COMPOSTING IN CLASS

Grades:

1 – 2

Time Allotments:

Teacher preparation: 45 – 60 minutes
Lesson and Activity: 45 – 60 minutes
Lesson Follow-up: Daily and weekly observations – can extend into months

Vocabulary:

Composting
Decomposition
Waste Reduction

Integrated Curricular Areas and Corresponding Core Curriculum Content Standards:

Science:	**5.1**: (G4) A1-3 (G8) B2
	5.10: (G2) A1 (G6) A1-2
Language Arts:	**3.1**: (G2) F1&3
	3.4: (G1) A1, B2 (G2) B1
Technology:	**8.1**: (G4) B5-7

Content Objectives: Students will be able to –

1. Define the terms "compost" and "decomposition";
2. Describe the process of decomposition as it occurs;
3. Describe how composting can turn some waste products into compost; and
4. Identify 2 – 3 waste items that help make compost.

Process Objectives: Students will –

1. Observe what happens with waste items that are being composted; and
2. Document (draw and write) observations, predictions and ideas in a journal.

Materials:

- Organic waste must be saved for this activity. Unless the teacher has access to households that can save materials from home they should work with school staff to collect such materials from the school grounds and the cafeteria (grass clippings, leaves, vegetable and fruit matter, paper items and newsprint, some plastic items)

One set of materials for each group of students:

- One container – bucket, garbage can, large flower pot or storage bin
- Composting material – leaves, vegetable and fruit matter, grass clippings, shredded paper, paper products, one plastic item per team, etc. (no meat products)
- Small shovel for turning the compost
- Water bottle or container (to carry water)

- Permanent markers (to label the bins) and rubber gloves (1 pair per student)
- Journals (one per student) for recording and/or drawing observations

Two demonstration bins:

- Two identical bins, one having drainage holes at the bottom (bucket or storage bin with holes in the bottom)
- Compost materials (listed above, including one plastic item in each bin)
- One shovel and container for water
- Rubber gloves (for teacher)

Anticipatory Set:

- Lead a discussion with students on the following questions:
- *Pretend you're eating an apple outdoors. When you're finished eating you toss the apple core into the bushes. What do you think will happen to the apple core? What will it look like in a few days?* List answers. Discuss what "decomposition" means
- *What other items do people toss in the trash that you think will decompose over time*? *Have you ever found rotting food outside or indoors? If so, describe what was happening to it.* Write their suggestions and descriptions on the board

Teacher's Presentation or Modeling:

- The teacher should ask students: *Do you know of a way that items that decompose can be turned into gardening material?* Discuss what compost is and how compost is created. Give examples of how compost can be used around the home or school
- Explain to students that they will work in small groups to create and monitor their team's own composting bin for a period of time at school. The purpose of the lesson is to observe what and how some materials change over time (while others do not!)
- The teacher should set up the classes' two demonstration bins at the same time the teams are setting up their own bins. Show the students how to layer the materials into their containers (leaves, grass clippings, paper items, food matter, a plastic item, etc.)
- Ask them to think of a team name and to label their bin accordingly with a marker. The demonstration bins should also be labeled – "Drainage" and "No Drainage"

Guided and Independent Practice:

- Using their individual journals, have the students describe or draw what their compost bin and compost materials look, feel and smell like
- After students have put their compost descriptions into their journals ask them to predict what will occur in the two demonstration bins and if/why their predictions would differ based on one bin having drainage holes
- Explain that students are expected to turn (stir or mix) their compost regularly (at least 3 times weekly) and should keep compost moist (spray weekly). Give a demonstration for watering and for turning compost. Student observations should be documented in journals whenever the compost is checked
- Decide how long the compost bins will be active and provide students with the project deadline. Check in with the teams regularly on their progress

Closure:

- Encourage class discussion on the following questions:
- *What happened to your materials in the compost bins over time? Did they change in any way? If so, how? What happened to the grass clippings, food waste and leaves? What happened to the items made from paper? What happened to the plastic item?*
- *What happened in the two demonstration bins? Do their compost materials seem different or similar? If different, why? Why do you think this happened?*
- *Do you think that compost can be used for anything? If so, what?*
- *Why do you think it is helpful to compost things in trash that can decompose quickly?*
- Review what "decomposition" and "composting" mean

Assessment:

- Participation in group discussion and responses to questions from teacher;
- Participation on a team and helping to maintain the team's compost bin; and
- Observations and findings documented in the journal.

Extension:

- Have students experiment with the compost bin by adding other materials to their compost bins, or by adding more or less moisture, more drainage holes, etc.

Safety/Clean Up:

- Students should practice science safety precautions, wearing goggles if necessary. The bins should be kept outside in case of odors, mess, etc. When finished, containers should be washed or disposed of properly and contents should be disposed of properly

Additional Resources:

- Article: ***"Galloway Township: School Composting and School Yard Wildlife Projects… A Natural Partnership."*** By Barbara Fielder
  Resources: Schools – Unique Educational Programs; Association of New Jersey Recyclers; http://www.anjr.com/resources/schools/uniqueprgs.html

- **Cornell Composting – Composting in Schools**
  Cornell Waste Management Institute; http://compost.css.cornell.edu/schools.html

- **How to Compost Your Organic Waste**
  Minnesota Office of Environmental Assistance
  http://www.moea.state.mn.us/campaign/compost/