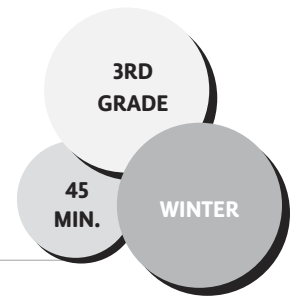


Exploring Our Worm Bin

THEME: GROWING AND ACCESSING HEALTHY FOOD



ESSENTIAL QUESTION

How can we help create a healthy, thriving ecosystem?

LEARNING OBJECTIVE

✓ Students will be able to identify and describe indicators of the health of their worm bin's ecosystem.

CONCEPTS

environment habitat
observation worm castings

Engaging the Classroom Teacher

- Prior to the lesson, check with the teacher about how their class worm bin is doing. If the class doesn't have an established worm bin, ensure the teacher understands the messy nature of this activity.
- Ask the teacher to prepare for the lesson by having students clear everything off their desks.
- During Action Step 3, suggest that the teacher circulate through the room and support students in following expectations.
- During Action Step 4, suggest that the teacher help ensure students are cleaning up their spaces.

LESSON DESCRIPTION

This lesson is a follow-up to the third grade fall Worm Bin Wonders lesson. In this lesson, students observe changes that have occurred in the worm bin they established in the fall, diagram elements they can identify in the worm bin, and compare their knowledge of worms to information in a book about worms.

MATERIALS

- Established worm bin
- Worm Lifeguard Chore Chart (if students have been tracking chores using the extension adaptation from fall's Worm Bin Wonders lesson) (p. 345)
- Magnifying boxes (ideally one for each pair of students)
- Dampened paper towels to put worm castings on
- A separate, small bin of dampened paper towels for cleanup
- Worm Bin Observation Worksheet (p. 369)
- Food scraps for the worm bin
- Chart paper and markers
- Gardening gloves (optional)
- Worm Bin Creatures Poster (p. 368)
- Worm Anatomy Poster (p. 338; optional)
- *Wiggling Worms at Work* by Wendy Pfeffer

PREPARATION

- › Check your worm bin just before the lesson to make sure your worms are doing well.
- › Photocopy Worm Bin Creatures Poster. If you have access to a laminating machine, laminate these so they can be easily cleaned and reused for

this messy activity! Consider making it double-sided with the Worm Anatomy Poster on the back.

- › Write guiding questions on chart paper or the board:
 - › What changes have occurred since we set up our worm bin?
 - › What other living things are present, apart from our Red Wiggler worms?
 - › What worm behaviors do you observe?
 - › How do you think we should change the food or bedding to make the habitat better?

ACTION STEPS

1. Engage: Gather in a circle and ask students how caring for their worm bin has been. Ask, *How do we know that the worms are doing well? What should our noses, hands, and eyes look for? Remind students that we can think of the worm bin like the house in Goldilocks and the Three Bears. Say, The worms don't want their environment to be too wet or too dry, but juuuust right. And the same goes for temperature and the amount of food.* Explain that today they're going to have a second chance to observe worms up close, but this time, they'll also be looking at part of the habitat they've created for them. **(5 min.)**

2. Explain Expectations: Display the guiding questions, and read each one aloud. Say, *As you're observing the worms, you'll be thinking about and discussing each of these questions with your partner. Then you'll draw a picture of everything you see in your pile of worm castings on your worksheet, and you'll try to label each part.* Students can refer to the Worm Bin Creatures Poster. Emphasize handling the

worms gently because the worms are our helpers in the garden. Also emphasize to students that their job is to be observant detectives, gathering clues by using their senses of sight, smell, and touch. **(5 min.)**

3. Observing: Have students return to their desks, and give pairs a magnifying box, Worm Bin Observation Worksheets, a damp paper towel, and a small handful of castings from the worm bin that includes a couple worms. As they're observing the worms and castings, circulate through the room, reminding students of expectations and asking probing questions and encouraging critical thinking. **(10 min.)**

4. Cleanup: After ten minutes, collect worms, have students wipe their hands with fresh, wet paper towels, and collect all the wet paper towels in one bin. **(5 min.)**

5. Debriefing: Come back together on the carpet with students' worksheets. Go through the guiding questions, and have students share their drawings with someone who they weren't partnered with, naming all the different components and organisms they identified. Then have students share some of their observations with the whole class. Ask probing follow-up questions to their observations such as, *Hmm, a lot of you observed fruit flies. I wonder why our worm bin has fruit flies. Do you think there is something we can do differently? Or, Wow, a lot of you observed that our worm bin is sort of stinky. Why do you think? Or, What clues tell us we're feeding them too much, too little, or just right?* **(7 min.)**

5. Feeding the Worms: Add some food scraps to the worm bin, and cover with the used, wet

paper towels. **(3 min.)**

6. Reading: Read *Wiggling Worms at Work*.

Explain that whenever students hear something they already know about worms, they should make a wave gesture with their hand, like a worm wiggling, but when they hear new information, they should tap their heads with their hands (or you could teach them American Sign Language for “idea”). After reading, acknowledge and congratulate students for all the information they already knew about worms. **(10 min.)**

REFLECTION

Have students discuss the following questions in small groups, then share with the class: **(5 min.)**

Social and emotional learning

- Ask yourself: Was I safe, respectful, and kind to the living creatures in our classroom today?
- Ask yourself: Did I take turns and support my partner?

