Home ReSource

Zero Waste Ambassadors Program

2021 Annual Report

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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 traditionally 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, Rot
- 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! Program Goals and Overview).

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

The ZWAP! Website

We launched a new website! During the 2020-2021 school year, guest speakers and student field trips (the backbone of the traditional ZWAP! curriculum) were still heavily restricted due to COVID. So, we built upon the 2019-2020 ZWAP! Online program by creating a website with new self-directed interactive lessons, videos, supplemental activities, and Zero Waste resources that you can find at www.zwaponline.org (more details about ZWAP! website content can be found in Appendix A).

Building and improving our online content allows for us to reach a broader audience throughout Montana and beyond. We have shared ZWAP-O! in Bozeman, Helena, Whitefish, and Grand Junction, Colorado. It also allows for us to easily connect with the newly formed Missoula Online Academy. Broadening the reach of the program was an unexpected perk of the pandemic.

ZWAP! Camp

For the third year, Home ReSource partnered with the ZACC to host a ZWAP! summer camp. ZWAP! Camp continues the educational adventure into reuse and other "R" words like Really fun, Rad, & Right on! From Zero Waste-inspired experiments, 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.

We offer a week-long half-day camp for kids ages 8-13. Students will be taking field trips to community organizations that demonstrate and inspire sustainable living including Soil Cycle, Free Cycles, and Missoula Urban Demonstration Project. Campers will also learn how to use tools to turn old materials into useful, valuable items. Camp is July 19th-23rd, and all 13 camp spots are filled.

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

Home ReSource has worked in partnership with Missoula County Public Schools (MCPS) since 2015. Our ongoing collaboration encompasses the development of the MCPS Zero Waste Plan, Zero Waste planning and implementation, presentations and meetings with District leadership (including the Board of Trustees), working to establish environmentally preferable purchasing practices, supporting a Zero waste pilot classroom at Franklin school, and continuing to bring ZWAP! to every 5th grade classroom in MCPS.

In 2018-2019, Home ReSource launched our Zero Waste Pilot School Program with Jeannette Rankin Elementary (JRE). This program was launched with school leadership and included stakeholder meetings, two school-wide waste audits, and budget assessments. It also included installation of recycling & composting systems, a Zero Waste cafeteria station (including signage), implementation of a lunchroom food reuse system, and staff and student training. Pre-COVID, the JRE program was a success - landfilled waste was expected to decrease by as much as 74% by weight in the cafeteria and 57% by weight in the classrooms and lounge (JRE Proposal). Staff and student feedback was overwhelmingly positive, and cost savings from food reuse was expected to reach over $1,000 per year.

This pilot with JRE provided important lessons to move forward and help to ease the transition to Zero Waste for other schools within MCPS. Home ReSource is currently working to expand the Zero Waste pilot program to each of the MCPS middle schools. In the Spring of 2021, Home ReSource met with principals from Washington Middle School, C.S. Porter Middle School, and

Meadow Hill Middle School and completed initial waste stream assessments to determine needs and goals for the upcoming school year and beyond. Home ReSource drafted proposals for each school, including both short-term and long-term recommendations to reduce waste and increase waste diversion. Proposals are currently under review at each school and Home ReSource will reconnect with principals in August to finalize plans and assist with implementation.

MCPS is finalizing their strategic planning process, and participating members of the community mentioned various sustainability efforts, including specifically mentioning Zero Waste. In addition to working towards getting schools within the district to implement Zero Waste systems, 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. MCPS has relied on the expertise of Home ReSource staff to guide these and other Zero Waste-related efforts. Home ReSource is also working with the City of Missoula to provide customizable universal Zero Waste signs to be implemented city-wide, including school-specific signage.

Finally, Home ReSource has continued working with the MCPS curriculum team to develop a multi-lesson science unit to revisit and explore in more depth the concepts introduced in the fifth grade program. Unit development is currently in progress and our goal is to roll out the program in the Spring of 2022.

About this Report

This report is a summary of our 2021 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 knock out waste in Missoula!

Summary of ZWAP! 2020-2021

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. Other than transitioning to virtual content, the changes we made this year to our core lesson and activities were minimal.

The ZWAP! lessons were hosted on a platform called Nearpod, which allowed for the students to work both individually and collaboratively with their classmates. We were able to host virtual presentations with classes using ZWAP! 2.0, which is a digitization of the ZWAP! Classroom presentation created in 2020. We focused on providing support for educators as they led their students through the interactive lessons, and we sought out ways to keep the students engaged during our virtual presentations.

We built a website!

We put ZWAP! 2.0 content into Nearpod to create interactive lessons and quizzes, all openly available on our new website: www.zwaponline.org (more details in Appendix A). We also created a virtual ZWAP! The Game and a deconstruction scavenger hunt for students to complete either at home or school (supplemental activities are included in Appendix B). With an entire website dedicated to ZWAP!, we were also able to compile an easily accessible list of Zero Waste resources for adults and youth, and included other supplemental activities for students, families, and classes.

