



Zero Waste Ambassadors Program



2023 Full Report

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ZWAP! 2023 Full Report

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About Home ReSource

Home ReSource, a 501c3 corporation, was founded in 2003 by two University of Montana graduates who conceived of a retail operation that reduces construction and demolition waste while contributing to a local, green economy. Today, Home ReSource keeps 900 tons of material out of the landfill each year, provides materials and services to over half of Missoula households, and has strong community partnerships, efficient operations, and a growing suite of community programs. Through waste reduction efforts, education, and the channeling of materials and services to those in need, Home ReSource works to build and inspire a more vibrant, just, and sustainable local economy.

At Home ReSource, our end goal is to help create a culture of sustainability. We believe that in order to do so we need to think differently about materials and how to reduce waste. Through **ZWAP!** and our related Zero Waste work with MCPS, we hope to imbue youth with the skills and knowledge to be Zero Waste Ambassadors in their homes, classrooms, and our community so that they can choose to join the effort to knockout waste in Missoula!

About this Report

This report is a summary of our 2022-2023 iteration of ZWAP! and a distillation of the lessons learned in a set of recommendations to continue refining and improving ZWAP!. We are committed to making ZWAP! as fun and effective as it can be. We see continual program evaluation as a critical tool to get us there.



About ZWAP!

ZWAP!, our Zero Waste Ambassadors Program, is an award-winning, inquiry-based education program for fifth graders. ZWAP! is designed to motivate young Missoulians to think more critically about materials—where they come from and where they go. Our objective is to empower youth with the knowledge that the choices they make and the actions they take can help create a more sustainable future.

Home ReSource educators provide a total of 3 hours of engagement for each fifth-grade class through an in-school lesson and a field trip to Home ReSource using our interactive, STEM-aligned curriculum that supports three key messages:

- **We have a CHOICE.** Materials aren't waste until they're wasted.
- **There are a lot of ACTIONS we can take to reduce waste.** Reduce, Reuse, Recycle, Request, Rot (Compost)
- **We can make a DIFFERENCE by choosing to reduce waste every day.** Choice + Action = Difference

Through ZWAP!, we aim to help students become **ENGAGED** in problem solving around waste, **EMPOWERED** with the skills and knowledge to be Zero Waste Ambassadors, and **INSPIRED** to knock out waste in Missoula. At the conclusion of ZWAP!, our hope is that students have an increased understanding of waste and how to reduce it and feel more confident in their ability to evaluate real-world problems and identify sustainable solutions. We also aim to show students that despite our changing climate, our future is bright and our sustainable actions can be fun! It is important to us to have an education program rooted in empowerment and not in shame, so we can best support positive social change through the next generation of sustainability leaders.

ZWAP! is supported in part by the Dennis and Phyllis Washington Foundation, the Louis L. Borick Foundation, the ALPS Corporation, and private donors in our community. At this time, this program is offered at no cost to teachers, schools, or students.



Zero Waste & MCPS

Home ReSource has worked in partnership with Missoula County Public Schools (MCPS) since 2015. Our collaboration has encompassed the development of the MCPS Zero Waste Plan, presentations and meetings with District leadership (including the Board of Trustees), and work towards established environmentally preferable purchasing practices. With a recognized focus on zero waste, MCPS continues to update their purchasing and printing habits, opting for reusable and/or compostable products, recycled content paper, centralized printing, and other sustainability measures.



In 2018-2019, Home ReSource launched the Zero Waste Pilot School Program with Jeannette Rankin Elementary. During the 22-23 school season, we worked closely with Jeremy Drake at Strategy Zero Waste Solutions to support the addition of two more schools to the Zero Waste Pilot Program. These schools included Hawthorne Elementary and Lowell Elementary. Eight out of nine MCPS Elementary schools are now operating with zero waste cafeterias and classrooms - and the ninth school is planning to make the switch in the fall of 2023. Home ReSource developed a k-5

sorting lesson plan and helped to recruit community volunteers to oversee the lunch time sorting of compost, recycling, trash, and reusable packaged foods to support the schools' transition to zero waste. We are excited to continue supporting MCPS and Strategy Zero Waste Solutions with education and volunteer training in the coming years.

Home ReSource has continued working with the MCPS curriculum team to develop a multi-lesson science and sustainability unit for 6th graders to revisit and explore in more depth the concepts introduced in the 5th grade program. This unit has been piloted by two MCPS teachers, and Home ReSource educators are working on implementing teacher suggestions and alterations, as well as brainstorming informational visits to the local landfill. Pre-Covid 19 pandemic, Home ReSource had a partnership with Republic Services, and was able to take students to the landfill for field trips. Conversations to bring back and integrate landfill field trips into the 6th grade curriculum are underway! The Home ReSource education team is striving to create an engaging middle school science curriculum that is fun for students and simple to implement in the classrooms by teachers - opposed to the 5th grade program, which is run by Home ReSource educators.

Finally, in partnership with Families for a Livable Climate, Home ReSource was able to host a Climate Leadership Workshop for Missoula highschoolers in spring of 2023. ZWAP! principles were taught and discussed in relation to leadership, climate change, green trades jobs, and community action and resiliency. The workshop was a two day event and took place in the Home ReSource Community Room. Two of the participants graduated from ZWAP! in 2018! Home ReSource educators plan to teach the lessons from this workshop to all incoming highschool interns who participate in Home ReSource's Youth Internship Program which is 8-10 weeks long and runs 4 times a year with up to 5-6 participants in each cohort.



