Each One Teach One Organic Waste to Resource Instructor Presentation

Association of Compost Producers

10-2025

Objectives

1) How it all started…
2) To integrate a regional understanding and practice of legislation and organic waste recycling.
3) To develop regional fire recovery resilience strategies education through nature-based solutions and compost application.
4) To provide NGSS lessons for instructor-student knowledge building of organic waste to soil resource climate change strategies.

Presentation Topics

- Introduction/Organic Waste Recycling (OWR)
- Compost, Soil, and Climate Change
- How to Find and Use Compost
- Integrating Project-based Learning!

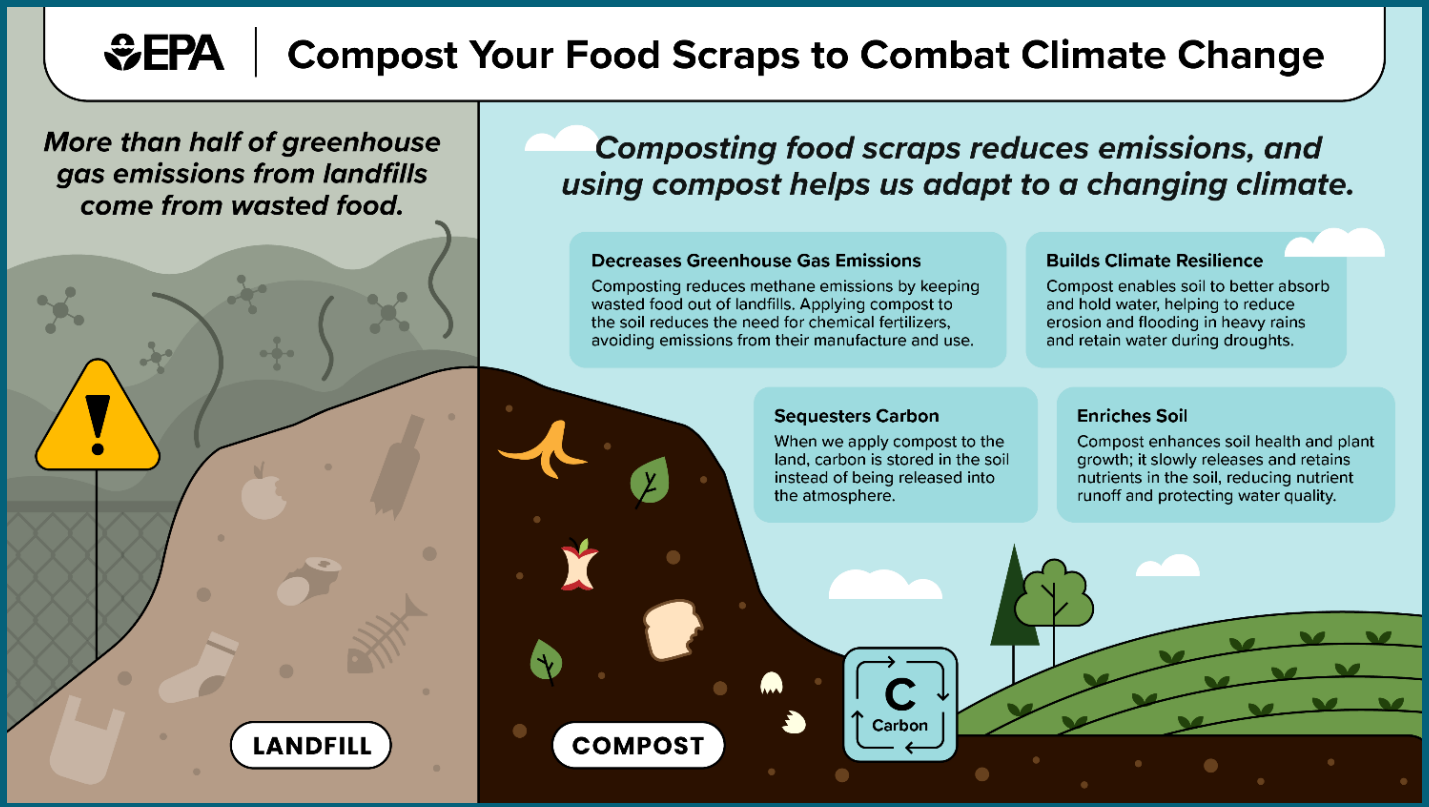
US Composting Council & ACP

The US Composting Council advances compost manufacturing, compost utilization, and organics recycling to benefit our members, society, and the environment.