We have continued work on the proposal for a 6th Grade Unit follow-up.

Continuing work from 2018-2019, we have advanced the proposal for a 6th Grade unit in collaboration with the MCPS curriculum team to revisit some of the main topics introduced in 5th grade through ZWAP!. This work continues and will soon be part of the 6th Grade scope and sequence. The projected rollout date for the unit is Spring of 2022.

We're continuing to improve the website content to better retain student engagement.

Student feedback was overwhelmingly positive for the online lessons, but we did notice that some students thought the lessons were a bit too long. We have taken that into consideration for our virtual classroom visits, and cut down on presentation time from 45 minutes to 25-30 minutes, leaving time for an activity (ZWAP! Visioning and/or the deconstruction scavenger hunt).

We are planning to return to in-person classroom visits and field trips in the 2021-2022 school year!

As of June 2021, we are preparing to return to in-person presentations in classrooms and at Home ReSource (subject to change based on CDC and Missoula County guidelines and restrictions). We will continue to improve and maintain the website as needed, and will use the

website to provide a digital option for schools within and beyond Missoula. We also hope to use it to reach other online learning groups, homeschoolers, and local organizations.

What We Accomplished

Program Reach

Number of Schools: 12

DeSmet Elementary School, Franklin Elementary School*, Frenchtown intermediate, Hellgate Intermediate, Lowell Elementary School*, Missoula Online Academy, Paxson Elementary School*, Rattlesnake Elementary School*, Russell Elementary School*, St. Joseph School, Target Range School, Sussex School

**Missoula County Public Schools*

Participating Classes: 21

Virtual classroom visits: 8

Number of Students: 413

Participant Learning

"What do you Know about Waste?" Quiz

Year	Average Pre-ZWAP! Score	Average Post-ZWAP! Score	Average Gain in Knowledge
2016	55%	90%	64%
2017	59%	86%	46%
2018	68%	79%	16%
2019	41%	81%	98%
2020	53%	88%	66%
2021	63%	79%	25%

Students who participated in ZWAP! in-person in previous years 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 in the table above.

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!. During the 2020-2021 school year, we changed the quiz platform to an online, interactive program called Quizizz in order for the quiz to be more conducive to ZWAP!'s new online format. Quiz questions (Appendix C) remained mostly the same between the 2019-2020 and 2020-2021 school years.

Survey Results – Highlights and Common Themes

We invited teachers and students to provide feedback on the ZWAP! experience using Google Forms. Due to COVID-related pressures and challenges, teachers were extremely busy and we did not receive any teacher survey submissions. We did obtain verbal feedback from several teachers, which was overall very positive. They were thankful to have easy to access online material for their students, and thought the content was great. Students were able to take the survey after completing the lessons. We collected 65 student responses.

Overall impressions

Feedback was overwhelmingly positive. Students felt the content was fun and engaging. Highlights from the student survey are included below.

- "I hope I can tell more people about your program and get them on board about the R's."
- "Home ReSource is saving the world and we need to help them"
- "I love the Earth, and this program stands for it."
- "ITS AWESOME!!!!!!"

Response highlights: "The TOP 3 things I learned from the ZWAP! lessons are…"

- "I learned that we can repurpose objects that I thought could never be repurposed. Also that their are some stores that can actually take back things to reduce throwing them away and reusing them for a different thing. And lastly I learned that old and used cardboard and plastic can be made into new plastic and paper for new uses."
- "Montanans throw away so much garbage, how the landfill is taken care of, cool to see how you can recycle things and turn it into other things."
- "everything is one big cycle and goes back to you or others."
- "ways to help my family recycle. montana makes more waste than other people in the us and how to make the world zero waste world."

Response highlights: "One thing I didn't like about ZWAP! was…"

- "We couldn't go in person and sign our names"
- "That some of my videos took forever to load for me"
- "I didn't really like how long some of the lessons were"
- "That most of the stuff we were learning I had already learned"

Response highlights: "One thing I liked about ZWAP! was…"

- "The quiz's and videos."
- "It teaches you many things about life."
- "I learned a lot about recycling and how I can help make the world better."
- "The 90 percent decline of trash in Missoula by 2050."

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 challenges were identifying, learning, and utilizing new digital platforms (creating the ZWAP! website, transitioning ZWAP! content to Nearpod, digitizing activities, creating a new virtual quiz, etc.), as well as school and student engagement during such a hectic year.

Challenges and changes

Building the ZWAP! website

A ZWAP! website or digital toolkit was a long-term goal of ours before COVID, to allow us to spread the program more easily beyond Missoula. When the pandemic hit and pushed programs and learning online, this timeline moved forward in order to meet the needs of this unique time. Because ZWAP! was initially developed as a fully in-person, engaging and interactive experience, reimagining it to work fully in an online space was a challenge. Our education team learned new digital skills (web design, coding, etc.) and made decisions quickly (such as which web platform and programs to use for each piece of the curriculum, how to set up the website in a user-friendly way, etc.) in order to deliver our content in a timely manner.

