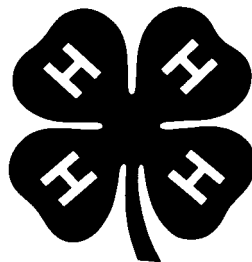
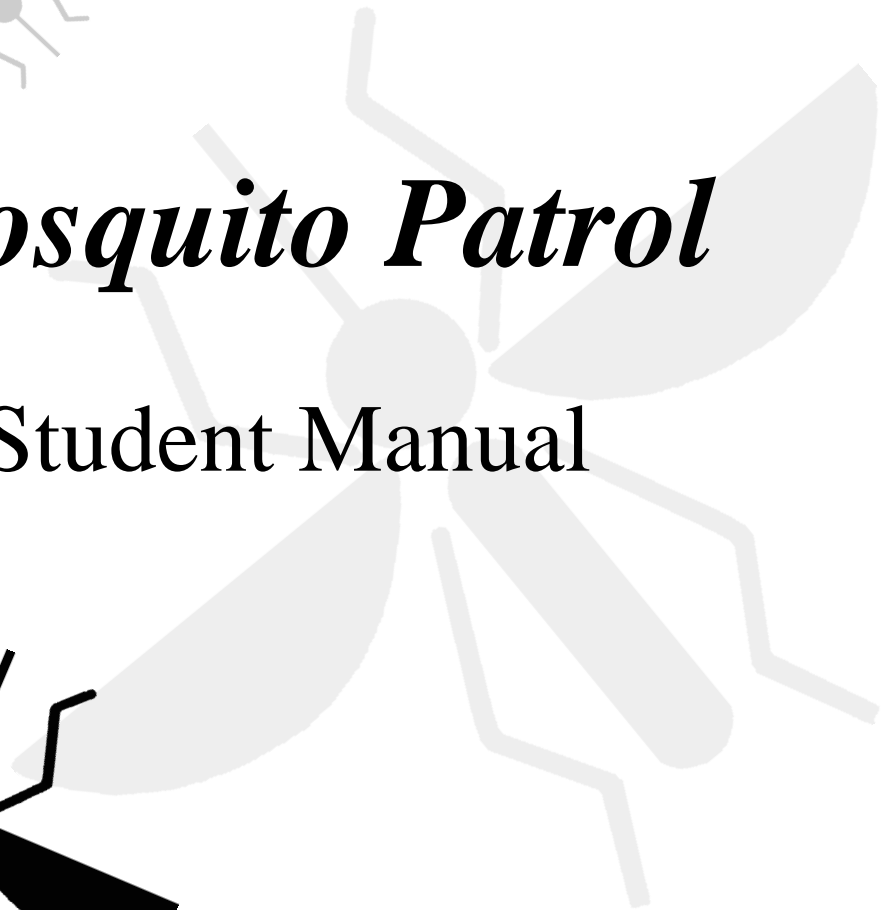
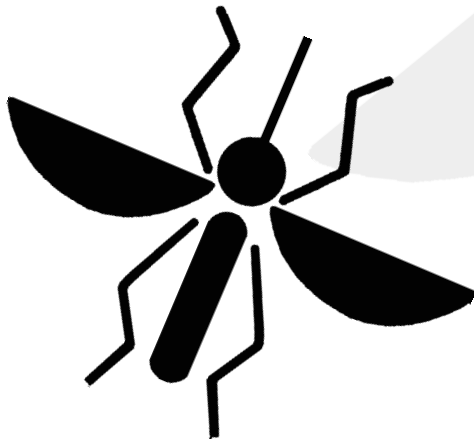