CA Chapter: The Association of Compost Producers (ACP) works to promote compost use in CA through education, networking, marketing, and advocacy

Discussion

- What is organic waste?
- Implications in our region?
- How does organic waste effect BOTH climate change emissions and mitigation and resilience potential?



What do we do with Organic Waste Recycling? What is the Difference between Compost, Composting, and Mulch?

Compost: is a soil amendment used to improve soil's physical, chemical, and biological properties.

Composting: is the process of recycling organic materials into an amendment that can be used to enrich soil and plants.

Mulch: top dress “skin” of the soil.

ORGANIC WASTE

What is organic material?

What is Generally Accepted in the Green Bin/Dumpster?

Why “Generally”?

WHAT GOES IN THE GREEN BIN?

YES

FOOD SCRAPS

FOOD-SOILED PAPER

YARD TRIMMINGS

NO

- X Animal waste
- X Bio-base & PLA To-Go Ware Even if labeled “Compostable”
- X Concrete, asphalt, stones, sod, dirt, and bricks
- X Cooking oil
- X Diapers
- X Hazardous waste
- X Juice or soy milk boxes with foil liner
- X Large and/or long tree branches & stumps
- X Liquids and ice
- X Recyclables (glass, aluminum, paper, plastics 1-7)
- X Palm fronds and tree leaves
- X Plastic bags
- X Plastic corks
- X Plywood
- X Produce stickers
- X Rubber gloves
- X Foam packaging, food containers, and packing peanuts
- X Treated and painted wood

What is the Status of Your School?

Compost: Organic Material, Oxygen, Moisture, Microorganisms

Organic Material: around 40% of all landfilled waste in the United States

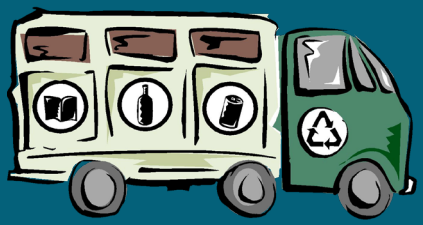
- What are our daily waste streams at our home and school?
- What are your challenges/issues in recycling organic waste?
- How do we separate organic waste from our daily waste streams?
- How do we collect our organic waste to reduce pests, smells, and the ick factor?

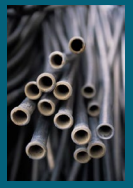
Organic material: living or once living material

Food scraps, yard trimmings, untreated wood, food-soiled paper

L

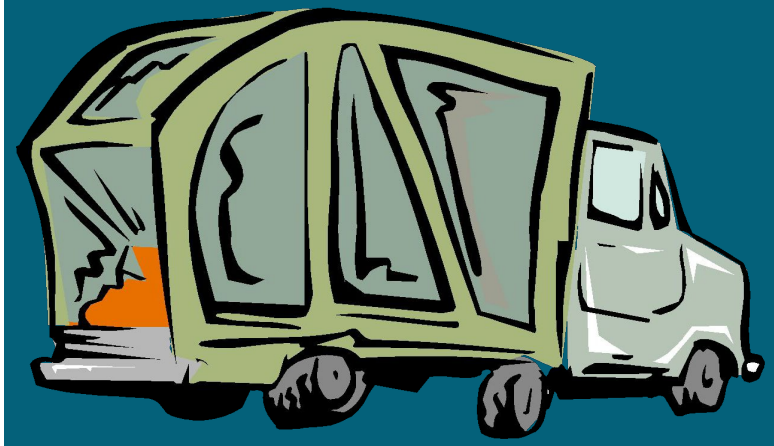
R





O

Landfills



It's all about microbiology!

Organic waste in landfills creates methane

Methane gas significantly contributes to climate change

Anaerobic Decomposition

Burps, Farts, Landfills, Marshes…

Anaerobic decomposition = microorganisms that process organic materials without oxygen = produce METHANE!

Vermi
“Hot” small scale
Industrial:
Windrow
Aerated static piles

Mulch Versus Compost & Climate Change Implications

Compost Feeds the Soil

Worms, insects and other tiny soil creatures called microorganisms eat our waste AND turn it into living soil!

Creating a rich, fertile environment and food source for our plants = food, clean air and clean water

Compost and Microbiology

What do microorganisms have to do with it?

Compost provides food for microorganisms. Bacteria and fungi release nutrients from soil (for plants) use organic matter as their food source.

