South Carolina Department of Health and Environmental Control

Taking Recycling Education to the Next Level

September 30, 2019 – October 2, 2019

Arkansas Recycling Coalition 29th Annual Conference & Trade Show

Recycling seems simple.

It isn't.

Recycling is a loosely connected, highly dependent network riddled with inefficiencies and issues.

Recycling is working in South Carolina.

But like other states, it faces challenges including:

- **Complacency**
- **Confusion**
- **Contamination**
- **Cost**

Contamination

Contamination has increased costs for local government programs.

- **It has reduced value of commodities for local governments.**
- **Processors are charging more.**

About 10 local governments have expressed concerns about maintaining their recycling programs. One municipal program has closed.

What to do?

- Technical assistance
- Working with processors
- Grant funding
- K-12 curriculum
- Social media
- Workshops
- RecycleMore/RecycleRightSC campaign

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RECYCLE MORE
RECYCLE RIGHT SC

Rethink. Review. Reboot.

Local governments should return to the basics and not accept material it cannot market.

Back to the Basics

- Aluminum cans
- Steel cans
- Cardboard
- Plastic
- Glass

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WHAT IS CONTAMINATION?

Contamination happens when:

- The RIGHT ITEMS are not prepared correctly; OR
- The WRONG ITEMS are placed in the recycling bin.

RIGHT!

- ACCEPTABLE RECYCLABLES – Please visit www.scdhec.gov/recycleheresc to find out which recyclables are accepted in your community.
- CLEAN AND DRY – Empty and rinse bottles and cans. Keep newspaper, cardboard and other papers dry.

WRONG!

- ALL PLASTIC BAGS – Take them back to your local grocery store for recycling or donate them to **Harvest Hope Food Bank** for reuse.
- FOODS AND LIQUIDS

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www.scdhec.gov/recycle

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Continued on the back

PREVENT CONTAMINATION!

BE CART SMART!

Have you ever placed items in the recycling bin without being certain that they can be recycled? ***DON'T DO IT!***

PROBLEM ITEMS INCLUDE:

- Plastic bags
- Shredded paper
- Containers with food
- Tanglers (e.g., hoses, cords, string lights)
- Food wrappers (e.g., nuts, granola)
- Sharps (e.g., needles, syringes)
- Drinking glasses
- Ceramics

REDUCE SINGLE USE!

You can refuse single-use packaging. These are the top five alternatives to reduce using wasteful products.

Bottled Water
TRY REUSABLE WATER BOTTLES.

Paper Coffee Cups
TRY REUSABLE COFFEE MUGS.

Plastic & Paper Bags
TRY REUSABLE BAGS & TOTES.

Styrofoam Containers
TRY STURDY FOOD CONTAINERS.

Plastic Utensils & Paper Napkins
TRY DURABLE UTENSILS & CLOTH NAPKINS.

RECYCLE MORE RECYCLE RIGHT SC

Have you ever placed items in the recycling bin without being certain that they can be recycled? ***DON'T DO IT!***

"Wishful recycling" can damage your recycling program. Placing items in the bin that cannot be recycled makes processing more difficult, damages equipment, lowers the value of the material that can be recycled and increases program costs.

PROBLEM ITEMS INCLUDE:

- Plastic bags
- Shredded paper
- Containers with food
- Tanglers (e.g., hoses, cords, string lights)
- Food wrappers (e.g., nuts, granola)
- Sharps (e.g., needles, syringes)
- Drinking glasses
- Ceramics

Some of these items can be recycled outside your local program (e.g., plastic bags at local grocery stores or food banks).

To learn more about recycling right, please visit www.scdhec.gov/recycleheresc.

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WHAT CAN RECYCLED ITEMS BECOME?

There are thousands of products that are made from **RECYCLED MATERIAL** – and there's a good chance you already have a few in your own home.

PLASTIC BOTTLES & CONTAINERS (PET #1) become

PLASTIC BOTTLES & CONTAINERS (HDPE #2) become

JUICE & MILK CARTONS become

CARDBOARD & PAPERBOARD become

NEWSPAPERS & MAGAZINES become

STEEL CANS & SCRAP METAL become

ALUMINUM CANS become

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1-800-768-7348 ● www.scdhec.gov/recycle

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RECYCLING'S DIRTY DOZEN

NEVER PLACE THESE **12 ITEMS** IN YOUR RECYCLING BIN

1. **PLASTIC BAGS** – Recycle these at you local grocery store or food bank.
2. **BAGGED ITEMS** – Don't bag recycled items. Keep them loose in your bin.
3. **SHREDDED PAPER** – It can become litter or jam equipment at the recycling facility.
4. **SCRAP METAL** – Non-recyclable metals can damage sorting equipment.
5. **HAZARDOUS MATERIALS** – Most are recycled by your county.
6. **FLATTENED CANS & BOTTLES** – These cause issues at sorting facilities.
7. **UNRECYCLABLE PLASTIC** – See if it is accepted in your program first.
8. **CAPS ON GLASS BOTTLES** – Remove and discard before recycling.
9. **FOOD & LIQUIDS** – Empty and rinse containers that can be recycled.
10. **UNRECYCLABLE GLASS** – Don't recycle dishes, bulbs and windows.
11. **ROPE-LIKE ITEMS** – Hoses, wire and string lights jam sorting equipment.
12. **BIO-HAZARDOUS WASTE** – Diapers and syringes can hurt workers.