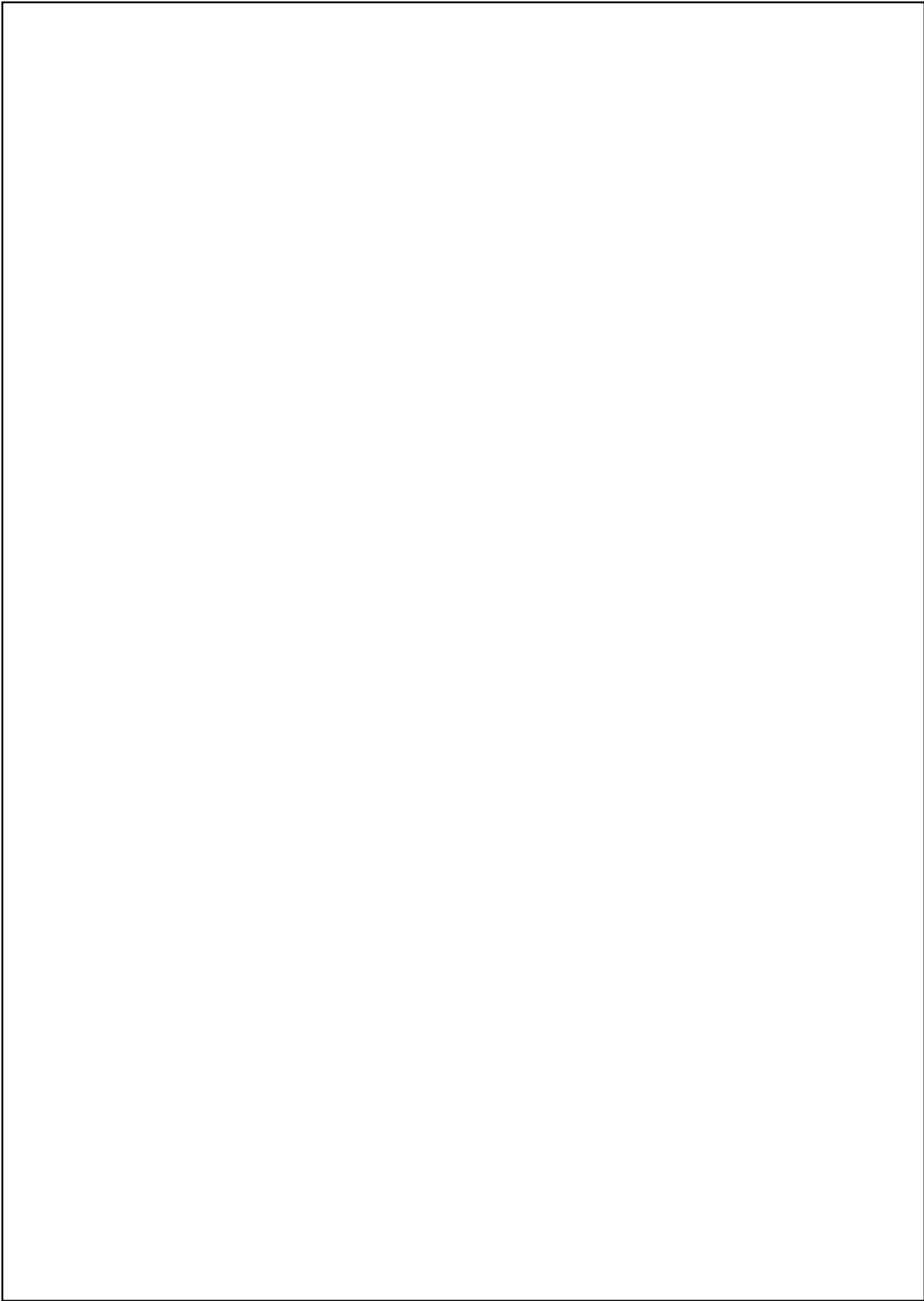
Mosquito Patrol

Student Manual



CLEMSON
E X T E N S I O N





Mosquito Patrol

Lesson Plans

Lesson Plan Ia. Entomology

- Objectives:*
1. Define Entomology
 2. Understand how Entomology affects us

Lesson Plan Ib. Insects

- Objectives:*
1. Understand what makes a bug an insect
 2. Explore general insect biology and habitats
 3. Understanding how insects can be controlled

Lesson Plan II. Mosquitoes

- Objectives:*
1. Benefits and problems with mosquitoes
 2. Explore mosquito biology and habitats
 3. Understanding how mosquitoes can be controlled

Teacher/Leader Comments or Additions



Mosquito Patrol

Pretest:

I. Multiple Choice:

Please write the letter of the correct answer in the space provided by each question number. Read carefully.

- ___ 1. Which of the following characteristics describes insects?
- A. 2 body segments, eight legs and a pair of antenna
 - B. 2 body segments, six legs and a pair of antenna
 - C. 3 body segments, eight legs and a pair of antenna
 - D. 3 body segments, six legs and a pair of antenna
- ___ 2. The proper order of the stages of growth in complete metamorphosis is:
- A. egg, pupa, larva and adult
 - B. egg, nymph and adult
 - C. egg, larva, pupa and adult
 - D. larva, pupa and adult
- ___ 3. Which of the following is not an insect?
- A. spider
 - B. grasshopper
 - C. butterfly
 - D. ant
- ___ 4. The hard outer covering of an insect is called the:
- A. endoskeleton
 - B. exoskeleton
 - C. ectoskeleton
 - D. molt
- ___ 5. Controlling insect pests with natural enemies is an example of:
- A. biological control
 - B. chemical control
 - C. mechanical control
 - D. inventive control

II. True or False:

Please circle T if the statement is true or F if the statement is false.

- T F 6. By emptying containers around your house that are holding water, you may help reduce the amount of spraying needed for mosquito control and, therefore, help to protect the environment.
- T F 7. The wings of an insect are attached to the insect's abdomen.
- T F 8. Entomology is a person who studies insects.
- T F 9. Mosquitoes must have water to develop properly.
- T F 10. Mosquito larvae are sometimes called "jigglers."



Lesson Plan Ia. Entomology

_____ is the study of insects.
Anyone who is interested in insects
can be an _____.



By studying insects, we are able to learn about the good things and the harmful things that they do for us. If we did not study insects, we might think of all of them as bad; because, they make us think of bites and stings. Entomology has helped us to understand that there are good insects and that there are even good things about the ones we think of as harmful.

Studying insects also helps us to develop many different ways in which we can control harmful insects. At the same time we gain an understanding of how different control methods will affect other insects and animal life.

Lesson Plan Ib. Insects

Everyday of our lives we come into contact with what most of us call 'bugs'. To an Entomologist, insects are more than 'bugs'.

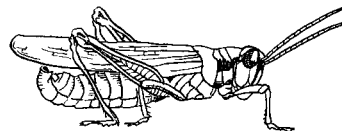
So what is an insect?

Insects are members of the Animal Kingdom just like amoeba, earthworms, snails, frogs, snakes, dogs and YOU. There are two major divisions of animals in the Animal Kingdom. Animals with backbones and internal skeletons are called _____. Any animal that does not have a backbone but has a outer skeleton is called an _____. Since insects have a hard outer covering called an _____ to support and shape their bodies, they are invertebrates.

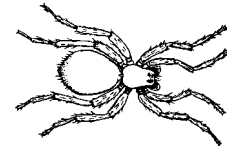


There are three distinct characteristics which make insects different from other invertebrates. These characteristics are

- [a] _____,
- [b] _____ and
- [c] _____.



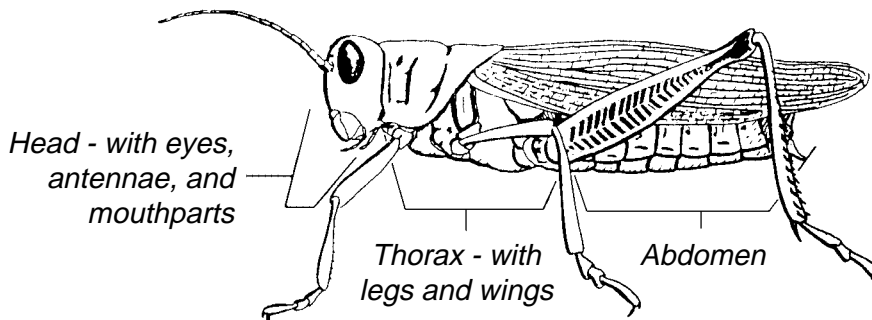
Grasshopper



Spider

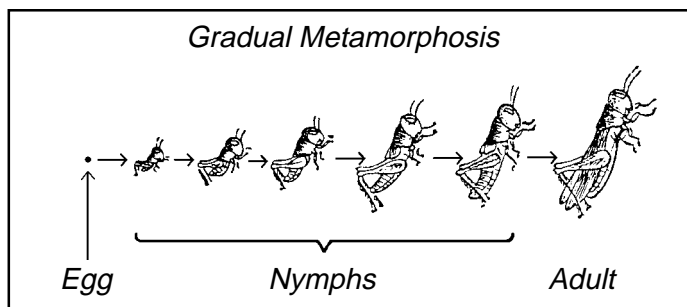
Thus, a spider is not an insect. It has 2 separate body regions and 8 legs.

