Worm composting bin (Vermicomposting)

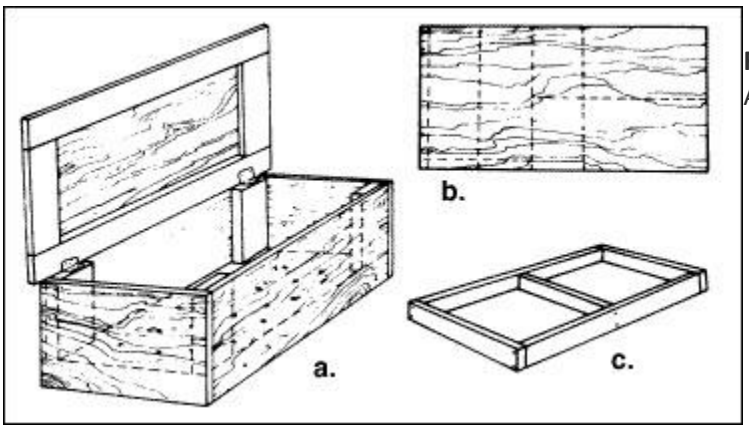

Figure 5
A worm composting bin.

Worm composting is suitable for composting fruit and vegetable scraps. The worms eat kitchen scraps, turning the material into valuable organic matter.

Materials

- One 4-x-8-foot sheet of 1/2-inch exterior plywood
- One 12-foot length of 2 x 4 lumber
- One 16-foot length of 2 x 4 lumber
- 16d galvanized nails (1/2 pound)
- 6d galvanized nails (2 pounds)
- Two galvanized door hinges
- One pint of clear varnish (optional)
- Plastic sheets for placing under and over the bin (optional)
- One pound of worms for every 1/2 pound of food wastes produced per day. (The classified sections of many popular fishing and gardening magazines contain current listings of firms that market red worms.)
- Bedding for worms: peat moss, brown leaves, moistened, shredded newspaper or moistened, shredded cardboard

Tools

- Tape measure
- Skill saw or hand saw
- Hammer
- Sawhorse
- Long straight-edge or chalk snap line
- Screwdriver
- Drill with 1/2-inch bit
- Eye and ear protection
- Work gloves
- Paint brush (optional)

To build a worm composting bin

- Measure and cut the plywood as shown in Figure 5b, so that you have one 24-x-42 inch top, one 24-x-42-inch base, two 16-x-24-inch ends, and two 16-x-42-inch sides.
- Cut the 12-foot length of 2 x 4 lumber into five pieces: two 39-inch pieces, two 23-inch pieces and one 20-inch piece. Cut the 39 and 23-inch pieces first. The 20-inch piece will then be 1/2 inch short due to sawing loss, but can still be nailed in easily.
- Lay the five pieces on edge on a flat surface to form a rectangle, with the long pieces on the inside and the 20-inch length centered parallel to the ends. Nail the pieces together with two 16d nails at each joint.
- Nail the 23-x-42-inch piece of plywood onto the frame with 6d nails every 3 inches.
- Cut four 1-foot lengths from the 16-foot length of 2 x 4 lumber (save the remaining 12-foot piece). Take the two 16-x-42-inch pieces of plywood and place a 1-foot length flat against each short end and flush with the top and side edges. Nail the 2 x 4s in place using 6d nails.
- Set the plywood sides up against the base frame so that the bottom edges of the 2 x 4s rest on top of the base frame and the bottom edges of the plywood sides overlap the base frame. Nail the plywood sides to the base frame using 6d nails.
- To complete the bin, nail the 16-x-24-inch pieces of plywood onto the base and sides at each end.
- To reinforce the bin, stagger nails at least every 3 inches wherever plywood and 2 x 4s meet.
- Drill twelve 1/2-inch holes through the plywood bottom of the bin for drainage.
- To build lid frame, cut the 12-foot piece (from the 16-foot length) of 2 x 4 lumber into two 45-inch pieces and two 20-inch pieces. Lay the pieces flat, forming a rectangle with the short pieces inside.
- Lay the 24-x-42-inch piece of plywood on top of the lid frame so that the plywood is 1-1/2 inches inside all the edges of the frame. Nail the plywood onto the frame with 6d nails.
- Attach the hinges to the inside of the back of the bin at each end (on the 2 x 4), and the corresponding undersides of the back edge of the lid frame, so that the lid stands upright when opened.
- The unfinished bin should last for at least five years; finishing the bin with varnish or polyurethane will protect the wood and prolong the life of the bin. Two coats of varnish with a light sanding between coats should be sufficient. If pressure-treated lumber is used, the bin will last years longer.
- Find a good location for the bin. It can be placed anywhere, as long as the temperature is more than 50 degrees Fahrenheit (10 degrees Celsius). The most productive temperature is between 55 degrees Fahrenheit and 77 degrees Fahrenheit. Garages, basements and kitchens are all possibilities, as well as the outdoors in warm weather (not in direct sunlight). Make sure to place the bin where it is convenient for you to use. It is wise to place a plastic sheet under the bin.

Adding the worms

Moisten the bedding material by placing it in a 5-gallon bucket and adding water to achieve a 75 percent water content, by weight. Weight the dry material and multiply the weight by three to determine the weight of the water to add. If the material cannot be weighed, or if it is already wet, add enough water to dampen all the bedding. Excess moisture will drain off most materials when they are placed into the composting bin; however, peat moss may hold too much water.

It is a good idea to put wet bedding material into the bin outdoors and wait until all the water has drained out (one to two hours) before setting the bin up indoors. Add about 8 inches of moistened

bedding to the bottom of the bin. Place the worms on top of the bedding, and leave the lid off for a while. The worms will work down into the bedding, away from the light.

Adding your wastes

Dig a small hole in the bedding and add your vegetable and fruit scraps. Then cover the hole with bedding. Small amounts of meat scraps can be added in the same way. Do not add any inorganic or potentially hazardous materials, such as chemicals, glass, metal, or plastic.

Maintaining your worm composting bin

Keep your compost pile moist, but not wet. If flies are a problem, place more bedding material over the wastes, or place a sheet of plastic over the bedding. As an alternative, try placing some flypaper inside the lid. Every three to six months, move the compost to one side of the bin, and add new bedding to the empty half. At these times, add food wastes to the new bedding only. Within one month, the worms will crawl over to the new bedding and the finished compost on the "old" side can be harvested. New bedding can then be added to the "old" side.