

MODULE 4 GET READY TO RUMBLE

OBJECTIVES

- Students develop actionable plans to reduce the amount of waste generated and identify ways to properly manage waste in the classroom.
- Students create recycled paper.
- Students communicate and persuade others to participate in a Zero-Waste School Lunch and evaluate the effectiveness of their efforts.
- Students compose a letter synthesizing all they have learned concerning waste reduction.

SBI ALIGNMENT

Science S1, B1, Grades 3-4 Indicators 1, 2, 3, 4
S2, B1, Grades 3-4 Indicators 1, 2
S5, B2, Grades 3-4 Indicators 3
S6, B2, Grades 3-4 Indicators 1, 2, 3
S1, B3, Grade 5 Indicators 1
S5, B2, Grade 5 Indicators 2
S6, B2, Grade 5 Indicators 1

Math S3, B2, Grades 3-4 Indicators 1
S4, B2, Grades 3-4 Indicators 2
S3, B2, Grade 5 Indicators 1
S4, B1, Grade 5 Indicators 2, 10

Writing S1, B1, Grades 3-5 Indicators 2, 10

OVERVIEW

Once students learn about waste reduction, they can show their **commitment** by taking the knowledge and **applying** it to their daily lives. Implementing classroom reduce, reuse and recycle programs help empower students to reduce the amount of waste to the landfill and also conserve natural resources. Implementing a school-wide, zero-waste lunch initiative takes the learning to the next level and further reinforces the messages to impact other students, teachers and families.

LESSONS

1. Classroom Waste Audit Review (20 min.)
2. Classroom Waste Reduction Plans (30 min.)
3. Make Recycled Paper (60 min.)
4. Zero-Waste Lunch Poster Promotion (60 min.)
5. School-Wide Zero-Waste Lunch (30 min.)
6. Dear Dr. Trashology (30 min.)
7. Trashology Labwork: Three Rs Home Challenge

Try This! Zero-Waste Lunch



1. Classroom Waste Audit Review

Materials & Preparation

- Classroom Waste Audit documents from Module 1
 - Examples of products and their packaging made from recycled materials
 - Arrange for A/V and/or computer equipment to watch the Hop to It! JoCo Recycles video
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- 1 Review the classroom waste audit completed in Module 1: Talking Trash.
- 2 Review the waste stream final destinations: landfill, materials recovery facility (MRF) and composting pile/facility.
- 3 Discuss the classroom waste audit and where and how items could be diverted from the landfill. Reduce, reuse and recycle should be discussed, in addition to composting. Have students differentiate between The Three Rs. Reduce means to bring down the extent, amount or degree of trash you generate. Reuse means to use something again either for its original purpose or for some other purpose. Recycle means to take items to a facility for appropriate processing so that it can be made into new products.
- 4 Explain and emphasize to students that REDUCE is the most important because it has the most impact on saving energy, raw materials and natural resources. Have students brainstorm different ways to reduce. List them on the presentation display. Possible ideas include:
 - Donate: Give items a “second life” by donating them to charities and thrift stores or giving them away to friends, family or neighbors.
 - Repair: Resist the initial impulse to replace broken or damaged items with new ones by repairing them instead.
 - Maintain: Homes, buildings, vehicles, equipment, clothing and appliances that are properly maintained/cared for last longer and don’t have to be or replaced as often.
 - Buy durable: Well-made, durable products have a longer lifespan and are more likely repairable.
 - Buy used: Garage sales, estate sales, thrift stores, Habitat for Humanity ReStores, antique malls, Internet sites and auctions are good places to purchased used items.
 - Reuse bulk items: Businesses need a system for reusing, donating or selling surplus supplies and property.
 - Reuse everyday items: Examples include plastic grocery bags used as a trash sack, dairy tubs as a reusable food container, coffee can for hardware storage, old t-shirts as shop rags and popsicle sticks for kids’ crafts.
- 5 In addition, buying recycled products is an important part of the Three Rs. Explain and show students how products communicate the degree to which they are made from recycled materials on the product and/or on the packaging/tags. These products have words such as “Made with recycled and/ or post-consumer materials.” Share how 75-80% of trash in the Greater Kansas City Metropolitan area is recyclable. By changing behaviors, most of what is currently being sent to the landfill could be recycled or reused.
- 6 Watch the Hop to It! JoCo Recycles video (<http://bit.ly/gpyqTo>) to further reinforce the different types of waste and what happens to it. This is the same video as in Module 1: Talking Trash.

