Part 2: Design Alternatives

Team Fantasia

Dillon Eversman

Christopher Reinert

Qian Xie

Mithila Tople

Table of Contents

Introduction

In the last twenty years, a coordinated effort on the part of school administrations, government authorities and private citizens have campaigned to encourage young students to take an active interest in recycling. These efforts have not been in vain and have resulted in an increase in public awareness of the importance of recycling. However, we feel current systems do not fill a gap between a student's awareness of recycling and their importance in the recycling process.

Current recycling systems, including home pick up, recycling bins situated next to trash cans and in class recycling projects increase the awareness and visibility of recycling. The undying problem with current systems is that the child is cast in a purely passive role in the recycling process. There is no impetus for them to recycle because any onerous consequences are relegated to abstract threats in the distant future. In short, there is no immediate inherent benefit or penalty for recycling or not recycling using current systems alone.

Our product seeks to address this issue by placing a child in an active role in the recycling process and making the consequences for recycling more immediate. Based on our research conducted during P1, we feel that children and their parents would be interested in and would utilize a system that encouraged children to recycle in an active manner. Our group used this feedback to inform our design criteria and our potential designs.

In order to guide our design process, we envisioned the following scenario to visualize our design space:

A child, named Emma, walks with their parents down a busy street. Emma spots a plastic bottle strewn on the ground. Using her parent's smartphone or mobile device, the child scans the item to determine if it can be recycled. It can be.

Emma stands, holding the bottle and searchers for the nearest recycling bin where she can dispose of it. Finding one, she tosses the bottle in and indicates to the system that they have just recycled a bottle. The system automatically awards her a preset number of points for this action.

This visualization helped us identify considerations that would be necessary to meet a user's definition of success.

- The consequence of recycling must be immediate. We must either provide immediate positive feedback in the form of a tangible or intangible reward.
- Parents are the secondary users of the system and must be included in the system in some way.
- The device must not disrupt or intrude on a primary or secondary user's daily routine.
- Use of the device must incorporate user's knowledge of pre-existing recycling systems.

Design Criteria

During the iterative design process, we identified four key design elements that our final product must incorporate. We intend our product to be used in a wide variety of environments, which dictates that our design must be durable. Since children are our primary users we must design according to children's physical specifications. We want our users to have fun using our product, which dictates the aesthetics of our design. Finally, we are covering a sensitive topic. Our mantra regarding this specification is that the design must teach but not preach.

- Since the primary users of the system will be children (ages 8-12), the system we develop should be enjoyable. It should teach the children about recycling in such a manner that the children learn without even realizing.
- The system should teach but not preach. The interaction should not be boring or pedantic. It should engage the children in the process of learning. Interesting facts and trivia about recycling should be incorporated in the system to teach them.
- Since we are specifically designing with respect to elementary school children, the system should be durable. We must consider that children will drop the device or handle the device in such a way that it could get broken. The physical features of the device should be designed in such a way that they are easily replaceable.

- The physical size and capabilities of the children should also be considered. If we use a portable device, it should not be too heavy. If the device isn't portable, it should not be too tall and out of reach.
- The device should have a fun and attractive appearance since it is specifically aimed at children.
- Involving parents in the process of teaching children about recycling is important. As such, the interaction system must provide some sort of feedback to parents to let them know about their child's progress.
- The interaction should encourage children to actively recycle more and get them habituated. The children should be incentivized through some rewards or through positive reinforcement.

Design Process

First Team Brainstorming Session

We met on September 23rd for our weekly team meeting, where we reflected on how the first stage of the project went and what needed to be improved. We came to the conclusion that we wanted to avoid last minute work and have a finely detailed plan for the Design Alternatives phase.

We took into account Prof. Walker's instructions about being as divergent as we could with respect to the design alternatives and Dr. Leslie DeChurch's exercise about brainstorming. As a result of these lectures, we decided to follow the same method for our 'Informed Brainstorming' session. We decided to think together and write down all our ideas as quickly as possible until the list became exhaustive. After the completion of this exercise, we read through the list of ideas, framed some of them more thoroughly, understood what each and every idea meant, removed redundancies and further elaborated on some ideas. We then grouped the ideas according to the domain they represented.