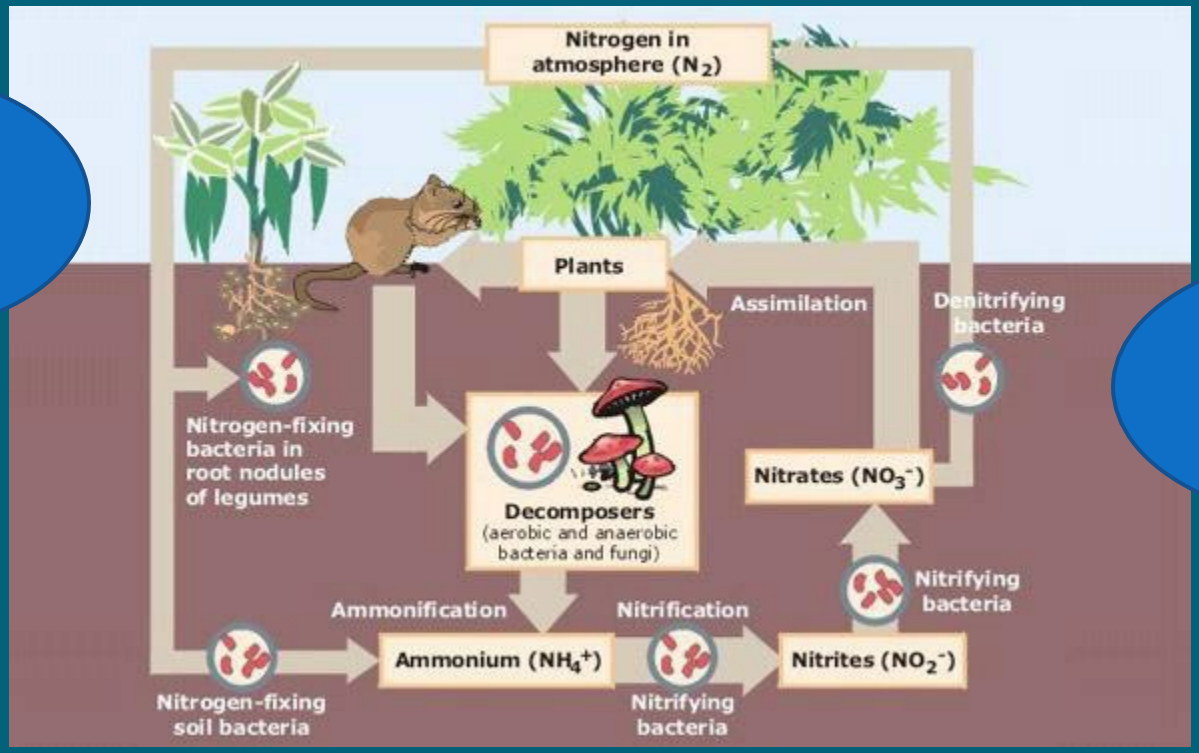
Harnessing the Power of Microbes through Composting #shorts

Compost Balance

It's all about microbiology!

Nitrogen/Carbon Ratio - 1:3

AIR



WATER

A balance of carbon-based (think **car**bon/" **car**"dboard - BROWNS) and nitrogen – GREEN materials, AIR and WATER

Positive/Negative Feedback Loop

Soil Organic Material Builds and Restores Ecosystems

Whole Ecosystem Restoration:
Soil Stabilization
Soil Restoration – Plant and Life

