

Zero Waste Classroom Guide

Waste Reduction Tips for Classroom Instructors

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Introduction

Why Waste?

We all make waste, so we all can learn how to make less waste. Creating spaces that build awareness around the actions we can take to live more lightly on the planet is a key step toward realizing a sustainable future for all. Classrooms are already powerful spaces of awareness building. Teachers are on the frontlines of creating the cultural norms that children adopt as behaviors. Your classroom can play an important role in demonstrating and engaging students in positive actions to realize a sustainable future by reducing waste and material consumption while building the understanding of why it is important. In a time of school strikes and rising calls to action to address the climate crisis, striving for Zero Waste is a way each of us can be a part of the solution.

About this Guide

This guide is designed for teachers interested in learning how to move toward a Zero Waste classroom. Schools generate a lot of waste, which is why school districts across the country are making changes to reduce waste. Compelled by Missoula's ZERO by FIFTY goal to reduce 90% of solid waste by 2050, schools in the Missoula County Public School district are implementing programs to address waste and materials use. This guide is a compilation of ideas and resources to help you initiate or take part in your schools' move toward Zero Waste. We hope you find it useful!

What is a Zero Waste?

Zero Waste is a goal and guiding principle. Like the North Star, it seems far away, but it ensures that we're headed in the right direction. Zero Waste is both systemic and personal. It's complex and also quite simple. The [Zero Waste International Alliance \(ZWIA\)](#) is the source of the only peer-reviewed, internationally-accepted definition of Zero Waste:

Zero Waste: The conservation of all resources by means of responsible production, consumption, reuse, and recovery of all products, packaging, and materials without burning them, and without discharges to land, water, or air that threaten the environment or human health.

In February 2016 the City of Missoula adopted the [Missoula Zero Waste Resolution](#), which set a goal to reduce the amount of solid waste across the community by 90 percent by 2050 using the ZWIA definition of Zero Waste. Adherence to this definition aligns the City's ZERO by FIFTY initiative with the global Zero Waste movement and guides future Zero Waste efforts in the city. Learn more about [ZERO by FIFTY: Missoula's Pathway to Zero Waste](#) in the "About ZERO by FIFTY" section.

What is a Zero Waste Classroom?

A Zero Waste Classroom is a place of inquiry, discovery, and learning where questions like these are springboards to new behaviors:

*Do we need this? Can we use less? Can we reuse it? Can we recycle or compost it?
Can we use it more efficiently?*

It is an intentional shift toward creating a sustainable culture through increased awareness of the "stuff" in our classrooms and how we use it.

It is a recognition of the interconnectedness of waste reduction actions and the systems we rely upon for our day-to-day school activities.

In a nutshell, a Zero Waste Classroom is a place where the 5 R's of waste reduction are put into action.

- **Refuse** - Making a conscious choice to limit the types and quantity of materials that enter the classroom predetermined to be waste. Examples include plastic bags, plastic food wrappers, juice boxes, juice pouches, glue sticks, laminated paper, mechanical pencils, plastic pencil bags.
- **Reduce** - The original first "R" in the R's of waste reduction (back when there were 3), simply defined means "use less stuff." Often strategies to reduce waste involve reuse. For every ton of discarded products and materials destroyed in landfills (and incinerators in other states), about [71 tons](#) of manufacturing, mining, oil and gas exploration, agricultural, coal combustion, and other discards are produced. That's a big reason why reducing materials use and, subsequently, waste is the best waste reduction action we can take to support the Earth.
- **Reuse** - Creating the systems and opportunities to use materials over and over again. Examples include durable food & beverage ware, washable rags for cleaning, refillable containers for glue and paint, refillable markers.
- **Recycle** - As the most popular gateway to waste reduction, recycling or "making it again" is a great place to start, but a terrible place to stop. Commonly recyclable classroom materials include paper, cardboard and boxboard, #1 (PET) & #2 (HDPE) plastic bottles & containers, and tin & aluminum cans.
- **Rot** - The "R" word for composting provides an opportunity to keep organics out of the landfill, discuss the environmental and climate impacts of landfills, and to learn about soil. Compostable items include food scraps, soiled paper napkins, BPI-certified compostable foodservice products (for commercial composting only).

