



Basic Vegetable Gardening

Lesson 10: Making and Using Compost

Lesson Summary: Boys and girls will learn about composting and will start a compost heap.

Boys and girls will learn:

- good reasons to compost
- the sciences of compost
- how to start a compost pile or pit
- how to use compost

Time: 60 minutes

What you need:

- Compost poster
- Materials for composting – see directions on the next page for a list of materials
- Garden tools – machete, shovel

Lesson Steps

1. (2 minutes) – Introduction

Review the lesson before this one.

2. (3 minutes) – Talk about the benefits of making and using compost.

2.1 Ask the group if they know about compost. Have them tell what they know about compost to the group.

Some answers:

- Compost is organic (natural) material.
- It is used as a fertilizer to make plants grow faster and bigger.
- Compost is easy to make. There is no cost to make compost.
- Compost improves the soil.
- It is made from leaves, plant stalks, grasses, fruits and vegetables and animal dung. Over time, the materials decay. The compost has a lot of nutrients in it.
- Microorganisms such as fungi and bacteria make the materials begin to rot or decay. After the microbes begin to rot, larger organisms like worms and insects help to break down the organic materials.

3. (10 minutes) -Talk about the compost heap.

3.1 Have the boys and girls write the chemical formula for compost in their notebooks:



Nitrogen + air + water + carbon + oxygen = compost





3.2 Tell what can go in the compost heap. Have the boys and girls make a chart in their notebooks as you read the list below the chart.

Green Materials	Brown Materials
High in Nitrogen Come from things that are green or fresh.	High in Carbon Come from things that are brown or drying up.
animal dung from cattle, chickens, goats (not ok: dung from cats or dogs) kitchen waste banana peel coffee and tea grounds egg shells fruit waste green leaves green weeds banana leaves-fresh	dead logs old palm leaves banana leaves-old banana stalks-old bean pods corn stalks dried grasses dried leaves millet stalks old newspapers saw dust chopped leaves

In the compost heap:

- Green materials. This comes from things that are green or fresh. Green materials are high in nitrogen. Nitrogen is needed to make compost.
- Kitchen waste like banana peels, coffee or tea grounds, eggshells, and fruit waste are examples of green materials that add nitrogen.
- Green leaves and weeds are green material.
- Brown materials are from things that are brown or drying up. Bean pods, corn stalks, dried grasses, dried leaves, millet stalks are types of brown materials. Brown materials are important because they have carbon. Carbon is needed to make compost.
- Palm leaves and dead logs are brown materials.
- Animal dung from cattle, chicken, and goats. Dung has nitrogen.
- Small materials like sawdust or chopped leaves. Small materials are good because they have more surface area for the microbes to do their work.

Not in the compost heap:



- Protein such as meat and bones. These things will attract animals you do not want in your garden.
- Cat, dog, or human dung. This dung may have diseases.
- Diseased parts of the tomato family.
- Large materials like sticks and big chunks of wood. Large materials take too long to break down. Use a machete to chop larger materials into smaller pieces before adding to the heap.



4. (30 minutes) Start a compost heap or pit.

Go outside to the garden.

4.1 Decide where to make the compost. The compost heap should be near the garden so it is easier to use the compost.

4.2 Have the boys and girls collect materials from around the garden and school area that can be used to make compost. Are there things in the rubbish bins that could be composted? From the kitchen?

You will need to make 3-4 compost heaps. Start one heap each week. By having several heaps at different stages, you will always have compost ready for planting or fertilizing.

4.3 Make a Compost Heap or Pile

1. Cover an area 2 meters x 2 meters square with a thick layer of brown/high carbon materials.
2. Add a layer of green/high nitrogen materials.
3. Sprinkle with wood ash, calcium, or limestone.
4. Add a few full shovels of finished compost or good garden soil.
5. Repeat the layers until the pile is heaped high.
6. Water well and cover.
7. Turn the heap in a few weeks, adjust the moisture level and cover again.
8. Turn one more time.
9. After several more weeks the compost should be complete and ready to use.

or



Make a Compost Pit (This will take a lot more time to make. To save time, have the pit dug before lesson.)