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CYCLING
Let's recycle, Main Street!
recyclemoresc.org
Questions? Visit www.columbiasc.net/solid-waste
dhec
2020
PARTNERSHIP

Place your recycling cart out for pick up **by 7:00 a.m.** on your scheduled collection day.

City of Conway
RECYCLING GUIDELINES

For more information, call **(843) 248-1730**
or visit **www.cityofconway.com**.

City of Conway SOUTH CAROLINA

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OR-1771 8/18

Place only these APPROVED ITEMS in the recycling cart.


Empty Metal and Aluminum Cans

Paperboard


Flat Corrugated Cardboard


Paper


Glass


Plastic

YES

DO NOT place these items in the recycling cart.

NONE OF THE FOLLOWING!

Garbage, Food, Plastic Bags, Yard Trimmings, Hazardous Waste, Hardback Books, Hand Towels, Tissue/Toilet Paper, Plastic-Coated Paper or Styrofoam

ONLY RECYCLABLES GOES IN THIS CART.

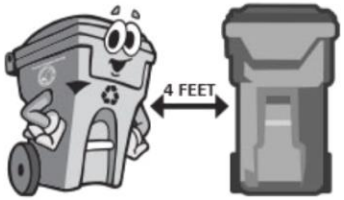
NOTE: If this recycling cart is used for over flow garbage or other unauthorized waste, the City of Conway will pick up the cart and discontinue your recycling service.

NO

Curbside Courtesy
SET-OUT GUIDELINES

To make recycling collection more efficient, please follow these guidelines.

- ✓ Place your cart at the curb by 7 a.m. on your collection day.
- ✓ Place all recyclables loose in your roll cart – DO NOT place them in paper or plastic bags.
- ✓ Close the lid.
- ✓ Place the cart with the pushing handle toward your home.
- ✓ Keep your cart at least 4 feet away from other roll carts, trees, vehicles and mailboxes.



Download the Solid Waste Mobile App!
www.richlandcountysc.gov/richlandrecycles

RECYCLE MORE. RECYCLE RIGHT SC

ATTENTION, PLEASE.

- ❑ We noticed that your roll cart had more than just recyclables.
- ❑ Unfortunately, this cart could not be emptied for recycling.

Please help us keep recyclables free of contaminants.

❑ NO garbage	❑ NO plastic bags
❑ NO food or liquids	❑ NO yard debris
❑ NO cords or hoses	❑ NO wire hangers
❑ NO electronic devices	❑ NO carpet
❑ No lumber	❑ Other:

Please recycle these items.
Empty and rinse all cans, bottles and other food containers.

Thanks for Recycling!

Richland County Solid Waste Division
www.richlandcountysc.gov/richlandrecycles

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DON'T WASTE FOOD SC

PREVENT • DONATE • COMPOST

www.scdhec.gov/dontwastefoodsc

Don't Waste Food SC

The campaign is designed to **increase public awareness about the economic, environmental and social impacts of wasted food**.

Don't Waste Food SC

The campaign encourages consumers, restaurants, grocery stores, farms, schools, colleges/universities, non-profits – each of us – to do their part.

The goal of the campaign is to cut food waste in half by 2030.


COMPOSTING
RECYCLING NATURALLY
Simple Steps for Starting at Home
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Provided by DHEC's Office of Solid Waste Reduction & Recycling
www.scdhec.gov/dontwastefoodsc


DON'T WASTE FOOD SC
PREVENT • DONATE • COMPOST
A Guide for Reducing Food Waste at Home
dhec
Provided by DHEC's Office of Solid Waste Reduction & Recycling
www.scdhec.gov/dontwastefoodsc
FOOD

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REDUCING FOOD WASTE

A Guide for South Carolina Schools

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Office of Solid Waste Reduction & Recycling
1-800-768-7348
www.scdhec.gov/recycle

COMPOSTING

A Guide for South Carolina Schools

SIMPLE STEPS
for Successful Composting

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www.scdhec.gov/recycle

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FOOD RECOVERY
GUIDANCE FOR SCHOOLS

The U.S. Department of Agriculture and the S.C. Department of Health and Environmental Control encourage schools to reduce food waste through the use of **share tables and donation**.

Share tables are defined by the USDA as carts and/or tables where a child can place unwanted food and beverage items. These tables provide an opportunity for other children to take additional helpings of food or beverages at no cost to them.

In addition, schools that occasionally have unexpected meal or food surplus may donate it to food banks, food rescue organizations, homeless shelters and similar non-profit organizations according to the USDA.

The following guidelines are provided by DHEC to assist schools in setting up share tables and food donation.

SHARE TABLES

THE BASICS

- Carefully plan, promote and train staff.
- **Follow federal and state food safety requirements.**
- Place the table close to the cashier or wherever students exit the food service line. Include a sign with clear instructions.
- It is recommended that the table be monitored by faculty or staff.

WHAT FOODS ARE ALLOWED?

