

Basics of Hot Composting

We call it **HOT composting** because when the compost piles heat up we know the decomposition process is working. The compost piles heat up because of the heat coming off of the bodies of the microscopic decomposers, the bacteria and fungi that are in the compost pile. We measure the temperature of the piles to know how many microscopic bacteria and fungi are present. Hot compost piles can get as hot as 130 degrees Fahrenheit during the decomposition process. More DECOMPOSERS = More HEAT.

What is a decomposer?

A decomposer is an organism that breaks down dead plants and animals and animal poop and transforms these things into usable nutrients for plants.

In our hot compost piles the decomposers are microscopic bacteria and fungi.

There can be trillions of microscopic bacteria and fungi in a single small compost pile.

The hotter the pile becomes, the more microscopic bacteria and fungi are present. **It is the BODY HEAT of the decomposers that causes the hot compost pile to heat up!**

As the microscopic bacteria and fungi eat, they release waste in many forms, transforming the dead plant material into fertilizer for living plants.

The waste of the bacteria and fungi is fertilizer for living plants.

How is each hot compost pile made?

Each pile is a mix of HALF brown leaves and HALF cut green grass. This provides food for the microscopic bacteria and fungi. We also add a little water to make sure the piles are slightly moist. The microscopic bacteria and fungi need moisture to thrive. The bacteria and fungi are present on the dead plants and in the air... we are trying to give them conditions to REPRODUCE and multiply very quickly.

What kind of microscopic bacteria and fungi do we want in our compost piles?

We want microscopic bacteria and fungi that are AEROBIC, which means they need OXYGEN.

We turn the compost piles each week to mix OXYGEN into the piles and encourage the AEROBIC bacteria and fungi to eat and reproduce.

If the hot compost pile smells bad (like horse or dog poop), that means we are not mixing enough OXYGEN into the piles. The piles should smell like moist leaves and grass.

How do we know the compost pile is finished decomposing?

We know the piles are finished decomposing when:

1. The piles are no longer heating up.
2. The grass and leaf material has been broken down and the pieces are very small or totally gone.
3. The pile is much smaller than when it started; the original materials have been eaten and broken down.

Once a pile is finished, we scoop out the finished compost and mix it into the soil in the garden. The finished compost, which we also call fertilizer, provides important nutrients for growing plants.

This hot compost process is one of the same processes nature has been doing for millions of years to recycle dead plant and animal materials into nutrients for plants. It is also the same process that fertilizer companies use to create potting soil, compost, and fertilizer. It is also the process that trash collection companies use to recycle the green waste that we put into our green waste bins.

If you have any questions, contact Mark Hay at 714-307-9481 or mnhay2000@yahoo.com

General Info for all Garden Masters

- Text John regarding repairs and supplies (714) 856-4007
- Barn, shed and gate codes 5278 – no children inside
 - Close and lock barn & shed
 - South gate to remain locked during school hours
- Supplies and tools
 - Return clean tools to where you found them
 - Have children fold left and right glove together before returning to bin
 - Rinse dirty rags in trough and hang to dry, put away dry rags
- Water
 - Use cistern water first
 - Turn valves inside barn and at hoses off
- Trash
 - Weeds go in the trash
 - Plant cuttings can go in fenced “browns” bin after being cut to 8” or smaller
 - Full trash cans must be dragged to tunnel area to be emptied
- Green Bucks
 - Reward for the 3 E’s: engaged, enthusiastic and extra hard work
 - Redeemed for .50 at Tuesday Produce Stand
- Sign up for blog posts Ocorganicgardenblog.com. All needed documents there
 - tmagarden@ocorganicblog is our garden email address
- Volunteer hours, teachers sign for garden visits, Garden Team signs for trainings
- Coinker donations used to purchase new seeds

COMPOST GARDEN MASTER TIMELINE

8:10-9:10 Foreman/Meekhof and Scheuerman

- 8:10-8:20: **Compost GMs** Set Up for Hot Composting
- 8:20: **MAINTAINER GM** brings FIRST group of students directly from MORNING LINE UP
- 8:22: **MAINTAINER GM** divides group into COMPOSTER, PLANTER, and MAINTAINER
- 8:25- 8:40: FIRST group composts, plants, or maintains
- 8:40: CLASSROOM TEACHER brings SECOND group out, takes FIRST group back to classroom
- 8:42: MAINTAINER GM divides group in COMPOSTER, PLANTER, or MAINTAINER
- 8:45-9:00: SECOND GROUP composts, plants, or maintains.
STUDENTS assist their GM's with cleanup.
- 9:00 MAINTAINER GM escorts all students from SECOND group back to class.
- 9:00-9:10: GMs put away tools and teaching materials and lock up

8:10 - 8:20 Compost GMs Set Up for Hot Composting

1. Get Hot Composting Materials box out of red barn (contains data sheets on clipboard, thermometers, cloth tarps, and other materials)
2. Set out clip board with data sheet and LONG thermometers on the white table under the shade structure.
3. Set out 2 white cloth tarps, which the students will use to turn the compost piles in the open bins.
4. Set out 5 rakes and/or hoes and the box of garden gloves for students to use during the turning of the compost, if they need them.
5. Set out 1 small watering can. Watering cans are in the barn.