The three separate body regions of an insect are the _____, the _____ and the _____. The _____ is where the eyes, mouthparts and antennae are located. The _____ is the middle section where the legs and wings are attached. The last section is the _____ and it contains the digestive and reproductive organs.

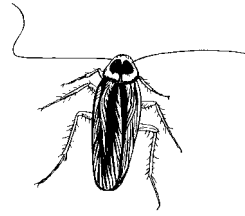
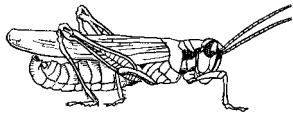


The _____ of an insect is the amount of time and the different growth stages that an insect requires to develop from an egg to an adult. This development from an egg to an adult insect is called _____. In general, insects will develop by either gradual or complete metamorphosis.

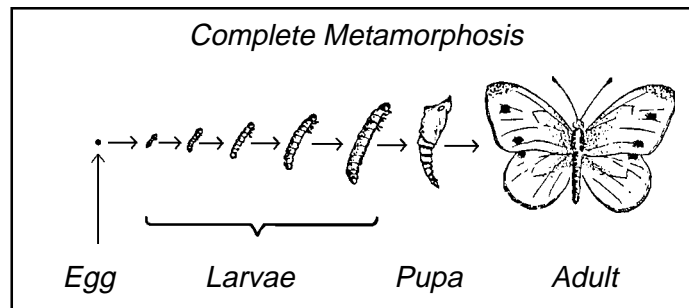
With _____ metamorphosis, the insect will undergo _____ stages of development to an adult. These stages are labeled as egg, nymph and adult. The egg which was laid by an adult female will eventually hatch into a nymph. The nymph looks just like the adult insect with the exception that it does not have wings. As the nymph grows in size, it must shed its exoskeleton several times before it finally reaches the adult size.



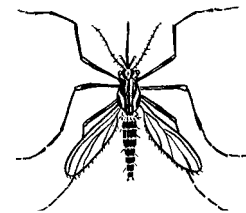
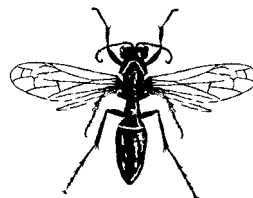
Below are some pictures of insects that develop by gradual metamorphosis. Can you name them?



During _____ metamorphosis, the insect will undergo _____ stages of development to become an adult. These stages of development are labeled as egg, larva, pupa and adult. The egg, which is laid by an adult female, will hatch into a larva. Larvae are commonly called grubs, maggots and caterpillars. At this stage, the larva does not look anything like it will as an adult. As the larva develops, it will grow in size by molting. _____ is the shedding of the exoskeleton by the larva so it can grow in size. Each time the larva goes through a molting period, it is called an instar. After the last molt, the larva will stop eating and enter a resting period. This resting period is the pupa stage. Sometimes the pupa are covered in a case like a cocoon. During the pupa stage, there is a great change in the shape of the insect before an adult emerges.



Below are some pictures of insects that develop by complete metamorphosis. Can you name them?



Insects are everywhere. After all, they have been on the earth for about _____MILLION years. Entomologists also estimate that there are over _____MILLION different kinds of insects. Some are even so small that you cannot see them unless you have a microscope. Therefore, chances are that no matter what you do, you probably come in contact with quite a few insects everyday.

Insects live in many different environments. Some fly around in the air, some live in the soil, some live in dead plants and animals, some live in water, and some even live where you do - your home! Insects can either build a home or they can just hide behind plants or animals.

What do the following insects use to build their homes?

- hornets: _____
- honey bees: _____
- fire ants: _____

Where do these insects hide?

- fleas: _____
- roach: _____
- aphids: _____

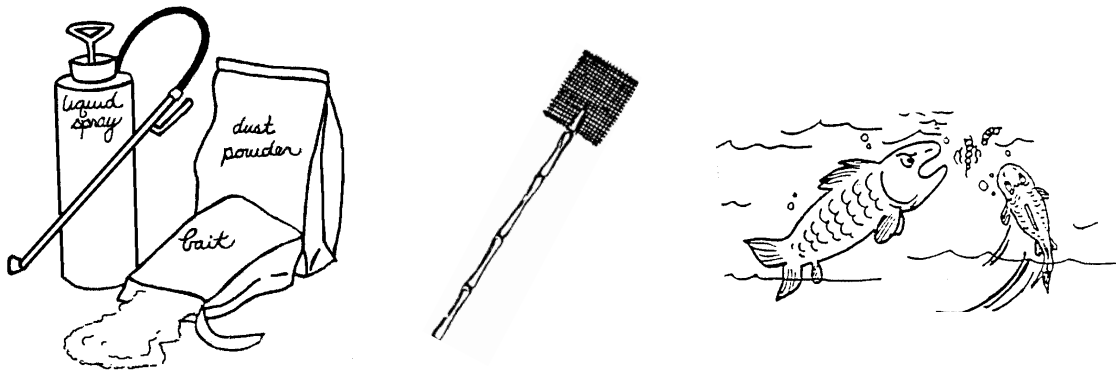
Some insects are good to have around. These insects are called _____. They help man and the environment in many ways. Bees, ants, butterflies and other insects pollinate many of our flowers and fruits and vegetables that we enjoy. Others, such as some wood beetles and termites, help to clean up in the woods by eating dead trees.

Other insects are not as much fun to have around. These are definitely called pests. Examples are fire ants, wasps, worms that eat plants, and mosquitoes. These insects cause problems for man in some way. Worms may eat plants in the garden, wasps sting and mosquitoes transmit some diseases.



Sometimes an insect may be beneficial at one stage of development, but a pest at another. For example, the worm that eats a hole in the red-ripe tomato will soon turn into a beautiful moth. Termites may be good in the woods eating dead trees but they are not wanted in your house where they will eat the lumber.

When insects are pests, most people want some type of method to control them. There are several methods of control which can be used. _____ control is effective and uses some type of chemical pesticide to kill the insects. _____ control, such as a fly swatter, can also be effective in getting rid of the pest. Another method of control is _____ control. With _____ control, a natural enemy could be brought in an area and released to attack a particular pest or chemical attractants called pheromones can be placed in insect traps.

