

Redesigning the Recycle Discovery Room at the Mayborn Museum

Introduction:

The goal of this project was to experience the process of redesigning the Recycle Room to make it an attractive exhibit for all visitors, while improving its function for use by directed programming and free-choice learners. The original design of the discovery rooms focused on creating spaces for directed learners, primarily school groups who are taught programs based on the content of each room. At the same time, not as much thought was given to free-choice learners, the general public that visits the museum. After eight years of operation the museum's attendance reveals that approximately 70 percent of the visitors at the Mayborn are, in fact, free-choice learners; the discovery rooms are not entirely meeting the needs of the all visitors. Therefore the new design for the Recycle Room focuses not just on directed learners, but also the free-choice learners who visit the museum.

The Mayborn Museum Complex opened in May of 2004 at Baylor University in Waco, Texas. The museum consists of a natural history museum, historic village, and 17 themed discovery rooms for hands-on learning. The Recycle Room is one of the discovery rooms; however, the original design of the room never entirely came together as a functional space with a cohesive storyline. For a number of years there have been attempts to address some of the inadequacies found in the design of the Recycle Room. Before I began designing plans for the room I consulted the design team which consists of staff members from the Mayborn Museum's facilities and education

departments. Although the staff had multiple ideas for fixing issues in the room, most solutions were temporary. It became clear that the staff would rather start from scratch and create a new plan for the entire room.

The physical space that contains the Recycle Room presents a few challenges that need to be addressed in the new exhibit. There are two large entrances to the room unlike most of the other discovery rooms which have only one large entrance. In one of the back corners of the room is an approximately two foot by two foot support column, creating an inconvenient obstacle. In the opposite end of the back wall is a protruding corner that leads to a wall covered in built-in cabinets. Although these are all manageable issues, they still provide some challenges to the new design. In the initial meeting with the design team it was determined that removing the built-in cabinets would not be a major challenge therefore they have been excluded from all versions of my designs.

Plan One: Fragile Earth Room

In October of 2012, I met with Dr. Caston regarding the redesign of the Recycle Room. We discussed the limitations of the current design, such as large components that take up floor space and are not particularly attractive. The only popular component is a table-tilt marble game that does not relate to the theme of recycling. It is purely an activity for activity sake. Dr. Caston expressed possible new approaches for addressing these limitations, authorizing the removal of any and all components. We also discussed the idea of expanding the overall theme of the room to something more

comprehensive than just recycling. One idea was to finally address the concept of climate change. Feeling inspired, I set out with a plan to create a “Fragile Earth Room.” In order to combine recycling and climate change into the same space, I needed to expand the theme of the room to the very broad concept of a fragile Earth.

The goal of the Fragile Earth Room was to inspire children to take responsibility for protecting the planet by discussing the fragility of the Earth. This plan began with a section on Earth’s spheres and a brief explanation of how the spheres intertwine and are codependent. Along with the discussion of spheres, this section demonstrated how humans affect each sphere and how small changes (or large changes) do not just affect one sphere independent of the others.

