



# Think Green

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**Program Purpose:**

The purpose of this program is for students to learn about composting and recycling through hands-on activities.

**Program Length:** 1½ hours

**Age:** Grades 4<sup>th</sup>-8<sup>th</sup>

**Maximum Number of Participants:** 12

**Objectives:**

After completion of this course students will be able to:

- Identify which items from their trash can be recycled, composted, and reused.
- Define recycling and composting.
- Explain the process for making recycled paper.
- Build an example compost bin and replicate it at home.

**Preparation:**

Before the class arrives:

- Retrieve the Garbology box from the workroom.
- Assemble bags with similar contents for recycling/reuse challenge. The number of bags will depend on how many students you have. There should be about 3 or 4 students per team.
- Gather old paper for making recycled paper.
- Photocopy enough home compost bin making sheets for each student.
- Prepare and set out the blenders and papermaking supplies in the wet lab.
  - Have the blenders plugged in on the tall counter near the sink
  - Place a tub on the low table closest to the sink
  - Put the screens near the tub
  - Place the big blue or green felt spread out on the table farthest to the sinks
  - Place the rolling pins and red pieces of felt on top of the blue or green felt
  - Put the old window/drying screens on the floor with the masking tape and marker

**Basic Outline:**

- I. Introduction (15 min)
- II. Recycling/Reuse Challenge (20 min)
- III. Recycled Paper Making (30 min)
- IV. Compost bin making (20 min)
- V. Conclusion (10 min)

**Materials:****Recycle Relay**

- 4 Plastic bags
- Plastic food
- Styrofoam/Soy packaging peanuts
- Cardboard
- Plastic bottles
- Tin Cans
- Milk Jugs
- Empty Juice boxes

**Paper Making**

- Scrap office paper
- 2 Blenders
- 4 Screens
- 4 Tubs
- Felt
- Rolling Pins
- Drying screens – kept by side of shelves in work room
- Masking tape
- Marker

**Compost Bin**

- Shallow Rubbermaid Container
- Newspaper (black and white only)
- Water
- \*Scale
- Plastic Worms
- Handful of Soil
- Compost bin and log from animal room

**Introduction:**

Introduce yourself to the class and explain that today you will be talking about recycling and composting. Start by asking students to close their eyes and use their imaginations as you read Shel Silverstein's "Sarah Cynthia Sylvia Stout" (see Appendix A). Discuss some of the images in the poem. Ask students what would happen if we just took our garbage outside, but it was never picked up and taken to landfills. In the poem, was there anything Sarah could have done with her waste besides throwing it away? Ask the students if anyone knows what it means to recycle (to reuse a material by sending it through a reprocessing cycle). Discuss what sorts of materials can be recycled:

- Aluminum is one of the most frequently recycled materials. The energy saved by recycling one soda can is enough to run your television for 3 hours.
- Plastic can be recycled, but some kinds of plastic are harder to reprocess than others, and plastic is more difficult to reprocess than glass or aluminum.

- Glass and metal can be cleaned and re-melted for recycling.
- Paper and cardboard can also be recycled.
- Many other materials such as cars and computers can even be recycled. For example, parts of computers and cars can be reused in building new computers or cars.

Next ask the class if food can be recycled. (Some responses may be “ewe, gross,” or “yes, we eat leftovers”)

Introduce the topic of composting (allowing organic materials to decompose, with the help of worms, and return to soil). Inform the class that some food items such as fruits, vegetables, coffee grounds, tea bags, and eggshells can be put into a compost pile instead of into a landfill. With the help of some worms, this compost pile will help to reduce the amount of waste going into landfills, produce fertile dirt for use on plants or in the garden, and supply worms for fishing bait.

Now introduce the idea of reducing the waste that each person produces in a day. This involves not only recycling and composting, but doing things such as using cloth towels and napkins instead of paper ones, using a thermos for juice instead of drinking juice boxes, donating old clothing and toys to resale shops, using irreparable clothing for cleaning rags, and using rechargeable batteries. Allow the students to brainstorm other ways in which they can reduce their waste.