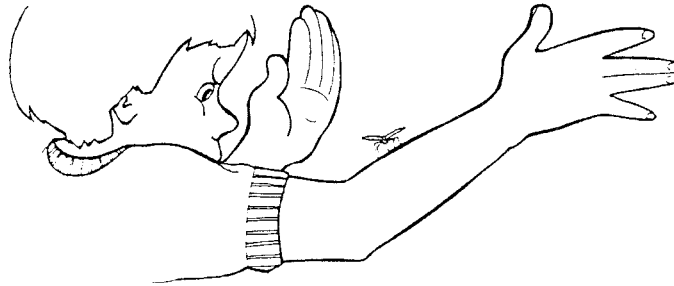


Just because a pest exists does not mean that it needs to be controlled. If a roach runs across the floor in your house, you want to kill it because you do not want any roaches in your house. However, if you find two worms in your garden, this does not mean that you need to apply some type of control method immediately to wipe them out. Since roaches are not wanted in the house, one is too many. Whereas, in the garden, two worms probably will not eat very much and will not need to be killed.

Lesson Plan II. Mosquitoes

As we noted earlier, mosquitoes are generally considered to be a pest by man's standards. This is due mainly to the fact that they not only bite us and other animals; but also, because they are just a plain nuisance when they are buzzing around us. However, it is important to note that not all mosquito species attack man and of those that do, only the _____ mosquito bites.

Why do only female mosquitoes bite? The female mosquito bites her victim to obtain blood for _____ which is necessary for the proper development of her eggs. When the female bites, she will inject saliva into her victim to prevent the blood from clotting while she is extracting the blood. The saliva is also responsible for the irritations that we suffer as a result of the bite.



If males do not bite for blood, what do they eat? Male mosquitoes feed on _____, _____ and _____.

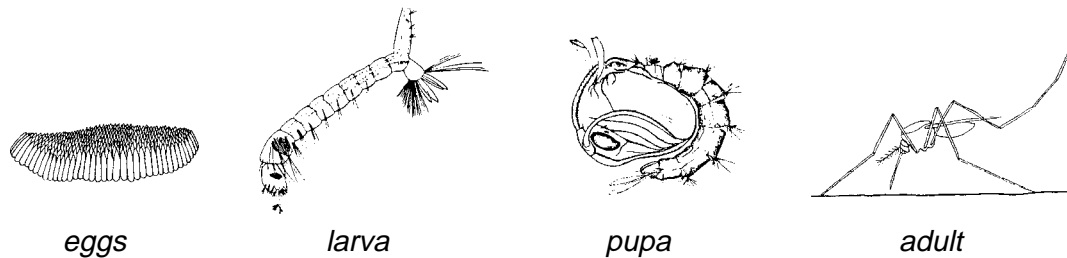
Besides just the bite, mosquitoes are also problems due to other reasons. The presence of heavy infestations in certain locations can be part of the reason for _____. Also, the female mosquitoes can transmit the organisms which cause certain _____ in man and other animals. Examples are malaria, encephalitis, yellow fever and heartworm in dogs. When the female takes blood from an infected individual, she becomes infected and then will transmit the organisms to future victims.

Note that the HIV virus, which is responsible for AIDS (Acquired Immune Deficiency Syndrome), was not listed as an example of a disease capable of being transmitted by mosquitoes. This is because studies have shown that mosquitoes do not and cannot transmit AIDS. There are three major reasons for this. First, mosquitoes digest the virus that causes AIDS as if it were food so it does not remain alive in the mosquito. Second, there are not enough HIV particles in the blood stream of an individual for the mosquito to ingest levels high enough to even transmit the virus if it were not digested. Finally, mosquitoes are not like hypodermic needles. Unlike the single tube needles, the mosquito's feeding apparatus has two tubes - one for injecting saliva and one for drawing up the blood.



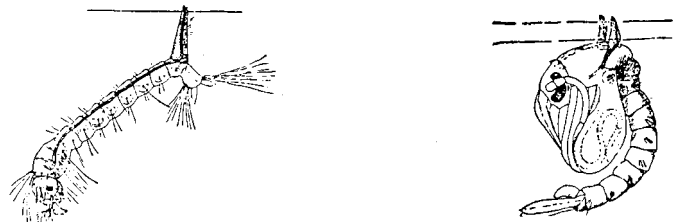
Is it possible that there are any benefits to having mosquitoes around? Do you enjoy going fishing? Many of our freshwater game fish survive by eating immature insects found in the water. Mosquito larvae play an important role in the food chain of these fish either directly or indirectly. If big fish do not feed on the larvae, they do feed on smaller fish who eat the larvae. Also, remember that the male feeds on the nectar of plants and may even help to a small degree with some pollination.

Mosquitoes develop through complete metamorphosis. Thus, they have the four stages of development - _____, _____, _____, and _____. Mosquitoes may survive through the winter as eggs, larvae or adults, dependent upon the particular species.



The female mosquito lays eggs in an environment that will be favorable to their survival. However, during dry periods, the eggs may survive until there is sufficient moisture for hatching.

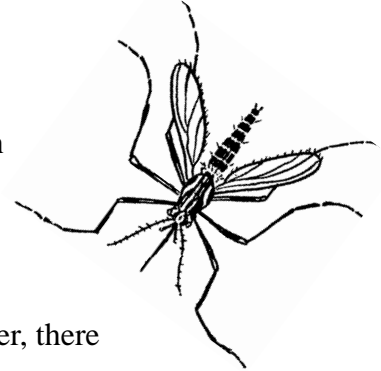
The larva stage of mosquitoes requires _____ to survive. This aquatic stage moves through the water in a series of spasmodic motions and are sometimes called ‘wrigglers’. The larva must return to the surface to breathe. Air is taken in through a tube called a siphon tube that is located at the tail-end of the larva. Larva feed on microorganisms in the water, such as algae, protozoa and bacteria. The larva will develop over several days and will molt about four times (thus going through four instars) before the pupa stage begins.



The pupa stage of the mosquito is a little different than most other insects in that the pupa is not totally inactive during this period. It will _____ around in the water and is sometimes called a ‘tumbler’; however, it does not take in any food. The pupa must obtain air from the surface through two short respiratory tubes located on its thorax. Adults will emerge after a few days of development in the pupa stage. In general, at 80 °F, it will take 10 to 14 days for the mosquito to develop from an egg to an adult.