- Establish clear guidelines of items that may or may not be shared.
- Non-temperature controlled, pre-packaged products such as cereal packs, crackers, drinks and food bars are allowed.
- Wrapped fruit and vegetables as well as fruit with a thick skin such as bananas and oranges are allowed.
- Temperature-controlled, pre-packaged products such as cheese and milk are allowed but must be placed in a refrigerator, cooler or ice bath.

Continued on the back

DON'T WASTE FOOD SC
PREVENT • DONATE • COMPOST

PRODUCT DATING
WHAT DOES IT REALLY MEAN?

All of those dates on food products – sell by, use by, best if used by – are not an indicator of food safety. So what do they mean?

- **SELL-BY DATE** – This date tells the store how long to display the product for sale. You should buy the product before the date expires.
- **BEST IF USED BY/BEFORE DATE** – This date is recommended for best flavor or quality. It is not a purchase or safety date.
- **USE-BY DATE** – This date is the last date recommended for the use of the product while at peak quality. The date has been determined by the maker of the product.
- **CLOSED/CODED DATES** – These dates are packing numbers for use by the manufacturer.

DECIPHERING THE DATES

Product dates don't necessarily mean the product is unsafe to consume.

To learn more about dates on products, please visit **savethefood.com/tips/deciphering-dates-on-products**.

For more information, also visit **www.scdhec.gov/dontwastefoodsc**.

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South Carolina Department of Commerce
Just right for business.

SOURCE: U.S. Department of Agriculture
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SHARE TABLE
RULES

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RESTAURANTS, GROCERY STORES & SCHOOLS CAN DONATE FOOD

Who can donate?

Restaurants, grocery stores and schools can donate.

The S.C. Department of Health and Environmental Control encourages donation as long as all food safety requirements are followed.

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What to donate?

Non-perishable (e.g., canned food) and perishable food (e.g., fresh produce, prepared food) can be donated.

Where to donate?

Check with your local food banks, food rescue organizations and other non-profits. To find a local food bank, please visit www.feedingamerica.org or www.scfoodbankassociation.org.

Federal and state legislation provides liability protection to donors.

The Bill Emerson Good Samaritan Food Donation Act protects donors from civil and criminal liability should the product donated in good faith later cause harm to the recipient.

South Carolina's legislation also protects good faith donors from criminal and civil liability.

www.scdhec.gov/dontwastefoodsc

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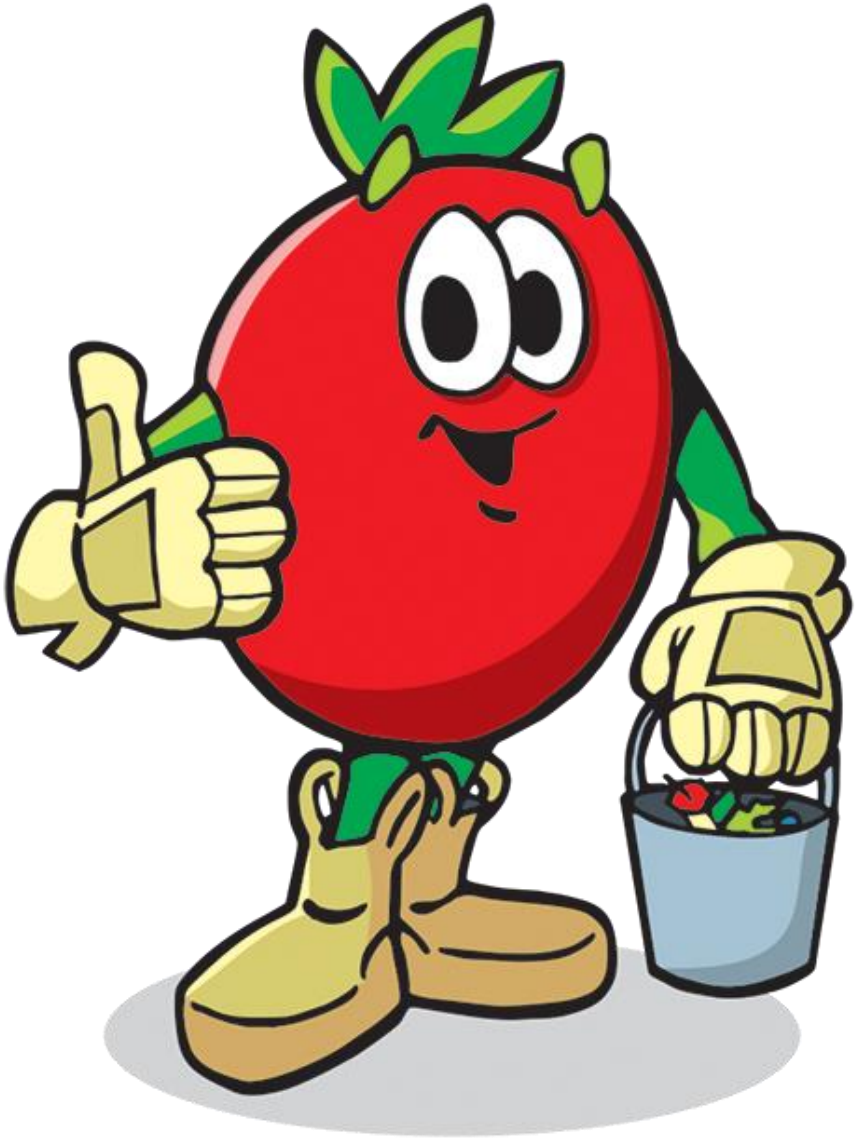
A GUIDE TO BECOMING A