The ideas that we generated through this 'Informed Brainstorming' are:

| Companion toy	Community	Art/Crafts, building	Interactive Bins	Games
Dragon toy friend: An interface on a toy which teaches children about recycling	Children version of geocaching.	**Construction activity:** Teach children to build toys or robots using recyclables	**An interactive bin:** Gamifying the process of recycling. The bin could sing/ talk/ spout facts about recycling and you have to do crazy stuff to throw the garbage and get points	Board game to teach children about environmental knowledge. Something like 'A Settlers of Catan' meets 'Monopoly' which teaches kids about recycling
Magic wand system: A scanner on a device that enables children to scan real-life recyclable items to advance through an adventure game. It is a journey with a magical device.	Massive Multiplayer Online Game for different designs/arts created using recycled material (for kids!). A competition for kids to come up with crazy/whacky ideas to recycle and the most creative idea wins.	**A real-life game for gardening:** Composting and use recyclables to make garden decorations, water cans	Utilizing Kinect to track people using the recycling bins and making them do something funny/entertaining after they recycle an item	A motion controlled adventure game about recycling where kids actually imitate how they will recycle. A series of adventures using the Kinect.
Alien explorer: The child helps an alien go back home by finding resources. Inspired from E.T.	Treasure hunt activity on a website	**Building project:** Build a series of items out of recycled materials to advance through a game.		Interactive maze where you help the character through obstacles (that subtly teaches about reducing, reusing, and recycling)

Individual Brainstorming

Before our second team meeting, we decided to each pick our three favorite ideas from this list and develop a narrative/interaction for it.

By doing this, we would get some divergent and unique ideas, which could be built upon and analyzed. During this phase, each of us thought about the more appealing ideas and developed them further. During this time, we wrote detailed narratives, cited inspirations and actually thought about how the final system would look, be interpreted and implemented.

We also thought this would help with hone in on the final three ideas we would present, taking into account everyone's personal preferences as well.
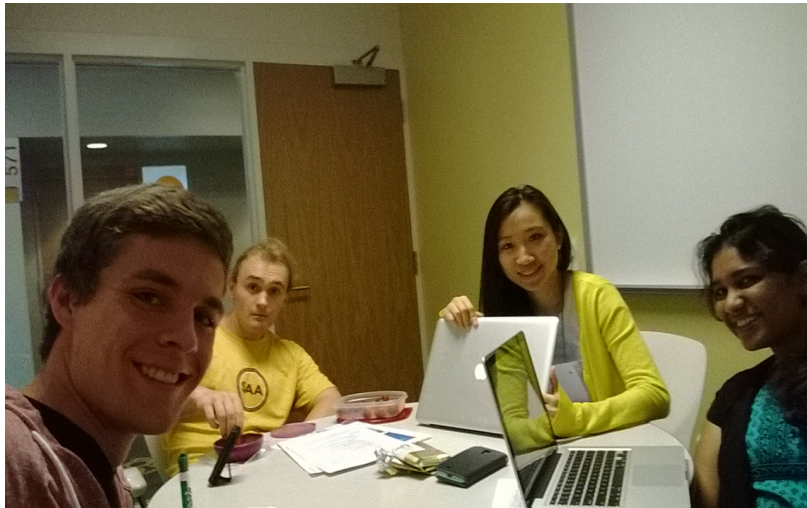
On 25th September, we met in one of the 'Breakout Rooms' at Clough Commons.

We started by discussing the narratives and descriptions, which we had come up with individually. We decided to evaluate our ideas based on the following criteria:

- Concept
- Pros
- Cons
- Implement-ability
- Originality
- Effectiveness on recycling

We realized that some ideas overlapped and the narratives each of us developed fell under one of five categories. We further realized that we could group all the games and incorporate concepts from each into a single category called Adventure Games'.