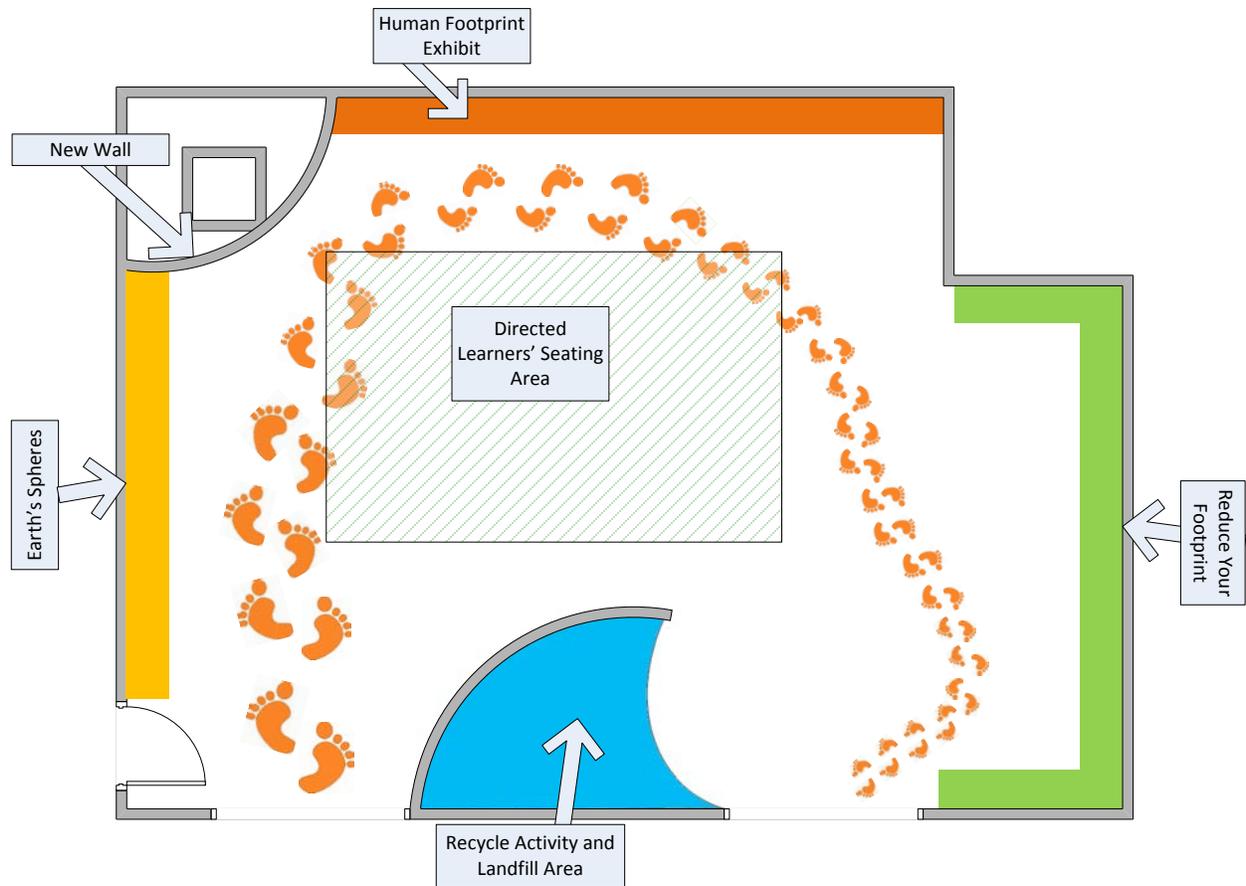
The next section in this design was the human footprint section. In this section I wanted to take the concept of the codependent spheres further by discussing the impact human behavior has on the planet via the human footprint analogy. One idea for this design was to include footprint decals on the floor of the room leading the visitor from one entrance to another. These footprints would start off large (near the sections of the room discussing how humans have negatively affected the Earth) and then progressively get smaller as people transition to the more positive side of the room (the side discussing positive ways to help reduce the impact humans have on Earth – meaning how we can reduce our footprint). The goal with the footprint analogy was to really drive home the idea that humans are impacting the Earth. But I wanted to share

with the visitor the idea that we can reduce our overall impact by making simple changes in our daily lives. And that it is our responsibility to make these changes now.

Following the human footprint section was the section discussing positive actions we can take in our lives to help the planet. Almost a third of the room was dedicated to positive changes children can make in their community to help reduce their footprint. Some of these changes included planting trees, making compost piles, recycling, reducing energy usage, pollinating flowers or building a beehive. These were going to be activities that they could do at home and in their community. One of the big ideas for this section was to include multiple QR codes in the exhibit that parents could scan with their phones. These were to be titled "Take it Home" or something similar. For instance, one of the take home activities was to be a bottle biology project where the children can make a compost column in a bottle.

