

Wonderful World of Bugs

Welcome to the wonderful world of bugs! This special class is designed to be done together as a family. Students should NOT try any of the experiments or activities included without a parent's permission and direct supervision. This course was prepared by several different authors, whose names you'll find on the units they submitted. Following each unit are activities and assignments you can enjoy (either in addition to or as an alternative to the bug collecting and studying suggested in these units). Have fun!

Unit 1: Why Study Bugs

by Dr. Heather W. Allen

Entomophobia, insectophobia, and arachnophobia are the fear of bugs, insects, and spiders. What better way to conquer such fears than to study and discover the wonders inherent in vermin that slither, scamper, crawl, and climb?

How does one get into the study of bugs? Well, in our family it all began one day, several years ago, when we heard a scream from the basement and ran downstairs to find one family member in slight terror over the creepiest bug we'd ever seen hanging by its pincers from the ceiling ductwork. Needless to say, a child was sent, at a high rate of speed (it's okay to run in the house when there's a bug to catch), to the kitchen to find a container suitable for catching this vermin.

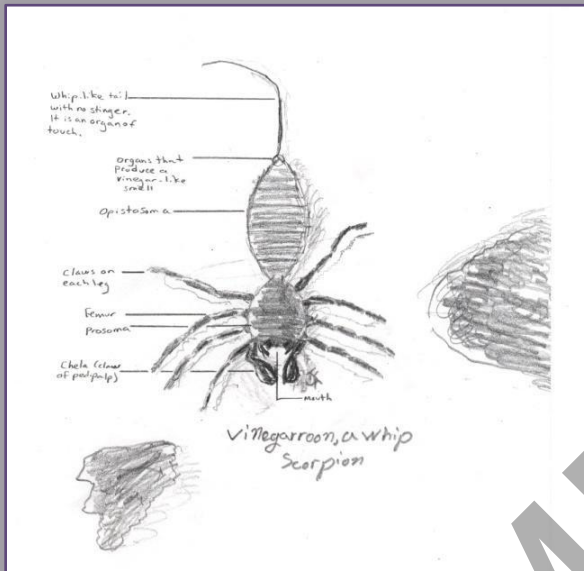


Vinegarroon

We managed to catch the bug, about four inches long, which looked like a cross between a scorpion and a cockroach. This bug had large pincer-claw looking things in the front, long antennae, a very long tail, and to make matters worse, smelled awful, just like sniffing a bottle of vinegar. We had no clue what this bug was, but we were determined to find out. After a little research in our insect field guide, we determined that this scary-looking bug was something called a vinegarroon, or whip scorpion (*Mastigoproctus giganteus*).

Now what were we to do? After a family meeting, we decided that this critter was destined to become a family pet. We went out to the garage and rounded up an aquarium and some reptile sand (we actually have several spare aquariums at any given time since one never knows when a bug,

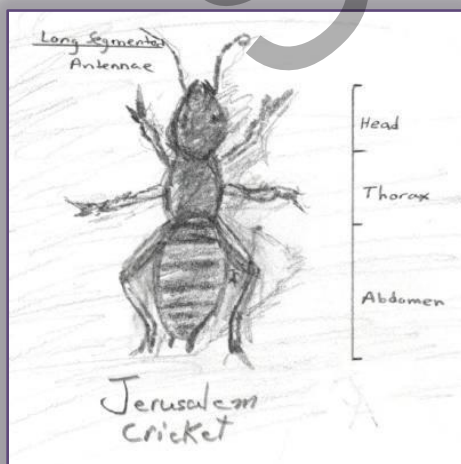
snake, lizard, or some other living thing might join the family—we like to be prepared), a small hollowed-out log for shelter, and a small water dish. After fixing up a nice home, our vinegaroon was placed inside and the aquarium located in the kitchen. Were we in for a surprise. This bug wandered around making the most fascinating tracks. What an interesting thing to watch.



Over the next two-and-a-half years, this vinegaroon was a great pet. It ate crickets, enjoyed plunging itself, head first, into its water dish and remaining there for hours, and wandered around leaving tracks. Watching it catch the crickets we provided for food was often a family event. It could grab a cricket with its pincers in no time flat, eat it, and then clean up the mess by moving the debris and leveling the sand with those same pincers. We also found that if it was frightened, it would shoot that vinegar-smelling stuff out of its long tail and pretty much stink up

the aquarium. After Vinny finally died, we had another opportunity to catch a vinegaroon and, again, this second one lived about two-and-a-half years. A very cool pet indeed.

Jerusalem Cricket



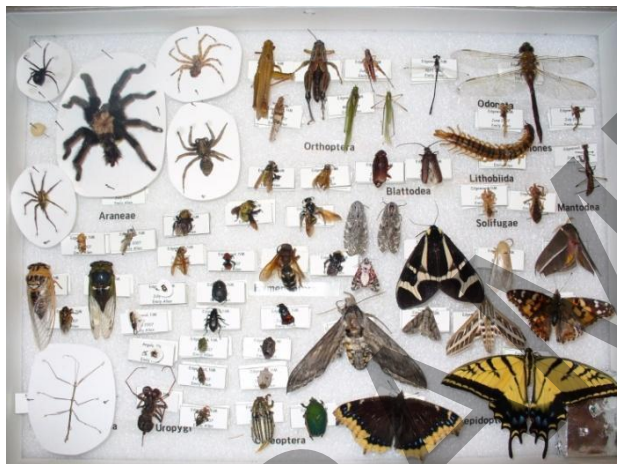
Have you ever seen a *Jerusalem cricket*? Deborah Wuehler, Senior Editor of The Old Schoolhouse® Magazine, emailed me and said, "If you're doing yucky bugs (insects), Heather, you have to add those Jerusalem crickets to it—those are scary." See, even Deborah has some negative feelings about bugs. Granted, these feelings might be reserved for Jerusalem crickets, but then again, maybe not. Anyway, our family finds the Jerusalem cricket fascinating.