Adult mosquitoes are small insects and have _____ wings. The males are smaller than the females and can also be distinguished from the females by their bushier antennae. The adult mosquito will live about _____ month.

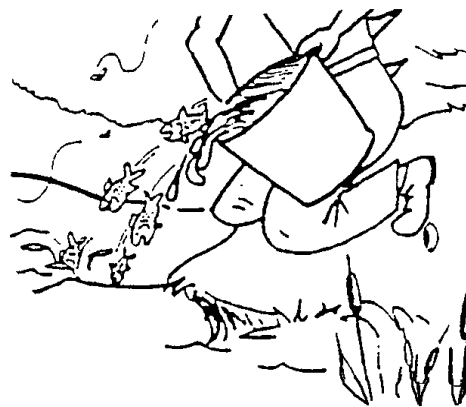
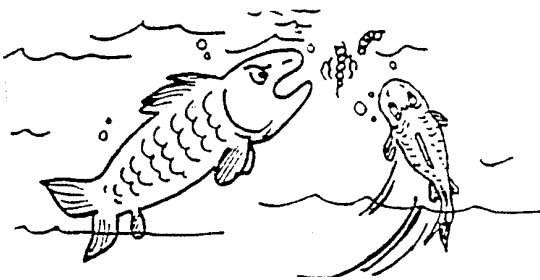
The adult mosquitoes are usually most active during the early morning or early evening hours. They may also be active at night and in areas of dense shade. During the daylight hours, the adults may rest in lawns, shrubs and bushes.



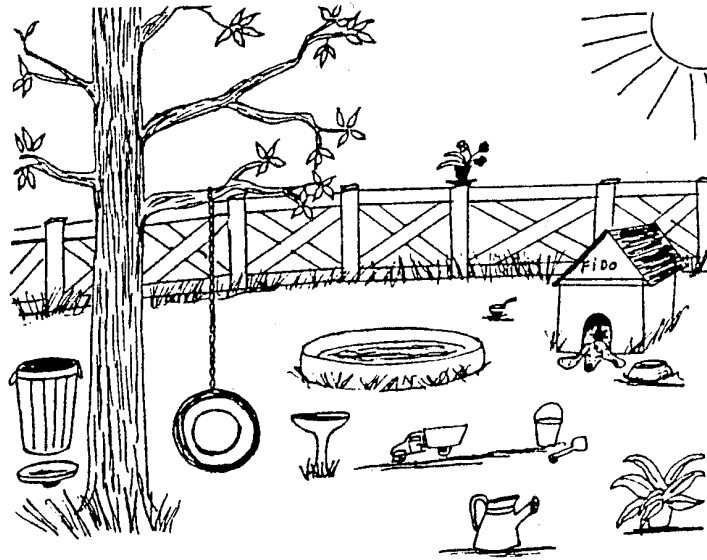
_____ control is an effective method of control; however, there are no known substances that will completely stop mosquitoes from attacking for more than a few hours. Repellents can be applied to exposed skin or clothing to give some protection to man when and where levels are high. Larvacides can be applied to some areas of standing water to kill mosquitoes in the larva stage, but precautions must be taken to ensure that other aquatic animals are not harmed. Other pesticides may be sprayed to control adult mosquitoes; however, reinfestation of the area will occur because other adults will fly back into the area.

There are also nonchemical methods that are utilized to reduce mosquito populations or infestations. Mosquitoes are kept from entering homes by installing screens on windows and doors. When they do get in the house, most are killed by _____ methods such as a fly swatter.

_____ control methods can also be used in some areas for mosquito control. In ponds, pools and irrigation ditches, certain species of fish (*Gambusia*) can be added and they will feed on the larvae. Protecting dragonflies and damselflies will also provide some biological control of mosquitoes. Dragonflies and damselflies feed on the mosquito larvae while they are in the nymph stage of development and on adult mosquitoes when they mature to adults.



One of the most effective ways to reduce the mosquito population is by eliminating their breeding places. Since the mosquito _____ and _____ require water to develop, we can reduce mosquito problems in our communities by eliminating any areas of _____ . This can be done by _____ in larger areas, _____ low areas and _____ ‘containers’ which will hold water. Many times these ‘containers’ can be found in our own backyards. Examples are old tires, boats, buckets, clogged gutters, and even bottle caps.



Any of these methods will help to reduce the number of mosquitoes that we have to live with during the summer. By doing our part to ensure that breeding places around our homes and in our yards are eliminated, we can reduce the amount of pesticides which need to be applied and make the outdoors more pleasant to us and our pets.

REFERENCES:

Borror, D. J., D. M. De Long and C. A. Triplehorn. 1981. *An Introduction To The Study Of Insects*. eds., M. Brown, D. Milley and W. Broderick. Saunders College Publishing. Philadelphia, PA.

Crans, W. J. 1993. *Why mosquitoes cannot transmit AIDS*. Rutgers Cooperative Extension Leaflet No. FS736.

Davidson, R. H. and W. F. Lyon (eds.). 1987. *Insect Pests Of Farm, Garden, and Orchard*. John Wiley & Sons, Inc. New York, NY.

Manley, D. 1994. *Entomology Unit 1*. Clemson University Extension Service 4-H Manual No. 39.

Mosquito Patrol

Post-test:

I. Multiple Choice:

Please write the letter of the correct answer in the space provided by each question number. Read carefully.

- ___ 1. The proper order of the stages of growth in complete metamorphosis is:
- A. egg, pupa, larva and adult C. egg, larva, pupa and adult
B. egg, nymph and adult D. larva, pupa and adult
- ___ 2. The hard outer covering of an insect is called the:
- A. endoskeleton C. ectoskeleton
B. exoskeleton D. molt
- ___ 3. Which of the following is not an insect?
- A. spider C. butterfly
B. grasshopper D. ant
- ___ 4. Which of the following characteristics describes insects?
- A. 2 body segments, eight legs and a pair of antenna
B. 2 body segments, six legs and a pair of antenna
C. 3 body segments, eight legs and a pair of antenna
D. 3 body segments, six legs and a pair of antenna
- ___ 5. Controlling insect pests with natural enemies is an example of:
- A. biological control C. mechanical control
B. chemical control D. inventive control