2. Classroom Waste Reduction Plans

Materials & Preparation

- Whiteboard, SMARTboard, chalkboard or flip chart
 - Markers
-

- 1 Have students brainstorm ways to reduce the amount of waste from the classroom headed to the landfill. List the waste reduction ideas discussed and identify solutions.
- 2 Have students identify action steps and implement them in a timely manner. Ideas include:
 - Buying materials with recycled content
 - Reducing the amount of paper used by students and teachers
 - Only using one paper towel to dry hands or using a towel from home
 - Recycling all used paper
 - Using the backsides of paper
 - Drinking from the water fountain and/or using reusable water bottles
 - Snacks from home in reusable containers
 - Recycling crayons (www.crazycrayons.com)
 - Coffee/tea in reusable cups
 - Recycling cardboard boxes
 - Using reusable plates/cups at classroom parties
- 3 Document the classroom waste reduction plans. Create time frames for achieving and or meeting each item on the list.

3. Make Recycled Paper

Materials & Preparation

- Newspaper
 - Blender
 - Water
 - Measuring cup
 - Pan 3-inches deep
 - Screen the size of the pan
 - Flat piece of wood the size of the pan
 - Waxed paper
-

- 1 Educators may want to collaborate with the art teacher to complete the paper-making activity.
- 2 Students can work in small teams or work individually on this activity. Do what is best for the unique situation in each classroom.
- 3 Paper that has been processed to be used again is recycled paper. Tell students the classroom is going to create new paper from used newspapers.

► Module 4: GET READY TO RUMBLE

- 4 Share with students how the ancient Egyptians were the first to create and use paper back in 3,000 B.C. They created paper from the papyrus plant. This is where we get the modern day word “paper.” The ancient Egyptians used mostly rolls of the papyrus for writing.
- 5 Explain to students the recycled paper will be used to create posters promoting a School-Wide Zero-Waste Lunch Day.
- 6 The instructions below are for one recycled piece of paper and can be adjusted, as needed. The process can be messy so be prepared with towels, reusable plastic coated tablecloths, and aprons.
 - Tear about 4-5 pages of newspaper into tiny strips.
 - Place the newspaper in the blender with approximately five cups of water. Cover the blender and blend to make the pulp.
 - Put the screen into the pan. Pour one cup of pulp over the screen.
 - Spread the pulp evenly with the fingers.
 - Lift the screen and let the water drain off.
 - Open a newspaper section to the middle. Put the newspaper on a waterproof surface. Place waxed paper in the center of the newspaper. Place the screen with the pulp on the waxed paper. Close the newspaper.
 - Carefully flip the newspaper section so the screen is on the top of the pulp.
 - Place the board on top of the newspaper and press out extra water. Open the newspaper and take out the screen.
 - Leave the newspaper open and let the pulp dry for at least 24 hours.
 - When the paper pulp is dry, peel it off the waxed paper and it is ready!
 - The paper is to be used for a Zero-Waste Lunch Poster Promotion later in this module.



Try This!

Get students thinking about Zero-Waste Lunches. Share a reusable lunch sack and other items from home and the cafeteria that can be reused, recycled or composted. For example, soup in an insulated container, water in a reusable bottle and a banana.

Have kids explore how each item avoids the landfill. The students should discover that packing and purchasing a zero-waste lunch may take a little effort but saves natural resources and reduces the waste in landfills.