Nearpod-izing the ZWAP! curriculum

We modified the classroom presentation portion of the curriculum (original script in Appendix D) by splitting it into 5 lessons and putting the content onto a digital educational tool called Nearpod. The lessons were designed for both asynchronous and synchronous learning environments, allowing students to complete the program either independently or as a full class. A major goal for the online program was to be as accessible and user-friendly as possible. This meant problem-solving several elements, including how to give all students full access all at the same time, how to make the program intuitive enough so that teachers with no experience with Nearpod could still utilize it, and how to make it accessible for students with different learning abilities. Though we ran into a few bugs (videos were slow to load for students, and students couldn't save their work in the middle of lessons to return to later), the program mostly ran smoothly and we heard that students enjoyed the Nearpod platform.

Digitized supplemental activities

The activities typically done during Home ReSource field trips had to be adjusted for online spaces, as well. We updated and digitized ZWAP! the Game, the Visioning Activity, the Scavenger Hunt, the ZWAP! Quiz, and the Ambassador Pledge so classes could still participate in these engaging parts of the ZWAP! curriculum (see Appendix B for more on the supplemental activities).

Prerecorded lesson & videos

In addition to Nearpod-izing the curriculum content, we created videos to accompany the lessons. This includes a prerecorded lesson, where we go through the entire curriculum step-by-step. This is to provide an alternative option for completing the lessons, to address some accessibility issues of the Nearpod platform.

Tracking usage

Because accessibility and user-friendliness are two main goals of ZWAP! online, we want the content to be available at any time for teachers and students. This posed a challenge for tracking usage. The way the Nearpod lessons are posted on the website, we are unable to track how many users complete the lessons. Instead, to track usage, we relied on direct communication with teachers and a Google sign up form.

Zoom lessons

In addition to the self-directed website content, we also offered live Zoom lessons for teachers who preferred direct instruction from the Home ReSource education team. A total of eight classes completed Zoom lessons with us. Teaching over Zoom is very different from teaching in-person - we found it difficult to gauge student engagement and encourage participation. Some students kept cameras off, the chat box was difficult to maintain and monitor, and it was difficult to hear and see students who were together in class.

Hard to wrangle educators

Teachers had a rough year, and many expressed urgency to get their students caught up on required classroom curriculum. Teachers were difficult to get a hold of, and some did not have time to engage with us. However, several teachers who were unable to utilize the curriculum this year did express interest for the future. Additionally, the Missoula Online Academy was a great addition to our list of participating schools, and found the online program very useful and enjoyable.

Conclusion

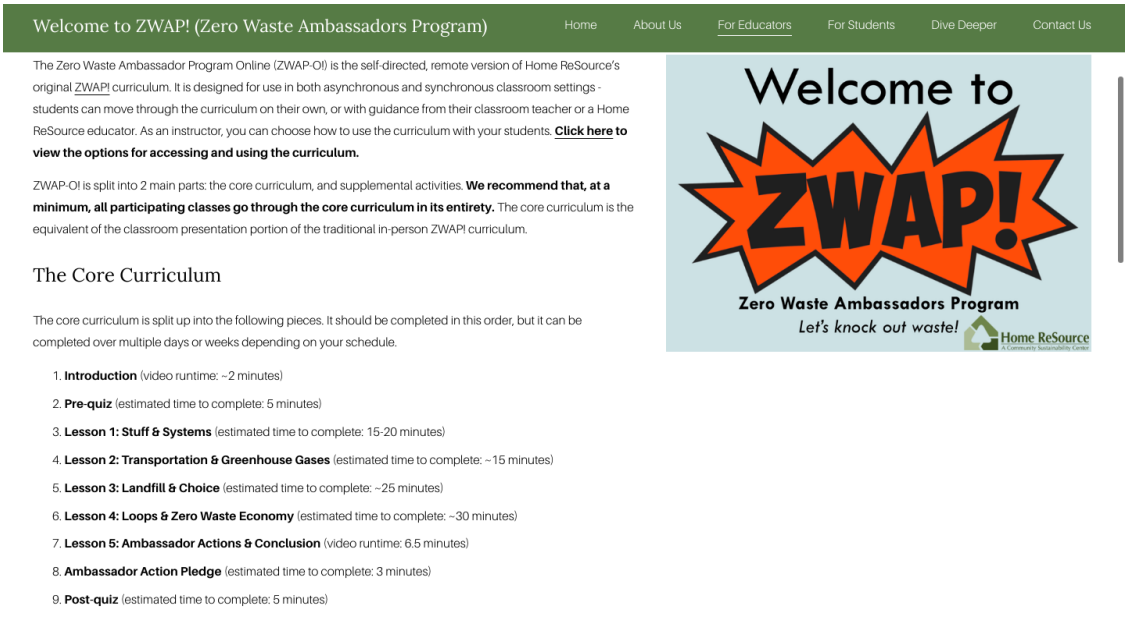
For the 7th year in a row, ZWAP! has remained an integral part of the Missoula 5th grade experience. Despite the unique circumstances and challenges faced by students, schools, and educators during the past couple school years, ZWAP! remains as essential and relevant as ever, and is still a priority 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 pandemic is mitigated, and will use our new website as a tool to spread ZWAP! far and wide.

