



Zero Waste Ambassadors Program



2019 Report

Prepared by

Noelle Herring, Energy Corps Service Member 2018-2019

Jeremy Drake, Home ReSource Community Engagement Manager



ZWAP! 2019 Report

Introduction 3
 About ZWAP!..... 3
 The ZWAP! Theory of Change 3
 Zero Waste & MCPS 4
 About this Report 4
Summary of ZWAP! 2019..... 5
What We Accomplished..... 6
 Program Reach..... 6
 Participant Learning 6
What We Heard..... 7
What We Learned & Recommendations for ZWAP!..... 9



Introduction

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.

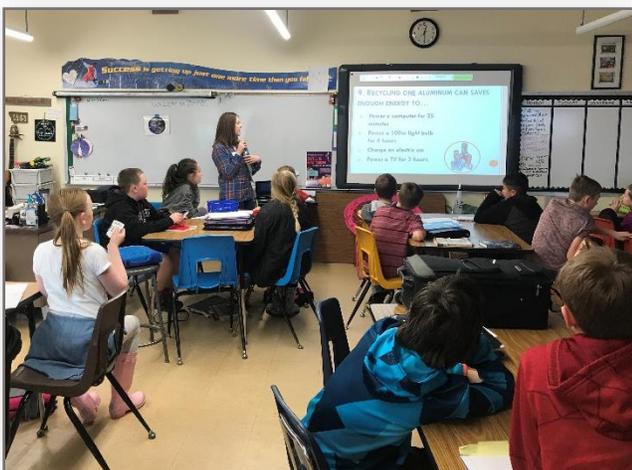
Home ReSource educators provide a total of 4 hours of engagement for each fifth-grade class through an in-school lesson and a field trip to Home ReSource using our interactive, STEM-aligned curriculum that supports three key messages:

- **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
- **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.

ZWAP! is supported in part by the Dennis and Phyllis Washington Foundation, the High Stakes 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.

The ZWAP! Theory of Change



We believe that as students become knowledgeable about waste, increase their understanding of how to reduce it, and feel empowered that their choices and actions can make a positive difference, they will share their knowledge with peers and adults, evaluate where waste happens in their lives, and choose to make changes to move toward a Zero Waste lifestyle. We further believe that if this transformation takes place in a school district that is actively pursuing a Zero Waste goal, the likelihood of lasting behavior change will increase.



Zero Waste & MCPS

Thanks to the leadership of former Superintendent Mark Thane, Missoula County Public Schools (MCPS) is working in partnership with Home ReSource to move the district toward the City of Missoula's ZERO by FIFTY goal to reduce solid waste by 90 percent by 2050. Through this partnership, which began in the 2017-18 school year, Home ReSource coordinated a Zero Waste planning effort with the involvement of MCPS administration, staff, faculty, and students. In June of 2018, we presented an MCPS ZERO by FIFTY Zero Waste plan to the Board of Trustees. In spring 2019, we delivered ZWAP! to every fifth grade class in the school district. And this fall, we facilitated the launch of the district's first Zero Waste Pilot Program at Jeannette Rankin Elementary.

We also worked collaboratively with the sixth grade science team and Instructional Coach Robyn Nuttall to develop a multi-lesson science unit to revisit and explore in more depth the concepts introduced in the fifth grade program. We look forward to completing that work in time for the sixth grade science teachers to integrate the unit into the 3rd quarter of their 2020 scope and sequence.

About this Report

This report is a summary of our 2019 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 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!



Summary of ZWAP! 2019

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. The changes we made this year to our core lesson and activities were minimal. 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.

We added a field trip to the Missoula Landfill.

The first two fifth grade teams (all fifth grade classes in a school) to register for both the classroom visit and the Home ReSource field trip received a tour of the Missoula Landfill coordinated by Home ReSource and led by Republic Services staff. The feedback we received was that the experience provided an impactful, real-life context for the students to apply ZWAP! concepts and reflect more concretely on their actions. In a landfill tour reflection activity during the Home ReSource field trip, one student said plainly, “That changed my life.”