4. Zero-Waste Lunch Poster Promotion

Materials & Preparation

- A Zero-Waste Lunch sheet (provided at end of module, page 4.9); one per student
 - Zero-Waste Lunch Poster Student Scoring Guide (provided at end of module, page 4.11); half-sheet for each student
 - Zero-Waste Lunch Poster Teacher Scoring Guide (provided at end of module, page 4.12); half-sheet per student
 - Poster Campaign Guidelines (provided at end of module, page 4.13); one for each student
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- 1 Eat lunch in the classroom. Sort all waste generated from the lunch.
- 2 Weigh items recycled, composted and thrown away. Keep track of the amounts. Multiply the weight of the amount of waste generated by the classroom. Multiple the amount by days in the week, weeks in the year, classrooms in the school, etc.
- 3 Discuss the results and brainstorm ways for improvement.
- 4 Hand out A Zero-Waste Lunch sheet and have each student complete it. Discuss.
- 5 Introduce the idea of promoting a School-Wide Zero-Waste Lunch Day. Brainstorm ways to get other students/classrooms excited about the idea (share on morning announcements, send home in the e-newsletter, visit other classrooms, etc.).
- 6 Share with students they will be creating poster to promote the School-Wide Zero-Waste Lunch Day. Either display the Poster Display Guidelines or provide each student a copy of the sheet. Discuss the information and ensure students understand the posters are to promote the zero-waste lunch.
- 7 Have students create posters using the recycled paper they made to promote the School-Wide Zero-Waste Lunch. Post the posters throughout the school.

5. School-Wide, Zero-Waste Lunch

Materials & Preparation

- Arrange to collect the bags of trash from an entire school lunch session
 - Weight scale
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- 1 Discuss with students how to determine if the zero-waste lunch initiative will be a success or not. A possible idea is weighing the amount of trash on a regular lunch day and comparing that to the weight on the School-Wide Zero-Waste Lunch Day.
- 2 After determining the amount of current trash generated at lunch, have students create goals and brainstorm ways to ensure they meet their goals.
- 3 Have students determine the degree to which the School-Wide Zero-Waste Lunch Day was or was not successful and why.
- 4 Have students share the success (or not) of the zero-waste lunch day with other students, teachers and families through morning announcements, school bulletin board and email newsletter. If the results of the initiative failed to meet expectations, emphasize to students it is important to recognize and congratulate the entire school for their participation and efforts and challenge them to do better on the next School-Wide Zero-Waste Lunch Day.

6. Dear Dr. Trashology

Materials & Preparation

- Dear Dr. Trashology sheet (provided at the end of the module, page 4.14); one for each student
 - Certificate of Trashology (provided at the end of the module); one for each student
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- 1 Using the Dear Dr. Trashology sheet, have students write a little letter to Dr. Trashology about what they have learned concerning waste reduction. The students can highlight what is important to them and/or changes they have made in their own lives.
- 2 Once completed, the Dr. Trashology letters can be shared with the Johnson County Environmental Department. **Email the letters to Julie Coon at Julie.Coon@jocogov.org or mail them to Julie Coon, Johnson County Environmental 11811 S. Sunset Drive, Suite 2700 Olathe, KS 66061.**
- 3 Congratulate students on their hard work and disseminate the Certificates of Trashology to each student.

7. Trashology Labwork: Three Rs Home Challenge

Materials & Preparation

- Three Rs Home Challenge sheet (provided at the end of the module, page 4.15); one for each student
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- 1 Engage students in the **Three Rs Home Challenge** with their families. The goal of the Challenge is for students and their families to discuss ways to divert waste from the landfill. Families should not feel pressure to radically change behaviors, but instead discuss alternative ways to deal with waste. Provide each student with a copy of the Three Rs Home Challenge sheet. Ask students to discuss and complete the sheet with their parents.

EXTENSION ACTIVITIES

Trade Party—Hold a Trade Party at school. Students can bring unwanted items and trade for other student's items.

Used Coat/Toy Drive—Conduct a used coat/toy drive for different charities in the community. Have students identify a need and create a way to promote the Drive to the school and community.

School Recycling Program—Have students research, promote and implement a school-wide recycling program to heighten awareness and reduce amount of waste headed to the landfill.

Book Drive—Have students promote a drive to collect books for a charity of their choice in the community. Students will need to manage and deliver the books to those in need.

Buying Recycled Materials—Have students keep track of products they find that are made from recycled materials. Discuss what products are typically made from or packaged in recycled materials.