II. True or False:

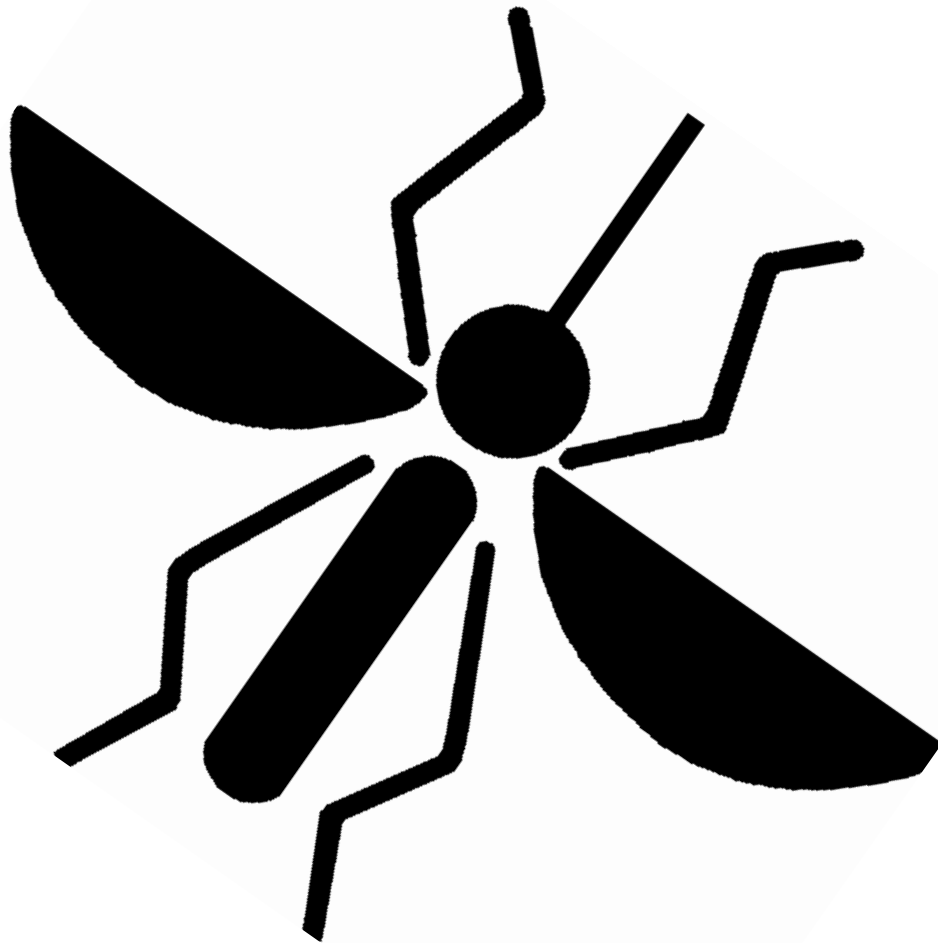
Please circle T if the statement is true or F if the statement is false.

- T F 6. Entomology is a person who studies insects.
- T F 7. By emptying containers around your house that are holding water, you may help reduce the amount of spraying needed for mosquito control and, therefore, help to protect the environment.
- T F 8. Mosquito larvae are sometimes called “jigglers.”
- T F 9. The wings of an insect are attached to the insect’s abdomen.
- T F 10. Mosquitoes must have water to develop properly.











Mosquito Patrol

Site Surveys



Mosquito Patrol

Site Survey Guidelines

-  Each youth should survey at least six (6) different sites. A site is the outside of a home or business and the surrounding yard.
-  Youth should select familiar sites where they know the owner and pets. Examples of these sites would be your neighborhood, relative's or a family friend's property.
-  You should obtain permission from the property owner to conduct the survey.
-  Beware of animals on the property. If you are not comfortable with surveying a site with animals, just find another site.
-  Always conduct the surveys in groups of at least two youth.
-  Fill out the Door Hanger Survey and the Follow-up Survey Forms properly. Clipboard would be useful.
-  Leave the Door Hanger Survey with the property owner and keep the Follow-up Survey for your follow up survey in approximately two weeks.
-  Make this a fun learning experience!



Mosquito Patrol

Mosquitoes must have standing water to survive to become flying adults. The following items that can hold water and allow mosquitoes to breed have been identified on your site by our *Mosquito Patrol* survey.

- Cans, Bottles, and Bottle Tops
- Buckets, Barrels, and Drums
- Wheelbarrows
- Boats
- Birdbaths
- Flowerpots and Vases
- Pet Dishes and Bowls
- Wading Pools
- Unmaintained Swimming Pool
- Tires
- Plastic Bags or Covers
- Tree Holes or Stumps
- Leaky Faucets
- Air Conditioner Drain Pipes
- Roof Gutters (Clogged)
- Eaves Troughs (Clogged)
- Low Spots or Holes in Yard
- Drainage Ditch (Clogged)
- Others _____

Over for Control Suggestions

CLEMSON
EXTENSION



Pub 99

March 1999

Eliminate Mosquito Breeding Sites For More Fun In The Sun!



Remove all cans, bottles, bottle tops and plastic bags or covers from the site.



Empty buckets, barrels, drums and wheelbarrows and store overturned or in a covered area.



Drain boats and cover to prevent standing water.



Change water in bird bathes, flower plantings and pet bowls at least weekly.



Do not allow water to stay in pools more than a week without proper maintenance.



Repair leaky faucets and make sure water does not stand where air conditioner pipes drain.



Clean gutters, eaves troughs and ditches regularly.



Level low spots in the yard.



Check pet's fur before they enter your home for mosquitoes.

Program developed by: William M. Hair, General Ag Agent, and Leigh A. Walker, Youth Development Agent
Contact: Orangeburg County Extension, 550 Henley St., Orangeburg, SC 29115

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Mosquito Patrol

Initial Survey

At each site, note the items (from the list) that can hold water and allow mosquitoes to breed. Mark the appropriate place with an X on both the Door Hanger and the Initial Survey. Leave the Door Hanger with the property owner. Keep the Initial Survey to compare with your Follow-Up Survey (on back) that you will complete in approximately two weeks. Identify your site locations on the back.

