

# New Earth Classroom



## ACTIVITY 1 INTRODUCTION TO WORMS & VERMICULTURE

### LEARNING OBJECTIVES

1. Students will be able to recognize redworms and their anatomical features.
2. Students will be able to explain how redworms' physical characteristics are similar to and different from humans' characteristics.
3. Students will be able to define "decompose," and describe the role of redworms as decomposers, both in their natural habitat and in human-made vermicompost systems.
4. Students will be able to identify the needs of redworms in their classroom worm box, care for the worms, and make observations in their classroom Worm Observation Notebook.

### EQUIPMENT

- Worm box with redworms
- Large sheets white paper (5)
- Magnifying glasses (one per student)
- Worm anatomy pictures (4 or 5)
- Spray bottle
- Worm castings
- Large sturdy paper (¼ sheet poster board) for Worm Care Checklist, Sharpie & tape to hang
- Worm Observation Notebook & pen
- "Keeping Your Worms Happy" worm care sheet for teachers
- Worm Blanket (optional)

### INTRODUCTION 10 minutes

#### I. **INTRODUCTION: (10 mins)**

Tell students: today, you are getting some new classroom pets: WORMS!

A. Who has seen an earthworm before?

B. We have a special kind of earthworm:

**redworms** or red wigglers (type of earthworm that eats decomposing organic matter)

What does it mean to decompose?

**Decompose:** to decay, to rot, to break down into smaller particles.

C. Pass out **anatomy** diagrams. Ask students:

1. What features are similar to humans?

2. What features are unique to worms?

3. Why might they need these different features (like segments, 5 hearts, gizzards)?

**DIVIDE**  
students into  
groups of 4

**WORMS!**  
15-20 minutes

**II. WORMS! (15-20 mins)**

- A. QUESTION:** Where do earthworms live? (just under the surface of the soil and organic matter on the ground)  
**REMINDER:** The worms are used to living where it's dark and moist, and they will be uncomfortable in the light. Please treat them gently and with respect.
- B.** Each group gets a **large paper & magnifying glasses**. Pass out worms.
- C. Worm Observations** - once every group has their worms, ask them to:
1. Find the **head & tail**. How can you tell?
  2. Do worms have backbones? (They are **invertebrates**.)
  3. How do earthworms move? (They move using their **setae**, tiny bristles on their bodies.)
  4. Find the **clitellum** and **segments** (The clitellum is near the head; segments help them twist and turn.)
  5. Do worms have eyes? (They don't have eyes, but they are sensitive to light.)
  6. Do worms have mouths? (At the tip of the head is the **prostomium**, a flap of skin that protects the mouth, kind of like our lips protect our mouths.)
  7. How does their **skin** feel & look? (It glistens because it's moist.)
  8. How do worms **breathe**? (They don't have lungs; they respire through their whole bodies. Oxygen dissolves in the moisture on their skin and passes into their bloodstream. Worms need oxygen like we do, and they need to stay moist to breathe.)
  9. Are there males & females? (No, all worms are identical and contain both male and female reproductive parts.)

**THE WORM BOX**  
10-15 minutes

**III. THE WORM BOX (10-15 mins)**

- A.** Where do earthworms live? (What is their natural habitat?)  
Earthworms' **natural habitat** is in the soil. Many kinds of earthworms burrow in the dirt.
- 1. Redworms** live in decomposing matter, like in a pile of dried leaves, a manure pile, or just under the soil surface where plant material is decomposing. They live in areas that are dark and moist. Worms are sensitive to light and dry air.
  - 2.** Why are earthworms good for the soil? (They burrow and break up the soil.)

REDWORMS have a special job. **They eat decomposing matter & recycle it back to dirt so more plants can grow.** When worms eat, they make nutrient-dense **castings**, or very rich soil. Because they turn our leaf piles and kitchen scraps into worm castings, we like to use these worms for composting, or recycling our food back into healthy soil.

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3. **“Vermicompost” (write on board)**: means to compost, or break down organic matter, with worms  
Vermicomposting helps us in two ways:
- How many of you have a smelly garbage can? Why does it smell? Because when we throw food away in a plastic bag it breaks down without air and releases smelly gasses. Worms will eat this “garbage,” or food waste to keep the extra food from going to the landfill!
  - Their castings (poop) make a rich soil amendment. Pass around a **castings** sample.
- B. We have a **perfect home for your classroom worms**: a cedar box that has everything the worms need: air/ventilation, moisture (wet bedding), darkness. **Show the features** of the box, including the screen on the bottom.
- C. Circulate with the box and have each group put the worms in the box. Bury them in the bedding. Have the students feel how moist the bedding is so they know how wet it should be.

**CARING FOR  
THE WORMS**  
10 minutes

#### IV. **CARING FOR THE WORMS:**

Make a simple checklist on poster board to remind the worms’ guardians what to do. This checklist can be displayed by the classroom worm box. (10 mins)

##### A. **Feed the worms**

GO OVER WITH STUDENTS:

- What redworms eat and don’t eat (see “Keeping Your Worms Happy”)
- How much to feed: Begin with two kid-sized handfuls of food each week.
  - Sources: leftover breakfast at school, snacks, school lunches
  - Examples: banana peels, apple cores, grapes, carrot sticks, etc.
- Food preparation: Give worms smaller pieces of food instead of whole pieces of fruit, veggies, or bread.
- How to feed: Bury the food in the worm box bedding. Begin in one corner and bury food in a slightly different place each time.

**B. Moisture**: Check and spray the bedding to be sure it is as moist as a wrung-out sponge. Pay special attention to the bedding in the corners and edges of the box, where the bedding may tend to dry out more quickly. Every two weeks, dig down and check the moisture in the bedding near the bottom of the box. If it’s dry, you can pour water into the box to moisten it, as long as there is a catch basin for the water under the box. Use the water you catch to water your classroom plants!

**C. Bedding**: The bedding should fill the box. This way, the worms have enough bedding to move through, and the food can always be buried. **Add bedding as necessary**. Your class can collect scrap paper to shred to make bedding when needed.

**D. Observe** the worms and **record observations** in the Worm Observation Notebook. Have each student observer include the date and their name. Their observations can be statements or poems, or they can draw an illustration.

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PROMPTS:

1. How many worms do you see? Are they different sizes?
2. Are there any new castings? Describe them.
3. Who else lives in the worm box?
4. Do the worms seem to like some food more than others?
5. Do you see any cocoons? How many? What do they look like?
6. Use your senses: smell, touch, look (but don't taste!). Describe.

**CONCLUSION**  
3-5 minutes

**V. CONCLUSION (3-5 mins)**

- A. Quick review:** ask questions that relate to the learning objectives to see what they've learned.
- B. Remind students** to care for the worms daily and record their observations in the notebook.