LITERATURE TIE-INS

Bethel, Ellie. *Michael Recycles*

Bethel, Ellie. *Michael Recycles Meets Litterbug Doug*

Child, Lauren and Bridget Hurst. *We Are Extremely Good Recyclers.*

Green, Jen. *Why Should I Recycle?*

Harper, Charise Mericle. *Just Grace Goes Green*

Inches, Alison. *The Adventures of a Plastic Bottle: A Story About Recycling*

Inches, Alison. *The Adventures of an Aluminum Can*

Kroll, Steven and Steve Cox. *Stuff!: Reduce, Reuse, Recycle*

O'Connor, Jane. *Fancy Nancy Every Day is Earth Day*

Pointier, Anton. *Once I Was a Cardboard Box...But Now I'm a Book About Polar Bears*

Roca, Noria. *The Three R's: Reduce, Reuse, Recycle*

Spinelli, Eileen and Anne Kennedy. *Miss Fox's Class Goes Green*

Threadgould, Tiffany. *Remake it! Recycling projects from the stuff you usually scrap.*

Wong, Janet S. and David Roberts. *The Dumpster Diver.*

RESOURCES

PBS Loop Scoops: Garbage (<http://bit.ly/gKxAqg>)

PBS Loop Scoops: Electronic Game Device (<http://bit.ly/aCqnA4>)

PBS Loop Scoops: Juice Box (<http://bit.ly/eNcRHc>)

PBS Loop Scoops: Magazines (<http://bit.ly/hT7WPs>)



Eco Elvis (www.ecoelvis.com)

Eco-Troubadour: Stan Slaughter (www.eco-troubadour.com)



Habitat ReStore (www.habitat.org/restores)



Habitat ReStore (www.habitat.org/restores)



Materials Recovery Facility

Terracycle (www.terracycle.net)

Global Resource Funding (www.globalre-sourcefunding.com)

Paper Retriever/Abitibi (www.paperretriever.com)

Battery Recycling (www.batteryrecycling.com)

Recycle Spot (<http://recyclespot.org>)



"The 3 R's" by Jack Johnson (www.itunes.com)

"Burning Love" by Eco Elvis (www.ecoelvis.com)



GET READY TO RUMBLE

VOCABULARY

Landfill—A specially designed site for disposing of solid waste on land. It is designed to protect the air, land and water from pollution from solid waste.

Litter—Refuse or waste materials carelessly dropped (i.e., cigarette butts, fast food wrappers, gum packaging, plastic water bottles, dumped trash bags, etc.).

Materials Recovery Facility (MRF – pronounced “murf”)—Specialized plant that receives, separates, and prepares recyclable materials for marketing to end-user manufacturers.

Recycle—A multi-phased process which includes removal, separation, and/or diversion of materials from the waste stream; use of such materials as raw materials for the manufacture of new products; and use of the new product.

Reduce—To lessen the amount of product or material used and/or consumed to prevent the use of natural resources and eliminate the amount of waste headed to the landfill.

Reuse—To use a product or material more than once in its present form for similar or dissimilar purposes. For example, an empty jar can be reused.

Solid waste—Discarded materials which include waste materials resulting from industrial, commercial, agricultural, and residential activities. Common residential waste includes garbage, refuse, and yard waste.

Waste stream—The complete flow of waste from domestic or industrial areas through to final disposal. Waste reduction, reusing and recycling may act to lessen the content of a waste stream as it moves down the line.

Zero-waste—Advocates eliminating waste as much as possible and viewing the remaining ‘discards’ as important resources to be returned to the marketplace through recycling or to nature through composting.



A ZERO-WASTE LUNCH

1. In complete sentences, describe what you had for lunch today.



2. Draw a picture of the items you had for lunch today.

<p><i>Vegetable/Side Items</i></p>	<p><i>Dessert</i></p>	<p><i>Beverage</i></p>
<p><i>Main Course</i></p>		

3. Did you have any items left over after lunch? If so, list them and indicate which items you threw away, recycled and/or composted.