1. Adventure Game

Each one of us had come up with some game, the interaction of which varied across team members. All the games could be classified under three categories:

- **Simulated Games:** Games that would simulate the real world through the computer. We thought of creating an adventure game with an innovative storyline (something along the lines of an alien trying to save the mother ship through

recycling). We considered developing the game using the Kinect or creating a mobile app.

- **Inside/Outside:** Games that would encourage the child to interact with the real world as well as with the computer. We wanted to encourage kids to actually go out into the world and actively recycle. We thought about making them scan recyclable items and earn points through the number of items they scan.
- **Wearable device:** Games that would involve the child wearing some sort of device or carrying some 'magic item'. This magic item would be their friend and guide in the adventures while providing positive reinforcement when necessary. We felt that a backpack was an ideal design for this concept.

We realized that using components from each of the above ideas was actually possible and would make the game more engaging and informative, so we merged these three ideas into a single category: 'Adventure Game'.

2. Interactive Bin

All of us liked the idea of an interactive bin and were thinking about how to enhance it to make the bin child-friendly while also encouraging kids to recycle more. We thought about various concepts such as making people perform some activity to enliven the mundane task of throwing garbage and making it fun and informative.
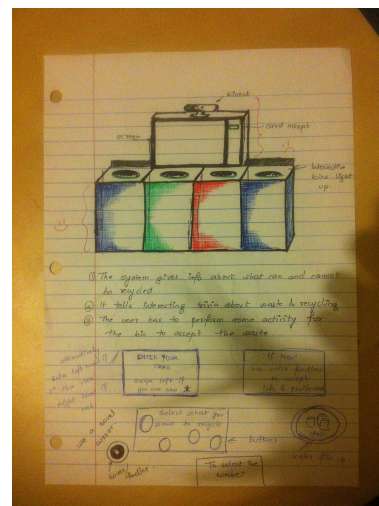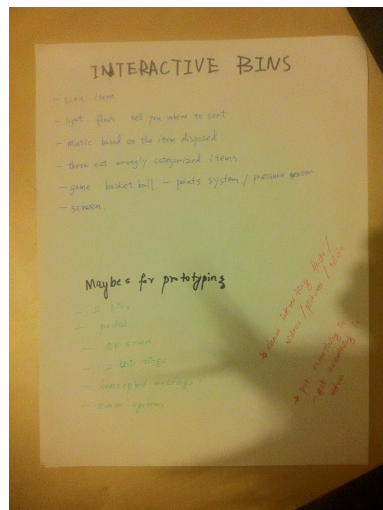
The concept of converting the arcade basketball game into a bin interested us the most. We discussed how such a system would require an incentive and incorporate learning indigenously. We also discussed how the bin itself would tell the user where to throw what kind of garbage to aid with waste sorting.

3. Website/Mobile App

For this design, we thought about how peer-to-peer interaction and social networks could be influential in encouraging children to recycle. The idea behind the website/mobile app was to encourage children to reuse by using recyclable materials for crafts and then sharing them so that other children could view, rate and comment on the designs.

We considered how the finer interaction of that particular system would look and how it could be made interesting while remaining informative at the same time.
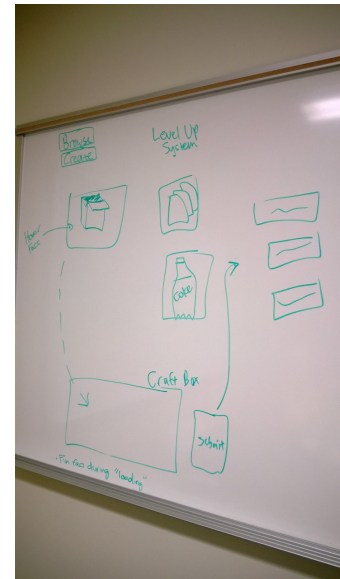

Poster Making

We started designing the poster on September 28th, spending the entire day fine-tuning the content and how it would be displayed. We wanted to display low to medium fidelity mockups and prototypes along with the actual poster in the poster session.