ZWAP! and Summer Camps

For the fifth year, Home ReSource is partnering with the Zootown Arts Community Center to host a ZWAP! summer camp during the summer of 2023. From Zero Waste-inspired art projects, to building with reused materials and beyond, this week-long, half-day camp is perfect for kiddos who care about creating a sustainable future and who love to be creative. This summer, the campers will be creating a project they can submit to the Creative Reuse Division at the Western Montana Fair. The campers will also take field trips to Free Cycles, Missoula Urban Demonstration, and Recycling Works where they will continue their community engagement with the importance of reducing, reusing, and recycling in Missoula. This camp takes place July 24-28th.

For the third year, Home ReSource will be partnering with Missoula Parks and Recreation for their Deconstruct-Construct camp. Campers will build “reuse robots” out of deconstructed wood scraps and hardware to show that art can be sustainable and fun! This is a one day, three hour camp that takes place the second, third, and fourth week of June.



For the second year Home ReSource will be partnering with the Montana Natural History Center. This year the theme of the camp is “Nature’s Architect” Campers will build a giant butterfly out of a week’s worth of plastic sporks collected from an MCPS cafeteria to bring awareness to the single-use plastic problem we have in schools. This camp will be focused on building knowledge about the materials economy and how our waste impacts nature. These 2 hour camps will take place on July 12th and August 16th.

For the second year, Home ReSource will be partnering with the YWCA for GUTS! camps. GUTS is a program for girls and gender diverse youth with a focus on community-based leadership and empowerment. Home ReSource will participate in three sessions with GUTS where campers visit Home ReSource and learn how to use hand tools to create or repair structures for our community. Projects include building indoor and outdoor games for the YWCA’s Meadowlark building, and/or a camper’s choice free build. These are 1.5 hour long camps that take place July 10th, August 7th, and

August 21st.

Lastly, this is the first year that Home ReSource is partnering with the Boys and Girls Club of America to provide fun educational field trips to Home ReSource. These field trips will consist of a tour, scavenger hunt, and fun camper’s choice building project. These field trips are 2 hours long and take place on June 15th and July 5th.



Many of our ZWAP! students express interest in creative reuse or building projects with Home ReSource (they love the woodshop and want to try out the tools), as well as ask about more actions they could take as a zero waste ambassador. We are excited to build capacity through our summer camp partnerships and provide further opportunity for engagement with Home ReSource and empowerment for our Zero Waste Ambassadors we meet during the school year. We even had a 2022 GUTS camp participant apply to be a highschool intern at Home ReSource the following summer!

Summary of ZWAP! 2023

Changes to the Program

With each iteration of ZWAP!, we watch for what is working and what is not, make mid-course corrections, and devise and deploy new ways to guide students to a place where they think differently about materials and understand how to reduce waste. With a sense that those aspects of the program are well-honed, our focus shifted to providing more context, bringing deeper awareness to our delivery, and determining ways to best support future zero waste educators.



In the Classroom: In 2023, we worked with an intern from the University of Montana to recreate our classroom presentation, making it more visually exciting and relevant to 5th grade students. We also brought in materials from Home ReSource (cardboard picture frame backs and plastic lids) for the students to use when creating their ZWAP! visioning activity.

Field Trips: We continued our hands-on project where students make name tags out of chopped up fan blades, and created a second scavenger hunt for students who finish the first scavenger hunt early. We also noticed that students were not enjoying the competition component of

ZWAP! the game, so we decided to make it an interactive puzzle. Groups worked on the puzzle under no time constraints and after putting the pieces together, they get material (plastic water bottle, aluminum can, glass vase, candy wrappers etc.) from our “trash basket” and work together to recreate the life cycle of that material. The students participated in a tour, a scavenger hunt with a built-in math component, ZWAP! the game (puzzle), and a reiteration of the four zero waste ambassadors actions before signing the ZWAP! wall.



We are thinking of ways to give the students time to get crafty with their visioning activity during the field trip instead of creating name tags. Oftentimes the name tags end up in the trash, or the students don't really use them. Also the yarn is itchy on their necks! Plus students love to use our hot glue.



We continued to modify our language for inclusivity & empowerment. We strive to be vigilant in identifying and remedying any language that could alienate or make assumptions about the lives of ZWAP! students. This includes using gender inclusive language and asking students to put their pronouns on their nametags, saying caregivers instead of parents, saying “where you live” instead of at home. We address how at present all recycling and composting programs in Missoula cost money to participate in, and that that can be a barrier for community members.

How we measure knowledge retention. Rather than give a pre and post quiz at the start and end of the ZWAP! experience, we decided to measure knowledge retention through the students’ visioning projects. After the classroom presentation, we have the students choose one prompt from the following list: “Draw what a zero waste world looks like, create a self portrait of you as a zero waste ambassador, write a poem to someone who has never heard of zero waste, write a letter to a company requesting to change their product to be more sustainable, redesign a designed for the dump item”, and then we hand out old bottle caps, paper or cardboard that has been donated to the Home ReSource Reuse Store, and finally encourage the students to use snack wrappers and other trash they produce in a day to create one of the prompts. The students have until they come on their Home ReSource field trip to finish their projects. We are able to tell if the students need more guidance or reiterations of the lessons if they struggle to get started on the projects, and we spend time after the presentation to ensure they know what to do. The hope moving forward, is that students will have time during the Home ReSource field trip to complete more well-thought out visioning activities.

What We Accomplished

Program Reach

Number of Schools: 17

Alberton School, Chief Charlo Elementary School*, DeSmet Elementary School, Franklin Elementary School*, Frenchtown Intermediate School, Hawthorne Elementary School*, Jeannette Rankin Elementary School*, Lewis and Clark Elementary School*, Lowell Elementary School*, Missoula International School, Paxson Elementary School*, Rattlesnake Elementary School*, Russell Elementary School*, St. Joseph School, Target Range School

**Missoula County Public Schools*

Participating Classes: 38

Number of Students:

- Classroom visits: 806
- Field trips: 784

What We Heard

We invited teachers and chaperones to provide feedback on the ZWAP! experience using a Google form. The 19 respondents included 16 teachers and 3 parents. Feedback was overwhelmingly positive. Students felt the content was fun and engaging. Highlights from the surveys are included below.



