

# Worm Composting

Presented by  
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## VERMI (WORM) COMPOSTING



- **Vermiculture:** The raising of worms under controlled conditions.
- **Vermicompost:** A mixture of partially decomposed organic waste, bedding, worm castings, worms, cocoons, and other organisms
- **Worm Castings:** Worm manure

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## Vermicomposting

Use of worms (red wigglers) to compost in container  
 Typically done indoors  
 Does not require turning  
 Quick finished product – 3 months on average

Biggest tip: DO NOT over-feed!



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## Vermicomposting



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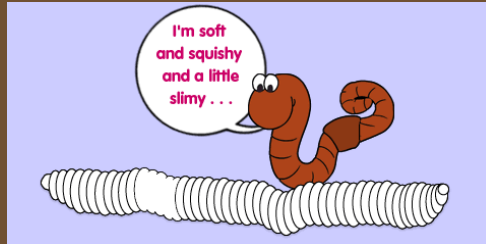
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## WORM ANATOMY

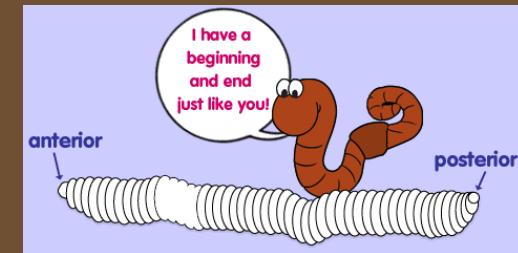
Red Worms – Eisenia fetida

Earthworms – Lumbricus terrestris



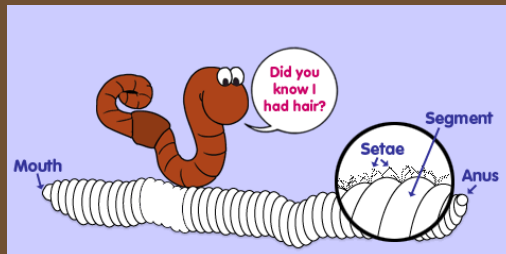
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## ANTERIOR & POSTERIOR



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## SEGMENTS & SETAE



- 120-170 segments
- Setae are small hairs; help worm move

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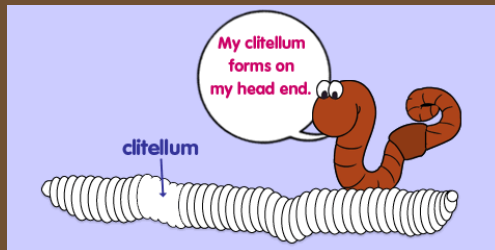
## MOUTH



- Prostomium—flap over mouth; food filter

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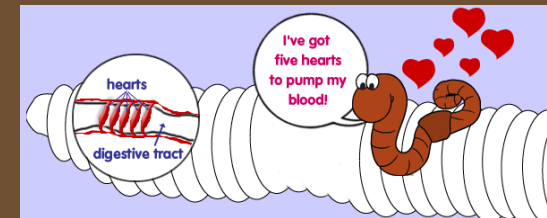
## CLITELLUM



- Reproductive Organ
- Worms hatch from cocoons.

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## HEART



- Worms have 5 hearts.

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## HOW WORMS BREATHE



- Worms breathe through their skin.
- Skin must stay wet.

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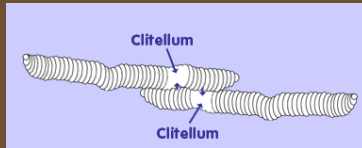
## DIGESTION



- Worms eat bacteria, fungi, & organic matter.
- Food is ground up in gizzard.

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## REPRODUCTION



- Worms have both female & male reproductive organs.
- Clitellum forms at 4-6-weeks old.
- Worms join together and a cocoon is formed.
- Cocoons are the size of a match-head and lemon-shaped.
- One to five worms per cocoon.
- Baby worms hatch in 2-3 weeks.