[Jackie Omania](#), pioneering Zero Waste classroom teacher at Oxford Elementary in California, had this to say: *"For students, the experience of a Zero Waste classroom is a real and empowering step towards approaching the greater environmental challenges of plastic pollution and climate change; students learn that their choices—their small daily acts—do matter."*

Over the past few years the Zero Waste Classroom concept has caught on. In fact, another one of its pioneers, Kim Johnson, fifth grader teacher and IB coordinator at Franklin Elementary, is the inspiration behind this guide! Kim was inspired to do it after participating in [ZWAPI](#), the Zero Waste Ambassadors Program at Home ReSource. Read about Kim's efforts [here](#), [here](#), and [here](#).

Here are a few examples of blog posts made by teachers for teachers:

[5 Changes towards a Zero Waste Classroom](#) - April 2019

[23 Steps to a more zero waste classroom](#) - August 2018, updated January 2019

[Zero Waste Teacher](#) - January 2019

Actions

Below are ideas for actions to take to move your classroom toward Zero Waste. This information was compiled from what we have learned working with local teachers such as Kim Johnson at Franklin Elementary as well as information available online. This is by no means an exhaustive list and several web resources have come online in the past two years that contain more Zero Waste classroom ideas.

The actions are organized by four main categories:

- Food & Drink
- Cleaning
- Classroom Materials
- Recycling & Composting

A section called “What Else Can I Do?” provides some ideas for integrating curriculum components into your Zero Waste Classroom as well as ideas for how you can support Zero Waste district-wide.

Prior to taking any action, we recommend you discuss with your class Missoula’s [ZERO by FIFTY](#) goal to reduce waste by 90 percent by 2050 and invite them to help achieve that goal as a class.

Food & Drink

Ensure all students have reusable water bottles or other drinking vessels available

- Some students bring their own bottle everyday. Others do not. Help them stay hydrated while reducing waste. This action may interconnect with the next action.

Stock your classroom with durable, reusable dishware & utensils, and cloth napkins

- Use for in-class meals or daytime snacks as well as for special classroom events
- Ensure you have the products necessary to clean dishware at the sink in your room
- Make washing dishes a daily class chore, institute a “you use it, you wash it” policy, or find other ways to make dish cleaning fair
- Connect with the Family Resource Center (FRC) to see if cloth napkins can be laundered in their machines. Make this a weekly class chore.

Discuss Zero Waste lunch options with students

- Encourage students who bring lunches and snacks to school to pack food in durable lunch boxes and reusable containers, use fabric sandwich bags or waxed wraps, pack metal silverware and cloth napkins (if none are available in the classroom), and limit pre-packaged, single-serving food items like bars, fruit snacks, and chips by purchasing snacks in bulk
- Encourage students to save unwanted or leftover food for a snack later on in the day
- Connect with the FRC to see if they want unopened or uneaten food for their fridge or pantry

Materials needed

- Reusable water bottles (preferably metal), cups, or mugs – If you have extra or surplus bottles at home, bring them to use as back-up for students without one. Visit thrift stores to find low-cost reused cups and mugs to stock your classroom or invite families to donate
- Durable dishware & utensils – also can be found at thrift stores or donated
- Cloth napkins – can be made with pinking shears and scrap fabric from thrift stores or remnant fabrics from a fabric store like JoAnn; can also be purchased pre-made
- Dish soap – available in bulk with reusable containers at Good Food Store
- Scrubbers & sponges – bamboo scrubbers with replaceable brushes can help reduce plastic waste; natural fiber sponges can be composted when worn out
- Drying rack

Cleaning

Supply hand towels and cloth rags

- Combine hand towels and rags with cloth napkins weekly laundry duty class chore
- Consider asking the custodian not to stock or to remove your paper towel dispenser

Replace Clorox wipes

- Switch to using a spray cleaner and a cloth rag

Ask the custodians not to change the trash bag daily

- As you begin to reduce waste, you may not need to empty the trash can as much. Your custodian may love you for this. And it is an opportunity to see what ends up in the trash can.