Response Highlights: overall impression of ZWAP!:

- *The activities to engage the students and reinforce their learning were fantastic.*
- *I really love how it introduces Recycling and the impact it makes in our communities and the world. I love how the program is growing and making a difference in our community*
- *I think students need to be made aware early that resources are finite, and that we need to rethink the way we are living. It is clearly not sustainable and this generation is and will suffer from our history of over consumption.*
- *The kids were engaged and had fun!*
- *The energized presenter and thoughtful flow of delivery.*
- *Hands-on and visual learning experience for the students*
- *It's something the students can put into action right away. They are given the tools.*
- *I loved how interactive this program is for the kids. The Bingo game that was left in our classroom after the class visit did a great job of motivating my students and getting us thinking about how we can participate in the program through actions in our daily lives! I really enjoyed the activities that were prepared for the field trip to Home Resource as well! The scavenger hunt game was a huge hit, as well as the activity that we did in the classroom. Overall my students had an absolute blast! And they learned a lot too!*

Response highlights: “What are the ways you think we could improve ZWAP!?”

There were some suggestions for specific actions teachers and parents would like to see incorporated into ZWAP!:

- *My daughter said the field trip was too short. :)*
- *I think my students would like a hands-on activity with materials. Simple sorting of recyclables versus trash. Making something out of repurposed materials.*
- *I think students need more hands on work making things and working with tools. Maybe some student apprentices?*



What We Learned & Recommendations for ZWAP!

Each year, the Zero Waste Ambassadors Program improves, and changes become minimal. Few internal program or content challenges were found this year; the main challenge was school and student engagement as our community recovers from the covid-19 pandemic.

Challenges and Changes

Field Trips to the Landfill

The landfill was closed to public tours during the 2021-22 school year due to Covid-19. We are hoping to bring back landfill field trips for the 2023-24 school year. Touring the landfill gives our students a powerful visual of how much waste Missoulians create and inspires positive action. The landfill field trips will once again be a great addition to our ZWAP! 5th or upcoming 6th grade curriculum.

Group dynamics

Going on a field trip and getting out of the classroom is an exciting event for students and sometimes that comes with unruly behavior. The students arrive at Home ReSource and sit down in our classroom without a seating chart which leads to interesting group dynamics. This spring, some teachers arrived at Home ReSource with premade groups and had the students sit and do the scavenger hunt in those groups. This led to better listening by the students and lessened the chance of horseplay during the scavenger hunt compared to when the ZWAP! educators randomly make groups. Next year, we will be asking teachers in their pre field trip email to create five groups of students ahead of time and arrive with the students ready to sit and work in those groups.

Visioning Activity

Not every student brings their visioning activity with them. Next year, we hope to give the students time to finish their activities during the field trips. Students will get a sense of how much they throw away, and how packaging is a huge waste problem by collecting their own trash, and repurposing it for a project. We hope to use creative time during the field trip for the visioning activities and eventually build in time for the use of hand tools like drills, hammers, and screwdrivers.

Conclusion

For the 8th year in a row, ZWAP! has remained an integral part of the Missoula 5th grade experience. Despite the unique circumstances and challenges faced by students, schools, and educators during the past couple school years, ZWAP! remains as essential and relevant as ever, and is still a priority in many classrooms and schools. We continue to hear that ZWAP!'s real-world application is of the utmost importance to teachers and students. We are hopeful that program engagement will only continue to increase as the schools and teachers process the relevance of these topics.



Appendix A: Program Timeline and Logistics

ZWAP! Plan 2023

January	<ul style="list-style-type: none"> Organize Calendly calendar - add all signed up teachers to personal calendars and update calendly with unavailable times Prepare ZWAP! program materials BSWC member starts term of service Make new year/ second email outreach Outreach to schools we have not heard from (send out first spring invite email) UM intern starts Cafeteria coaching - BSWC and UM Intern
February	<ul style="list-style-type: none"> Work with UM intern to spruce up ZWAP classroom presentation and field trip materials for the Spring Distribute Recycling works pamphlets Send 3rd email outreach to teachers who have not responded Make bus reservations for field trips Program outreach 6th grade curriculum pilot
March	<ul style="list-style-type: none"> Host field trips at Home ReSource Teach ZWAP! Classes Hopefully landfill trips for 5th or 6th graders Begin recording data and calculating metrics Begin compiling survey responses from teachers and chaperones Create Newsletter/ end of year thank you + last minute recruitment <p>Wrap up all field trips by June 3rd. Send out final "Thank you" email with numbers of participants and survey results.</p>
April	
May	
June	<ul style="list-style-type: none"> Send Thank you to teachers and compile and synthesize survey responses Produce the ZWAP! annual report (JUNE) Summer camps! Make recommendations for continued curriculum development Begin updating program resources for the upcoming year Prepare spreadsheets for teacher communication records and program metrics Update Teacher contact info and class records (Early August) - Make sure information for 5th grade teachers in MCPS and other nearby districts are current. Send invite emails out on to teachers on Teacher prep day- Aug 25, 2023 First day of school August 30th, 2023
July	
August	
September	<ul style="list-style-type: none"> Start outreach to teachers with an initial email invite on August 25th Prepare additional follow-up emails Prepare field trip materials Send a second outreach email to teachers who did not respond to the first invitation Most fall ZWAPS take place in October - including field trips!
October	



