



Compost Creatures: by Luma Kennedy 2017

Objectives:

- Students will define Ecosystem.
- Students will identify biotic and abiotic factors in the compost.
- Students will identify roles of living creatures.
- Students will identify what goes in the compost.
- Students will make a craft.
- Students will eat a treat.
- Students might ponder why we compost.

Materials:

1. Compost in 3 different stages, in 3 mason jars, marked: Scraps, Compost, and Humus
2. Bin of compost with live creatures
3. 2x Velcro boards
4. 1x Dry-erase board and pen
5. Velcro cards:
 - a. Pictures: creatures that live in the compost, eye, magnifying glass, and microscope
 - b. Words: Hypothesis, Observed, Decomposers, Predators, Browns, Greens, Blues
6. Recyclables, trash and plastic food
7. Three bins marked: Recyclable, Trash, Compost
8. Two baskets for two groups, sorting game - Spoons, magnifying lenses, white bowls
9. Craft materials: (pink tissue paper, pencils) or wrapped straws, droppers & water
10. Gummy worms for treat



11. Gloves and hand sanitizer
12. Compost books
13. Table

Essential Standards: Family Program

Time: 1 hour

Vocabulary:

- Biodegradable
- Decay
- Aeration
- Biotic/Abiotic
- Decomposer
- Ecosystem
- Humus
- Micro-organisms
- Hypothesis
- Insect
- Predator

Procedure: (set up boards ahead of time)

Good Morning! My name is ____, welcome to the park, how many of you have been here before? That's great. Today we will be learning about a "Rotten Topic": Compost!

I have a couple of rules I want you to follow: Always raise your hand, respect each other and be very gentle with the compost creatures.

If anyone has a nut allergy, they should NOT touch the compost.

Can someone tell me what is an **ECOSYSTEM**? It is all living things in a given area, interacting with each other, and all the things they need to survive.

Do you think compost is an ecosystem? Ok let's investigate.

ACTIVITY 1a: What are creatures that might live in the compost? Educator writes on the Dry-Erase board Hypothesis List or what we think might live in the compost.



ACTIVITY 1b: Velcro Observed list

Bring out compost with creatures and spoons, white bowls and hand lenses. Please be kind to the compost creatures and “don’t yuck my wow”, you don’t have to touch anything if you don’t want to!

=> Board with eye, magnifying lens and microscope

Please gently put the creatures back in the bin => Pass around hand sanitizer!

- a. What are things you only needed your eyes in order to see? Earthworms, insects, snails, slugs, centipedes, millipedes, sow bugs, pill bugs, fungi
- b. What are things you needed a magnifying lens in order to see? Mites, insect-like creatures Springtails
- c. What might be things we need a microscope in order to see?

Micro- organisms, Bacteria!

=> Board with Brown Green and Blue and 3 mason jars on table.

ACTIVITY 2: SHOW AND TELL

We said ecosystems have living creatures and things these creatures need to survive! What do you think are the things compost creatures need to survive?

o **Food:** which we split into two groups:

o **Browns – Dead plant matter (Carbon)**

o **Greens –Green Plant Matter (Nitrogen)**

o **Blue: Air and Water**

* **Optional:** They also need a high temperature (120-170°F) and a semi-neutral pH (5.5 to 8).

- Please walk up to the table and observe 3 of the many different stages of compost.



=> Set up the Velcro board with predators and decomposers!

Please have a seat! Over time what happened to our food scraps, what did they turn into? Humus! Say it with me: Humus! What is humus? The dark organic material of the soil, the perfect plant food.

- *So is compost an ecosystem? Yes!*

Show and Tell so we've talked about compost creatures and what they need to survive, but how do they interact in the compost?

- First what is a **Predator**? It's a creature that eats or preys on another creature; they make sure there aren't too many of one creature in the compost. Raise your hand if you think these are predators? (place the predator title up) Centipedes, Mites, Beetles and Ants.

- What are **Decomposers**? The cleaners – they eat dead animals and plants and change them to another form. So changing food scraps in the compost to humus is an example. Bacteria and Fungi THEN Earthworms, Millipedes, Sow & Pill bugs, Snails, Slugs, Flies.

What a busy and healthy ecosystem!

Older kids: Can someone tell me what is **Aeration**? Air-circulation. Do you remember the Blue or non-living part of the compost? Air and water! Who do you think plays a big role in aerating the compost? And how do they do that? They make tunnels that let water and air move throughout the compost earthworms and ants, beetle and fly larvae!

* The stars of the compost are really the bacteria and earthworms!

*" Too many ants" signifies that compost is too dry," too many fruit flies" signifies that compost is too wet (too stinky).



ACTIVITY 3: Things we can compost and things we can't.

How many of you have a compost pile or bin at home? That's fantastic! We use materials from the earth every day; we eat food, wear cotton, live in wooden houses, and drink out of glass cups and so on. Some of these materials are **Biodegradable**? Can someone tell me what biodegradable means? Things that can Decay, fall apart and turn into humus: like food scraps, grass clippings and paper. Through composting, we recycle our biodegradable materials and give them back to the soil.

What do we do with metal, glass and plastic containers? We recycle them!

-- We're going to have a race, figure out in your group what belongs in each bin and come up and place it in that bin! Wow I am impressed ... Great job everyone!

CRAFT: Make an expanding worm.

TREAT: Offer organic worm treat. (Offer sanitizer)

- Optional: Why do we compost?

- Better for environment (Less leachate, less methane).
- Amazing slow release fertilizer.
- Soil conditioner.
- Compost reduces landfill waste.

Any time the kids start losing interest you can ask them to stand up and teach them to **"Do the Millipede/Centipede Dance!"** : Have kids raise their forearms out from the side, imitating a centipede with one pair of legs per segment, next an arm and leg together imitating a millipede with two pairs of legs per segment. A centipede moves quickly because they chase other creatures to eat, while the millipede moves slowly because its food is stationary.



FOR OLDER KIDS:

1. Myriapods

- a. Centipedes – fast predators, 2 legs per segment
- b. Millipedes – slow moving decomposers, 4 legs for each segment

2. Crustaceans – sow bugs and pill bugs, 10 or more legs in pairs and 2 pairs of antennae

3. Arachnids – spiders, mites (predator) – 8 or more legs and no antennae

4. Insects – beetles, flies and grubs, and ants (decomposers) six legs and some have one or two pairs of wings

5. Annelida – (decomposers) earthworms

6. Collembola – (decomposers) Springtails

7. Diplurans (decomposers)

8. Pseudoscorpions (predators)

9. Nematodes (decomposers)