The last section was the recycling and landfill section. Included in this design plan was a new curved wall extending from the small wall between the two entrances. On the exterior of the wall (facing the center of the room) there was to be an exhibit on landfills and recycling. On the other side of the wall was a hands-on area. It was to include a sorting/recycling section where children could learn more about recycling and actually get to sort some trash. The purpose of the activity was for the children to come away with the concept that by reducing the amount of trash they put in a landfill, the landfill will not grow as rapidly. Also in the hands-on area there was to be a section discussing how products we buy are made. I hoped that people could come away with

an understanding that the things we buy are composed of different materials, some recyclable and some not. And that conscientious shopping could eliminate more waste that has to end up in landfills.



After presenting this design to Dr. Caston, I shared the plan with members of the education department who accepted it as a good plan. However, as I continued researching, I struggled to accommodate all the broad concepts into a single exhibit; I found that some cuts were necessary. Most notably, the section regarding Earth's spheres was too broad of a concept so I narrowed the section to focus more on sustainability, imbalances in nature, and human dependence on the planet.

Plan Two: Fragile Earth: Getting to a Sustainable Future

After eliminating the plans for the Earth's spheres section, I created my second round of designs for the room. This time however I created a hand-drawn plan to show Dr. Caston. Drawing out my ideas is a vital part of my designing process as I am extremely visual. Unfortunately, that has also proven to be a drawback in my explanations because I have a tendency to forget that my visual representations may make sense to me but are not always easy to explain.

The second plan for the room resembled my original plan for the most part, but included some new ideas. The first section was broken into four main sections: 1) How do we depend on the Earth; 2) Why should we seek sustainability; 3) What are indications of an imbalance in nature; and 4) Evidence/Examples (hands-on section – slide panels/flip cards). The goal of this section was to introduce the entire room and the theme of sustainability. Punctuating the exhibit were panels with quotes from notable environmentalists, scientists/public figures. This section led towards a curved wall that concealed the column in the back corner. On the curved wall was to be an image of the Earth from outer space. The purpose of this image was to draw the visitors in the room and also to remind visitors how beautiful the planet is from afar and how isolated we really are on the planet. I planned on including Neil Armstrong's quote about his experience seeing Earth for the first time from outer space on the wall. "It suddenly struck me that that tiny pea, pretty and blue, was the Earth. I put up my thumb

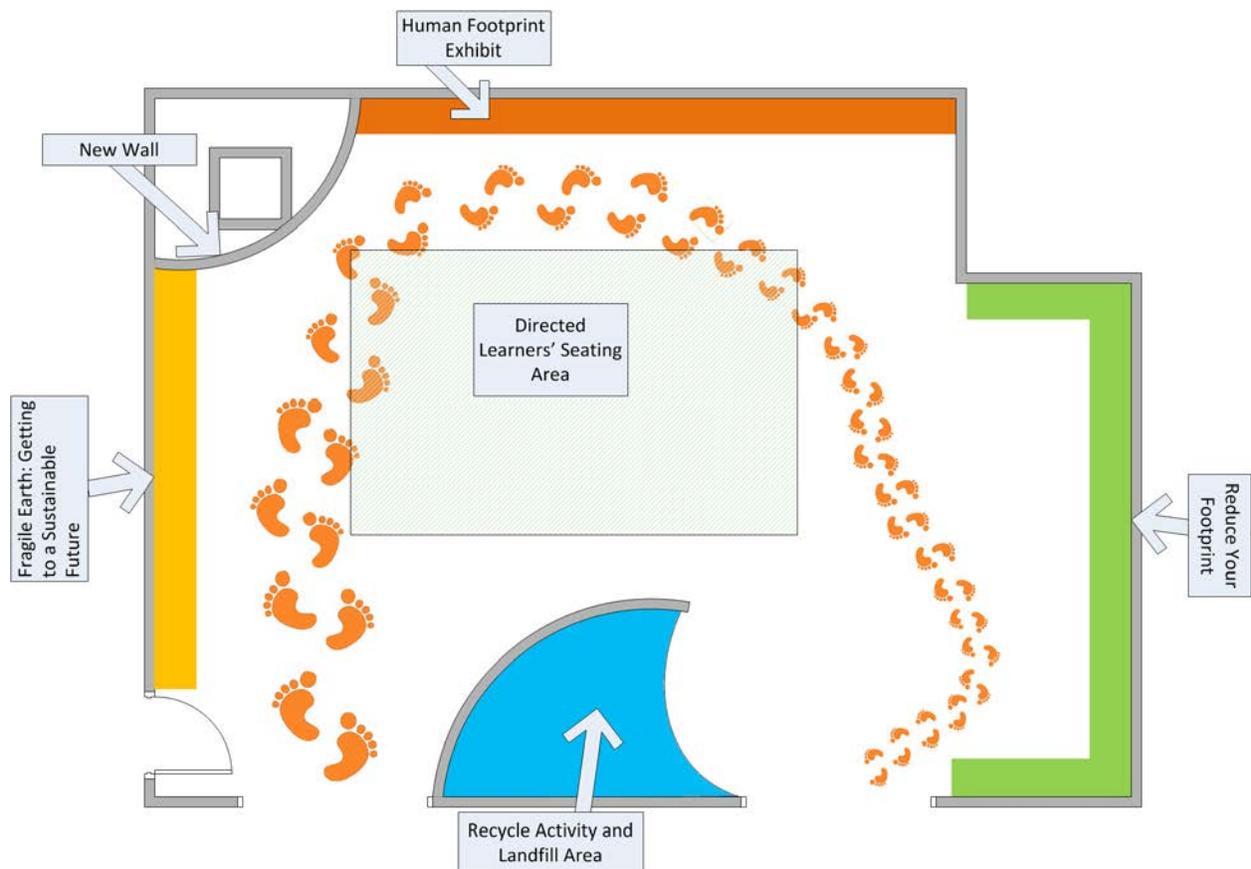
and shut one eye, and my thumb blotted out the planet Earth. I didn't feel like a giant. I felt very, very small.”