Classroom Visit

- Email teacher one week before classroom visit
 - Confirm lesson time, class size, classroom number
 - Send the teacher the google slides presentation that will be used on the day of the visit, with the suggestion of having it up when the educator arrives
 - Give some brief details about the class presentation/ activity
- Prepare materials
 - Bring fun materials from Home ReSource to show the students (door handles, light fixtures, faucet handles, fan blades, tools
 - Bring fun visioning activity materials for the students to use in their projects
 - Bring ZWAP! bingo sheet and bingo instructions (we no longer give out a prize for full cards)
 - Bring wireless clicker and USB for teacher laptop
 - Prepare yourself! How do you plan to get the students' attention if they are not listening? Eat a good meal, and bring some water. This program touches on the negative consequences of climate change - if you bring good energy and a positive attitude, it will help soften the blow.
- Classroom setup
 - Set up powerpoint presentation (if not already done)
 - Remind students to collect and bring some of their trash (clean trash like snack & candy wrappers, juice boxes, old bottle caps, cardboard) on the field trip for the visioning activity
- After the classroom visit
 - Touch base with teachers- get them to sign up for field trip date/time and send them waivers
 - organize bus transportation with Beach Bus once they sign up
 - Remind teachers to bring 2-3 chaperones (might be able to offer Home ReSource gift cards to parents who chaperone)
 - Remind teachers that students should wear close-toed shoes, and will need to bring their visioning activity with them on the field trip

Field Trip Preparation: Materials

- Visioning activity
 - Check supplies of colored pencils, erasers, tape and drawing paper, pencil sharpeners, markers, old printer paper, pieces of cardboard bottle caps, bubble wrap, other fun trash, hot glue guns
- ZWAP! The Game
 - Check game boards
 - Check arrows, reinforce Velcro if necessary
 - Repair team envelopes for each round, reinforce Velcro if necessary
 - Make sure all pieces for each round are accounted for and in the correct locations



- Reuse Scavenger Hunt
 - Check laminated shopping lists
 - Make sure you have an expo marker and measuring tape for each of the 5 shopping lists

Field Trip Preparation: Logistics

- Bus reservations - fax filled out pdfs to Beach Bus (instructions on side of office printer)
- Email teacher one - two week(s) prior to field trip
 - Confirm times for departure from/ return to school
 - Remind them to bring students' completed field trip waivers
 - Encourage them to bring 3+ chaperones
 - Provide a list of what students should bring: water, a snack, warm clothes, close-toed shoes
 - Ask them to split their class into 4-5 groups for the scavenger hunt
- Room preparation
 - Organize stored ZWAP! field trip materials
 - Four clean tables and chairs (6-8 at each table)
 - Create materials economy depiction on white board to use during brief recap

Day of Field Trip

- Place orange traffic cones on Wyoming St. side of Home ReSource to mark the bus loading zone
- Ensure room setup is complete (tables, chairs, and drawing supplies)
- Write "Welcome [School]" on the whiteboard
- Prepare field trip materials, schedule, script, instructions, dry erase markers, materials economy pictures
- After the field trip
 - Clean up and organize materials
 - Add collected data to metrics spreadsheet
 - Wipe down tables
 - Email ZWAP! survey to teachers and chaperones
 - *Weekly or bi-weekly:* Sweep the ZWAP! room, sanitize materials, and sharpen colored pencils

After all ZWAP!s

- Compile all metrics
- Compile survey responses
- Write ZWAP! annual report (make a copy of this document, and change it to reflect your year)
- Suggest continued curriculum adjustments as needed
- Ensure program materials are organized and easy to find/ use for next year
- Prepare spreadsheets and materials for new ZWAP! educator



Appendix B: In-Class Lesson Plan Scripts

***We use this as a foundation, but modify and personalize to ensure effective delivery**

1. My name is _____. I work at Home ReSource. [Can ask about classroom conventions for behavior, etc.]
2. [Set expectations for class participation.] I am going to be asking you all some questions. Just so you know, I will only call on students who raise a hand first.
3. Welcome to the Zero Waste Ambassadors Program or ZWAP! for short. **Can everyone say ZWAP!?** Good. That's the sound of knocking out waste in Missoula. I am here today to talk to you about zero waste and how we can achieve it. We'll talk about how we can work together to knock out waste or, in other words, to reduce the amount of stuff we throw away.
4. **Raise your hand if you've been to Home ReSource before.** [ask if anyone wants to tell us what they were shopping for – choose no more than 3-4 students total]. Hands down.
5. **Raise your hand if you've been to a thrift store like Goodwill before.** Hands down
6. **Raise your hand if you've been to a hardware store like Home Depot before.** We're a thrift store + hardware store.
7. **Does anyone know what zero waste is** [take a few answers] Nice job. Zero waste is just about knowing where our stuff comes from, where it goes when we're finished with it, and minimizing how much ends up in the landfill.
8. **Does anyone know what an ambassador is?** [take a couple answers] An ambassador is just someone who leads by example and encourages the same from others. I'm here today to be an ambassador for you, and I'm hoping by the end of this program you'll all sign up to be ambassadors too.
9. Let's get our minds thinking about trash and sustainability with some brain boosters [explain that you'll read the question and the answers and you want them to raise their hand when you read the answer they think is correct - it also helps to say "who thinks it's ____"]
 - + How much does the average Montanan throw away in a day - 8 pounds - that's 2920 pounds a year from each and every Montanan, that's why I'm here, so we can talk about how to reduce this number
 - + How much does the average Montanan throw away compared to the average American - More - This is because we throw away a lot of construction material, which is why Home ReSource was started, and because we're so spread out our systems don't work as well as those in cities
 - + Where does our stuff go when we throw it "away" - it gets buried in a landfill - Most states don't incinerate anymore because we found out it's super bad for our air quality. But this picture shows us that when we throw things in the trash it doesn't actually go away. This is a picture of a recent event where a storm came by and blew trash all across the landscape.
 - + How long does it take for plastic to decompose - 500-1 million years - Plastic never actually decomposes, it breaks down into tiny little pieces called microplastics, and they end up in our oceans, soils, and bodies [you can ask if they know why this matters] explain that it's unhealthy and eventually our soils will be more plastic than soil, and you can't grow crops in plastic
10. **Explain the exercise:** Pick and objects, tell a partner what it's made of and where that material comes from [allow a few minutes for discussion and change slide to materials slide]
11. Ask a few students to share their choices with the class [take a few answers]
12. Talk about where each listed material comes from [plastic - oil (same as what makes gas for cars), wood - trees, metal - ore, glass - sand (silica sand), ceramics - clay (type of soil), textiles - plants, animals, and plastic (often need to explain what textiles are)]
13. **Where does this stuff come from - different natural resources come from all across the globe?** [a pencil often works as a good example 5 different materials, all from different locations]