Chris started working on the backpack prototype. We found an "Orca" toy that became a central character in our Adventure Game. We decided to name him 'Orson'. We had earlier thought of using some marine life in the game to incorporate endangered species in the game too. While talking about the Orca and converting it into a backpack, we developed the narrative for the Adventure Game based on all the narratives that had been discussed before.

Meanwhile, Dillon started creating mockups for DesignCycle, the mobile app, using Balsamiq. The team spoke about the control flow and how the game should be consistent.

Xie and Mithila started working on the actual poster. Xie sketched the various aspects involved in communicating the game to readers while Mithila worked on digitizing these images. While doing this, the team developed the levelling systems for Orson's adventure. We also defined the exact look of the interactive bin and spoke about the need for sensors, screens. We also discussed the incentive/reward system for the bin.
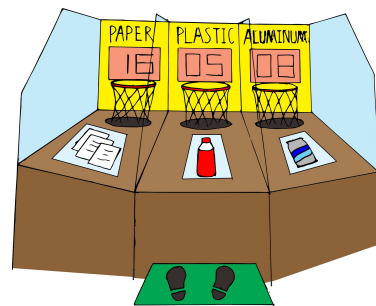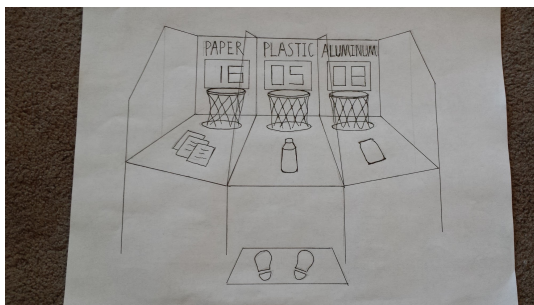
Then, the team created a basic layout for the poster, then decided on the color scheme and most of the poster's text. We met the next day at TSRB to look through the poster again, further developing the text in an attempt to make it as understandable as possible in as few words as possible. (See Appendix 1 for the actual poster)

Poster Session

During the posters session, we received a plethora of valuable feedback from our professor, teaching assistants, classmates, and other visitors. We have discussed the feedback and its implications in the following sections of the report.
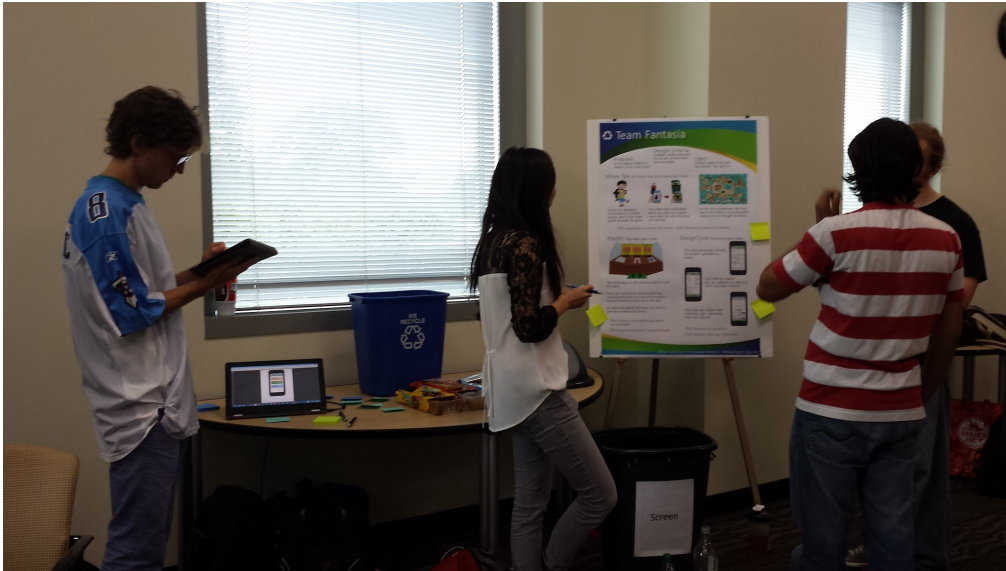
To help everyone understand the details of our design alternatives, we included some of the low fidelity prototypes and mockups for our display. People could actually see Orson the Orca and pet it, throw recyclable bottles in a bin with lights and navigate through the proposed system for DesignCycle through an interactive PDF. Furthermore, we created our own survey on using Google Forms for feedback. We also used post-it notes for quick feedback.