Appendix A: ZWAP! Online Website Content

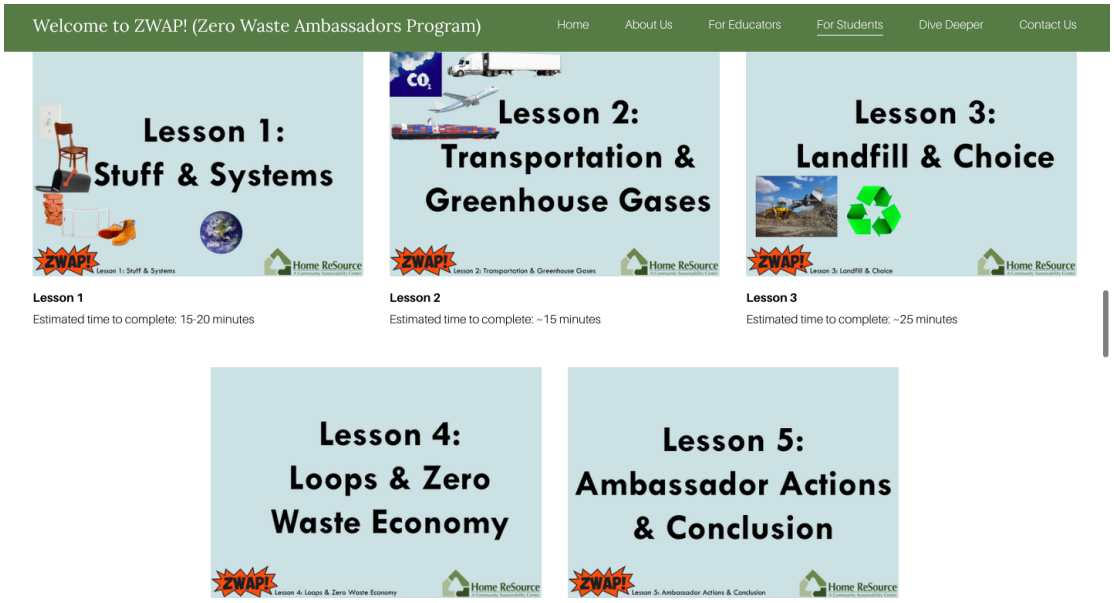
The ZWAP! website can be accessed by visiting www.zwaponline.org. The key parts of the website include instructions and resources for educators, the main curriculum and lessons page, supplemental activities, and Zero Waste resources. Screenshots from the website are included below.