14. [Run through the materials economy] Extraction (planet) [everything starts as a natural resource] □ Production (factory) □ Distribution (store) □ Consumption (house + school) → Disposal (landfill)
15. It's an entire system (called the materials economy) used to make and transport all of our stuff
16. **Does anyone know of a system in nature?** (e.g. respiratory, circulatory, solar, ecosystem, hydrologic cycle, carbon cycle). There's a difference between these natural systems and the Materials Economy!
17. **What shape do systems of nature make?** They make circles; they're what we call "cyclical". This means it's sustainable. These natural systems work together to keep our planet livable.
18. **What shape is the system of the Materials Economy?** It's like a line or "linear," with a beginning and an end, unlike natural systems. Meaning it's unsustainable and can't go on forever.
19. **What are some consequences of the materials economy?** [usually someone will eventually say greenhouse gasses or poor air quality]
20. [Make sure students know what greenhouse gasses are] **Are these gasses good or bad?** [Neither! they're just a gas and we need them to survive] We are however adding too much, any guesses as to how much? [70%]
21. **Have you ever gotten into a car in the summer and it's way hotter in the car than it is outside?** That's kind of how greenhouse gases like CO₂ work in the atmosphere; they trap heat.
 - CO₂ is natural and essential to life on Earth: we breathe it out, trees breathe it in. Greenhouse gases like CO₂ help keep our planet warm and livable, but **what happens when we add more CO₂ to the atmosphere?**
 - The molecules trap even more heat, contributing to global climate change.
22. **We put these gasses into the atmosphere at almost every step of the materials economy** [point out the methane coming off the landfill]
23. **How far does our stuff travel on average to get to Missoula?** [>5,000 miles on average] That's further than all the way across the united states
24. **Now that we see how greenhouse gases and climate change are connected to the Materials Economy, let's talk about what happens next in this system. What do we usually do with our stuff when we're done with it?**
25. We throw it "away." We throw away 292.4 million tons every year, that's equal to 130,000 NASA sized rocket ships (or 10 lolo forests filled about 6 ft deep)
26. When people began to live in big cities, trash and human waste were often thrown into the streets or outside the city gates. Imagine if you were to throw all of your garbage out of your bedroom window! **What would Missoula look like?** As cities kept growing larger, people began to link trash and sewage with disease. The concept of a common garbage "dump" or landfill was seen as a solution to these public health concerns. And then the landfill was born; waste materials were collected and put into one area outside of town. Then and now, landfills have kept garbage out of the streets and protected public health.
27. Unfortunately, now we have different problems:
 - We're throwing away a lot of stuff!
 - **Does anyone see anything that doesn't need to be thrown away?**
 - **Do we have choices other than the landfill for the stuff that we no longer want?** [Yes!]
 - A lot of it isn't "garbage," it is reusable, repairable, recyclable, or compostable.
 - A lot of it becomes harmful to us and the planet when dumped in a landfill
 - We have a CHOICE! Materials don't become waste until they're wasted.
 - Some of it is "designed for the dump" [that means they are designed to be used once and thrown away]
28. We can see that we are using our finite resources to make things we don't need, and this system causes pollution both upstream and downstream, which hurts the animals, places, and people we love.