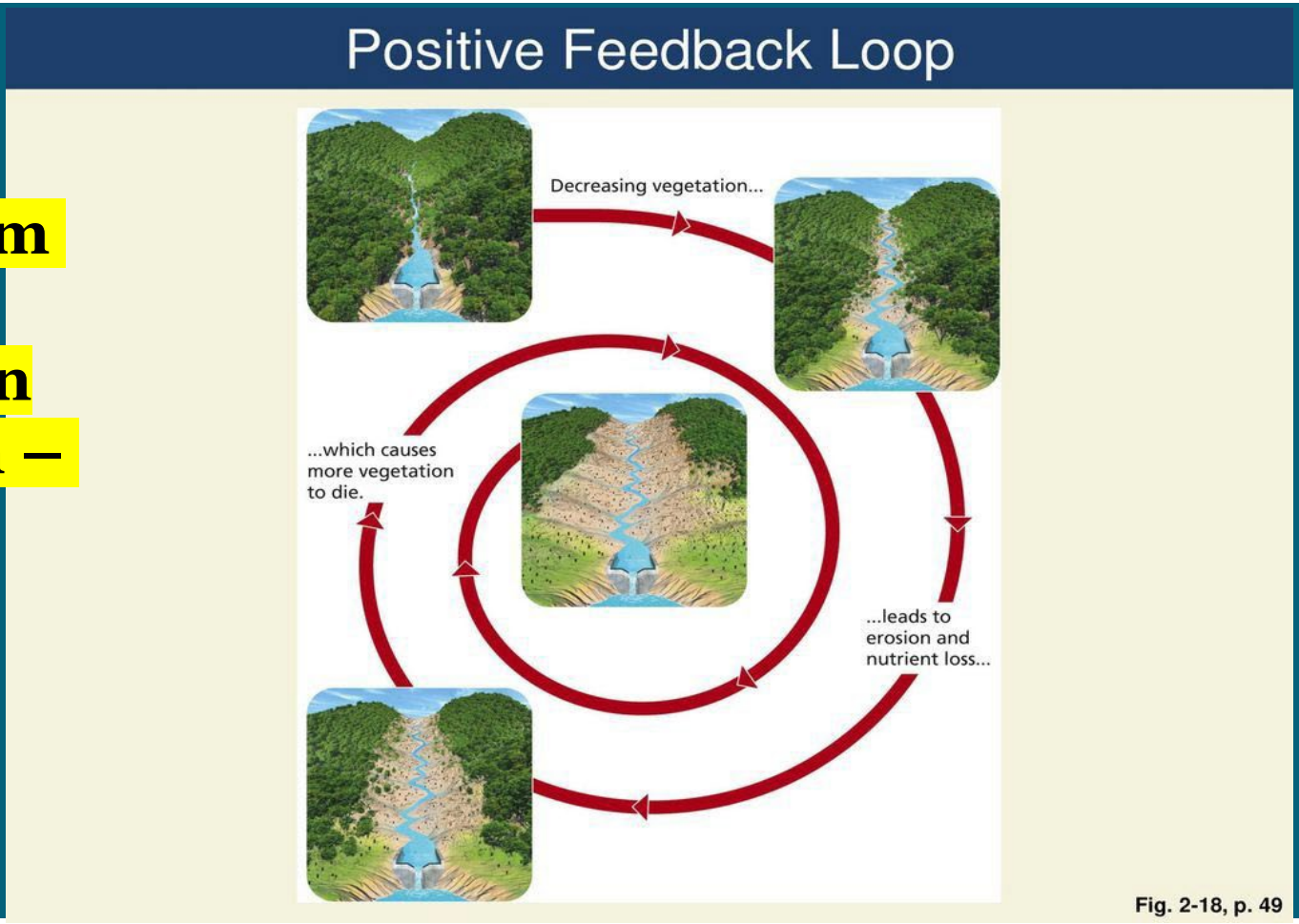
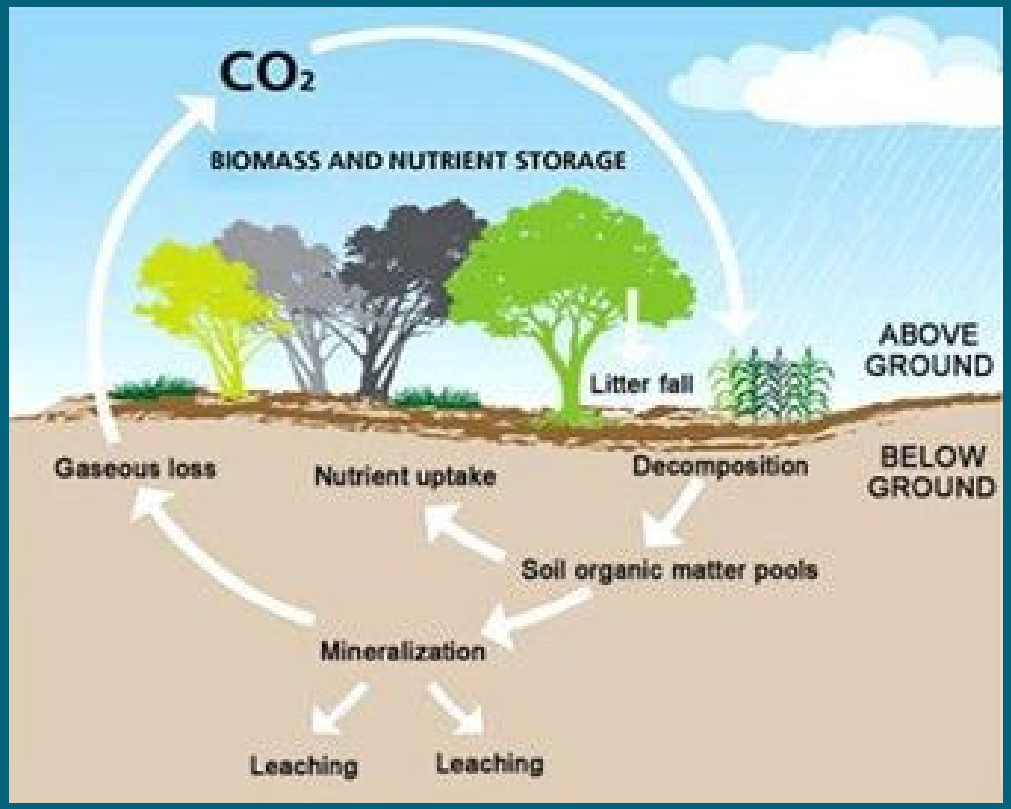