4. Are there any items you threw away that could have been recycled or composted? What were they and how do you know?

5. Describe one way you could reduce your amount of waste next time you pack or purchase your lunch.

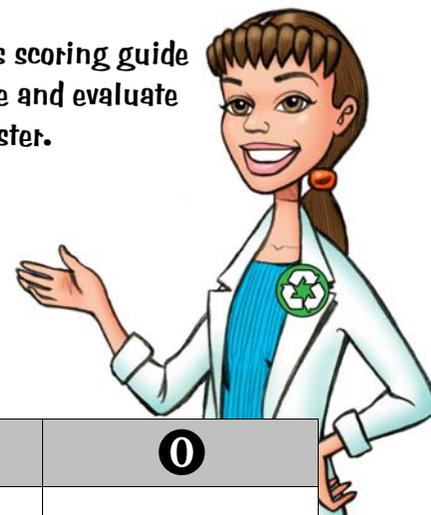
6. Illustrate a zero-waste lunch.

Write a paragraph below on how you could persuade a friend to pack or purchase a zero-waste lunch.



ZERO-WASTE LUNCH POSTER STUDENT SCORING GUIDE

Use this scoring guide
to create and evaluate
your poster.

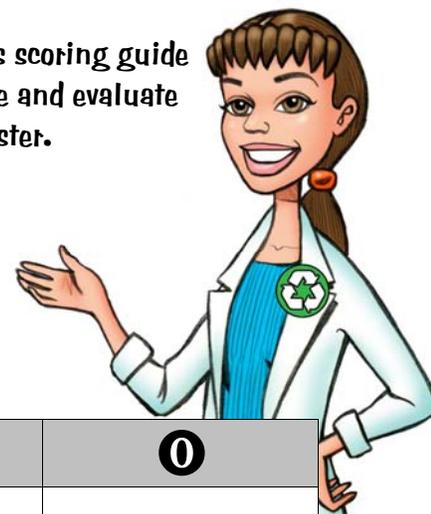


Name _____

	3	2	1	0
Information	Accurate and robust information concerning Zero-Waste lunches	Adequate information concerning Zero-Waste Lunches	Little accurate information concerning Zero-Waste Lunches	No information concerning Zero-Waste Lunches
Poster Design	Well-designed poster with exemplar information and attractive graphics	Adequately designed poster with good information and nice graphics	Poster was incomplete and/or haphazardly designed	Poster was not finished
Message	Well-developed and clear message	Clear message	Message is unclear	No message

ZERO-WASTE LUNCH POSTER STUDENT SCORING GUIDE

Use this scoring guide
to create and evaluate
your poster.



Name _____

	3	2	1	0
Information	Accurate and robust information concerning Zero-Waste lunches	Adequate information concerning Zero-Waste Lunches	Little accurate information concerning Zero-Waste Lunches	No information concerning Zero-Waste Lunches
Poster Design	Well-designed poster with exemplar information and attractive graphics	Adequately designed poster with good information and nice graphics	Poster was incomplete and/or haphazardly designed	Poster was not finished
Message	Well-developed and clear message	Clear message	Message is unclear	No message

ZERO-WASTE LUNCH POSTER TEACHER SCORING GUIDE

Student Name _____

	3	2	1	0
Information	Accurate and robust information concerning Zero-Waste lunches	Adequate information concerning Zero-Waste Lunches	Little accurate information concerning Zero-Waste Lunches	No information concerning Zero-Waste Lunches
Poster Design	Well-designed poster with exemplar information and attractive graphics	Adequately designed poster with good information and nice graphics	Poster was incomplete and/or haphazardly designed	Poster was not finished
Message	Well-developed and clear message	Clear message	Message is unclear	No message

Total Score _____

ZERO-WASTE LUNCH POSTER TEACHER SCORING GUIDE

Student Name _____

	3	2	1	0
Information	Accurate and robust information concerning Zero-Waste lunches	Adequate information concerning Zero-Waste Lunches	Little accurate information concerning Zero-Waste Lunches	No information concerning Zero-Waste Lunches
Poster Design	Well-designed poster with exemplar information and attractive graphics	Adequately designed poster with good information and nice graphics	Poster was incomplete and/or haphazardly designed	Poster was not finished
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Total Score _____



POSTER CAMPAIGN GUIDELINES

Poster marketing lets you reach a large audience in a very short amount of time. Make sure your poster marketing is successful by following these important guidelines.

Research

Know who your audience is and consider what they want or need, what they feel, where they go, what motivates them, and where you can reach them.