Description of Designs

Design 1: Whale Tale

Narrative Walkthrough

"Whale Tale" is an interactive narrative presented through a wearable computing device and the user's personal mobile device or home computer. The user can interact with the narrative in two ways: online or offline. Online interaction will take place when the user interacts with the narrative on their home computer or their personal mobile device. A typical online interaction will involve the user completing several in-game missions, with the help of recycled materials, to save aquatic creatures from peril.

Offline interactions will incorporate the wearable device into the narrative flow. The user will wear the wearable device, either as a backpack or wristband, to help them complete collection missions. A typical offline mission will have the user search the environment for a specified recyclable item and scan that item into the wearable device's memory. Once the system knows the item has been recycled, the item will be transformed into an in-game power up.

Emma is out on a walk in the park with her parents. She is wearing her Orson the Orca backpack as a passive reminder that she should be on the look out for more recyclable materials. She is determined to help Orson save his aquatic friends. In this particular mission, she needs to acquire five soda bottles and five aluminum cans to craft the armor of the deep.

Her mother spots a glimmer of light reflected in the distance.

"What is that Emma, is that a recyclable item?"

Emma sprints off, her attention attracted to the glint. She reaches for the bottle. Finally, she can complete her Armor of the Deep and save Nellie the Nautilus.

Running back to her parents, bottle in hand, she takes the phone proffered by her father. The Whale Tale app has already been loaded. Emma scans the bottle and the system registers that the item can be recycled.

Orson, speaking through embedded speakers in the backpack, encourages Emma to find a recycle bin. Emma spots one in the distance along side the path.

Her family reaches the bin and Emma tosses the bottle in. Using the phone, she indicates to the system that she has just recycled one bottle. Orson responds with a happy whale call.

Justification

Through our research and survey in P1, we found that recycling is perceived as a chore. Potential users are recycling because they feel they have to and not because they gain any inherent pleasure from doing so. "Whale Tale" is designed to make the recycling process fun by emphasizing how recycling can impact other species in the user's environment. This creates a direct link between a user's behavior and a perceived benefit.

We decided to incorporate a wearable device into the design for two reasons. The narrative structure of the game, discussed below, is supposed to be an adventure game. The wearable device is meant to signify either their user's sidekick, companion or the link to the 'mothership'. Additionally, a wearable device can serve as a passive reminder to the user to recycle.

The narrative structure of the game was selected based on our field research in P1. We feel that current recycling systems put the child into a passive role in the recycling process. These devices place no burden of responsibility on the user. There is no perceived penalty if they do not recycle. By placing them in the center of a narrative, we feel that we can place the burden of responsibility on the child. If they do not recycle, then something bad will happen.

Additionally, the narrative structure can be expanded to include other story lines as the need arises. The theme of recycling can be presented just as well if the narrative focused on monkeys and not whales. We feel that this would improve the product's marketability as it is inherently diversifiable.

Pros

1. Educating children about recycling in the disguise of playing a game. They can have fun while learning about the environment at the same time. Children are more likely to maintain engagement in learning if they are having fun. Allow children to form the connection between recycling and fun.
2. The narratives and themes of the story can be expandable and tailored to include children's diverse interest.

3. Children's learning can be scaffold through progressively increasing the difficulty of the game and complexity of the recycled items needed.
4. The system is designed to be used in different settings: home, school and outside; Teaching kids about the pervasiveness of recycling.
5. The system can potentially incorporate additional ways to protect the environment besides recycling including reducing, reusing, and composting.
6. Good use of analogy to teach kids how things are recycled and what happens to the items once they have been recycled. For example, a plastic bottle turns into a magic jacket in the game, signifying that plastics can be recycled and made into clothes.
7. The wearable devices become a physical representation of the character from the game. Form a connection Incentive for kids to save the whale.