The next section after the curved wall was the carbon footprint section. This section focused on carbon footprints, how they are calculated, why we should care, and how to reduce them. Also on the wall was to be information panels discussing 1) What goes into making products (that you can't just look at the wrappers); 2) Foods that contribute to carbon footprints; 3) Transportation and its effects on our carbon footprint; and 4) Shelter systems and the effect on our carbon footprints. As I was researching carbon footprints it became clear to me that I needed to come up with a way for visitors to calculate their own carbon footprints. I wanted them to be able to calculate this while in the exhibit because I felt that if they understood what kind of an effect they are having on the planet, they may be more receptive to the information on how to reduce their footprints. Calculating your carbon footprint requires a number of pieces of information from your daily life and is not easily calculated, so I couldn't just put a simple equation on a panel. Also I was afraid to leave a link to the calculator on a QR code because there is little likelihood the visitor would remember to do the calculation later. So this led me to incorporate technology into the room in the form of a kiosk with a carbon footprint calculator game. It is a straight forward interactive game that would allow parents and children to analyze their impact on the planet. Better than that however, it offers suggestions to reduce their impact.

Once visitors calculate their personal carbon footprints, they move toward the largest section in the exhibit which is dedicated to making changes in the local community. Designed as a park/backyard/home play area where children could have interacted with the displays, the space consisted of activities that children could do in their own communities to help the environment. One component was a large tree made of reclaimed wood with hanging panels discussing the importance of planting trees, how the process of carbon dioxide exchange works, the importance of cooling the planet, and how the tree was made. Next was to be a home garden. The information included here would have discussed the importance of buying/growing locally and would have included a picking vegetables activity to sell at a farmers market which was to be the next display. The vegetable stand was to include display panels discussing the impact our food purchases have on the environment. The next activity was a beehive section. It would have included bees on wands that the children could use to pollinate flowers. This section was also to include information about the importance of beekeeping since bees are disappearing from many environments. Lastly there was to be a compost pile with information about the benefits of composting and the way it slows the growth of landfills.

Finally, between the two entrances was the recycling section, an activity area for children. It was positioned between the two entrances and incorporated the same curved wall from the previous design. Here children were to be able to sort blocks shaped into different recyclable and non-recyclable materials. These blocks would have had chips in them that track the weight of the trash going to a landfill. On the same wall

there was to be a section dedicated to making smart choices when shopping. It included a decomposition timeline with suggestions of ways each item tracked can be recycled, reused, or reduced. On the inside of the protruding curved wall was the landfill section. This section was dedicated to the discussion of landfills. It focused on the way landfills are used, how they are tracked, how we can harness energy from them, what goes in them, difference between landfills and dumps, and how they are created. This section also included a diagram of landfills explaining the way they are created and how important the process is.