29. This is why I'm here, so we can talk about the R's of zero waste and some actions we can take to help.
30. **The first and very best thing we can do is Reduce**, and that means we USE LESS STUFF [good examples are using silverware instead of plastic or not taking free things that are just going to be thrown away] If we leave forests, mountains, and open spaces alone, nature's systems can continue to cycle and support life. Choosing to reduce is one of the best things we can do for the health of our planet. When we put the first "R" into action, we can make the biggest difference!
31. **The second "R" of waste reduction is Reuse**. We do this a lot at Home ReSource. It means USE IT AGAIN. There are 2 ways to do this, at our homes and schools, or by donating back to stores.
32. **The third R is Recycle**. This is the third R because we're not set up to recycle very effectively [can mention wish-cycling] it is still an important part of waste reduction though.
33. We can also rot, which just means compost [make sure students know what composting is.
34. One final thing we can do is request. We can ask companies to rethink and redesign their products to be more sustainable. There are many ways to do this, writing a letter is one of the most common ways.
35. Enacting these Rs of zero waste helps us turn our unsustainable materials economy into a circular economy.
36. Ask for examples of the Rs
37. Remember what shape natural systems are? [circular] That means if we can change our system we can be more sustainable.
38. I know this seems like a huge and impossible problem, but there's good news, it is huge, but it's not impossible. There's a simple equation that each of us can use to keep stuff out of the dump & become a Zero Waste Ambassador. When we CHOOSE to reduce waste and take ACTION, we can make a big DIFFERENCE. [Write as CHOICE + ACTION = DIFFERENCE].
39. **Did you know that Missoula has a Zero Waste goal & a plan to get there?** Missoula is planning to reduce the amount of stuff it sends to the landfill by 90% by 2050. The Missoula County Public School district is on board too! **How old will you all be in 2050? What would it be like to be able to reduce the amount trash you throw away by 90%?**
40. We need your help! If you can reduce waste every day and encourage your friends and family to do the same, imagine how much of a difference we can make! That's why we need each of you to become Zero Waste AMBASSADORS. When you come to Home ReSource for your field trip, we'll talk more about what that means.
41. Now that we've discussed the Rs of zero waste, let's talk about some things that we can start doing right now to be zero waste ambassadors. I want to remind you that you don't have to be perfect to be a good zero waste ambassador, you just have to try your best
42. The first thing we can do is use a reusable water bottle [good to mention that not everyone can do this and you can reuse a single use bottle]
43. The next thing we can do is practice zero waste at meal times and there's lots of ways to do this, only take what you can eat, share your scraps or compost them, use reusable tupperware and silverware
44. We can shop second-hand first [you find lots of cool stuff and that's what we do at Home ReSource]
45. We can teach someone else why zero waste is so important and how to do it [this is an important one]
46. We can shop locally or grow your own garden [this helps the economy and reduces the amount of gases used for transport, plus it's fun]
47. We can fix our broken materials [using tools is fun and something we'll need to know how to do if we're going to be a zero waste society]
48. We can pick up trash in our community [Clark Fork Coalition river cleanup, remind them not to pick up things that look gross or toxic]
49. Finally we can make our own toys [point out that a 5 year old made the reuse robot on the right]
50. **Does anyone have any questions about any of this?**



51. Now we're going to do a visioning activity, we want to see what you think zero waste is [read the list of options and encourage them to use old materials that they would throw away] I'm also going to leave this ZWAP! bingo with your teacher and you can do it as a class. [Stop for questions about the activity]
52. Thanks! I look forward to seeing you at Home ReSource!

Appendix C: Field Trip Timeline and Activities

Timeline	Activity
9:00	Arrive
9:00 - 9:05	Welcome/ZWAP! Recap
9:05 - 9:20	Reuse Name Tags
9:20 - 9:45	Home ReSource Tour
9:45 - 10:10	ZWAP! the Game
10:10 - 10:45	Scavenger Hunt + Discussion
10:45 - 10:50	Ambassador Actions
10:50 - 10:55	Sign the Wall
10:55 - 11:00	Hang Visioning Activity
11:00	End
	Total: 2hrs

ZWAP! Recap/Refresher and Reuse Name Tag Creation

***Not planning to do nametags in 2023/2024 season. Will use fan blades for Visioning Activity)**

Overview

Remind students about why they are visiting Home ReSource

Take time to review the materials economy, and our need to switch to a circular economy by reducing, reusing, and recycling

Review brain boosters

Talk about CO2 emissions

Make name tags out of reused materials. [It's good to remind students using fan blades or lightswitch covers is an example of reuse and reduce]

Visioning Activity

Overview

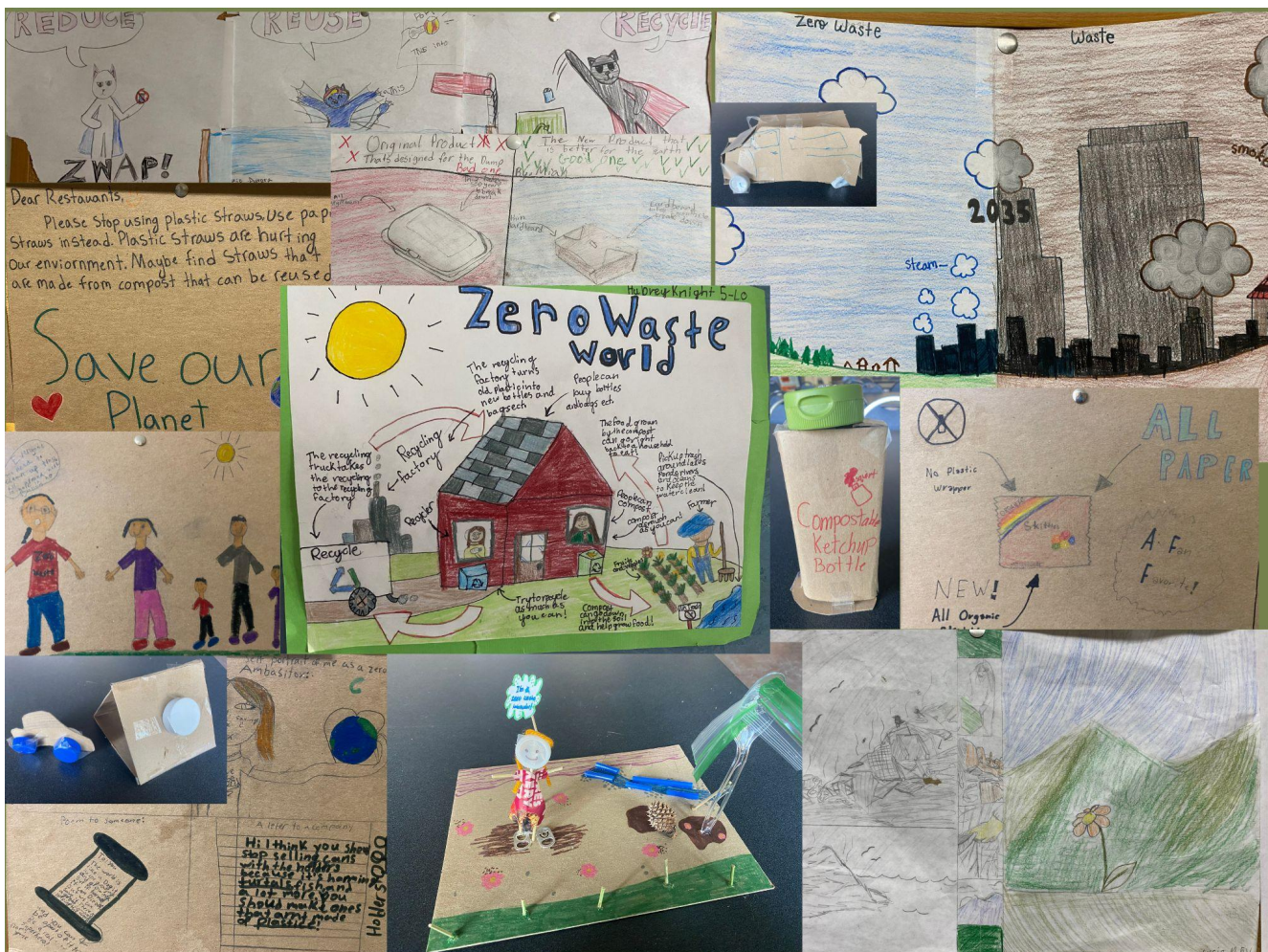
Many students completed a visioning activity at the end of their classroom presentation and some finished them at the end of their field trips. The activity aims to get students active in thinking about zero waste and topics covered in the classroom lesson. Students choose one of the many prompts and draw pictures or write responses, all answering the questions "What would a zero Waste world look like?" and "How can we become a more zero waste society?" To conclude the activity, students share their creations and ideas and then hang them up for all to see.