Homepage

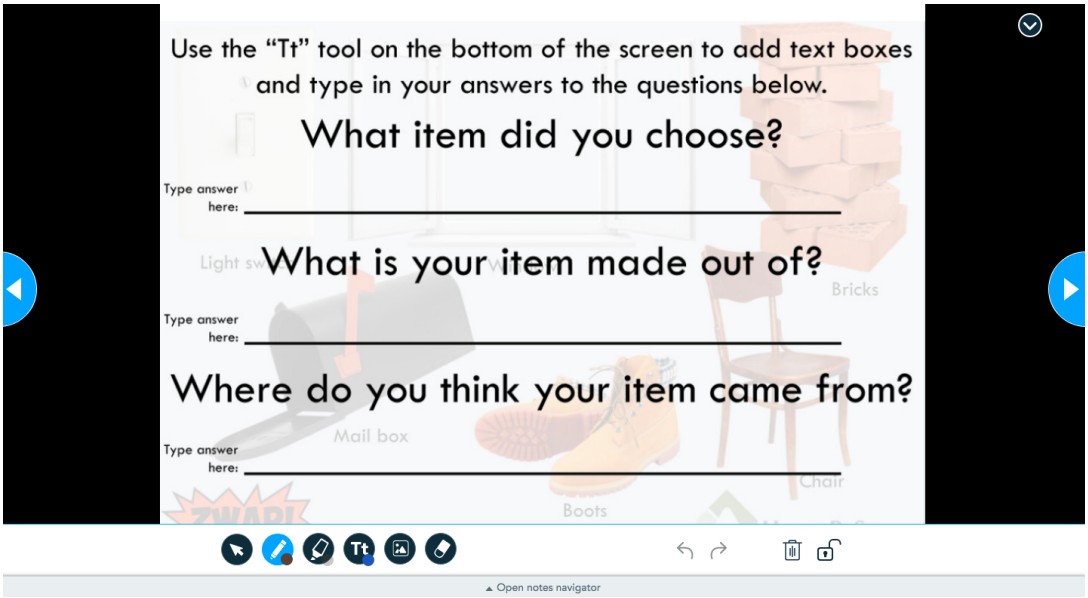
Educator Instructions



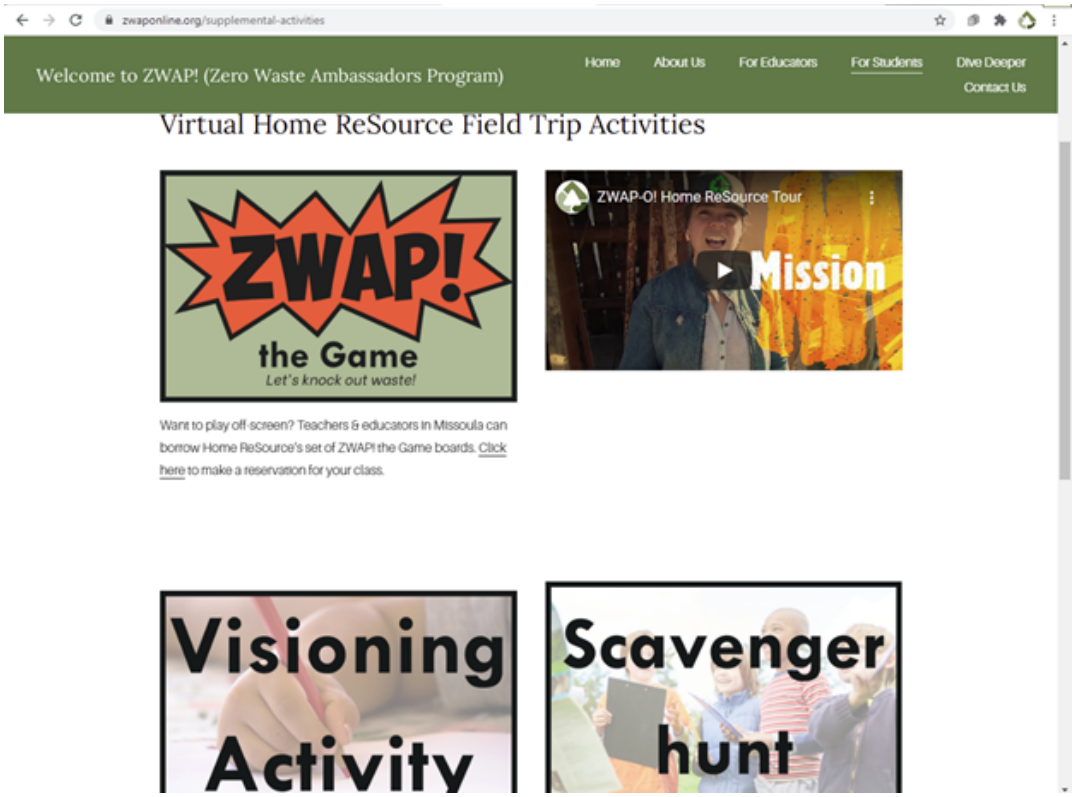
Main Lesson Page



Nearpod Lesson



Supplemental Activities



Zero Waste Resources

Appendix B: Supplemental Activities

The main supplemental activities for ZWAP! Online are digitized versions of the activities from the Home ReSource field trip portion of the traditional in-person ZWAP! curriculum. These activities are ZWAP! the Game, a Home ReSource tour, the Visioning Activity, and a Scavenger Hunt.

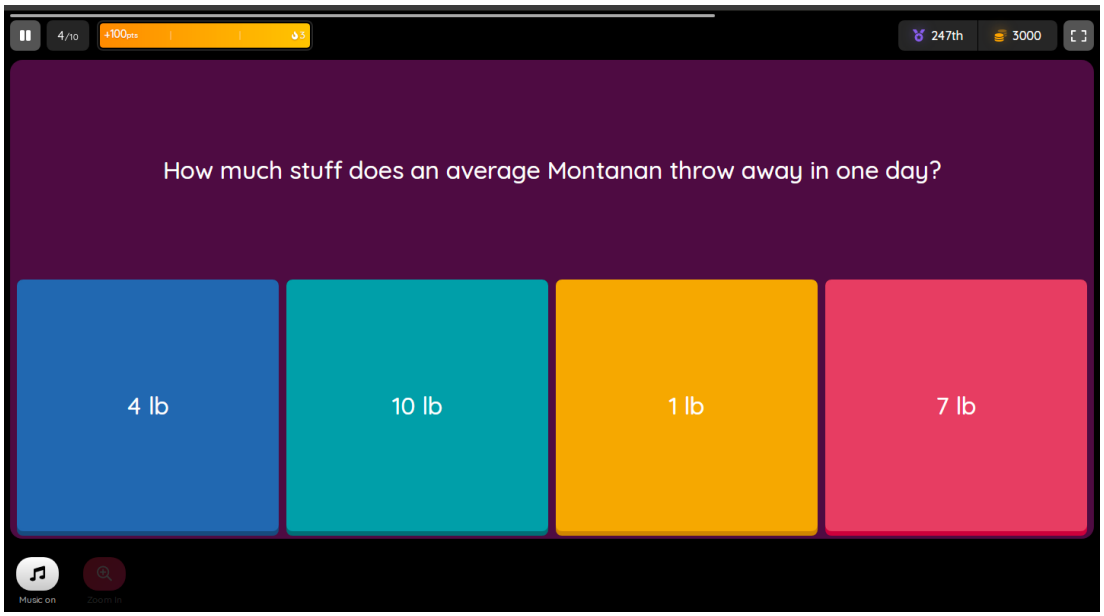
Additional activities include Rethink & Request Activities, Class Trash Tracker, Redesign Activity, and Family Trash Tracker.