DON'T WASTE FOOD SC

PREVENT • DONATE • COMPOST

AMBASSADOR

www.scdhec.gov/dontwastefoodsc




PASTA
CEREAL
HARVEST HOPE
HUNGER RELIEF
HEROES


PASTA
CEREAL
HARVEST HOPE
HUNGER RELIEF
HEROES
HARVEST HOPE FOOD BANK
AN ACTION-PACKED
FOOD DONATION ACTIVITY BOOK
Featuring Cool Can Sam!

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take action SC

ENVIRONMENTAL EDUCATION PARTNERSHIP

Take Action SC

"Action" is an **award-winning, interdisciplinary, activity-based curriculum supplement** that provides an introduction to solid waste, recycling, composting and more to K-8 students.

Take Action SC

- **Developed by teachers** and DHEC in conjunction with the S.C. Department of Education in 1993.
- **Correlated to the South Carolina science standards** and includes state-specific information when possible.

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ACTION

take action SC
ENVIRONMENTAL EDUCATION PARTNERSHIP

www.takeactionsc.org

www.scdhec.gov/recycle

2018-19 School Year by the Numbers

39,827	Students reached
2,261	Teachers reached
375	Presentations given
44	Counties with presentations or workshops
70%	Average pre-test score
97%	Average post-test score
29%	Of schools visited have a recycling program

action for a cleaner tomorrow

AN ENVIRONMENTAL CURRICULUM SUPPLEMENT

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Lessons for 5th Grade

My Bag

Learning Objective

Students will:

- **Evaluate ways resources are wasted**; and
- **Consider other options than throwing away used, broken, worn out and unwanted items.**

BACKGROUND

What you call trash or garbage, professionals call solid waste. There are different kinds of solid waste, but the type discussed in this lesson is municipal solid waste (MSW). MSW is the garbage we make in our homes, schools and places of work.

Each of us has the opportunity to manage the MSW we produce. Most of us, however, don't think about it and just throw things away. Where is away? Away is a landfill. The majority of MSW generated in South Carolina is disposed of in landfills. Recycling, however, is an option that conserves resources, reduces the need to build landfills and plays a significant role in the state's economy by creating jobs and businesses. Other options that each of us can practice are source reduction (reducing), reusing and composting - all of which have similar economic and environmental benefits of recycling.

In this activity, students look in to a typical bag of household trash and decide which items can be reduced, reused, recycled and composted as well as those that must be thrown away.

Present the Lesson

ENGAGE

For this exercise, you will need a bag with **about 5 pounds of clean trash** (including items that can be reduced, reused, recycled or composted. Also have items that only can go in the landfill), **five clean paper bags**, and a **bath scale** (optional). See LIST OF MATERIALS for details.

Ask students how many pounds of trash they think they produce each day and each week. Then show them the ***How Much Trash Do You Make in a Week?*** video. See ON THE WEB for details. Continue with the lesson after watching the video.

1. Review the background information with students.
2. Ask students what they would expect to find in a typical bag of household trash.
3. Show students the bag of trash you have prepared and ask them to estimate its weight.

ON THE WEB

To watch the video ***How Much Trash Do You Make in a Week?***, visit www.youtube.com/watch?v=8suiEKvZqSs.

LIST OF MATERIALS

Below is a list of suggested items.

- Aluminum or Steel Can
- Cardboard (one piece) or Cereal Box
- Dryer Lint
- Egg Cartons (paperboard, plastic and fiberboard)
- Fake Food (e.g., plastic fruit)
- Gladware Container
- Milk or Juice Jug
- Newspaper
- Paper Products (e.g., plates, napkins, tissues)
- Product Packaging
- Plastic Forks and Spoons
- Strawberry Container
- Styrofoam or Fast-Food Cup
- Tea Bag
- Ziploc Bag

4. Call on several students to estimate the weight from just looking at the bag and then from holding the bag. Weigh the bag (optional).
5. Tell students that the average waste generated per person per day is about 5 pounds based on the state's MSW generation total and the current population. Remind them that this includes trash from all of their meals, classroom waste, etc.

GUIDED PRACTICE

1. Make five cards marked REDUCE, REUSE, RECYCLE, COMPOST and LANDFILL. Tape these cards onto the five bags. Discuss what these words mean. Find out and discuss with the class what is recyclable in your community. For more information, visit www.scdhec.gov/recycle and click on WHERE TO RECYCLE LOCALLY.
2. Have students open the trash bag and tell what each item is used for and why it was purchased. Discuss if the product was necessary or not. Now that the item has been thrown away, was it worth buying the product? Remind students that we can reduce the amount of trash we throw out by only buying what we need.
3. Have students divide the contents of the trash bag into the proper categories – REDUCE, REUSE, RECYCLE, COMPOST and LANDFILL.
4. After classifying, reweigh the items in the landfill category and discuss how much material was saved from going to the landfill.
5. As a math exercise, create a chart graphing the weight of the five bags after the 5 pounds of trash has been sorted into REDUCE, REUSE, RECYCLE, COMPOST and LANDFILL.
6. As another math exercise, ask the class to multiply 5 pounds by the number of students in the class and school to determine about how much trash the entire student body would make.