Materials needed

- Cloth hand towels and rags
- Spray cleaner and laundry soap – available in bulk with reusable containers at Good Food Store
- Laundry basket

Classroom Materials

Limit classroom paper use

- Minimize printing if possible, print double-sided, use half-sheets when possible, and keep “good-on-one-side” pages for single-sided printing or scrap paper

Establish a bin for communal class supplies

- Good for any common supplies including broken pencils and crayons. Students can sharpen and reuse these supplies as needed or use for art projects

Use bulk supplies when possible

- Revise parent supply list to prioritize bulk purchases of single items like large jugs of glue instead of asking for several different small items
- Switch from glue sticks to wet glue by using refillable containers ([video](#))
- Identify other opportunities for using bulk and refilling smaller reusable containers

Use refillable markers

- Purchase your own set of refillable whiteboard markers or revise parent supply lists to support a shift to refillable markers
- Consider purchasing refillable kid’s markers
- Unfortunately, the Crayola ColorCycle program is not a recycling program in that the markers are burned, not recycled. The most detailed information about the program is available [here](#).

Take the Great Pencil Challenge

- One pencil per student; more info [here](#).

Rethink lamination

- Teachers who have done this recognize this is a challenge! Alternatives include upcycled cereal boxes & reusable sheet protectors ([video](#)). Here’s [one teacher’s impassioned plea](#).

Capture supplies at the end of the year

- Our waste audit at an elementary school in May/June 2019 revealed a variety of school supplies including folders, binders, and dividers.
- Reuse the supplies as needed the following year

Encourage parents and students to purchase durable, recyclable school supplies

- Wooden pencils, fabric pencil bags, cardboard or metal binders, and metal rulers are superior to less-durable, not-recyclable versions such as mechanical pencils and plastic pencil boxes, binders, and rulers

Find ways to “upcycle” school supplies

- Come up with fun art & craft activities like [creating jump ropes from marker caps](#)

Materials needed

- Collection bin for scrap paper
- Collection bin for reusable communal school supplies for use during the academic year
- Durable classroom pencil sharpener (electric or wall-mounted)
- Small, resealable containers for wet glue
- Refillable whiteboard markers
- Cereal-type boxes & reusable sheet protectors
- Reusable or recyclable school supplies to make available to students, such as wooden pencils, fabric pencil bags, metal rulers, and class sets of markers and crayons
- Collection bin for unused supplies at the end of the school year

Recycling & Composting

Collect recyclables

- Determine if your school has a recycling collection service in place. If not, go to the “What Else Can I Do?” section. If so, continue...
- Communicate with students about classroom recycling and ask for their input and assistance in setting up the classroom recycling program
- Determine what materials in your classroom are recyclable. Paper products are most common.
- Pair each existing trash can with a recycle bin. If your classroom has multiple trash cans consider having fewer. Keeping bin colors consistent (black for trash, blue for recycling) is a bonus.
- Post clear signage on and/or above each bin. Keep it consistent throughout your classroom and, ideally, your school.
- Create a system for transporting the recyclables to a place, such as a common hallway recycling bin, where they can be aggregated with recyclables from other classrooms or areas. Handling the recycling as a class will reduce the impact on the custodial staff and possibly win their support of your efforts.
- Contact custodians to modify your classroom trash pickup schedule as needed

Materials needed

- Recycling bins (enough to pair with each classroom trash can)
- Signage for recycling/trash bins listing where different items should go
 - Download classroom-ready signs at zerobyfiftymissoula.com

Collect compostables

- Determine if your school has a compost collection service in place. If not, go to the “What Else Can I Do?” section. If so, continue...
- Add a compost bin to your bin lineup, e.g. recycling, landfill, compost
- Post clear signage on and/or above each bin. Keep it consistent throughout your classroom and, ideally, your school.
- Discuss with your class about what items can be placed in the bin
- If you have composting in your cafeteria, make dumping classroom compostables there a daily class chore and create a plan for bin maintenance & cleaning
- Contact custodians to modify your classroom trash pickup schedule as needed

Set-up a worm bin in your classroom

- For the brave at heart, manage your classroom's food scraps in your classroom!
- Instructions for classroom composting with worms available [here](#).

What Else Can I Do?

While there is plenty to do to make your classroom Zero Waste, there are other actions—both in the classroom and out—that can help support your efforts.