You also have to know what you want from your audience, and tell them how to do it. You might want them to change their perspective by asking them to think and/or have them do something or take action. Consider your target audience as individuals, and not as a group. Even though your posters will be viewed by many people at once, each person's experience with your poster is personal.

Design and copy

Poster design is both a science and an art; it takes a trained eye to create an effective poster that draws your audience into your message — up close and from a distance. Poster copy (the words on the poster) is just as necessary for conveying a tone or feeling and motivating a response.

Location

Don't rely on one location for your poster marketing success. Put your posters in as many locations as possible: indoor, outdoor, everywhere a large portion of your target audience passes by. Repetition is the key to poster marketing success.

Don't be boring

Even though your posters should be everywhere, you don't want them to disappear into the background. Incorporate different poster designs, messages, and images to keep your posters noticeable and fresh in the minds of your audience.

Promote the
Zero-Waste
Lunch Day with
a great poster!



DEAR DR. TRASHOLOGY,



Sincerely,



This challenge will require a team effort, so get everyone in the family involved!

THREE Rs HOME CHALLENGE

Most of us can improve the way we manage our home solid waste. This form will help you get started by providing some helpful tips to REDUCE, REUSE and RECYCLE!

Instructions: Choose at least one of the strategies under each category that your family will commit to do at home on a regular basis. Oh...you can't select one that you're already doing!



► REDUCE

Be an Informed Consumer. *The best way to manage solid waste is to not produce it in the first place. Buy only what you need and buy durable products. Maintain and repair them to ensure longer product life.*

- Borrow or rent items you don't use often.
- Choose products in large containers instead of several small ones, buying concentrates, and buying food in bulk.
- Buy products with less packaging. If there appears to be far more package than product, consider another brand.
- Other _____

REUSE

► **Make Reusing a Habit.** *Reuse or repurpose products – be creative!*

- Find someone who can reuse a product if you no longer need it. Sell it in a yard sale, donate it to a community organization, or set up an exchange program.
- Donate books and magazines to public libraries or to nursing homes. Check with local animal shelters to see if they can use your discarded newspapers.
- Reduce the number of paper and plastic bags your family uses by carrying reusable tote bags to grocery and department stores.
- Invest in cloth napkins for everyday use, and choose reusable cloths, towels, and plates rather than paper "throwaways."
- Minimize using single- or limited-use items, such as throwaway household wipes, one-time use batteries, non-refillable ink pens, and foil baking pans.
- Other _____



► RECYCLE

Commit to Recycle. *With changes in local codes, it is now easier than ever to recycle.*

- Paper – Includes office paper, bulk mail, catalogues, phone books, magazines, paperboard, and cardboard. (curbside, drop off and Paper Retriever locations)
- Plastic – Currently, only food, beverage, and cosmetics plastic containers are accepted. (curbside and drop off)
- Aluminum & Steel – Includes soft drink cans and soup, veggie, coffee, and pet food cans. (curbside and drop off)
- Glass - All kinds and colors of glass containers can be recycled. In addition, glass can be recycled and reused an indefinite number of times. (Ripple Glass)
- Other _____

Buy Recycled/Recyclable. *Keep in mind when labels use the term “recycled,” the percentage of recycled material may be low or the packaging may be made from recycled materials.*

- Purchase products made from recycled material. When a product is labeled “recycled,” it has been produced—at least in part—from recycled materials.
- Purchase products that are recyclable. Sometimes, products have many different parts—some are recyclable and some are not.
- Other _____

Compost. *Compost kitchen and yard waste. Not only does it divert waste, it also creates nutrient-rich products for your gardens.*

- Mulch mow with a sharp blade to produce clippings that decompose quickly. If you bag, use collected clippings as mulch or as a component in a compost pile.
- Start a backyard compost pile for kitchen waste such as egg shells, coffee grounds, and vegetable and fruit scraps.
- Subscribe to curbside composting programs to haul yard waste to commercial composting facilities.
- Other _____



Johnson County Environmental Department

CERTIFICATE OF TRASHOLOGY

This certificate acknowledges that



Has completed Trashology 101 and
is hereby now a certified

JUNIOR TRASHOLOGIST

Congratulations!

Dr. Trashology

Dr. Trashology



Teacher