Image provided by https://www.onslowcountync.gov/325/Soil-Water-Conservation-District

Soil Carbon Sequestration

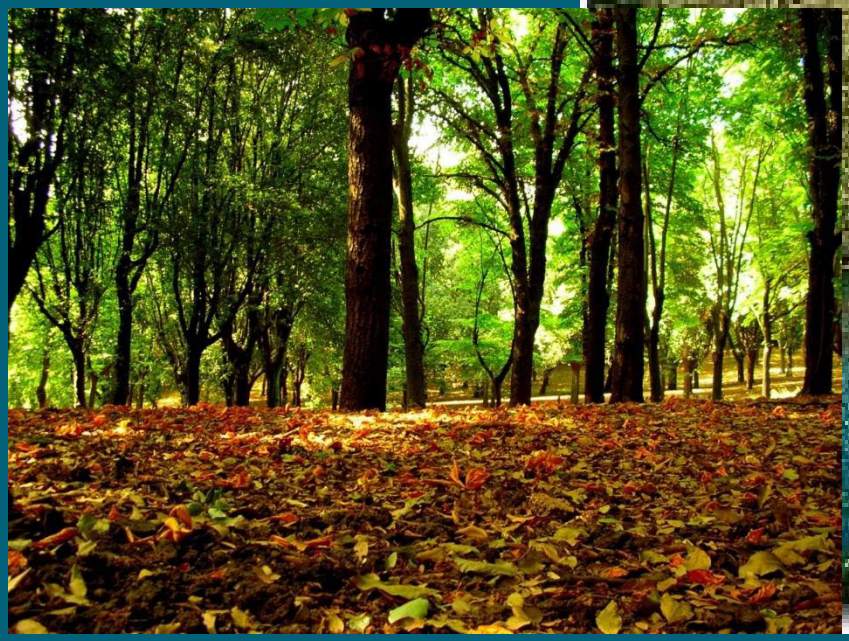
CLIMATE CHANGE CARBON BALANCING



The soil holds more carbon than aboveground biomass.

Healthy Watersheds

Healthy soil = Healthy rivers, lakes, streams and oceans



Healthy drinking water and healthy aquatic life. The soil is a natural filter – **a living sponge**.

Soil Water Conservation

LIVING SPONGE

Dry landscapes – more prone to fires

PREPARING OUR LANDSCAPES FOR CLIMATE CHANGE – FIRE RESILIENCE

Organic Material Climate Change Impacts

SOIL CARBON SEQUESTRATION

MITIGATION	RESILIENCE & ADAPTATION
Reduce methane gas	Increase soil water conservation & plant available nutrients – FIRE RESILIENCE
Sequester soil carbon	Increase beneficial soil microbiology
Increase plant carbon	Increase whole system resilience

PLANT GROWTH CARBON SEQUESTRATION

Where to Get this Black Gold?

1) Develop programs at your school – I can help!

2) Work with administrators and grounds keepers:
Some waste haulers provide compost at no cost

3) Large volumes, low cost or free compost:

- Miramar Greenery (City of San Diego operated)
- San Pasqual Valley Soils
- Republic Services

How and When to Use

SAVINGS ON WATER COSTS! $$$

- **RAISED BEDS & POTS:** Mix 1 part compost to 4 parts soil media (such as sand, perlite, and potting mix).