Cons

1. Requires an external peripheral. Users need to carry around a device (backpack and mobile device) to play the game.
2. No direct reinforcement of recycling behavior. The system does not ensure the child to put the recyclables into the bin.
3. The recycling message may be overshadowed by ecological themes.
4. Wearable device associated with the game increases the cost of the system for users.
5. Due to technical constraints, we can only use QR code for the recognition of the recyclables for now. This can be hard to implement onto commercial product, such as napkins, cans, and bottles.

Feedback

Based on the feedback we collected during poster session, Whale Tale appears to be the most favorite design. People think it is an interesting and novel idea, and will really appeal to our targeted users. However, they raised some concerns about Whale Tale in the following areas:

- Device:
    - Children of 8 -12 may not have a mobile device and they may not be willing to carry a stuff animal around.
    - The purpose of the whale backpack is not clear. It's enough to only have the mobile device
- Implement-ability:

- o The game design is crucial for this idea to be effective. However, it is a lot of work to do a well-designed game.
- Effectiveness:
  - o How to ensure the child recycled after scanning the recyclables?
- Evaluation:
  - o How to evaluate whether the design is effective?

We also got some suggestions and resources about the design:
- Add in social and competitive components to further incentivize the users
- Combine the usage to a particular setting/environment. For example, the Georgia Aquarium has a scavenger hunt app that can be used in the aquarium to enhance their experience
- Use Google glass as the mobile device for the game

Design 2: PlayBin

Narrative Walkthrough

"PlayBin" is a gamified recycling bin that rewards the user for recycling by giving them points based on the number of items they recycled. The user would stand on a pressure plate to activate the system. Once active, embedded screens will indicate which hoop the user should throw their recyclable item into. The user can throw as many items as they brought with them into as many hoops as they want. "PlayBin" will scan the item to ensure that it has been recycled into the correct bin.

Once the user has completed recycling, they can scan their "PlayBin" card or mobile app. This will transfer the number of points they earned to their account. These points can be redeemed at local businesses and corporate sponsors. If the user does not have a "PlayBin" account, they will receive a printed coupon redeemable at a local business.

Emma and her family are at the amusement park and are carrying their trash to the bins. Some of these items, including the soda cans, can be recycled. They spot the PlayBin system and walk over.

Standing on the pressure pad, they activate the system, which greets them in a chipper voice. After identifying which hoop they need to throw the aluminum into, Emma starts lofting the cans. They arc gracefully through the air and swish the net.

A clatter of bells indicates that she has scored. Three shots later, Emma has scored four points in total. Pressing on the touch screen, she indicates that the session has been completed. PlayBin prints out four coupons redeemable at local businesses.

Justification

We based the design of "PlayBin" on the observation that current recycling systems offer no direct feedback or reward for recycling. We concluded that unless a user already knows to recycle, there is no reason why they would learn to do so with no feedback. With this logic in mind, we decided to create a system that offered the user a direct reward for recycling. This should form a causal link in the user's head that recycling does have positive benefits.

Pros

1. Direct and tangible reinforcement of the recycling behavior.
2. Engaging and inclusive to the users.
3. Easy to use. Incorporates the user's knowledge of existing systems.
4. Teaching users about recycling while playing.
5. Encourages users to recycle by making them compete against each other.
6. Can be installed in different settings, such as schools and on the streets.
7. Physical system would be easy to implement.

Cons

1. Recycling behavior may not generalize to other contexts.
2. Poor maintainability. In a public setting, the system may suffer mechanical failure without constant supervision.
3. Requires sponsorship from business for redeemable points.
4. May not be able to incorporate additional categories of recyclables or recyclables that break easily, such as glass.

Feedback

A lot of people voted for PlayBin as the best design as well. They think it is an interesting idea that will draw a lot of attention, realistic and simple to deploy. However, below are some of their concerns:

- Where do people get recyclables? Will they have to bring them to the system?
- The system may create long line or clutter in a public place
- It is unclear that how much about the environment will the user learn from using it.
- How do people redeem points using their mobile devices?
- How to evaluate the effectiveness of the system?