Engage your class in relevant, hands-on STEM activities

- Before implementing any other actions, conduct a classroom waste audit to determine average waste generation per day, week, and/or school year (see “Resources” for more info)
- Set waste reduction targets, e.g. 30% in 1 month, 50% in 2 months, etc.
- Evaluate your efforts over time:
 - Conduct additional audits to identify items that continue to be sorted incorrectly and brainstorm as a class new ideas for improving upon the program
 - Weigh the composted food scraps before emptying into school or worm bins and record how much compostable material is being diverted from the landfill
- Adapt and use [lesson plans](#) about composting. If you choose to have a classroom worm bin, make a plan to harvest the worm castings for use in school gardens or make it available to students' families.

Motivate and celebrate

- Create incentives to meet waste reduction targets such as classroom parties or other motivators
- Share your successes with the rest of the school

Encourage other teachers to also strive for a Zero Waste Classroom

- Share this guide widely
- Partner with other teachers to set up a school-wide Zero Waste Challenge to see which classrooms can implement the most actions and reduce the most waste. Invite community sponsors to supply Zero Waste prizes like experiences and durable goods.

Host Zero Waste events

- Learn how with the Green Schools Initiative [Zero Waste School Events Guide](#)

Empower your students through locally-relevant educational activities

- [ZWAPI](#), the Zero Waste Ambassadors Program by Home ReSource, is designed for 5th graders, and is offered at no charge to all local 5th grade classes

Integrate Waste Management into Class Curriculum

- Curriculum resources and ideas:
 - [The quest for less: activities and resources for teaching K-8](#)
 - [Closing the Loop for grades K-6](#)
 - [Lessons in sustainable waste management, grades 3-5](#)
 - [NYC K-12 school RRResource guide](#)
 - [Rethinking recycling... an Oregon waste reduction curriculum](#)
 - [Recycling and waste reduction lessons/activities](#)
- Supplemental media resources:
 - [The Story of Stuff Project](#)
 - Dr. Seuss' book, *The Lorax*
 - Greg Roza's book, *Habitat Havoc - Landfills*
 - Shel Silverstein's poem, "Sarah Cynthia Sylvia Stout"
 - Andy Barker's short story, "The Birds of Zazurds"
 - Various documentary films on waste generation and disposal

Encourage “Green” Procurement in Your School or District

- Ask the MCPS Warehouse to purchase paper with high post-consumer recycled content
- Consider encouraging your school to participate in the [Green Schools Alliance \(GSA\) Purchasing Solution](#)
- Support school [“green” procurement](#)
 - Understand the procurement process
 - Identify administrators’ procurement priorities (costs, convenience, product longevity, etc.)
 - Make the case for using green procurement options in a way that meets these priorities
 - See the district begin sustainable purchasing!

About ZERO by FIFTY

[ZERO by FIFTY: Missoula’s Pathway to Zero Waste](#) is the name of Missoula’s Zero Waste effort. It started as a grassroots movement and is now a City-adopted goal and plan. Home ReSource was the City’s community partner, the driver of the planning process, and the lead author of the plan.

In March 2017, Mayor Engen invited Superintendent Mark Thane to bring MCPS on board. Over the ensuing 18 months under the leadership of Superintendent Thane, Home ReSource facilitated a Zero Waste planning process with stakeholders from across the district. Home ReSource presented the plan to the MCPS Board of Trustees in June 2018.

As of 2020, Jeannette Rankin Elementary School is in its second semester as a Zero Waste pilot school with other pilot school possibilities in the works.

ZERO by FIFTY links

- ZERO by FIFTY: Missoula’s Pathway to Zero Waste Plan, July 2018 [\[link\]](#)
- ZERO by FIFTY Framework, July 2018 [\[link\]](#)

MCPS ZERO by FIFTY Zero Waste Plan Documents

- MCPS ZERO by FIFTY Plan, May 2018 [\[link\]](#)
- MCPS ZERO by FIFTY Plan Appendices, May 2018 [\[link\]](#)
- MCPS Zero Waste Opportunities Assessment, February 2019 [\[link\]](#)

Additional Resources

Missoula’s one-stop-shop for all things Zero Waste

- <https://www.zerobyfiftymissoula.com/>

Classroom-ready Zero Waste Signs

- [\[temporary link\]](#)

Classroom Waste Audit Resources

- Basic audit for young students [\[link\]](#)
 - categories include “recycling,” “compost,” “reuse,” and “landfill” – modify as you like
- Waste audit guide & worksheet for a more detailed audit [\[link\]](#)
 - categories include “compost,” “reduce,” “reuse,” “recycle,” “donate,” and “landfill”