1. Choose a place at the edge of the garden to build a compost pit.
2. Dig a pit 2 meters long x 2 meters wide and 1 meter deep.
3. You may build a shade structure to conserve moisture.
4. Mix two parts brown/high carbon materials to one part green/high nitrogen materials.
5. Let the mix rest for 1-2 weeks until it breaks down. Move it to another pit and begin again.
6. You may want to make several compost pits so that you have compost at different stages and ready for fertilizer when you need it. If so, move compost from pit 3 to the garden. Move compost from pit 2 to pit 3. After 2 weeks, move compost from pit 1 to pit 2. Start new compost in pit.

5. (5 minutes) – Talk about how to use compost.

Compost can be used in three ways:

1. Add compost as fertilizer around plants. It is better to use a little compost more often, than a lot of compost at one time.
2. Mix compost into soil when starting new seeds. Compost should have a fine texture. Mixing in compost helps the seeds germinate.
3. Mix compost into soil when transplanting seedlings. Mixing in compost adds both fertilizer and a fine texture to the soil so the plants can continue growing well.

6. (5 minutes) – Review

Ask the boys and girls these questions:

- What did we do today?
- Why is it good to compost in the garden?
Answer: Compost is an excellent fertilizer and provides nutrients to the plants. Compost also helps the soil. Compost does not cost anything.
- Why is it good to spread compost around your plants at home?
- What can you do to help the compost heap or pit form faster?
Answer: You can make more compost by collecting more materials. You can also have several compost heaps at different stages so compost is ready when it is needed.



7. (1 minute) - Close

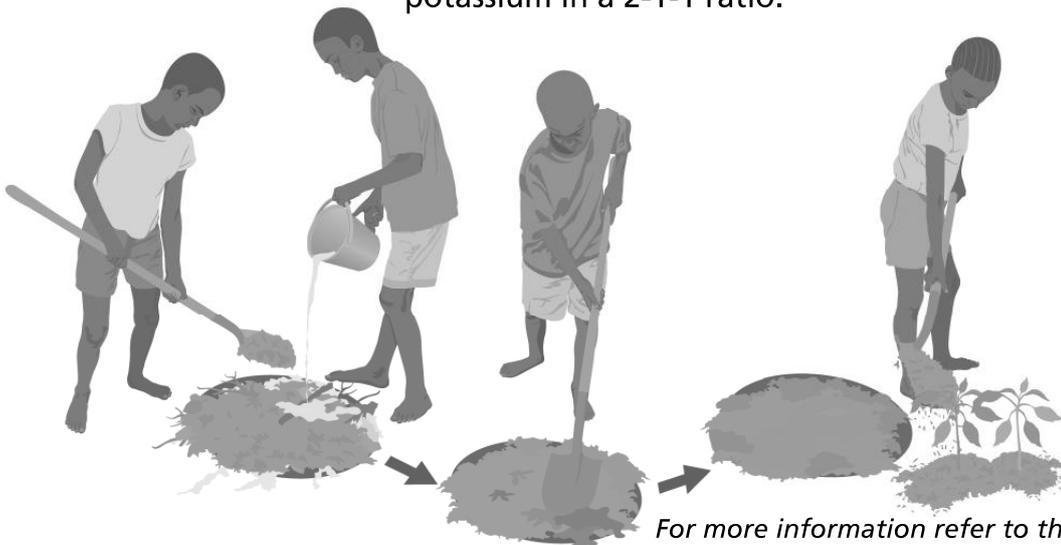
Record the day you started the compost heap. Keep all notes in the notebook.



Compost as an Organic Fertilizer



- ✂ Make compost above ground in a heap or below ground in a pit.
- ✂ Start with a layer of brown materials (high in carbon), alternate with layers of rich, green materials (high in nitrogen).
- ✂ Chop all materials into smaller pieces.
- ✂ Add water in the dry season.
- ✂ Sprinkle in garden soil or mature compost as you make the pile.
- ✂ Cover the pile with banana or palm leaves to maintain moisture.
- ✂ Turn the pile once every two weeks until the compost is complete.
- ✂ Compost is ready when it does not heat or smell and when original materials are not recognizable.
- ✂ Add a handful of compost when transplanting vegetables.
- ✂ Compost supplies nitrogen, phosphorus and potassium in a 2-1-1 ratio.



For more information refer to the Manual (Teacher's Guide to School Gardens: Primary School Level).