Check for understanding

- What were you surprised to observe in our worm bin? What is one new thing you learned about worms today?
- What is the best habitat for our worms? Do we need to change any of the ways we’ve been caring for them?

ADAPTATIONS

Physical Activity: Play Decomposer Tag at the school’s field, blacktop, or gymnasium. Have one student wear an armband indicating that they’re “Frost” or “Death,” and have a couple other students wear a different-colored armband, indicating their roles as worms or decomposers. Have all other students be

plants. If Death tags a plant, the plant is frozen until a decomposer tags it, representing the decomposition cycle. To show that without decomposers recycling plant matter there’s no new life, try playing where Death is allowed to tag the decomposers.

ACADEMIC CONNECTIONS

Next Generation Science Standards, Life Science Disciplinary Core Idea

NGSS 3.LS4.D

Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

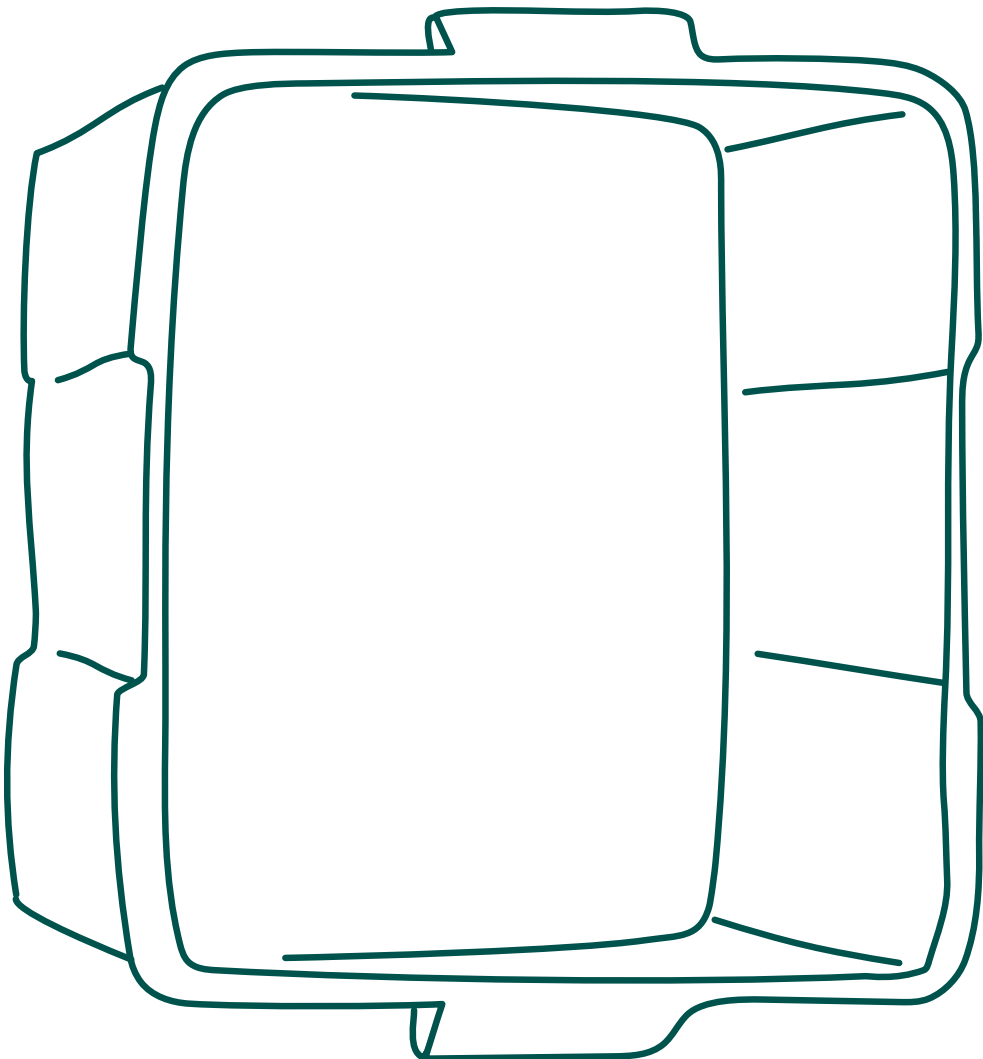


Name: _____

Date: _____

WORM BIN OBSERVATION SHEET

DIRECTIONS: Draw everything you see in your worm bin sample.



SCAVENGER HUNT CHECKLIST:

Worm egg



Fruit fly



Mold mite



Fungus



Decomposing food



Worm castings