INDEPENDENT PRACTICE

1. Have students choose one of the four ways to keep trash out of the landfill. Have them create a poster to show how people can help the environment by choosing that option and have them present it to the class. This addresses science standards that require students to explore how human interaction affects the environment.
2. Have students complete the ***Bagging Trash Match Game Student Activity Page*** (provided).

Extension Activities

1. Older students may play a recycling relay race. Divide the class into teams. Each student picks an object from a bag of clean trash and delivers it to a box or bag labeled REDUCE, REUSE, RECYCLE, COMPOST and LANDFILL. Each student must justify their decision.
2. Using a bag of clean, mixed trash, hand one trash object to each student and have all students stand together in a group representing the waste stream. The teacher can be the trash collector who will take the trash to a landfill, one item at a time. A landfill is a large area of land specially designed and built to receive waste. The items will remain there forever. There's no light and little air, so there's very little decomposition. Ask if anyone wants to go to the landfill. If they don't and want to reuse the resource, have them think of a way the item can be reused or recycled. Try to keep items out of the landfill by thinking of alternatives. Discuss ways to change the items that cannot be recycled or reused. Continue until all the trash items are taken out of the landfill.
3. Have students (and teacher, too) tie a plastic bag to their waists. Each student is to place in the bag all the waste from the class, clean and dry lunch waste and any other waste each student is responsible for making. Compare the amounts at the end of the day or week. You could try this both before and after this lesson to demonstrate how the students' habits may change.
4. Go back through the REUSE and RECYCLE bags and discuss what is in them and why.
5. Encourage students to pack waste-free lunches. Consider providing a "green" snack or a class party.

Bagging Trash Match Game

STUDENT ACTIVITY PAGE

Draw a line from each word on the left to the phrase that best describes it.

Trash	To find a new use for something instead of throwing it away.
Litter	A recyclable material made from trees.
Reuse	To buy less and to throw away less trash.
Reduce	To stop purchasing an item in a container or package that is not recyclable.
Natural Resources	Leaves and grass trimmings that are broken down by natural processes and can be used on gardens.
Landfill	Our garbage – all the things we throw away.
Recycling	Trash that is in the wrong place such as on the ground or in the street.
Paper	A process that makes something new out of something old.
Reduce	A place where trash is buried.
Compost	Things that are found in nature that we must have to live.

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South Carolina Department of Health and Environmental Control

Lessons for 7th Grade

Can you dig it?

Learning Objective

Students will:

- **Examine how organic waste can be recycled by composting;**
- **Observe how composting works**; and
- **Understand the essential importance of soil in our daily lives.**

BACKGROUND

Composting is nature's way of recycling. It is the natural decomposition of organic material such as leaves, grass clippings and other yard trimmings as well as some food waste including fruit and vegetable waste. Microorganisms break down this material into a crumbly dark-colored, earthy-smelling, soil-like material. This nutrient-rich product can be used in your garden, flower beds and on your lawn.

Four basic ingredients are required for composting – **greens, browns, water** and **air**. Mixing the proper amounts of these ingredients together will provide the composting organisms (microbes and insects) with enough nitrogen, moisture and oxygen to break down the material effectively.

- **GREENS** include green leaves, fresh clippings and vegetable waste.
- **BROWNS** include dead leaves, wood chips, dry twigs and paper.
- **WATER** is important. Too little moisture will inhibit the composting process. Too much moisture will cause the compost pile to smell.
- **AIR** is essential. Turn your compost pile once or twice a week to lessen odor-causing bacteria and to speed up the composting process.

There are three main types of composting. First, composting occurs naturally on forest floors as fallen leaves and tree limbs decompose. Nature replenishes itself this way without human intervention and returns nutrients to plants and trees. The second type is composting on a large scale by municipal governments where trucks pick up yard trimmings from residents and take it to a central site where it is processed. The compost is sold or given to residents. The third type of composting can be done in your backyard or school.

Present the Lesson

ENGAGE

1. Inform students that no matter what they have packed for lunch, ultimately, they are eating food from soil.
2. Ask students to name a food in their lunch that did not come from soil.

DID YOU KNOW?

It is essential for students to know that soil is one of the most valuable abiotic factors in an ecosystem. Soil has an effect on the types of plants that can grow in an ecosystem – which directly impacts the types of other organisms that can survive there. If a change in the properties of soil occurs, the ecosystem (including biotic and abiotic factors) will also change. Soil quality is based on properties that can be observed in the soil profile and composition.

SOIL PROFILE

- A mature soil profile consists of three layers – topsoil, subsoil and parent material above bedrock.
- Topsoil that is nutrient rich contains a mixture of humus, clay and minerals and is most suitable for plant growth.
- Most animals live in the topsoil.

