



HOMEMADE BUG VACUUM Discover biodiversity in your own backyard!

Materials

- Small plastic container with lid
- Single hole punch or leather awl (Use caution and have an adult help with sharp objects.)
- Two flexible drinking straws (Wider ones are better, as they will allow larger bugs to be caught.)
- Tape
- Pen or pencil
- Nylon stocking that can be cut up
- Scissors
- Clear plastic wrap
- Access to an area in your yard, a field, or other outdoor place where you think bugs might live. Tip: These types of small invertebrates can often be found under rotting wood, stones, and decaying leaves. If it is hot and dry outside, more bugs may be found in shady and/or moist areas.

Procedure

- With the help of an adult, make a hole in the side of the plastic container using a single hole punch or carefully using a leather awl. The hole should be about 1/2 inch below the top rim of the container. Make sure that when the container has its lid on, it does not block the hole.
- Using the same technique, make a hole opposite the first one, again about 1/2 inch below the container's top rim.
- Insert the mouth end of a flexible straw into one of the holes. Stick the straw about 1 inch into the container. If the straw does not fit tightly into the hole, wrap tape around the straw until it fits snugly into the hole. If the straw is too large for the hole, gently push a pen or pencil through the hole to widen it until the straw just fits. Make sure the connection between the straw and the hole is snug.
- Cover the mouth end of the second straw with a small piece of nylon stocking. Use tape to secure the stocking piece to the straw. If necessary, overlap two layers of the stocking so that air can pass through, but bugs cannot! Why do you think it is important to cover one straw like this?
- Insert the covered end of the second straw into the second hole in the plastic container. Again, make sure the fit is snug, and stick the straw about an inch into the container.
- Cut out the center of the plastic container's lid. You can do this by folding the lid in half and cutting out the center so that only 1/2 inch border around the lid's rim remains. This will be the observation window of your bug vacuum.
- Stretch a piece of clear plastic wrap over the top of the plastic container.
- Snap the container's lid back on to hold the plastic wrap in place. Make sure there are no holes in the plastic wrap, or your subjects could escape!
- Bring your bug vacuum to an area in your yard, a field, or other outdoor place where you think bugs might live.
- Carefully search a small area for bugs. You will need to have a search pattern so that you do not crush the resident bugs before you suck them up, and also so you know what parts you have checked already. Do you see many bugs?
- When you find a bug, take your bug vacuum and gently place the filterless straw so that the end is very close to the bug. Place the other straw with the nylon filter in your mouth and breathe in forcefully. This, like a household vacuum, will suck in the bug.
- Repeat this process until the bug has been transferred into the plastic container chamber. Examine the bugs you collected by looking at them through the plastic wrap window of the bug vacuum.

Results

If you surveyed an area that has good biodiversity, you should have found many different types of bugs. If you did not, the area may have been too small or conditions may not have been right for supporting a diverse population of bugs.

Why?

Some of the most common types of bugs in North America include various flies, beetles (including ladybugs), butterflies and moths, ants, bees, wasps, earwigs, grasshoppers, and crickets, among many others. You may have also found spiders, pill bugs (also called roly-pollies), wood lice, centipedes and/or millipedes. These are not technically insects but, like bugs, they are small invertebrates. Spiders are arachnids and pill bugs and wood lice are a type of crustacean called isopods. Depending on the exact type of area you surveyed, you may have found different types of bugs, because different species prefer various conditions.

Photo credit: Science Buddies



To learn more about biology and local wildlife, check out the Natural History exhibit at the Pink Palace Museum or visit the Lichterman Nature Center.