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. For example, in using the analogy of hot air trapped inside a car on a summer day to describe the greenhouse effect, we noticed how easy it is for car owners such as ourselves to say “your car.” We made a conscious shift to saying “a car” to leave space for students whose caregivers may not have a vehicle. Additionally, we chose to emphasize our collective place of power and choice in the Materials Economy by asking students “who decides when something that is reusable, recyclable, or compostable becomes waste?” The students’ answer is always “we do.”

We developed resources to support our Zero Waste Educators.

This year we saw an opportunity to make space for different learning styles and to prepare educators for frequently asked questions. Spending less time on tweaking the lesson content, we had time to develop multiple script versions (full script, detailed outline, basic outline) for use in educator training and started keeping a *Things that Might Come Up* glossary so educators can go into the classroom with a better sense of how to respond to common off-the-cuff questions.



What We Accomplished

Program Reach

Number of Schools: 14

Bonner school, Chief Charlo Elementary School*, DeSmet Elementary School, Franklin Elementary 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: 34

Number of Students:

- Classroom visits: 740
- Field trips: 740

Number of Teachers who've been with us since the Beginning: 13

Participant Learning

The “What do you Know about Waste?” Quiz

Students took the quiz at the beginning of the classroom lesson and at the end of the field trip. The quiz was used as a tool to measure knowledge of waste reduction facts and concepts prior to and after ZWAP!. Quiz scores by year are shown.

Year	Average Pre-ZWAP! Score	Average Post-ZWAP! Score	Average Gain in Knowledge
2016	55%	90%	67%
2017	59%	86%	45%
2018	68%	79%	16%
2019	41%	81%	97%

The yearly quiz scores cannot be directly correlated as we have changed the content of the quiz each year in an effort to better emphasize the takeaways of ZWAP!. Through changing some of the questions asked and increasing the discussion of each answer, this year's gain in knowledge has significantly increased. With lower pre-ZWAP! scores than any previous year, the students had more opportunity for learning. Next we would love to see higher post-ZWAP! scores; meaning higher retention of all material covered during the classroom lesson and field trip.

Additionally in 2019, we added two extra questions to the second iteration of the quiz that was taken at the end of the field trip. These questions were designed to collect data as part of the MCPS Zero Waste Station implementation plan. We used a 5 point Likert scale to gauge student's feelings on the usage of Zero Waste stations. During the lunch break of the field trip, students were informed about the importance of sorting waste into reuse, recycle, compost, and landfill bins. Then after they finished eating they practiced sorting their own lunch scraps into the Zero Waste station. There was a nearly 80% positive reaction from the first question: “How did you feel using the Zero Waste station?” And a nearly 70% positive reaction to the second question: “How would you feel about the opportunity to have a Zero Waste station in your school cafeteria?”



What We Heard

We invited teachers and chaperones to provide feedback on the ZWAP! experience using a Google form. The 25 respondents included 21 teachers and 4 parents and chaperones. A summary of the feedback we received is below.

Overall impressions

Feedback from teachers, parents, and chaperones was positive!

“Thank you for providing this awesome experience for so many kids!” “Thank you for a great program!” “It gets better every year.” “So interactive and engaging.” “We look forward to going back next year!”

“What did you like best about the ZWAP! experience?”

“Getting the students thinking about ways to reduce waste in our school, homes, and community!” “The focus and emphasis on “REDUCE, REUSE, and RECYCLE.” “Promoting an action Plan for students to support our environment and community!”

Teachers, parents, and chaperones offered positive feedback for the takeaways of ZWAP!:

“The program is well organized from consistent and clear communication via email to arranging transportation to the teacher/s delivering the lessons.” “I liked that students had a hands on experience and worked cooperatively during the lesson. Also, that they got a first-hand view of all the materials in the store that would alternatively be tossed in the landfill.” “The knowledge they learned in the classroom session was reinforced during the field trip. Students were able to apply what they had learned to the activities at hand.”

“Did you find any of the content depressing?”