8:25 - 8:40 WITH THE STUDENTS, FIRST GROUP

FIRST GROUP of the day:

1. Compost GM greets FIRST COMPOSTER GROUP
2. Ask ONE students from the group to be data recorder. They can go to the white table and find the data sheets on the clipboard. Recorders can fill in their name, teacher names, and class group
3. Ask the rest of the students to make teams of 3-5 kids at each of the open compost bins (**BINS # 1 and #3 for the first group of the day**). Students can grab garden gloves out of the box if they need them.
4. **TAKING THE TEMPERATURE:** Have the recorders find the temperature of each of the 4 compost piles, using the long orange thermometers. Recorders should announce the temperature of each bin to the rest of the students in the group, then record it on the data sheet. Students not recording can lay out the white cloth tarps on the ground in front of each of the open compost bins, #1 and #3. GMs help and guide each group of students.

5. **TURNING THE COMPOST:** Give students rakes or hoes. Have them pull the compost onto the white cloth tarp in front of bins #1 and #3. Students will use the rakes and hoes to pull the compost out, and then all students will help lift the tarp full of compost and pour it back into the bin. The compost is turned!
6. **ASK THE STUDENTS:** “Why are we turning the compost?” To give the microscopic decomposers more oxygen, which allows them to eat more and make more compost!
7. **CHECKING MOISTURE LEVEL:** Students from at each compost pile should give data to the data recorder on moisture level of each pile. The pile should be SLIGHTLY MOIST, not wet and not dry. If the pile needs a little water, add water ONE WATERING CAN at a time, up to three cans MAXIMUM.
8. **The compost should be SLIGHTLY MOIST, like a completely rung out sponge, NOT WET or dripping any water.**
9. When finished, students put gloves back and rinse hands in the sink at the side of the barn.
10. **Give each Student ONE GREEN BUCK if they completed all the tasks above and were helpful to other students and to the GM’s.**

8:40: VERY QUICK TRANSITION

1. At 8:40am, Classroom teacher brings SECOND group from classroom out to garden, and escorts the FIRST group back to the classroom.
2. MAINTAINER GM divides SECOND group into COMPOSTER, PLANTER, or MAINTAINER

8:45 - 9:00 WITH THE STUDENTS, SECOND GROUP

SECOND GROUP of the day:

1. DO same procedures as with the FIRST group, **SEE ABOVE. Have the SECOND group turn bins #2 and #4**

Students in the second group assist Compost GM’s with the following clean up tasks:

1. Put away rakes and/or hoes and box of garden gloves.
2. Shake clean the white cloth tarps. Fold neatly and put them into the Hot Compost materials box.
3. Put thermometers, data sheets on clipboard, white cloth tarps, and other materials back into the Hot Composting Materials box, and but the box back into the red barn.
4. When finished, students but gloves back or rinse hands in sink at the side of barn.
2. ON/OFF valve for sink is inside the barn, on the right hand side as you walk into the barn.
5. Check and TURN OFF SINK AND HOSE WATER going to the sink at the side of the barn.
3. ON/OFF valve for the sink water at the side of the barn is inside the red barn, just inside the barn doors on your right as you enter the barn.
6. Pour out the blue bucket at the end of the sink into the garden beds at the base of the grape vine trellis.
7. Check the area for trash and materials left out.
8. **Give each Student ONE GREEN BUCK if they completed all composting AND clean up tasks above and were helpful to other students and to the GM’s.**

9:00 MAINTAINER GM ESCORTS SECOND GROUP BACK TO CLASS

1. MAINTAINER GM gathers all students, compost, planting, and maintaining, and escorts all students back to their classroom.