ZWAP! the Game

Appendix C: Quiz

The ZWAP! pre- and post-quizzes were hosted on an online quiz platform, Quizizz, for the 2020-2021 school year. The quiz can be accessed here. A screenshot from the quiz and quiz questions are included below. Correct answers are bolded.

ZWAP! Online Quiz



Quiz Questions

1. What school do you go to?
2. What town or city do you live in?
3. How often do you recycle at home?
    a. All of the time
    b. Some of the time
    c. None of the time
4. How much stuff does an average Montanan throw away in one day?
    a. 1 lb
    b. 4 lb
    c. 7 lb
    d. 10 lb
5. How much waste does a Montanan throw away compared to the average American?
    a. More
    b. Same
    c. Less
6. A system is…
    a. A set of disconnected things or parts that don't relate in any way
    b. A machine designed to convert one form of energy into mechanical energy

c. A supportive or main section of something
d. A set of connected things or parts forming a complex whole

7. What is the first 'R' in the 3 'R's of waste reduction?
   a. Reuse
   b. Reduce
   c. Recycle
8. What does it mean to reduce?
   a. Make it again
   b. Use it again
   c. Use less stuff
   d. Put it in the garbage
9. The following 'R' words describe other ways we can reduce waste. Which word describes an action we can take to persuade companies to change how they make or package their products to reduce waste?
   a. Request
   b. Rethink
   c. Repurpose
   d. Rot
10. True or false: Reducing waste is a choice.

Appendix D: In Class Lesson Script

Current 2019-2020 Lesson Script

The script below was used as a basis for the live virtual lessons presented during the 2020-2021 school year. The script was modified and condensed for a virtual setting. We plan to use it again with limited modification during the 2021-2022 school year if we are able to return to in-person classroom visits.

ZWAP! In-Class Lesson Script
Revised 06/24/2020
Script Key:
Questions to ask class
[Instructions] for educator

INTRODUCTION

1. My name is ____ . I work at Home ReSource. [Can ask about classroom conventions for behavior, how to get their attention if needed, etc.]
2. [Set expectations for class participation.] I am going to be asking you some questions. Just so you know, I will only call on students who raise a hand first, unless I tell you otherwise. [Certain times it is ok to have students shout out answers]
3. Raise your hand if you've been to Home ReSource before. Hands down.
4. [Optional: If more than 4-5 students raise their hands, ask this. If not, go to number 5] Raise your hand again if you want to describe Home ReSource. [start with 1; ask if anyone wants to add anything – 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. 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 where our stuff comes from and where it goes. 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.

QUIZ

8. Let's start out with a quick quiz to see how much we know about waste. [pass out clickers]
    a. I won't know who has what clicker. Just do your best to guess if you don't know the answer. We'll go over the correct answer after each question. As we go through the quiz, please keep your answers to yourself!
    b. This first question is practice to see how our clickers work. [How often do you recycle at home?]
    c. [Explain clickers: Green light, can click more than once to make sure your answer goes in; the last button you click is your answer]
    d. I'll let you know when to pick up your clickers to answer a question, otherwise, please leave them sitting on the desk in front of you.

STUFF and SYSTEMS *click*

9. Next, when I call you, you will come up and quickly grab a mystery item from our suitcase. I want you to – in a very quiet, orderly, and prompt way – return your clicker, grab an object, and return to your seat. I also want you to know that this is possibly the most unimportant decision you will ever make.

[Can call tables/groups/students up as they are quiet to return clicker and get object or ask the teacher to help pass out items to speed students along]

a. *Requests* for objects: Items either stay quiet in your hands or sitting on the table in front of you.

10. *click*What is this stuff? Describe it; name it if you can.
11. *click*What is it made out of? [plastic/rubber; wood; metal; glass; ceramics; textiles *click* STOP on textiles]
12. Where does this stuff come from...
    a. What is it made of? [get answers: *click* IN ORDER: oil; trees; ore; sand; clay/minerals; plants/animals/plastic]
    b. *click*In the world? [get some answers *click* EVERYWHERE]
13. Where do these raw materials go next after we find them and harvest or extract them? Let's use the [item student has] as an example. [*click* through up to the house.] Extraction (planet) Production (factory) Distribution (mall + laptop computer) Consumption (house + school)
14. QUIZ QUESTION: Grab your clickers! We have two questions here.
    a. This is the system that people created to make and transport the stuff that we buy and use. What's it called?
        i. Ecosystem
        ii. Materials Economy
        iii. Operating System
        iv. Grocery Stores
        v. Railroads
    b. A system is…
        i. A supportive or main section of something
        ii. A set of connected things, parts, or processes that form a complex whole
        iii. A machine designed to convert one form of energy into mechanical energy
        iv. A set of disconnected things that don't relate in any way
15. [Remind them to put their clickers down] *click* People have created lots of systems!
16. *click*Does anyone know of a system in nature? (solar, ecosystem, hydrologic cycle, carbon cycle or systems inside the body respiratory, circulatory, digestive).*click*There's a difference between these natural systems and the Materials Economy!
17. What shape do systems of nature make? *click*They make circles. *click*What shape is the system of the Materials Economy? *click*It's a line, with a beginning and an end, unlike natural systems. Remember this—we'll come back to it a little bit later!