#### **Recycling/Reuse Challenge:**

For this game, split the class into teams with 3 or 4 students on each team. Give each group a garbage bag full of waste and tell them their challenge is to see which group can have the least waste that must go into a landfill. They can separate their waste into 4 piles:

- Recycling
- Reusing
- Composting
- Waste

Tell the students that part of this challenge is for them to figure out ways to reuse some of the waste. Explain that recycling takes energy and sometimes produces waste itself, so even though it is not as bad as throwing things in the garbage, it is not as good as reusing them.

After students have time to discuss what must be done with each item, have a different member of the group explain what is in which pile and why. Record each group’s score on the dry erase board. Award points to the groups as follows:

Each reused material = 0 points  
Each composted material = 0 points  
Each recycled material = 1 point  
Each waste material = 2 points

The group with the lowest score in the end wins.

#### **Recycled Paper Making:**

Have all the paper making supplies and water set up before the students arrive.

Show the students an example of the paper that they will be creating today.

1. Shred scrap paper (~1 8 ½ x 11 sheet of paper) into one-inch pieces.
2. Fill the blender half-way with water and add the paper scraps.
3. Cover the top and blend on medium-high for a few seconds. The water will start to look like very watery oatmeal.
4. Take the blended mixture over to the water tub. Have a partner help by holding the screen while you pour the mixture into it over the tub.
5. After the paper is evenly distributed in the screen take it over to the felt press. There should be one sheet of felt placed flat on the table. Turn the screen over and place the wet paper pulp onto the felt.
6. Cover the paper with the second piece of felt.
7. Take the rolling pin and roll the excess water out of paper. This will also bind the paper together.
8. Place the newly made paper on the drying screens. Drying will take several hours. Make sure the students place a piece of masking tape with their name on it next to their paper. They can get it after it dries.

#### **Compost Bin Making:**

See Appendix B. Have the students help you with each step so that they are in fact making the compost bin.

- Have the class seated where they can all easily see the table with the compost bin on it.
- Begin by shredding newspaper length-wise to make bedding for the compost bin. If you are using leaves, you must gather enough leaves to make the bedding. You will need about 4/10 pounds of paper or leaves per gallon of container or 3 pounds of paper or leaves per cubic foot of container.
- Weigh the bedding. If you are using a bathroom scale, weigh yourself holding the bedding and then subtract your weight without holding the bedding.
- Weigh out the water for the bedding. For a plastic container, there should be 2 times as much water as there is bedding. So if you have 5 pounds of bedding you will add 10 pounds of water. For a wooden container there should be about 3 times as much water as bedding. In this case you would add 15 pounds of water for 5 pounds of bedding.
- Put half of the bedding and half of the water into the mixing container and mix it.
- After mixing, add 2 handfuls of soil, and the remaining bedding and water and mix again until the water is well distributed.

- Pour all of the bedding into your compost bin.
- Spread your worms out on top of your compost bin, separating any clumps of worms. Do this in a light area so the worms will work their way down into the bedding.
- Once most of the worms have worked their way into the bedding (this may take up to an hour), remove any that are left on top because they are probably dead or unhealthy.
- Now, dig a hole in the bedding big enough to contain your compost and cover it entirely with the bedding.
- Place the lid on the container and let the worms do their work!

**Conclusion:**

Now it's time to start wrapping things up. Ask the students to list some ways that they learned today to help the environment.

- Why is it important to take action to help out earth?
- How could these actions help out the wildlife and environment around us?

Also ask them if they have any questions before they leave about what they learned today. Ask them to raise their hands if they are going to start reducing, reusing, recycling, or composting after they get home.

**References:**

Appelhof, M. (1997), Worms eat my garbage, Kalamazoo, MI: Flower Press.

Payne, B. (1999), The Worm Café, Kalamazoo, MI: Flower Press.

Silverstein, S. (1974), "Sarah Cynthia Sylvia Stout", New York: Harper & Row.

Environmental Issues Page  
[Environment.about.com/library/weekly/blquiz11.htm](http://environment.about.com/library/weekly/blquiz11.htm).

Green Workout: Trash Trivia  
<http://pasture.ecn.purdue.edu/~epados/waste/quilx/cornl22c.htm>

Precycling Page  
[www.cfe.cornell.edu/compost/schools.html](http://www.cfe.cornell.edu/compost/schools.html).