9:00 – 9:10 GMs put away tools and teaching materials and lock up

QUESTIONS OR CONCERNS, CONTACT

HILLARY STREICHENBERGER 949-874-7740

MARK HAY 714-307-9481, mnhay2000@yahoo.com

COMPOST GARDEN MASTER TIMELINE

11:10-12:20 Heilig, Shenton, and Toohey

- 11:10-11:20** Compost GMs Set Up for Hot Composting
- 11:20** MAINTAINER GM brings students FIRST group from classroom
- 11:22** MAINTAINER GM divides group into COMPOSTER, PLANTER, and MAINTAINER
- 11:25 - 11:45** FIRST group composts, plants, or maintains
- 11:45** CLASSROOM TEACHER brings SECOND group out, takes FIRST group back to classroom
- 11:45** MAINTAINER GM divides group in COMPOSTER, PLANTER, or MAINTAINER
- 11:50 - 12:10** SECOND group composts, plants, or maintains.
STUDENTS assist their GM's with cleanup.
- 12:10** MAINTAINER GM escorts all students from SECOND group back to class
- 12:10-12:20** GMs put away tools and teaching materials and lock up

11:10-11:20 Compost GMs Set Up for Hot Composting

1. Get Hot Composting Materials box out of red barn (contains data sheets on clipboard, thermometers, cloth tarps, and other materials)
2. Set out clip board with data sheet and LONG thermometers on the white table under the shade structure.
3. Set out 2 white cloth tarps, which the students will use to turn the compost piles in the open bins.
4. Set out 5 rakes and/or hoes and the box of garden gloves for students to use during the turning of the compost, if they need them.
5. Set out 1 small watering can. Watering cans are in the barn.

11:25 - 11:45 WITH THE STUDENTS, FIRST GROUP

FIRST GROUP of the day:

1. Compost GM greets FIRST COMPOSTER GROUP
2. Ask ONE students from the group to be data recorder. They can go to the white table and find the data sheets on the clipboard. Recorders can fill in their name, teacher names, and class group
3. Ask the rest of the students to make teams of 4-6 kids at each of the open compost bins (**BINS # 1 and #3 for the first group of the day**). Students can grab garden gloves out of the box if they need them.
4. **TAKING THE TEMPERATURE:** Have the recorders find the temperature of each of the 4 compost piles, using the long orange thermometers. Recorders should announce the temperature of each bin to the rest of the students in the group, then record it on the data sheet. Students not recording can lay out the white cloth tarps on the ground in front of each of the open compost bins, #1 and #3. GMs help and guide each group of students.
5. **TURNING THE COMPOST:** Give students rakes or hoes. Have them pull the compost onto the white cloth tarp in front of bins #1 and #3. Students will use the rakes and hoes to pull the compost out, and then all students will help lift the tarp full of compost and pour it back into the bin. The compost is turned!
6. **ASK THE STUDENTS:** “Why are we turning the compost?” To give the microscopic decomposers more oxygen, which allows them to eat more and make more compost!
7. **CHECKING MOISTURE LEVEL:** Students from at each compost pile should give data to the data recorder on moisture level of each pile. The pile should be SLIGHTLY MOIST, not wet and not dry. If the pile needs a little water, add water ONE WATERING CAN at a time, up to three cans MAXIMUM.
The compost should be SLIGHTLY MOIST, like a completely rung out sponge, NOT WET or dripping any water.
8. When finished, students put gloves back and rinse hands in the sink at the side of the barn.
9. **Give each Student ONE GREEN BUCK if they completed all the tasks above and were helpful to other students and to the GM’s.**

11:45- 11:50 QUICK TRANSITION

1. At 11:50am, Classroom teacher brings SECOND group from classroom out to garden, and escorts the FIRST group back to the classroom.
2. MAINTAINER GM divides SECOND group into COMPOSTER, PLANTER, or MAINTAINER

11:50-12:10 WITH THE STUDENTS, SECOND GROUP

SECOND GROUP of the day:

1. DO the same procedures as with the FIRST group, **SEE ABOVE. Have the SECOND group turn bins #2 and #4**
- Students in the second group assist Compost GM’s with the following clean up tasks:**
1. Put away rakes and/or hoes and box of garden gloves.
 2. Shake clean the white cloth tarps. Fold neatly and put them into the Hot Compost materials box.
 3. Put thermometers, data sheets on clipboard, white cloth tarps, and other materials back into the Hot Composting Materials box, and but the box back into the red barn.

4. When finished, students but gloves back or rinse hands in sink at the side of barn.
ON/OFF valve for sink is inside the barn, on the right hand side as you walk into the barn.
5. Check and TURN OFF SINK AND HOSE WATER going to the sink at the side of the barn.
ON/OFF valve for the sink water at the side of the barn is inside the red barn, just inside the barn doors on your right as you enter the barn.
6. Pour out the blue bucket at the end of the sink into the garden beds at the base of the grape vine trellis.
7. Check the area for trash and materials left out.
8. **Give each Student ONE GREEN BUCK if they completed all composting AND clean up tasks above and were helpful to other students and to the GM's.**

12:10 MAINTAINER GM ESCORTS SECOND GROUP BACK TO CLASS

MAINTAINER GM gathers all students, compost, planting, and maintaining, and escorts all students back to their classroom.

12:10–12:20 Garden Masters put tools & teaching materials away & lock up

QUESTIONS OR CONCERNS, CONTACT

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