During my presentation of this plan to Dr. Caston, she shared a number of concerns about my design. First and foremost, there was too much label copy making the room uninviting especially to free-choice learners. The education staff could still present the material in directed programming, so in-depth labels were not necessary. Also the initial section of the design regarding sustainability and imbalances in nature was rather depressing for the Mayborn's visitors. Human destruction of Earth's ecosystems is a very heavy topic and can be too depressing for families who come to the museum for an uplifting experience. Also the examples I included to discuss the issues were difficult for the visitors to find relatable to their lives. After discussing the topic further with Dr. Caston, she recommended that I focus on past positive efforts within the United States to preserve important landscapes. Dr. Caston also recommended that I focus closer to home and discuss Cameron Park as it is a very relevant park to locals in the Waco area. The activity section similarly provided a number of issues that needed to be addressed. Many of the activities either repeated other activities in the discovery rooms, had been tried on previous occasions and failed, were not fully developed and therefore unexplainable, or seemed too dull. This led me to readdress the room and develop another plan.

Plan Three: Fragile Earth Room: National Parks

In this particular plan there was a heavy emphasis on national parks and preservation. When the visitor enters the room, the first section to the left was to be the national parks wall. This section included a number of large scale images of Texas

landscapes as well as Yosemite National Park. The purpose of this wall was to attract visitors into the room by creating a visually attractive piece. On this wall was to be the national parks quote: "Take only pictures, leave only footprints." This statement connects with the carbon footprint wall in the following section. Like the previous design, the next section was the curved wall with the image of Earth from outer space. Following the curved wall was the carbon footprint section where the visitor could calculate his/her carbon footprint.

The following wall was to be the carbon footprint wall once again. This section served as an introduction of carbon footprints and defined what they are and how to calculate them. It included information on how to reduce your footprint as well. The kiosk with the carbon footprint calculator was still included in this section. This section continued along the same wall to include a recycling section which discussed what can and cannot be recycled. It also discussed the importance of making environmentally friendly choices when shopping. Included in this section is information regarding the Waco area's efforts to reduce trash headed to the landfill, such as Keep Waco Beautiful. A Decomposition Timeline is included on the wall to give perspective and the sorting activity is below the information.

The next wall was dedicated to activities within your community. First of all, included in the design was the same built-in tree as in the previous designs. The tree was to have hanging panels with information and pulls on the tree trunk that opened to reveal facts about the importance of trees and perhaps a surprise animal or two. Other

information was given about the importance of planting wildflowers and other native plants. Next there was to be a panel discussing the importance of bees. The next panel was composed of different houses for birds and bats, and a QR code that links to information on how to build the houses on display. Then there was the “Critters We Care About” section which discussed the importance of our local wildlife, especially the ones that are not as well liked such as bats. There was to be a matching game connecting each animal with what they eat, or other important facts about the animals.

Lastly, the final wall between the two entrances was dedicated to the discussion of landfills and the fact that they are not viable solutions to our trash problem. Beneath this section was a repeated version of the recycling activity located on the opposite wall.

Meeting with a Professional Exhibit Designer:

On March 21, 2013, I met with exhibit designer Pony Allen. Mr. Allen owns and operates Pony Allen Studios, an exhibit design firm located in Austin, Texas. In early March Dr. Caston contacted Mr. Allen on my behalf to ask if he could make time to give me an interview and some professional guidance regarding the redesign of the Recycle Room. Out of professional courtesy Mr. Allen agreed to meet with me. Mr. Allen had previously designed and installed the Tea Room at the Mayborn Museum, and was quite familiar with the facility and what appeals to the visitors. This was very helpful.