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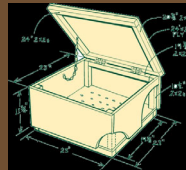
## LIGHT SENSITIVITY



- Worms have no eyes.
- Cells in front are sensitive to light.

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## CHOOSE A BIN



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## MAKE A BIN

### MATERIALS NEEDED:

- Plastic Bin
- Razor Blade
- Liquid Nails
- Window Screening
- Drill



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### PROVIDE VENTILATION



Drill 6-8  $\frac{3}{4}$  inch holes in lid. Scrape areas around holes with razor blade.



Cut out two inch square sections of window screening.

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### GLUE SCREENING



Apply even strip of liquid nails. Lay screen on top of liquid nails. Press down. Let dry 24 hours.



Or, instead of liquid nails. You can tape edges with duct tape.

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### ALTERNATIVE VENTILATION METHOD

Drill  $\frac{1}{8}$  inch holes in sides & lid of bin.



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### MAKE THE BEDDING



- Use your recycled newspaper for bedding.
- Tear the newspaper into 1 inch strips.
- Be sure not to use the glossy newspaper.



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### ADDING THE BEDDING



Fill a 10 gallon bin with torn or shredded newspaper.

Pack the newspaper down.

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### ADDING WATER



The newspaper must be moist like a wrung out sponge.

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### ADDING SOIL



Add a handful or two of soil to the bedding and mix it in.

Microorganisms in the soil help the worms decompose the food.

The soil also helps the worms to digest food.



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### ADDING WORMS

- Worms normally come to you in a box from a worm farm.

(1 pound = roughly 1000 worms) ~\$25



- Spread the entire contents of the box over the newspaper.



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### WORM CHOW

Potato peelings  
Carrots  
Lettuce  
Celery  
Apple peelings & cores  
Banana peels  
Watermelon rinds



Cornmeal  
Oatmeal  
Crushed eggshells  
Coffee grounds with the filter  
Tea bags

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### FOODS NOT TO USE



Animal bones  
Meat, poultry, and fish  
Cheese  
Butter  
Salad dressing  
Mayonnaise  
Greasy Foods  
Glossy colored paper  
Limit citrus  
**DO NOT OVER-FEED**

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### FEEDING THE WORMS



When you feed the worms, be sure to bury the food in the worm bin 3-4 inches under my bedding.

One thousand (one pound) of worms will eat about one half to one pound of food scraps each day.



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### HARVESTING WORM CASTINGS



#### Lighted Pile Method

Lay a large heavy plastic sheet on the floor.

Dump the contents of the worm bin on the plastic sheet and divide it into 8-10 piles.

Shine a high-beam flashlight on the top of each pile.

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## HARVESTING WORM CASTINGS

### Divide and Sort Method

Stop feeding for two weeks.  
Move old bedding to one side of the bin.  
Add fresh bedding with food.  
Worms migrate into fresh bedding.  
Harvest vermi-compost.



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## HARVESTING WORM CASTINGS

### Mesh Bag Migration

Save mesh (citrus/onion) bags  
Cut-off feeding for about 2 weeks:

- Then add fresh food placed inside mesh bag
- Worms will migrate into bag
- Remove bag & empty it with food & worms into new bin



***Then repeat to harvest more!***

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## HARVESTING WORM CASTINGS

- Lighted-layered Method
- Keep lid off of bin
  - Cut-off feeding for 2 weeks:
  - Daily: Scrape 1/4" layer of castings until you are left with a layer of worms at the bottom



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## USES FOR CASTINGS



- Use as a source of nutrients for seedlings and plants.
- Supplemental fertilizer for seedlings.
- Mix with peat and perlite to blend your own potting mix.

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### WORM BIN CARE



- **Bedding too dry:** add water
- **Bedding too wet:** add more newspaper
- **Odors:** Check for rotten food and remove
- **Mixing bedding:** use a plastic fork
- **Manage temperature:** 68-72 degrees is ideal
- Check buried food area weekly
- *After six weeks:* add more bedding

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### Questions?

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