- **TOP DRESS:** Gardens, bushes/trees, with 1-3 inches & add water.

- **SEEDINGS/PROPAGATION**:
Use around 1/6 compost.

- **CALENDAR**:
Use before (spring) and after (fall) growth season.

Lawns: Why, How, & When to Use Compost

Improve soil stability, drainage, and water conservation, germination, and soil nutrient availability.

SAVINGS ON WATER COSTS! $$$

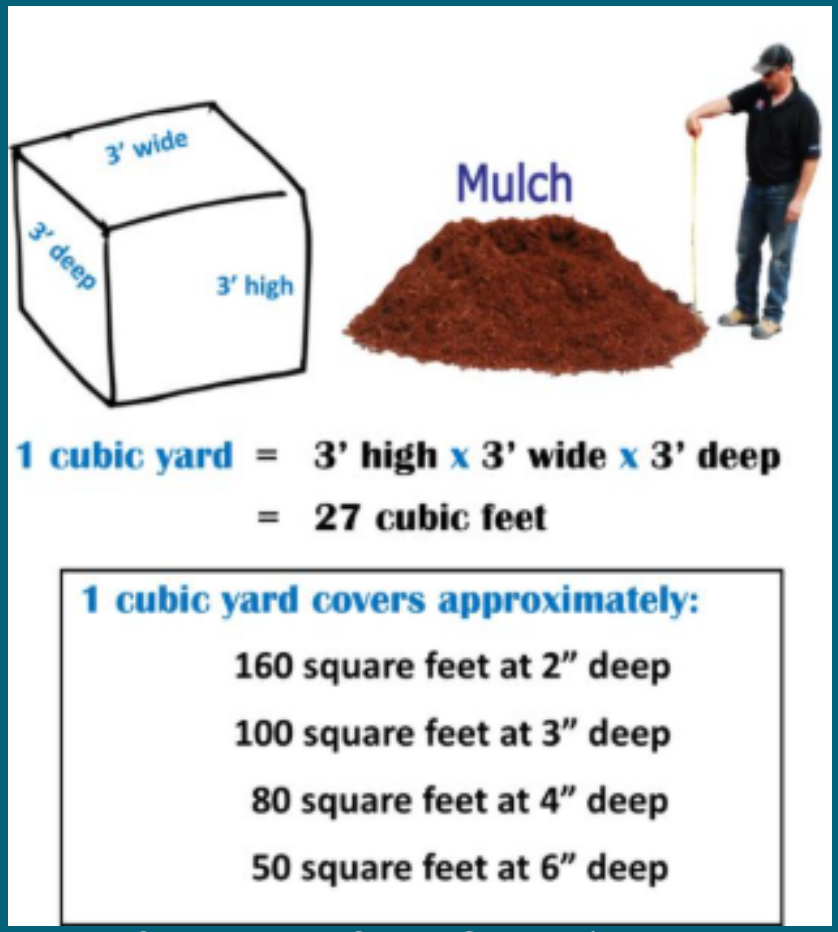
STEPS:

- Top-dress right after aerating and when overseeding a lawn.
- Rake in and then add water.
- Apply spring and fall (before and after the growth season) - create a yearly calendar for compost use.

COMPOST RATES

Area Size (square feet)	1 inch depth (cubic yards)	2 inch depth (cubic yards)
325	1	2
650	2	4
1,250	4	8
2,500	7.5	15
5,000	15	30

Compost Metrics



One cubic yard = One large bathtub full of material

What's a Cubic Yard - Stone Garden | Wilmington, North Carolina

SB 1383

- California state law mandates that all residents and businesses reduce organic waste (food scraps, food soiled paper, and yard trimmings) sent to landfills.
- This includes schools
- Edible food waste recovery
- Organic waste recycling
- Lots of compost and mulch being created

Educational Resources

Resources | Association Of Compost Producers

Summary and Next Steps

- **Discuss our roles**: how to facilitate organic waste recycling (food scraps, food soiled paper, and landscape materials), decrease contamination, and increase compost use at our homes, schools and in our communities.
- **Local compost sources:** engaging school facilities with compost use.
- **Toolkit**: STEM/NGSS lessons for school integration
- **Facilitator**:

Dr. Emily Creegan ecreegan143@gmail.com/ (909) 344-6122