After discussing my design plan with Mr. Allen, it was clear there were a number of issues with the current plan. First and foremost, the national parks wall was not in the right location. Part of our intent in creating that wall was to attract visitors into the

room with beautiful images. However, the wall would not be readily seen by visitors as they come up the stairs to the discovery rooms. Next, Mr. Allen was disappointed by the duplication of the recycling activity. Already a very simple activity, he recommended that instead of doubling the activity, I return to the drawing board and try something else. Lastly, Mr. Allen made a very astute observation that by ending the room with the landfill section would mean that visitors would be leaving the room with a very negative feeling. Definitely not the feeling I was hoping to evoke.

So, just as before, I went back to the drawing board and developed a new plan.

Plan Four: Sustainability: Rethink. Reduce. Reuse. Recycle.

The current and final plan for the recycle room includes many of the concepts from the previous designs. But the room still needs attention and more activities. The sustainability room expands the concept of recycling in order to show all of the other components that relate to recycling. Starting from the entrance the visitor first sees the wall with the room title (Sustainability: Rethink. Reduce. Reuse. Recycle). There the visitor calculates his/her carbon footprint, learns about the impracticality of landfills, and can pull things from a trash pile. The visitor also meets Buzz the bee who guides visitors through the rethinking sustainability process for the rest of the exhibit.

Next the visitor transitions to the curved wall on which are photo decals of 365 cans. This idea springs from my meeting with Mr. Allen. He had the great idea to use acrylic to create the curved wall and fill it with soda cans as a visual representation of what is thrown away in a year. One of the things we were trying to avoid in the room is

adding too many statistics, especially statistics likely to change frequently. So I had the idea of just doing 365 cans. These cans represent the number of soda cans an individual would throw away if he/she drank a soda a day and never recycled the can. This statistic would be a constant number. Also, the acrylic wall was too expensive and the same message could be conveyed with a curved wall of sheet rock and photo decals. So for budgetary reasons, I chose an alternate material for the wall.

The next section is the recycling activity. Here children can sort and recycle trash, thus reducing the quantity of trash remaining in the trash can. This is meant as a visual representative of how recycling can reduce the quantity of trash sent to landfills. This section also highlights the decomposition timeline and lists items which are not commonly recycled, but could be. The activity itself serves as a way to attract people into the room. Continuing on the same wall is an activity section dedicated to reducing your carbon footprint in your home. Activities planned for this section will discuss the importance of reducing energy (such as turning off lights when leaving a room) and water usage (such as taking showers instead of baths).

The following section gives children a way to remember their environment and community. Here they learn about the plants in the area and why certain plants are good. They also remember the local wildlife (maybe rethinking some of the stigmas related to some creatures). Two activity wheels (one dedicated to plants and the other animals) ask questions about environmental issues. Example: Q: What is a plant from which butterflies can get pollen? A: Butterfly Bush. The questions and answers are

color coded for verification. There is also a relief sculpture of a tree that holds houses and a feeder with a QR code for a take it home activity for children to build a bird house with their family. Next, Buzz tells his story of his disappearing friends. He asks for help to create a park that might attract his friends to return. Velcro tiles can be put on a Velcro map that children can compose to design their own park. He gives advice for some of the things to include. Lastly, the center wall between the two openings is dedicated to the bigger community – the US. This wall discusses national parks, preservation and Cameron Park. It's a way to leave the visitor with beautiful images of what we have rescued so far and what we are capable of in the future.

Text Panels:

Intro Panel

"We do not inherit the earth from our ancestors; we borrow it from our children."

- Native American Proverb

The Earth is a complex and fragile web of environmental systems which all living things, including humans, depend upon for food, water, and shelter. To sustain human existence a balance must be maintained between what we take from the environment and what we put back. This is the basic principle of sustainability.

Have you ever thought of sustainability as a way to live? What if protecting the planet for all the people in the future was part of every daily decision you made?

Carbon Foot Print

Everything you do has an effect on the environment. One way to calculate your effect on the environment is to calculate your carbon footprint. What actions in your daily life add carbon dioxide to the environment that you can help reduce? Some of the most common things we do such as driving a car, using plastic bags and bottles, watching television, and taking baths all add to our carbon footprints.

What size is your carbon footprint? Calculate your carbon footprint below and explore the rest of the exhibit to learn ways to reduce your footprint and create a more sustainable future for humans, animals, and plants.