Several of the survey respondents found parts of the content to be disheartening. Explanations include:

“SO much WASTE in Missoula.” “A lot of it was depressing, but they need to hear it and I think it made them think about choices made about garbage.” “The amount of waste that is generated in our culture is devastating. Most people don’t even think twice about it- which makes me sick. I wish more places had resources such as ZWAP! and Home Resource to help to mitigate this issue.” “It’s tragic to hear how much waste we produce and the effect it’s having on our earth.”

“Please share any constructive feedback that you think would help us improve ZWAP!”

Respondents made a number of suggestions for improving the field trip activities:

“There is a lot of discussion, and lecturing. You lose their interest pretty quickly. The more hands-on activities and making it relative to their own life the better response and participation you get.” “Students at this level can handle about 12-15 of audio learning/lecture before needing a brain break or to move around. Some were starting to check out a little bit.”



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

"I think that it would be awesome to help students engage in the new "R", request. Students at [school] have not been able to practice this skill, but it would be really cool to see some tools introduced to students and ideas for how to request change from companies." "I think it would be awesome if someday you could incorporate the food bank into the curriculum. [It's] right down the street and since food is such a huge percentage of the landfill it would be awesome to show other outlets for food waste."

If you participated in the field trip to the Missoula Landfill, do you think it added value to the ZWAP! Experience?

"Talk about depressing...illuminating...educational..." "I had been on ZWAP field trips before and they were good, but the landfill experience made this year's GREAT."

One parent even had this to say:

"My son learned so much. The field trip to the dump before the field trip to HR was incredibly impactful. He is still talking about it, and in turn has made our household more environmentally friendly since."

What did students have to say?

Several ZWAP! classes sent thank you cards and letters to Home ReSource after their field trips! This is a great way for us to hear what students have to say! Students wrote:

- *"I hope that a lot more kids will have the chance to have such a fun experience"*
- *"I learned that any little thing can change our lives, like that one can that could power a tv for 3 hours"*
- *"I loved the field trip! It inspired me to recycle and build something out of supplies from Home ReSource"*
- *"I hope that teaching students about the [Materials] Economy will help stop the amount of waste harming the Earth"*
- *"I'm trying to be waste free at home and everywhere else in the world"*
- *"Thanks for teaching us how to keep our Earth clean. This summer I am going to pick up trash around my front and backyard"*
- *"Thank you for teaching me to be waste free. Now I know how to help make the world a cleaner place"*
- *"At home I've started to Reuse more!"*
- *"I still can't get over how an average Montanan throws away around 7 pounds of trash each day!"*
- *"trash is a bigger problem than I thought!"*
- *"I am going to try harder and start recycling composting at home with my family's help."*



What We Learned & Recommendations for ZWAP!

IMPLEMENTATION

Challenge: Breaking into groups for ZWAP! The Game was inefficient. Students would sit with their friends and find it difficult to join in groups of 3-4. There was also confusion around sitting at the ends vs. the sides of the tables.

Recommendation: Place a strip of tape (pictured below) to divide the tables in half. Also position the chairs on either side of the tape so that the division is clear. By doing this, students are more likely to understand the divided tables as soon as they enter the room. Consequently, the transition into ZWAP! The Game should be more fluid.



Challenge: Teachers concerned about the amount of lecture and sitting times during the field trip.

Recommendation: Try switching up the order of the activities. Two suggestions:

1) Tour before ZWAP! The Game. Switching the tour and the game helps to break up the amount of time the students spend sitting. Another great option is to ask the students to vote on what they would rather do first.

2) Visioning activity to the end of the field trip. Their ideas of Zero Waste could be more profound later in the day rather than at the beginning, where their minds have yet to be refreshed on the subject. If the visioning activity is moved to the end, utilize the alternative field trip timeline (see appendix C).

Challenge: Students aren't engaged in the post-ZWAP! quiz.

Recommendation: Make it a challenge/competition for the students. Students are then likely to be more involved in the quiz, and they are less likely to answer incorrectly just to be "funny." For example, when all classes from a school are visiting on consecutive days, introduce competition by encouraging each class to get more questions 100% correct than the previous class.

CONTENT

Challenge: For the schools that got a bonus trip to the landfill, teachers felt there should be an introductory learning piece to prepare the students beforehand.