Site Identification:

Site 1: Grandma's house Site 2: _____ Site 3: _____

Site 4: _____ Site 5: _____ Site 6: _____

ITEMS	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	TOTALS*
Cans, Bottles, and Bottle Tops	X						
Buckets, Barrels, and Drums							
Wheelbarrows							
Boats	X						
Birdbaths							
Flowerpots and Vases	X						
Pet Dishes and Bowls	X						
Wading Pools							
Unmaintained Swimming Pool							
Tires							
Plastic Bags or Covers	X						
Tree Holes or Stumps							
Leaky Faucets	X						
Air Conditioner Drain Pipes							
Roof Gutters (Clogged)	X						
Eaves Troughs (Clogged)	X						
Low Spots or Holes in Yard							
Drainage Ditch (Clogged)							
Others							
TOTALS*	8						

EXAMPLE

*Total your results and record them on the Summary Sheet.



Mosquito Patrol

Initial Survey

At each site, note the items (from the list) that can hold water and allow mosquitoes to breed. Mark the appropriate place with an X on both the Door Hanger and the Initial Survey. Leave the Door Hanger with the property owner. Keep the Initial Survey to compare with your Follow-Up Survey (on back) that you will complete in approximately two weeks. Identify your site locations on the back.

Site Identification:

Site 1: _____ Site 2: _____ Site 3: _____

Site 4: _____ Site 5: _____ Site 6: _____

ITEMS	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	TOTALS*
Cans, Bottles, and Bottle Tops							
Buckets, Barrels, and Drums							
Wheelbarrows							
Boats							
Birdbaths							
Flowerpots and Vases							
Pet Dishes and Bowls							
Wading Pools							
Unmaintained Swimming Pool							
Tires							
Plastic Bags or Covers							
Tree Holes or Stumps							
Leaky Faucets							
Air Conditioner Drain Pipes							
Roof Gutters (Clogged)							
Eaves Troughs (Clogged)							
Low Spots or Holes in Yard							
Drainage Ditch (Clogged)							
Others							
TOTALS*							

*Total your results and record them on the Summary Sheet.

Mosquito Patrol

Follow-Up Survey

At each site, note the items (from the list) that can hold water and allow mosquitoes to breed. Mark the appropriate place with an X on both the Door Hanger and the Initial Survey. Leave the Door Hanger with the property owner. Keep the Initial Survey to compare with your Follow-Up Survey (on back) that you will complete in approximately two weeks. Identify your site locations on the back.

Site Identification:

Site 1: Grandma's house Site 2: _____ Site 3: _____

Site 4: _____ Site 5: _____ Site 6: _____

ITEMS	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	TOTALS*
Cans, Bottles, and Bottle Tops	X						
Buckets, Barrels, and Drums							
Wheelbarrows							
Boats							
Birdbaths							
Flowerpots and Vases							
Pet Dishes and Bowls							
Wading Pools							
Unmaintained Swimming Pool							
Tires							
Plastic Bags or Covers	X						
Tree Holes or Stumps							
Leaky Faucets	X						
Air Conditioner Drain Pipes							
Roof Gutters (Clogged)							
Eaves Troughs (Clogged)	X						
Low Spots or Holes in Yard							
Drainage Ditch (Clogged)							
Others							
TOTALS*	4						

EXAMPLE

*Total your results and record them on the Summary Sheet.



Mosquito Patrol

Follow-Up Survey

At each site, note the items (from the list) that can hold water and allow mosquitoes to breed. Mark the appropriate place with an X on both the Door Hanger and the Initial Survey. Leave the Door Hanger with the property owner. Keep the Initial Survey to compare with your Follow-Up Survey (on back) that you will complete in approximately two weeks. Identify your site locations on the back.

Site Identification:

Site 1: _____ Site 2: _____ Site 3: _____

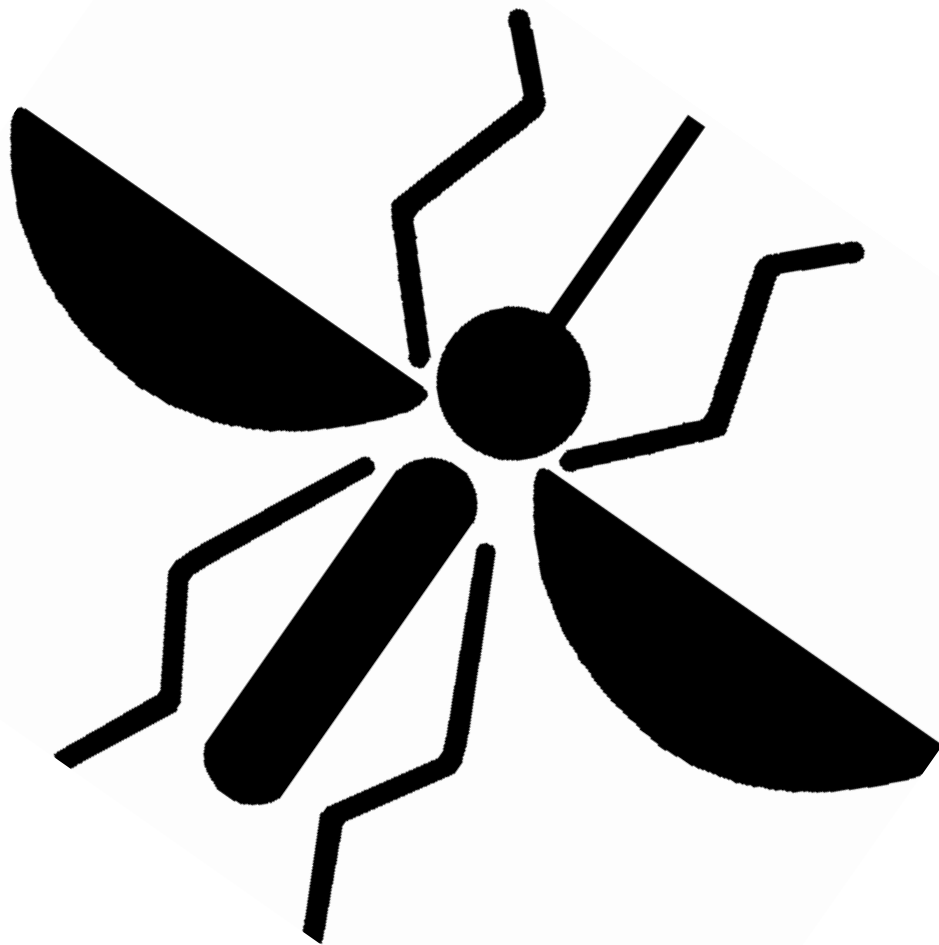
Site 4: _____ Site 5: _____ Site 6: _____

ITEMS	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	TOTALS*
Cans, Bottles, and Bottle Tops							
Buckets, Barrels, and Drums							
Wheelbarrows							
Boats							
Birdbaths							
Flowerpots and Vases							
Pet Dishes and Bowls							
Wading Pools							
Unmaintained Swimming Pool							
Tires							
Plastic Bags or Covers							
Tree Holes or Stumps							
Leaky Faucets							
Air Conditioner Drain Pipes							
Roof Gutters (Clogged)							
Eaves Troughs (Clogged)							
Low Spots or Holes in Yard							
Drainage Ditch (Clogged)							
Others							
TOTALS*							

*Total your results and record them on the Summary Sheet.