COMPOSITION

- Soil is a mixture of rock particles, minerals, decayed organic material, air and water.
- Decayed organic matter in soil is humus.
- The sand, silt, and clay portion of soil comes from weathered bedrock material.
- The combination of these materials in soil determines the soil type and affects the types of plants that can grow in it or animals that can live in it. Factors that may affect soil type are climate, time and slope of the land.

DID YOU KNOW?

The PRESENT THE LESSON segment is adapted from ***DO THE ROT THING: A Teacher's Guide to Compost Activities*** and is provided by Central Vermont Solid Waste Management District, Montpelier, VT. See the guide at www.cvswmd.org/uploads/6/1/2/6/6126179/do_the_rot_thing_cvswmd1.pdf.

ON THE WEB

Compost Stew – Watch the story being read aloud at www.youtube.com/watch?v=HYtUtMw7wgk.

Composting for Kids Slide Show – A PDF of this slide show is available at http://aggie-horticulture.tamu.edu/travis/wp-content/uploads/2013/06/compostingforkids.pdf.

LIST OF MATERIALS

You will need:

- Clear 2-Liter Plastic Soda Bottle
- Cup of Grass Clippings and Leaves
- Spray Bottle Containing Water
- 2 Cups of Fruit and Vegetable Waste (chopped in small pieces)
- Cup of Dirt
- Cup of Shredded Newspaper
- Spoons (for the soil, scraps, leaves, grass, etc.)
- Tape
- Scissors

3. Help students determine the ingredients in different foods and, as a class, trace each food's origin back to the earth.
4. Ask students to list everything they are having for lunch.
5. Pick one item from their lunches and list the ingredients. Use a tuna fish sandwich for an example: bread came from wheat grown in the soil; pickles are preserved cucumbers grown in the soil; lettuce was grown in the soil; mayonnaise came from eggs, that came from chickens, that ate grains grown in the soil; and tuna living in the ocean eat smaller fish, that eat zooplankton, that eat phytoplankton, that use nutrients from the decomposed bodies of dead plants and animals that accumulate on the ocean floor and are brought to the surface by currents.
6. Once students have made a list of ingredients, ask the students to draw pictures of where their lunches came from – one drawing may have a field of wheat, a cow, a chicken and a farm.
7. Encourage students to show their drawings to the class and explain how their lunch came from soil.
8. Ask students the following questions.
   - **What do you think happens to food that is not eaten and thrown away?** (thrown away in the trash, leads to the landfill)
   - **What could we do with food waste so that it will not end up in the landfill?** (composting)

GUIDED PRACTICE

1. Read aloud the story ***Compost Stew*** by Mary McKenna Sidda. See ON THE WEB for details. This book introduces composting by teaching what goes into a composting bin.
2. After reading the story, follow up with discussion questions. Which items in the book surprised you? Which are plants? Which aren't? What would you add to your own compost stew? (Allow a variety of answers. Be sure students are able to explain their reasoning for including such items.)

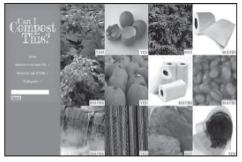
3. View Texas A&M's ***Composting for Kids*** Slide Show. See ON THE WEB for details.
4. Have students create a composting pile in a plastic beverage bottle. In this activity, children can observe changes in compost materials in their own personalized compost bin. See the LIST OF MATERIALS on the left and the step-by-step instructions provided.
   - Step 1: Remove the label from the soda bottle, leave the lid on and cut around the bottle about three-fourths of the way up to form a flip top. Don't cut it off! Teachers may need to do the cutting depending on the ages of the students.

SOURCE: https://bkc.vmhost.psu.edu/documents/Activities1501.pdf

- Step 2: Fold the flip top back on the bottle to fill it as detailed in the following steps.
- Step 3: Place soil to cover the bottom. If the soil is dry, moisten it by spraying it with water from the spray bottle.
- Step 4: Add a thin layer of fruit and vegetable waste. Cover with a thin layer of soil. Add a layer of leaves and grass.
- Step 5: Continue layering materials in the same way until the bottle is almost full.
- Step 6: When finished, tape the flip top back in place and mark with a permanent marker the height of the compost on the bottle.
- Step 7: Put in a sunny spot such as on a window sill.
- Step 8: Every day roll the bottle on the floor to circulate the material.
- Step 9: If it gets too moist take the lid off to help dry it a little bit.
- Step 10: If it gets too dry add a little water.
- Step 11: The compost should be ready to use in 30 days or when most of the fruit and vegetable waste has decomposed. Use the compost for planting a garden or to provide nutrition for plants at school.

INDEPENDENT PRACTICE

Print the pictures from the "Can I compost this?" website – www.compostthis.co.uk. Allow students to work in pairs to sort the pictures of items into categories GREENS and BROWNS.



Extension Activity

1. Using the ***Composting in a Bottle*** activity, design a classroom investigation changing one variable. Students will choose one variable to test against the controlled compost bottle – the original plastic bottle that was created with a good combination of GREENS/BROWNS/WATER/AIR.

   Some variable conditions that could be changed are listed below.

