



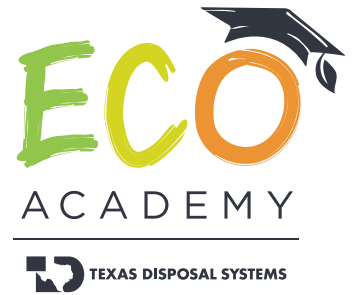
Lesson 5:

Compost

Composting is the GREENEST thing you can do.

OBJECTIVE: Students will learn about decomposition, the difference between backyard and large-scale composting and design their own backyard compost.

Grades 3rd - 6th



TEXAS DISPOSAL SYSTEMS

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Ask Students

Can anyone tell me what happens to leaves when they fall from a tree?

Dead branches?

What happens to fruit when it falls to the ground?

These things are naturally recycled – they decompose and become a part of the enriched soil where other things grow. Leaves and fruit are biodegradable – which just means they can be broken down by tiny organisms (microorganisms). Nothing is lost! Nutrients are just made readily available to plants.

Composting follows this natural cycle too, making sure that our biodegradable waste goes back into the natural cycle and becomes nutrients for plants.

The compost we create is rich in nutrients and can be used in our gardens, potted plants and landscaping.

For composting to occur, we need oxygen, moisture and microorganisms. In a landfill, the same biodegradable items may remain there for much longer because landfills can lack the oxygen necessary for normal decomposition. To make things worse, when organic waste in a landfill does finally decompose, it releases methane gas. Methane gas is 25 times worse than CO₂ when it comes to warming, something we definitely do not want more of.

So... a great way to reduce waste is to compost materials at home and at school so that these things do not take up space in a landfill.



ACTIVITY 1 - My Compost Pile

Students will create their own compost pile on the “My Compost Pile” worksheet.

(this can also be used as an overhead and students create this on ½ poster board or recycled large pieces of paper)

Discussion:

To create our imagined backyard compost pile we need to layer the materials: green items (*nitrogen rich*) and brown items (*carbon rich*).

Show students the overhead on Backyard Compost or print on reverse side of “My Compost Pile” worksheet.

Materials:

- “Backyard Compost” Brown and Green handout. *(or use as overhead)*
- “My Compost Pile” worksheets – one per student. *(or use as overhead)*
- Colored pencils

Activity:

Have students use colored pencils and different symbols/colors and pictures to represent different items to compost and label these items on the worksheet. They can then use those symbols/pictures to layer their compost pile.



ACTIVITY 2 - Cafeteria Compost Game

Students will practice cafeteria composting by playing a game similar to “hot potato”.

Discussion:

Explain to the students the difference between backyard composting and large scale composting.

Large scale composting is often done through restaurants, schools, businesses and even curbside recycle programs. It is picked up and taken to a large scale facility where the compost can be churned, monitored and brought to a very high temperature. These facilities can accept those items that do not normally go in backyard composting such as meat, dairy and paper products like pizza boxes etc. Many cafeterias at schools are composting. It is important to get it right so that the process works well.

Remind students that some things won't biodegrade and can't be composted. Name these things and write on the board. In the cafeteria these might include plastics, foil-lined paper and foil. Make another list of those things that can be recycled in the cafeteria (including meat and dairy, paper products, milk containers).

Activity:

The game can be played outdoors or inside with desks/tables cleared back so students can form a circle.

1. Start by playing a practice game. With everyone standing, call out a person's name along with compostable item and toss them the ball. “Sarah! Orange peel!” and then have her sit down and do the same with another person. They will do the same until everyone has sat down.
2. For the game, have someone in the middle that is “IT” and everyone else in a circle. The person in the middle must tag a person with the ball before the ball is tossed. The person throwing the ball must name something that can be composted in the cafeteria and throws it to someone else before being tagged. If the student with the ball doesn't name something before s/he throws it, s/he will be tagged and become “IT.”

Extension:

Have the students initiate a “Compost Check” in the cafeteria. Assign a few students each day for two weeks to monitor and assist with clean-up process in the cafeteria. Ask the students to come up with measures for this as a class and report back daily. This might include:

- Questions for cafeteria staff on noticed problems or improvements
- Pictures of each bin at determined intervals (landfill, recycle, compost)

After two weeks, have the students create a plan for improvement through communication (*education during announcements, school newsletter, posters, school website*)



Words to Know

Biodegradable – capable of being broken down by living microorganisms into simpler compounds

Compost – decomposed organic matter (plant and animal waste) prepared by people to be used as a soil amendment

Decomposition – the process of breaking down dead plants, animals, and animal waste into simpler nutrients

Nutrient – any element an organism needs to maintain health, grow, and reproduce

Backyard Compost

You can basically use anything organic in your backyard compost.

(see below on what NOT to put in compost)

AVOID: Backyard or small scale composting can be difficult to get to high temperatures and keep aerated to adequately kill any bad bacteria or other pathogens in meat or dairy.... These items can also attract other animals and smell bad!

- Pet waste
- Meat/dairy
- Walnuts – have a compound that can be toxic to plants
- Weeds with seeds (fresh) – they will probably just grow in the compost
- Printed or glossy paper
- Oil and kitchen grease

GREEN *(nitrogen-rich)*

- Algae
- Coffee grounds
- Eggshells
- Feathers
- Flowers
- Fruit and fruit peels
- Grass clippings (fresh)
- Hair
- Manure
- Seaweed
- Tea leaves
- Vegetables and peelings

BROWN *(carbon-rich)*

- Coffee filters
- Corn cobs
- Cotton/wool
- Grass clippings (dried)
- Hay
- Dead leaves
- Paper
- Pine needles
- Straw
- Tea bags
- Wood chips
- Wood ash

My Compost Pile

Create a legend for your compost pile. List the “green” and “brown” ingredients you are going to add. Then, color or draw a symbol to represent each ingredient in the box to its left. Remember green ingredients are fresh and often wet. Brown ingredients are dry and often dead or woody – these layers should be twice as deep as the green layers. Create your compost pile by drawing it in the bin.

Brown Ingredients

Green Ingredients