Recommendation: A few classes mentioned that reading the book, *Habitat Havoc: Landfills* by Greg Roza was a great pre-landfill trip activity. The best solution would be to get a copy of the book into each participating school's library, so each class has access to it.

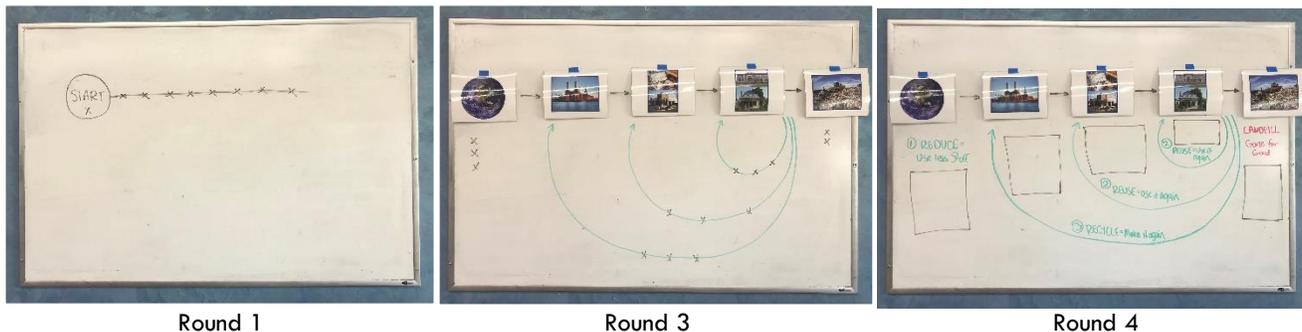
Challenge: Students struggle to understand where the arrows start in round 2 of ZWAP! The Game.

Recommendation: After a student reads the instructions for round 2, reiterate the first hint: "All of the arrows start with us! WHERE do you spend most of your time?" It is important to clarify to the students that this question is asking: out of the rectangular pictures (excluding the Earth picture) where do you spend most of your time? This clarification is helpful because it is common for a student to answer "the Earth," which is technically true, but we want them to guess "home/school" instead.

Challenge: Students struggle to understand where pieces go for each round in ZWAP! The Game.



Recommendation: Use the whiteboard to map out where the pieces will be placed for each round. For round one, draw the start circle and straight black line, and mark with an “x” or other symbol where the velcro spots are. Do the same for round 3, so that students know what their options are. For round 4, make sure to denote what the 5 choices are. In the picture below there are boxes showing the choices (Reduce, Reuse (home/school), Reuse (store), Recycle, and Landfill). These pictures are simply examples; ZWAP! educators can personalize it to their teaching preferences. By adding a visual aspect to the instructions portion, student comprehension should improve.



Round 1

Round 3

Round 4

LOGISTICS

Challenge: Cars were often parked in the bus loading zone, making it a challenge/obstacle for the busses to safely park and unload students.

Recommendation: Put out extra orange traffic cones and make a “bus parking” sign to display outside during arrival and departure times.

Challenge: Some teachers found it difficult to get waivers signed and returned, especially the closer it got to end of the year.

Recommendation: See about getting the waivers sent out at the beginning of the year or semester. Some schools send out all the waivers for field trips at one time (usually the beginning of the year). It is more likely that all parents will sign and return waivers within a more formal and structured manor. Another option is to send the waivers in an email to the teachers many days (or weeks) prior to the visit, as this would give them more time. Normally waivers are brought to the teacher on the day of the classroom visit, which can be a timing issue for those classes with field trips scheduled quickly thereafter. Use discretion given these factors to determine best plan of action for each individual class or school.

Challenge: Some teachers would have preferred to know in advance about the grouping of students for the scavenger hunt.

Recommendation: Edit the pre-field trip email to notify teachers that there will be a portion of the field trip that requires the students be split into 5 groups. Also mention that each group will need an adult chaperone. Teachers often have a way to organize the student into groups before arriving which can make the entire process easier for both the teacher and the ZWAP! educator. It will also give teachers more insights into the field trip agenda, which they will appreciate especially if they are new to ZWAP! or haven't closely read over the report.