In fact, we have always known them by the name "child of the earth" and have found them, at times, referred to as "potato bugs."

Jerusalem crickets (*Stenopelmatus fuscus*) live in moist areas in the desert. Typically they live underground, feeding on plant roots, but sometimes they emerge if driven out by water, heat, or drought. Occasionally, hungry predators or curious children dig them up. They are not poisonous but can give a nasty bite if provoked (not speaking from experience of course).

If you happen to see one, carefully pick it up by its sides and look into its face. It is a little unnerving, but with one glance you can tell why it's often referred to as a child of the earth. A Jerusalem cricket has a face that is the most human-like face ever seen on an insect. We often find Jerusalem crickets outside near our animal pens. They seem to like the moist earth near the place where our goats and sheep drink; sometimes we find them under protective layers of hay.

Young Entomologists



From our daily life experiences with bugs, our son Joe, 11 at the time, signed up for a 4-H entomology project. For the next several months, the whole family was involved in catching bugs. We learned to hunt for, catch, gas, pin, and mount all sorts of bugs. We also learned that sometimes a gassed bug is only asleep and not dead, as evidenced by Joe running down the hall one morning screaming, "It's a miracle—

God's resurrected my bugs!" We looked and, sure enough, there were about 20 bugs, formerly dead, now moving and flapping their wings while still secured by pins. This was a slight miscalculation that we've not repeated. Joe ended up with a first-place win in entomology at the county and state fairs. What fun we've had and continue to have since our fascination with bugs has truly captured almost everyone's interest in the family.

Entomology has become a family event for the most part. We now take bug jars, nets, killing jars, ethyl acetate, pinning boards, storage containers, and other bug paraphernalia on all our trips cross-country. We take the nets and jars on hikes and in the car when running errands. We now have small containers in our youngest child's diaper bag since you never know when you might find a bug.

Joe and Emily have several years of entomology behind them. Hana, our newest entomologist, never misses a bug. And then there's Ed. Ed is not particularly fond of bugs. In fact, when we go hiking in search of bugs, Ed brings a book, finds a rock to sit on, and then reads until we return. Ed announced that he'd like to have a mom who was normal. He said that "normal moms squash bugs when they see them. They don't put them in containers all over the kitchen waiting for us to gas, pin, and identify them."

Is that true? Other moms squash perfectly wonderful and fascinating bugs? Guess what? I've found that our son is correct. In fact, other moms make strange faces or shuddering movements when the discussion of bugs comes up in normal conversation, or worse, they scream when you show them your latest find. What is wrong with these women? Here is an incredible creation of God that ranks right up there with snakes and mice in eliciting irrational fear among so many.

That said, I'm writing this as a plea to consider the creepy, crawly, weird, and icky world of bugs. They are so cool, and in our home we find them fascinating. In fact, all of our cars, as well as all the sheds around our property, are equipped with bug collection containers "just in case." It boggles my mind to find that others are not similarly equipped and prepared just in case that really creepy, crawly, weird, and icky bug happens to cruise by.

Getting Started in Entomology

If you're at all interested in a foray into the world of entomology, our suggestion is that you watch for sales of nets and bug containers and buy as many of each as you can (we never seem to have enough, and

the nets don't last very long if you're really using them regularly). You'll want to also obtain some cigar boxes or plastic containers with lids, put cork material in the bottom into which you can stick your pins, and then purchase some ethyl acetate and make a killing jar.



A killing jar is just a small, wide-mouth jar, prepared by putting about 1/4 to 1/2 inch of plaster of Paris in the bottom and letting it harden. Then you're all set. You'll pour a small amount of ethyl acetate in the jar and let it be absorbed into the plaster of Paris. Be very careful to keep the lid on tight, and when it's off for brief periods when a bug is being put in or removed, try not to smell the chemical. We've tried other chemicals, such as acetone and finger nail polish remover, but we feel the ethyl acetate works best for us. We order the ethyl acetate and mounting pins (they're longer than typical straight pins and don't rust or corrode) from the *Homeschool Training Tools* catalog.

Our children also keep journals documenting things they find interesting. They draw pictures, add details from their research, and have a fascinating record of what they've learned. Entomology knowledge is a great addition to their journals, and we've found our children can spend hours poring over their numerous field guides. This is education at its best for our family.

As a family, we have spent many afternoons or evenings identifying bugs. It actually is great fun for all. We also keep journals about our bugs, and several family members spend time drawing their bugs and including labels of body parts, interesting facts, etc. If you are interested in photography, bug collecting is a great opportunity to take fascinating pictures. We have spent some tense moments attempting to capture just the right picture of an insect or spider without getting injured or allowing the insect or spider to escape during the process.



Conclusion

Creepy, crawly, weird, and icky bugs—we are fascinated by all of them at our house. Before you scream and squash the next bug you see, reach for a seldom-used container and carefully capture it. Then pull out your field guide and see if your family can identify what you have captured. It is an incredible experience for all, regardless of age. If you get hooked by the bug bite, so to speak, you'll find yourself making sure you always have a bug container nearby—just in case.

Activities and Assignments

Language Arts

- Choose one of the two bugs you've studied so far and learn more about it. Write a short essay sharing your findings.
- Choose two different bugs that are common in your area and write a report comparing and contrasting them.

Art

- Create a model of one of the bugs we've studied or another one you are interested in.
- Sketch a picture your favorite bug.

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