

Insect Study Merit program-Important information about how to prepare for a merit badge.

Merit badges are also supposed to be done with the buddy system. We highly recommend that you attend the program with your scout, especially if they do not have a buddy; the chances of your scout completing all the work for the badge, during the allotted time, increases dramatically when he is properly motivated. You are sure to learn something.

Be dressed appropriately for being outdoors for some of the program time. This merit badge in general, is not designed to be completed in an afternoon, therefore in order to complete the badge, there is some work the scouts need to do outside of the program time. We call this pre-requisites.

I suggest this is done prior to the badge program date but realize this is not always practical or possible and will accept the assignments after the program.

For the insect badge, here is what you need to do ahead of time so that at the end of the program I can sign off on your card completely. **Luckily, you don't have to collect and pin insects anymore, but you do need to make a scrap book about 20 species Requirement 5.**

If time permits, we will be catching and observing insects the day of the program but in order to have a scrap book you need to do more than just catch them so bring a composition book or some other booklet you can use to record your observations. Also, before arriving look up a local bee, butterfly, beetle, and true bug on the internet or in a book and bring pictures or sketches and a small paragraph about each one.

The other thing you need to do ahead of time and I would start as early as possible is #9, you must raise an insect through complete metamorphosis from larva to adult. Crickets do not count as their metamorphosis is not complete. If you have raised insects in your school classroom the only way it can count is if it was within the last year and you write a report describing what you learned about each stage. When you are ready to start raising an insect you have a few options. The cheapest and easiest it to raise meal worms. A guide can be found in places on the internet. You can buy live meal worms at most pet stores. If you go to a bait store, make sure to get a maggot or a grub, regular worms won't work. If you want to get fancy you can use an ant colony, Lady bugs or caterpillars purchased from a science store like this includes a habitat and you can order the live larvae to raise. You could even collect mosquito larvae from a local puddle and raise them. If you don't plan on bringing me the finished product, you need to take good notes with sketches or photos of the insect's progress.

Insect Study Requirements:

1. Do the following:

- (a) Explain to your counselor the most likely hazards associated with exposure to ants and bees and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
- (b) Discuss the prevention of and treatment for health concerns that could occur while working with ants and bees, including insect bites and anaphylactic shock.

2. Tell how insects are different from other animals. Show how insects are different from millipedes and spiders.

3. Point out and name the main parts of an insect.

4. Describe the characteristics that distinguish the major orders of insects.

5. Do the following:

- (a) Observe 20 different live species of insects in their habitat. In your observations, include at least four orders of insects.
- (b) Make a scrapbook of the 20 insects you observe in 5a. Include photographs, sketches, illustrations, and articles. Label each insect with its common and scientific names, where possible. Share your scrapbook with your merit badge counselor.

6. Do the following:

- (a) From your scrapbook collection, select eight species of insects and identify what role they play in the ecosystem.
- (b) Describe three alternatives to insecticides as a way of preventing crop injury and subsequent yield loss. Explain the advantages and disadvantages of these alternatives.

7. Explain the symbiotic relationship between bees and humankind. Explain what colony collapse disorder (CCD) is and some of the possible causes. Discuss how CCD affects our food supply.

8. Compare the life histories of a butterfly and a grasshopper. Tell how they are different.

9. Raise an insect through complete metamorphosis from its larval stage to its adult stage (e.g., raise a butterfly or moth from a caterpillar).*

10. Do ONE of the following:

- (a) Observe an ant colony in a formicarium (ant farm). Find the queen and worker ants. Explain to your counselor the different chambers found within an ant colony.
- (b) Study a hive of bees. Remove the combs and find the queen. Estimate the amount of brood and count the number of queen cells. Explain how to determine the amount of honey in the hive.

11. Tell things that make social insects different from solitary insects.

12. Tell how insects fit in the food web of other insects, fish, birds, and mammals.

13. Find out about three career opportunities in insect study. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

*** Some insects are endangered species and are protected by federal or state law. Every species is found only in its own special type of habitat. Be sure to check natural resources authorities in advance to be sure that you will not be collecting any species that is known to be protected or endangered, or in any habitat where collecting is prohibited. In most cases, all specimens should be returned at the location of capture after the requirement has been met. Check with your merit badge counselor for those instances where the return of these specimens would not be appropriate.**