TRANSPORTATION and CO2/GREENHOUSE GASES

18. *click*How do we move things around this system, the M.E.? [trucks, planes, boats, trains, etc. *click*Advance slides through modes of transportation. STOP on delivery truck]
19. QUIZ QUESTION: Grab your clickers!
    a. On average, how far do most of the things we buy and use have to travel to get to Missoula?
        i. 100 miles
        ii. 500 miles
        iii. 1000 miles
        iv. 5000 miles
        v. 238,000 miles
20. [Clickers down] *click* That would be like driving from Missoula to Billings and back over 7 times or Missoula to Yellowstone and back almost 10 times!!
21. How do all those vehicles and machines get the power to extract and transport this stuff? [Fuel] We'd use a lot of gas driving 5,000 miles, wouldn't we?
22. What comes out of the trucks, trains, planes, and boats when they burn fuel?

23. Greenhouse gases, including carbon dioxide (CO2). *click*
    a. What do you know about greenhouse gases like CO2?
    b. Does anyone know what the atmosphere is? [layers of gases that surround Earth]
    c. Have you ever gotten into a car in the summer and it's way hotter in the car than it is outside? *click* That's kind of how greenhouse gases like CO2 work in the atmosphere; they trap heat. (D-E = text from animation/on screen)
    d. Sunlight reaches the Earth and some of that energy is reflected back into space.
    e. Some of it is absorbed by GHGs and re-radiated as heat. More GHGs, like CO2, means more heat is being trapped, contributing to global climate change.
    f. [Referring to animation] This isn't a very accurate depiction of our atmosphere compared to the Earth. Really, our atmosphere is much smaller. If you were to take a basketball and put a piece of paper on it, that's about how big our atmosphere is when compared to the Earth.
    g. People used to think the atmosphere was much larger, and that we could keep putting more and more CO2 into it, but now we realize we need to slow down. This is just like when people thought the oceans were infinite and we could just dump all of our trash there. But we have learned that dumping our trash into the ocean isn't a solution, it just creates a bigger problem!
    h. Unlike any trash in the ocean, some CO2 in our atmosphere 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 we do need to be careful about how much we are adding.
    i. Who remembers the bad fire season we had in 2017? And how about last winter - Normal? Weird? This winter? We can connect our strange seasons at home with climate change and greenhouse gases, including CO2 from the Materials Economy. Our stuff affects our climate!
24. Whenever something is extracted from the Earth, produced in a factory, or transported through the Materials Economy, more CO2 is produced.

LANDFILL and CHOICE *click*

25. Let's talk about what happens next in this system. What do we usually do with our stuff when we're done with it?
26. We throw it "away." *click*Then, someone drives it to the landfill.
27. QUIZ QUESTION: Grab your clickers! We have two questions here.
    a. How much stuff does an average Montanan throw away in one day?
        i. 1 pound
        ii. 4 pounds
        iii. *7 pounds*
        iv. 10 pounds
    b. How does that compare to average Americans? Montanas throw away ____.
        i. More
        ii. Same
        iii. Less
28. [Clickers down] What kind of stuff do we throw away? [Get a few responses; be sure to include toxics] *click*
29. What are some of the consequences of throwing this stuff away? [Get a few responses] *click*
    a. [If no reply, follow up with: What are some ways throwing things in the dump harms us or our planet?]
30. [Be sure to tell this like a story] Let me tell you a story. 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.
31. Unfortunately, now we have different problems:

   a. *click*We're throwing away a lot of stuff!
   b. *click*A lot of it isn't "garbage," it is reusable, repairable, recyclable, etc.
   c. A lot of it becomes harmful to us and the planet when dumped in a landfill
   d. Is this a good way to go? [No!]
32. QUIZ QUESTION: Grab your clickers!
   a. True or False? Reducing waste is a CHOICE?
      i. **True**
      ii. False
33. *click*We have a CHOICE! Materials don't become waste until they're wasted.
34. Who decides when a bottle or a can or a piece of paper becomes waste or garbage? [We do!]
35. *click* It happens right here with us at home & at school.
36. The good news is that there's a simple equation that each of us can use to keep stuff out of the dump & become a Zero Waste Ambassador. *click*When we CHOOSE to reduce waste and *click*take ACTION, we can make a *click*big DIFFERENCE.
37. QUIZ QUESTION
   a. What is the first "R" in the 3 "R"s of waste reduction?
      i. **Reduce**
      ii. Reuse
      iii. Recycle
   b. What does it mean to reduce?
      i. Use less stuff
      ii. Make it again
      iii. Put it in the garbage
      iv. Use it again
38. [Clickers down] *click*Who remembers the first "R"? [REDUCE]*click* Who remembers what it means? *click* [USE LESS STUFF] Who wants to guess why REDUCE is with the Earth? When we choose to use less stuff, do we need oil, trees, ore, etc.? [No!] Do we then need to log, drill, or mine? [No!] If we leave forests, mountains, and open spaces alone, nature's systems can continue to cycle and support life on Earth. Are we life on Earth? [Yes!] Choosing to reduce is one of the best things we can do for the health of our planet and to protect our future. When we put the first "R" into action, we can make the biggest difference!

