Worms For Our World

Mission Concept
Worms can save the world by reducing waste in the environment and enriching the soil with organic nutrients. Good for the soil, good for the plants, good for you and me.

Mission Objective
How can we reduce waste and enrich the soil without using chemical/non-organic fertilizer?

Resources

- www.kokuaworms.com

- Rubbermaid bin: RHP2213STE - Rubbermaid Roughneck Storage Box, 3 gal., Steel Gray, available on Amazon. (You will need to drill holes on the bottom and around the base of the bin.)
- 1 oz. worms (redworm or red wiggler, blueworm or Indian Blue)
- Shredded newspaper
- Shredded, soaked cardboard
- Leftover scraps of food (vegetables and fruit leftovers are the best)
- Rubbermaid Undivided Bus/Utility Box, 7.6 gal. (Available at Sam's Club or on Amazon)
- Scale to weigh food and worms

Books:
Llewellyn, Claire, and Barrie Watts. *Earthworms*. Franklin Watts, 2004.
Roulston, Larraine, and Ryan Dening. *Pee Wee's Great Adventure: a Guide to Vermicomposting*. Recycling Resource Service, 2006.

Exploration (procedure)

1. Introduce worms – hands on exploration, give information about what type of worms used, what they do, what they need, difference between composting worms and garden-variety worms.
2. Prepare bed for worms: Place shredded, pre-soaked cardboard at the bottom of the 3 gallon bin. Add some shredded newspaper, followed by the worms (with some of their vermicast, if possible). Weigh out 7 ounces of food scraps and place on top of the worms. Finish by covering it all with shredded newspaper.
3. Place the bin on a brick in the 7.6 gallon utility box. If a brick is not available, any plastic container that the worm bin can sit/be raised up on is fine.
4. Water the contents in the bin until it begins to drip out of the holes at the bottom.
5. Feed worms once a week. They will eat their weight each day; so for 1 ounce of worms, feed 7 ounces each week. You may need to adjust the amount of food, depending on how much is consumed. If it is eaten up before the week is done, you may need to give more; if there is still quite a bit remaining, you may need to

cut back on the amount. Water once a day. Any water that collects in the utility box is great for watering other plants.

6. Keep a record of how much food is given each week, along with any observations made along the way.
7. Harvest worms after 9 months. Before harvesting, stop feeding and watering the worms, so that all food and paper is nearly consumed. Empty contents of the bin onto a big tarp. Remove any pieces of cardboard and paper that still remain. Set to the side; you can use this for their new bedding. Work one handful at a time and separate worms from their vermicast.

Mission report (outcome)

- Completed worm bin
- Wonder questions:
  What did you notice about the worms? What changes did you observe happening? What did you observe with the "guest" (e.g.insects/bugs) decomposers? From where did they come?
- Students adjusted and recorded changes in the amount of food given according to the quantity of worms.

Debrief (explanation)

- Worms should have increased 4 times in quantity (so 1 oz. at the start, 4 oz. at the end)
- Vermicast should sit for about a month and can then be used as fertilizer. Reharvest worms that you missed and/or have grown in the meantime.
- Set aside 1 oz. of worms to begin a new cycle. Share the new worms you have produced with others, or go bigger and keep all your worms!