Rethink Trash!

What happens when your trash is picked up by the garbage truck? Where does it go?

Most garbage goes to your local landfill, but the garbage doesn't go away or decay.

The landfills just continue to grow. Do you think that is a good solution?

Did you know that the Waco Regional Landfill is predicted to be full by 2025-2027?

How old will you be then?

Meet Buzz the Bee

Follow Buzz through the exhibit to learn about easy ways to reduce your carbon footprint and create a more sustainable future.

Buzz – Cans

Can you guess how many cans are here? How many cans of soda do you drink in a day? If you drink one can of soda a day, every day, you would have 365 cans by the end of one year. That's how many cans are pictured on this wall. When you recycle these cans they do not go to the landfill.

Rethink Recycling

Decomposition Timeline (Use information from the handout that is used in current educational programming)

Remember, These Items Can Be Recycled Too!

We all know that plastic bottles, aluminum cans, and newspapers can be recycled. But there are so many more things that can be kept out of the landfill such as:

- Clothing (make a donation to a resale shop – that's recycling)
- Batteries (take to special battery disposal locations)
- Building materials (find special locations)
- Computers, cell phones, and other electronic devices (find special locations)
- Magazines
- All envelopes
- Junk mail
- Telephone books
- Paperback books
- Manila folders
- Cracker or cereal boxes
- Corrugated cardboard
- Steel cans

Recycling Activity

Can you reduce the amount of trash sent to the landfill by recycling some of it? Sort through the trash in the big trashcan and recycle as much as possible. There are four recycling bins for different materials: metals, plastic, organics, and paper. Each bin is color coded to help you choose the right bin for each type of trash.

When you are finished sorting, how much is left? Is it a much smaller amount?

Your environment/ community

What do you see when you look outside your house? Do you live near a park? Do you have a yard where plants and animals live? What types of plants and animals do you see?

We share our environment with many different types of plants and animals. Below is a plant wheel that you can spin to learn about the importance of some plants you might find in Texas. Explore the critter wheel to learn why you should protect these animal members of our local community.

Buzz – Tree

Sometimes our friendly critters need help building homes. Maybe you and your family can build a house or feeder for a squirrel, bird, or bat. Scan the QR Code for a downloadable family building project and help your critter friends, because they help us sustain the Earth.

What's the Buzz?

Buzz needs your help! We need bees, but they are disappearing from our environment and scientists don't know why. While they continue to study the problem, we can help. We depend on bees to pollenate the plants we grow for food. Bees transfer pollen from one plant to another when they pick up the pollen with the tiny hairs on their legs. This process leads to the development of seeds, and later plants, flowers, fruits, and nuts. Without the bees, it will be very difficult for us to grow the fruits and vegetables we like to eat.

Buzz is trying to build a safe living place for his friends, and you can help. Use the map builder below to create a bee friendly park for Buzz's friends. Maybe you can make the park a great place for everyone---- bees, critters, and yourself!

Suggestions:

- Plant flowers that bees like
- Add a pond so friendly critters can find water
- Plant a few trees for shade and to help keep the air clean
- Add a bird house or bat house
- Add some benches and maybe a swing set

Make up a story about a walk through your newly designed park.

Conclusion:

Experiencing the process of redesigning a room in a museum was both exciting and challenging. I have learned so many things regarding the process of exhibit design. First and foremost, I have learned that exhibit design requires a great deal of time and

patience. Some plans require years to develop. The challenge of taking an existing room and broadening the topic to better suit the needs of the museum and visitors was surprisingly more difficult than I originally assumed. An area that was not in the scope of this project was budget projections. However, I did encounter some moments where budget was a significant factor such as the acrylic wall. As a newcomer to exhibit design I was not familiar with the materials or their prices. But as I discovered, budgets don't destroy creativity, they encourage problem solving. Clearly there are still issues in the new design that will need to be addressed as the room is installed. I expect that some of my ideas will change to better suit the needs and capabilities of the museum as time passes. The amount I have learned from this experience will not change however. Redesigning the Recycle Room was a rewarding experience and I look forward to returning to the Mayborn Museum once the Sustainability Room has been installed.