LOOPS

39. Now, what shape is a natural system again?*click* [Circle]. What shape is the Materials Economy? *click*[Line]. *click*Using the other R words,we can turn this line *click* into circles.
40. *click*Who knows the second "R" of waste reduction? [REUSE] *click* This is something we do a lot of at Home ReSource. It means *click* USE IT AGAIN.] *click* These arrows start with us! At our homes and schools, do we choose to send something to the landfill, or do we choose to reuse?
   a. Small arrow: Examples of reuse behaviors, things that we can reuse at home/school *click*
   b. Mid-sized arrow: Examples of reuse businesses in Missoula [Include Free Cycles, library, thrift stores] *click*
41. *click*Who knows the third "R"? [RECYCLE] *click* It means *click*MAKE IT AGAIN. And it isn't as easy as it seems. Just because something goes into the bin, doesn't mean it's going to be recycled.
   a. *click* Big arrow: Examples of materials that can be recycled *click*
42. Each arrow helps us reduce waste. The smaller the arrow, the smaller the impact that action has.
   a. When we recycle material vs. making new, it takes less energy. If we donate or sell used items, we have to transport it, but that's about the only energy we need for that. It takes almost no energy to reuse something at home.
43. What good things happen when we reduce waste and close the system? [get some answer] *click*Remember this: We can use our equation for becoming a Zero Waste Ambassador to make these things happen! When we *click*make the CHOICE to reduce waste and *click*put the 3 Rs into ACTION, we can *click*make a big DIFFERENCE.

Home ReSource
A Community Sustainability Center

ZERO WASTE ECONOMY

44. Now, we've talked about different ways we can take action. Are there any items and/or materials that don't fit into our ZW system? [Yes- Styrofoam, wrappers, packaging, etc.]. *click* We make waste because a lot of things we use in our lives are DESIGNED FOR THE DUMP. *click* [refer to examples given; offer more - chips and snack bags, etc.]
45. The good news is that it doesn't have to be this way! Things can be made to fit into the ZW system instead of being DFTD.
46. QUIZ QUESTION: Grab your clickers! We've talked about our 3 "R"s of waste reduction – Reduce, Reuse, and Recycle, but there are other "R" words that can help.
    a. These "R" words describe other ways we can reduce waste. Which of these words describes an action we can take to persuade companies to change how they make or package their products to reduce waste?
        i. Repurpose
        ii. Request
        iii. Rethink
        iv. Respect
47. Let's talk about those chip bags again. How could I practice the Request "R" word? I could write a letter [describe what the letter would say]. We could ask our parents to buy less single use plastic and individually wrapped things.
48. So if we put all the R's into ACTION, and the people who make stuff made it so that it could fit into this system do you think we could live in a world that creates Zero Waste? *click*That would mean that instead of a Materials Economy, we'd create an economy that produces*click* ZERO WASTE!
49. *click* Zero Waste is a system that supports people and the planet by using the 3 Rs. It requires us to play an active role and to make the CHOICE to put those Rs into ACTION. In a Zero Waste world, all the things in the Zero Waste Economy are made to last longer, and to be repairable, reusable, recyclable, and compostable. The entire system needs to change. And it's starting.
50. Once we make the CHOICE to practice the Rs & stuff is made to fit into a Zero Waste Economy then can we truly get to Zero Waste.

CONCLUSION with FIELD TRIP *click*[esc. key]

51. 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 of trash you throw away by 90%?
52. 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.
53. In the meantime, I'd like you all to quietly think of some ideas for what a Zero Waste Missoula might look like. Think of Zero Waste in your homes, your school, and anywhere else. I will ask to hear your ideas when you visit Home ReSource for your field trip!
54. Thanks! I look forward to seeing you at Home ReSource!

CONCLUSION without FIELD TRIP *click*

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Zero Waste AMBASSADORS. *click*But what is an ambassador? [get a few answers] *click* An ambassador is a person who leads by example and encourages others to do the same

57. Can I have volunteers to help me read the next few slides? *click* You know you're a Zero Waste Ambassador when you...
    a. *click*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.
    b. *click*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.
    c. *click*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.
    d. *click*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.
58. *click*Do these sound like things you can do? With your help, we can reduce the amount of stuff that goes into our landfill. Thanks for your time! Are there any questions?