Mosquito Patrol

Portfolio

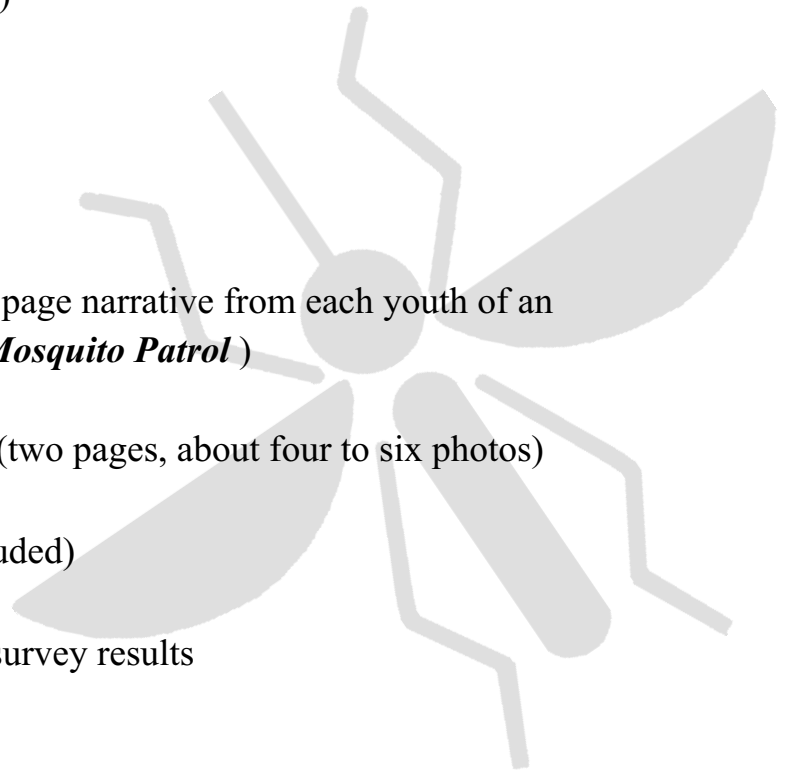


Mosquito Patrol

Portfolio Requirements

Your portfolio will be developed to demonstrate what steps your club/class has taken in completing the *Mosquito Patrol* program, what you have learned and what impact you had on the sites surveyed. The following are very important parts of the portfolio. The portfolio judges will be looking for these items to be included. Please feel free to add any thing to the portfolio that will make it more informative or appealing.

- Design your own unique portfolio book cover.
- Cover Page (included)
- Table of Contents
- Time Log (included)
- Story (maximum one page narrative from each youth of an experience in *Mosquito Patrol*)
- Photos with captions (two pages, about four to six photos)
- Summary Sheet (included)
- Include copies of all survey results



Mosquito Patrol

Portfolio Cover Page

Club/Class Name : 7th grade Science

School (if a class) : Yourtown School

Mailing Address : 1234 Drive, Yourtown, SC 29000

Leader/Teacher : Miss Mayfield

Telephone Number (day) : (864) 555-1234

Club/Class Members : Ben Dere Leigh Hair

(Participating Only) Dunn Dat Jane Smith

Candy Caine Bill Baloow

William Walker Judy Carefree

EXAMPLE

Leader's/Teacher's Signature : Miss Mayfield

Date : 5/15/1999



Mosquito Patrol

Portfolio Cover Page

Club/Class Name : _____

School (if a class) : _____

Mailing Address : _____

Leader/Teacher : _____

Telephone Number (day) : _____

Club/Class Members : _____

(Participating Only) _____

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Leader's/Teacher's Signature : _____

Date : _____

Mosquito Patrol

Time Log

Enter the correct information in the appropriate places. Include this form in your portfolio.

	DATE(S)	TIME REQUIRED (hours)
Lesson Plan I	4/24/99	1 hour
Lesson Plan II	4/25/99	1 hour
Pre- & Post-testing	4/24/99 & 4/26/99	30 minutes
Initial Survey	4/29/99 & 5/3/99	5 hours
Follow-up Survey	5/6/99 & 5/10/99	4 hours
Portfolio	5/13/99 & 5/17/99	3 hours



Mosquito Patrol

Time Log

Enter the correct information in the appropriate places. Include this form in your portfolio.

	DATE(S)	TIME REQUIRED (hours)
Lesson Plan I		
Lesson Plan II		
Pre- & Post-testing		
Initial Survey		
Follow-up Survey		
Portfolio		

Mosquito Patrol

Summary Sheet

Record items as listed.

	PRETEST	POST-TEST
Average Club/Class Test Scores	85	95
Highest Grade	95	100
Lowest Grade	70	85

	INITIAL SURVEY	FOLLOW-UP SURVEY
Total Number of Youth Conducting Surveys	2	2
Total Number of Sites Surveyed	1	1
Total Number of Possible Mosquito Breeding Items Recorded on Surveys	6	4

EXAMPLE

Write a short paragraph about any interesting results found in the surveys. What conclusions can you draw from your results? Include this form in your portfolio.

Don't forget to write your paragraph!

(Use your own words & your own handwriting.)

Mosquito Patrol

Summary Sheet

Record items as listed.

	PRETEST	POST-TEST
Average Club/Class Test Scores		
Highest Grade		
Lowest Grade		

	INITIAL SURVEY	FOLLOW-UP SURVEY
Total Number of Youth Conducting Surveys		
Total Number of Sites Surveyed		
Total Number of Possible Mosquito Breeding Items Recorded on Surveys		

Write a short paragraph about any interesting results found in the surveys. What conclusions can you draw from your results? Include this form in your portfolio.

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