What's Happening Inside Your Compost Container?

Tiny microorganisms, such as bacteria, fungi, algae, and protozoa eat the organic waste in the container. As they break down the materials, they produce heat. Different types of bacteria and fungi are more prevalent at different times, depending on factors such as the current temperature, pH, oxygen level, amount of water, and type of food available. Many children think of bacteria and mold as bad. Explain to students that these types of organisms are beneficial to us all because they clean up the earth's 'trash' by literally recycling organic material and turning it back into rich soil from which new living things can grow.

Science Fair Experiments

The Now You See It, Now You Don't™ See-Through Compost Container is ideal for science fair experiments because students can do a comparative study using the three sections. Students should record daily observations and temperature changes and take photographs to show progression over time. Here are four examples of science fair experiments that can be done with your compost container.

	Science Fair Question	Section 1	Section 2	Section 3
1.	Compare items that were once living with non-living items. Which decompose faster?	apple core (once living)	piece of paper (made from wood, which was once living)	plastic toy (non-living)
2.	How does the temperature change with decomposition?	apple core with thermometer	banana peel with thermometer	nothing but soil with thermometer (control)
3.	How does moisture level affect decomposition?	banana peel—no water	banana peel—moist	banana peel—very wet
4.	How does the soil type affect decomposition?	banana peel in soil	banana peel in sand	banana peel with no soil (lay peel on container bottom)

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EI-5095
Grades Pre-K+
Ages 4+

Now You See It, Now You Don't™
See-Through Compost Container

Teacher's Guide

Contents
- Compost container divided into 3 sections
- Lid
- 3 thermometers

The Now You See It, Now You Don't™ See-Through Compost Container is designed to allow students to actually see the process of decomposition.

How To Use Your Now You See It, Now You Don't™ See-Through Compost Container

1. In addition to the contents provided, you will need some soil.
2. Select three items that you would like to see decompose. See suggestions on page 3 for what to put in your compost container.
3. Put an item, for example a banana peel, in one of the container sections. Press the peel against the front of the container and then pour soil behind it. The soil should entirely fill the section and support the peel so that it stays pressed against the window.
4. Repeat step 3 with two additional items in the other two sections.
5. Water all three sections so that the soil and items are moist but not drowning.
6. Place the lid on top.
7. If you plan to measure the temperature as each item is decomposing, then insert the thermometers in the holes in the top. Record the daily temperature. The included thermometer is in Celsius. The Celsius scale is part of the metric system and is the system of choice for scientists in the United States and around the world.
8. Watch what happens to the items over the next couple of months. Record daily observations. Photograph the container every few days so that you have a photographic, step-by-step record of the decomposition process. If possible, use a video camera to record a few seconds each day; at the end, you'll have a time-lapse video of the entire process!
9. As the soil dries out, add water to keep it moist.

Suggested Items to Put in Your Compost Container

aluminum foil, apple, apple core, baby tooth, banana peel, bread, flowers, clean egg shells, grass clippings, hair, leaf, metal nail, newspaper, nuts, orange peel, peach pit, paper, plastic toy, potato, Styrofoam® cup, tea bag, wood

To avoid odors and rodents, meat and dairy products are not recommended.

How Long Does It Take for Things to Break Down?

Within days, you'll see evidence of the organic material breaking down. Look for color changes, mold growth, and shrinkage.

The exact amount of time it takes for something to decompose will vary greatly depending on many factors such as soil type, temperature, moisture level, oxygen level, sunlight, etc. The times listed here are a rough approximation.

Item	Time to Decompose
Fruit or vegetable peel	2 weeks to 6 months
Paper	3 weeks to 3 months
Wool sock	1 to 5 years
Cigarette butt	1 to 5 years
Leather	25 to 50 years
Aluminum (soda) can	300 years
Disposable diaper	450 to 500 years
Plastic bag	10 to 1,000 years
Plastic bottle	450 to 1,000,000 years
Glass	1,000 to 1,000,000 years
Styrofoam®	Indefinitely

Items take even longer to decompose, or don't decompose at all, in a landfill because they are not exposed to air, water, or sunlight.

Discuss the time chart with your students. Ask them what kind of impact they think items like plastic bottles and Styrofoam® containers are having on our environment. For example, ask students to consider how many discarded fast food containers they see strewn about outside.

Discuss ways to reduce the amount of trash we produce. Some examples might include: drinking out of a reusable drinking glass instead of a disposable plastic bottle, using cloth bags instead of plastic bags at the supermarket, and writing on both sides of a sheet of paper before putting it in the recycling bin.