect _____ mm or inches

Name of insect _____

Major insect group _____

Example 2 Insect # _____

Description of insect _____

Stage of metamorphosis _____

Location of insect _____

Length of insect _____ mm or inches

Name of insect _____

Major insect group _____

Example 3 Insect # _____

Description of insect _____

Stage of metamorphosis _____

Location of insect _____

Length of insect _____ mm or inches

Name of insect _____

Major insect group _____

GYPSY MOTH HISTORY

1. When was it introduced into the United States?
1869
2. When was the first outbreak?
1889
3. What state was the gypsy moth introduced into by a French scientist?
Massachusetts
4. Where is the exotic insect from?
Europe
5. What is the scientific name for the gypsy moth?
Lymantria dispar Linnaeus

LIFE CYCLE

1. How many stages does the gypsy moth pass through?
Four
2. When are egg masses laid?
July and August
3. When do the eggs hatch?
Early spring through mid-May
4. What are the larvae stages called?
Instars
5. What stage is the gypsy moth in the longest?
Egg mass

PHYSICAL DESCRIPTION

1. What color are gypsy moth egg masses?
Buff/Tan
2. What does the female gypsy moth look like?
White with brown markings
3. What does the male gypsy moth look like?
Brown with dark markings
4. What does an older gypsy moth larvae look like?
Five pairs of raised blue spots and six pairs of raised brick red spots
5. How long are male and female gypsy moths?
male - approx. 1 inch female - approx. 1.5 inches (flightless)

LOCATION

1. Where are egg masses laid?
Branches and trunks of trees, and any sheltered location.
2. How are larvae dispersed?
Natural and artificial dispersal
3. Where can larvae be found at dusk and during the night?
Crown and top branches of trees
4. Where can larvae be found during the day?
On the trunk in flops of bark, in crevices, or under branches.
5. How far can larvae travel?
One -mile

HOST TREES AND EFFECTS OF DEFOLIATION

1. What type of trees do gypsy moth prefer?
Hardwoods
2. When is the heaviest defoliation?
Late June to early July
3. What type of symptoms do weakened tree exhibit?
Dying back of twigs and branches in the upper crown and sprouting of old buds on the trunk and larger branches
4. How long does it take for an affected tree to die?
Normally 2 to 3 years after they are attacked
5. What percent of crown defoliation determines the amount of damage?
50%

Wisconsin Agricultural Education Standards for the activity:

What are Those Brown Tree Skirts? - By the end of grade 12 (agricultural) students will:
(Ecology/Environmental) E. 12.1 “Understand the application of agricultural technologies that can sustain production while reducing environmental impact.”

(Ecology/Environmental) E. 9-12.1 “Engage in applied learning opportunities emphasizing ecological and environmental principles.”