A vertical strip of six hand-drawn icons. From top to bottom: a sun with rays, a beaker with bubbles, a pencil with motion lines, a rocket with a flame, a bird in profile, and a notepad with wavy lines representing text.

PICK ONE FROM THE LIST BELOW, AND USE REUSED MATERIALS TO CREATE IT!
BRING IT TO HOME RESOURCE ON YOUR FIELD TRIP SO WE CAN DISPLAY IT.

- *DRAW WHAT A ZERO WASTE WORLD LOOKS LIKE
- *CREATE A SELF PORTRAIT OF YOU AS A ZERO WASTE AMBASSADOR
- *WRITE A POEM TO SOMEONE WHO HAS NEVER HEARD OF ZERO WASTE
- *WRITE A LETTER TO A COMPANY REQUESTING TO CHANGE THEIR PRODUCT TO BE MORE SUSTAINABLE
- *REDESIGN A "DESIGNED FOR THE DUMP" ITEM



ZWAP! The Game Overview

Objectives:

1. To review the Materials Economy classroom lesson
2. To teach students about “R words,” how to use them, and to reinforce the key takeaways of ZWAP! (Choice + Action = Difference)

Learning Outcomes:

Students will understand:

1. Where stuff comes from and where it goes when we’re done with it
2. How they can apply “R” words to reduce waste
3. That their individual choices can and do make a difference
4. the life cycle of common household items, and their ties to natural resources

Materials:

1. Laminated game pieces located on Google Drive: ZWAP! > 2020 > Field Trip Resources > ZWAP! The Game > Graphics
2. Game materials are located on the white shelf and in the window above it in the Home ReSource community room. Game boards have a pocket on the back which contain the arrow pieces; pieces for other rounds can be found in the brown game envelopes.

Activity Description:

1. The class will divide into groups of three or four. Each group will receive a game board with three arrows and a brown envelope with two sets of game pieces.
2. In Round 1, the students will put the Materials Economy in order on their boards.
3. In Round 2, students will put arrows on their boards to change the system of the Materials Economy to keep all of our stuff from ending up in the landfill.
4. In Round 3, students will add labels to their game boards, with emphasis on “Reduce”, “Reuse”, and “Recycle”.
5. In Round 4, students will receive a material that is often thrown away (aluminum cans, plastic water bottles, etc.) and will take that item through the system, discussing what natural resource it comes from and where it could end up in a zero waste world. A class discussion will wrap up the game.

Instructions

Round 1: Recreating the System

1. Starting at START, velcro each piece in order along the straight black line.
2. Once you are finished, raise your hands, and a teacher will come check.
HINT: Do you remember the MATERIALS ECONOMY, the SYSTEM where things come from and where they go?

Round 2: Turning the Line into a Circle

1. Velcro the three orange arrow pieces under the Materials Economy.
HINT: All of the arrows start with us! WHERE do you spend most of your time?
2. Once you are finished, raise your hands.
HINT: Remember the choices we can make to change the Materials Economy into a Zero Waste Economy which is more like Earth’s natural systems?

Round 3: Naming our Choices

1. Velcro the red and green pieces where they belong under the Materials Economy on the board or on the orange arrows.



- The pieces: REDUCE, REUSE, RECYCLE, and LANDFILL need to be matched with the correct 3-word definition pieces:

Remember: There are two REUSE pieces because there are two ways to Reuse in the Zero Waste Economy.

2. Place the black circle numbers next to the “R” words to show the correct order.
HINT: The 3 “Rs” are always in the same order, do you remember which one goes first?
3. Once you are finished, raise your hands.

Round 4: Tracking our Trash - Home ReSource educator hands out “trash” items

1. Discuss as a group where the material comes from and what you could do with it after you’re done with it. Then prepare to present to the class.
 - Your choices are: any of the three arrows, in the landfill, or under the Earth to REDUCE the amount you use in the first place!
2. Be prepared to explain your choices and why you made them.
3. Once you are finished, raise your hands.
HINT: The “R” words are in order for a reason!