   - **Low in nitrogen or no high-nitrogen material:** Keep it moist but mainly a brown pile.
   - **Not enough moisture:** Don't add water and exclude wet components. Use a mixture of brown and green material.
   - **No air (anaerobic):** Use a bottle without holes. Do not turn and keep it moist. Use a mixture of brown and green material.
   - **High in nitrogen:** Don't add carbon material. Make it mainly a green pile (grass clippings).
2. Keep a daily record of the temperature of each pile (optional).
3. After three or four weeks, discuss the results. Ask the following questions.
   - **What are the necessary components of a good compost pile?**
   - **How do the components of a compost pile work together to decompose material?**
   - **How is recycling within the compost pile like the nitrogen cycle and other natural cycles in our biosphere?** (The nitrogen cycle is the continuous, cyclic progression of chemical reactions in which atmospheric nitrogen is compounded, dissolved in rain, deposited in the soil, assimilated and metabolized by bacteria and plants and returned to the atmosphere by organic decomposition.)

dhec Healthy People. Healthy Communities.

South Carolina Department of Health and Environmental Control

Lessons for High School

My Bag

Learning Objective

Students will:

- **Evaluate ways resources are wasted**; and
- **Consider other options than throwing away used, broken, worn out and unwanted items.**

BACKGROUND

What you call trash or garbage, professionals call solid waste. There are different kinds of solid waste, but the type discussed in this lesson is municipal solid waste (MSW). MSW is the garbage we make in our homes, schools and places of work.

Each of us has the opportunity to manage the MSW we produce. Most of us, however, don't think about it and just throw things away. Where is away? Away is a landfill. The majority of MSW generated in South Carolina is disposed of in landfills. Recycling, however, is an option that conserves resources, reduces the need to build landfills and plays a significant role in the state's economy by creating jobs and businesses. Other options that each of us can practice are source reduction (reducing), reusing and composting - all of which have similar economic and environmental benefits of recycling.

In this activity, students look in to a typical bag of household trash and decide which items can be reduced, reused, recycled and composted as well as those that must be thrown away.

Present the Lesson

ENGAGE

For this exercise, you will need a bag with **about 5 pounds of clean trash** (including items that can be reduced, reused, recycled or composted. Also have items that only can go in the landfill), **five clean paper bags,** and a **bath scale** (optional). See LIST OF MATERIALS for details.

Ask students how many pounds of trash they think they produce each day and each week. Then show them the ***How Much Trash Do You Make in a Week?*** video. See ON THE WEB for details. Continue with the lesson after watching the video.

1. Review the background information with students.
2. Ask students what they would expect to find in a typical bag of household trash.
3. Show students the bag of trash you have prepared and ask them to estimate its weight.

ON THE WEB

To watch the video ***How Much Trash Do You Make in a Week?***, visit www.youtube.com/watch?v=8suiEKvZqSs.

LIST OF MATERIALS

Below is a list of suggested items.

- Aluminum or Steel Can
- Cardboard (one piece) or Cereal Box
- Dryer Lint
- Egg Cartons (paperboard, plastic and fiberboard)
- Fake Food (e.g., plastic fruit)
- Gladware Container
- Milk or Juice Jug
- Newspaper
- Paper Products (e.g., plates, napkins, tissues)
- Product Packaging
- Plastic Forks and Spoons
- Strawberry Container
- Styrofoam or Fast-Food Cup
- Tea Bag
- Ziploc Bag

to show how people can help the environment by choosing that option and have them present it to the class. This addresses science standards that require students to explore how human interaction affects the environment.

2. Have students complete the ***Bagging Trash Match Game Student Activity Page*** (provided).

Extension Activities

1. Older students may play a recycling relay race. Divide the class into teams. Each student picks an object from a bag of clean trash and delivers it to a box or bag labeled REDUCE, REUSE, RECYCLE, COMPOST and LANDFILL. Each student must justify their decision.
2. Using a bag of clean, mixed trash, hand one trash object to each student and have all students stand together in a group representing the waste stream. The teacher can be the trash collector who will take the trash to a landfill, one item at a time. A landfill is a large area of land specially designed and built to receive waste. The items will remain there forever. There's no light and little air, so there's very little decomposition. Ask if anyone wants to go to the landfill. If they don't and want to reuse the resource, have them think of a way the item can be reused or recycled. Try to keep items out of the landfill by thinking of alternatives. Discuss ways to change the items that cannot be recycled or reused. Continue until all the trash items are taken out of the landfill.
3. Have students (and teacher, too) tie a plastic bag to their waists. Each student is to place in the bag all the waste from the class, clean and dry lunch waste and any other waste each student is responsible for making. Compare the amounts at the end of the day or week. You could try this both before and after this lesson to demonstrate how the students' habits may change.
4. Go back through the REUSE and RECYCLE bags and discuss what is in them and why.
5. Encourage students to pack waste-free lunches. Consider providing a "green" snack or a class party.

Oil & Water Don't Mix

Learning Objective

Students will:

- **Perform experiments to see how oil pollution happens;**
- **Learn how this type of pollution affects many other organisms and can be passed through different ecosystems**; and
- **Understand why proper disposal and recycling of used oil is important and is the solution to eliminating oil pollution issues.**

BACKGROUND

Have you ever heard the saying "Oil and water don't mix?" It's true. Improperly disposed of oil can be a serious threat to the environment. Used motor oil is insoluble, persistent and can contain toxic chemicals and heavy metals. It sticks to everything – from beach sand to bird feathers. It's a major source of contamination and can pollute drinking water sources.