Reuse Scavenger Hunt

Instructions and Outline

1. Introduce and explain the activity
 - a. Number students off to create five groups - or the teacher will have these groups pre-assigned, and assign a chaperone to each group
 - b. Have each group get the box of materials with their group number on it, and give each group wet erase markers (keep track of them!)
 - c. Explain: Each group will have 20 minutes to find and measure out the items needed for their project with their shopping list. The scavenger hunt is not a competitive race, but each group should try to find as many items as possible on their list! Remind groups to stay together during the activity.
2. Introduction to tape measure use and understanding the item lists
 - a. Explain how to read the item lists for their project (highlight lingo such as 2x4 wood, square footage, 4x8 plywood, etc.)
 - b. Explain how to use tape measures
 - c. Have students practice using their tape measures to measure the area of their table
3. Scavenger hunt (15 min.)
 - a. Set an end time for the scavenger hunt so adults/students know when to return to the ZWAP! room
 - b. Groups will find as many of their items as possible. *Reminder: Groups are checking off items on their list, not physically collecting them.*
4. Reflection
 - a. Have each group share the red number on their shopping lists to the class. Explain that these numbers represent estimated weights of all of the items needed for their project.
→ Project (lbs.)- bathroom (777), bedroom (743), chicken coop (553), kitchen (1,314), treehouse (1,006)
 - b. Add up the total weight for these Home ReSource shopping projects (4,393 lbs.)
 - c. Discussion (10 min.):



- i. Big picture tie-in
 1. Look at how the action of choosing to reuse can make a difference!
 2. How does the system of the materials economy change when we choose to reuse? [It becomes a circular system! Connect to ZWAP! The Game]

Zero Waste Ambassador Actions

The actions below were shared with ZWAP! participants at the end of their field trips. Ask students to pledge to be a Zero Waste Ambassador by taking on at least one of these actions (or coming up with some of their own). Students wrap up the field trip by signing the ZWAP! wall.

You know you're a Zero Waste Ambassador when you...

Drink from a reusable water bottle every day!

Bottled water is bad for the planet. It takes a lot of energy and makes a lot of waste to bottle and transport water. Just turn on the tap! Choose to reuse water bottles, shopping bags, clothes, toys, and more.

Practice Zero Waste at mealtimes!

Together we can tackle food waste and lunchtime litter. Only take what you think you will eat! Save or share leftovers, and compost your food scraps when possible. Use reusable lunchboxes, cups, dishes, silverware, and napkins.

Shop secondhand first!

Think "thrifty" when looking for school supplies and "new-to-you" clothes or shoes. Check out local thrift stores or pawn shops before heading to a big box store. Choose stuff that can be reused, repaired, repurposed, recycled, or composted.

Help one person understand!

Knowing why waste is bad for the planet and how to reduce it is a great start. Talk to your friends and family about it. Help them understand the choices we make everyday matter.



Appendix D: Facilitation Tips

General Facilitation

- Make expectations clear from the beginning
- Speak loudly, but don't shout over or yell at students
- Give clear and concise verbal instructions
- Say "When I say GO..." before giving instructions to keep students from jumping right in
- Use established classroom conventions for getting everyone's attention - ask the teacher what these are
- Try hard to decipher when to ask for students' attention, when to defer to their teachers for help, and when to just wait for them to settle down
- Use students' names as much as possible - they don't need nametags, just ask them what their name is
- Don't be afraid to giggle with them! Some of their jokes are really funny. Also don't be afraid to say things like "Oh, we actually don't use that language here at Home ReSource" if they say inappropriate things
- Ask for volunteers to help pass out materials if/when needed. Students love volunteering!
- Use a "call and response" for classroom management. Ex. "When I say peanut butter, I need everyone to put down whatever is in their hands, look up at me, and say jelly!"

In-class Presentation

- Ask students to hold their questions when time is running short
- Be honest with students about what you need from the presenter. Ex. "I am really easily distracted, so I am going to ask that no one is talking while I am talking, or I will totally forget what I'm saying!"
- Ask students to keep the objects brought from Home ReSource as quiet as possible during the presentation
- When taking answers and there's lots of hands in the air, keep things moving by saying, "I'm going to take two more questions before moving on"
- Some questions are open to the whole class to answer out loud, others are for raising hands. Clarify by asking students to raise hands when appropriate (e.g., "I'm looking for a few hands to tell me...")
- Move around the classroom! Walking by and glancing at noisy or distracted students can help remind them to pay attention
- Don't talk to the whiteboard or the projector when presenting—you can both talk to the class and draw with practice
- Use whiteboards over SMART Boards whenever possible—they're much easier to use!
- Be kind to the students! You can get attention while still being kind

Field Trip

- Give a few-minute warning to students before the sharing time for Visioning drawings so they can finish their work and so that they are ready for the next transition
- Talk through transitions. Say what's going to happen, how it's going to happen, and how everyone will know when we're ready for the next activity. For example, "We are going to finish our drawings and get ready for ZWAP! The Game. We need to do some transitioning first. When we're ready for the game, our art supplies will be put away, and we'll have two groups ready to go at each table, one at either end. In a minute, I will ask for student volunteers from



each table to help clean up the art supplies. I will gather the art supplies, and with teacher/ chaperone help, we'll get game materials to you all. Sounds good to everyone?"

- When preparing for the tour, ask students their ideas for ground rules. They'll be much more on board with ground rules if they create and agree to them. Ask them what the most dangerous thing is at Home ReSource - they think it is super fun to answer that question (it's the cars in the parking lot)
- If you're waiting for groups to return to the scavenger hunt, or there's extra time, have a quick game in your back pocket to engage the students and have some fun! (something like Rhythm Master or Frogger)
- At the end of the field trip, take a group picture if student media waivers allow
- Do things slightly differently each time! That way, you won't get as bored, and you'll find new ways to effectively facilitate each activity.