People who change their own motor oil need to know how to properly manage the used oil. After all, used oil from one oil change can contaminate one million gallons of fresh water – a years' supply for 50 people according to the U.S. Environmental Protection Agency (EPA). If you pay to have your oil changed, those businesses also are required to properly manage used oil.

In South Carolina, used motor oil must be recycled. It's the law. The S.C. Solid Waste Policy and Management Act of 1991 (Act) prohibits the disposal of used motor oil in landfills, sewers, drainage systems, septic tanks and surface water. The Act also prohibits the use of motor oil on roads as dust control, for weed abatement and other uses that can potentially harm the environment. This legislation, which was created to conserve resources and to stop illegal dumping of used motor oil, has grown into a one-stop program that also accepts motor oil bottles, filters and oil/gasoline mixtures as well as used motor oil from small farming operations. There are **about 900 used oil collection sites across the state**. Used motor oil is often used for energy recovery or remanufactured into lubricating oil. In fact, 1 gallon of used motor oil provides the same 2.5 quarts of lubricating oil as 42 gallons of crude oil.

Used motor oil should never be emptied into sewers or storm drains or dumped directly on the ground to kill weeds or to suppress dust on dirt roads. **Used motor oil also should never be thrown into the trash** where it will end up in landfills. Improper disposal of used oil is illegal and carries penalties that include jail and fines of up to $10,000 per day.

To learn more about used motor oil recycling in South Carolina, visit www.scdhec.gov/recycle. Also see the *S.C. Solid Waste Management Annual Reports* on this site for a comprehensive look at used motor oil recycling in the state.

DID YOU KNOW?

Why recycle oil?

Recycling used motor oil protects human health and the environment. Here are other reasons as well.

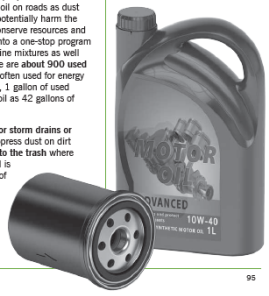
Recycling used motor oil also saves valuable energy. Two gallons of used motor oil can generate 36 kilowatt hours of electricity. That's enough to run an average household for a day.

What really happens when oil ends up in water?

When oil ends up in water, a film of oil on the surface can block photosynthesis and slow the production of oxygen.

Large organisms such as mammals and birds are the most familiar victims of oil pollution. Feathers and fur stick together, become matted and lose the ability to insulate animals against cold. Death may result from temperature shock or from swallowing oil as the animals try to clean it from their coats.

Oil in water also can affect other organisms. Some of the oil spilled into an aquatic environment settles to the bottom affecting the organisms living there. Oil can clog breathing structures or be absorbed into tissues and then passed up the food chain, even to humans who eat fish or shellfish.



LESSON 1: LIST OF MATERIALS

If possible, assemble several sets of these materials so that the class can perform the experiment in small groups. Otherwise use one set of materials and perform the experiment as a class.

One set of materials includes:

- 7 Test Tubes (OPTIONAL: 7 same-sized jars, such as baby food jars)
- Test Tube Rack
- 10 ml Graduated Cylinder
- Bottle of Olive Oil
- 250 ml Beaker
- Brown Paper Bag (cut in strips)
- Bottle of Blue Food Coloring
- Wax Pencil
- Eye Dropper (or calibrated straw)

LESSON 2: LIST OF MATERIALS

You will need:

- Small Containers/Paper Bathroom Cups
- Food Coloring
- Cooking Oil
- Sand/Soil
- Rocks
- Plastic Bottles (individual size works best)
- Newspaper/Plastic Cover
- Clean Water
- Plastic Animals/Plants (optional)

2019 Summer Workshop

- **Experimental Forest** and **Oconee Power Plant Pre-Tours**
- **Clemson University**
- **97 Attendees**

RecycleHereSC

Where can you recycle in your community? What can be recycled? Who can you call for more information? For answers to these questions and more, select your county from the lineup below.

A
Abbeville
Aiken
Allendale
Anderson

B
Bamberg
Barnwell
Beaufort
Berkeley

C
Calhoun
Charleston
Cherokee
Chester
Chesterfield
Clarendon
Colleton

D
Darlington
Dillon
Dorchester

E
Edgefield

F
Fairfield
Florence

G
Georgetown
Greenville
Greenwood

H
Hampton
Horry

J
Jasper

K
Kershaw

L
Lancaster
Laurens
Lee
Lexington

M
Marion
Marlboro
McCormick

N
Newberry

O
Oconee
Orangeburg

P
Pickens

R
Richland

S
Saluda
Spartanburg
Sumter

U
Union

W
Williamsburg

Y
York

Share This Resource

Downloads & Links

Recycling Hard-to-Manage Items

RecycleRightSC

RecycleMoreSC

Recycling Homepage

QUESTIONS?

Richard Chesley
(803) 898-1327
cheslerl@dhec.sc.gov
www.scdhec.gov/recycle

www.scdhec.gov

(803) 898-DHEC (3432)

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