We also received the following suggestions:

- Use coupons from local businesses or Universal Game Points instead of redeemable points
- Combine PlayBin with DesignCycle

Design 3: DesignCycle

Narrative Walkthrough

DesignCycle is a mobile crafting application in which the user can craft different items solely using recyclables. The two main tasks of this application are to **find** crafts that other individuals have made, and to **share** crafts the user has created using recyclable materials.
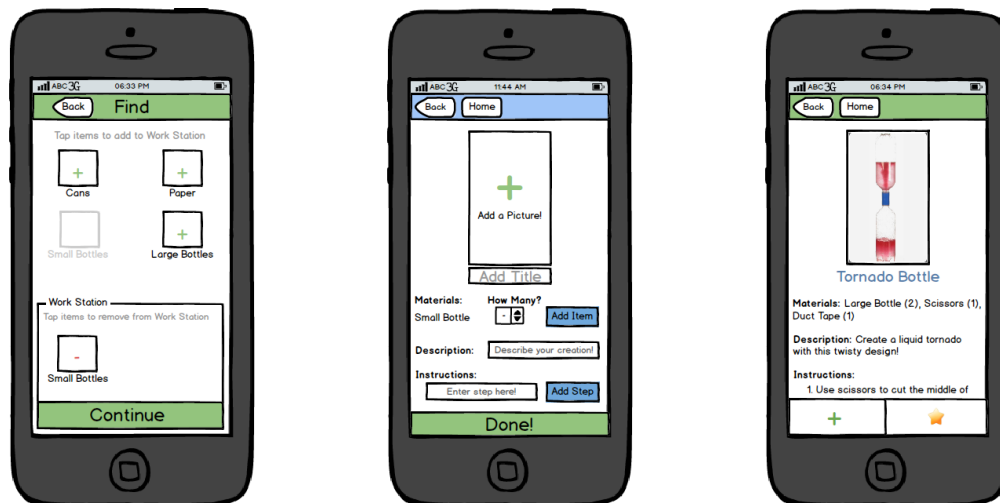
Under the **find** task, the user is taken to a screen that shows a list of recyclables. The user is allowed to tap on an individual item to add it to the "Work Station." They are allowed to add as many items as they would like, and once ready, they can submit their search to view a list of all possible crafts they can create using the selected recyclables. Once the user finds a craft of interest, he or she is allowed to select it to view a detailed description of the craft. These details include a picture and title of the craft, the materials used, a brief description of the craft, and a list of instructions to create it. At the bottom of the screen, the user is able to respond to that craft by uploading a picture of their own design, or they can favorite that craft if they would like to remember it for the future.

If the user does not want to search for a craft by specifying the items, they also have the option to simply see a list of the most popular crafts on the app. This list is

identical to the one described above, and selecting a craft will lead them to the same detailed page about how to craft the item.

Under the **share** task, the user is able to upload his or her own unique designs that are not already in the system. Utilizing the same layout as the "Work Station" (although here it is called the "Materials Used" section), the user can add the different recyclables they used for the craft. Once this is completed, the user is taken to a page that allows them to upload an image of the craft, create a title, add any additional materials used that aren't from the list of recyclables, write a short description of the craft, and provide step by step instructions. The materials and instructions are formatted so that the user can only enter them in one at a time. This will help standardize the format of each craft so that designs are consistent across the entire application.

Emma has just recently downloaded the DesignCycle application on her iPhone. Excited to try out the new design, she opens up the app to search for a new and exciting craft to create.

Emma selects the "search" option, Looking at the list of recyclables, she feels like creating a craft that uses small bottles. She adds Small Bottles to the Work Station, and then continues to the next page to see the list of possible crafts she can create.

Overwhelmed with excitement, Emma sees "Tornado Bottle" as an option. "What's this!?" she thinks to herself. She taps on the Tornado Bottle to find out how to make such an interesting design.

After studying the steps to make the Tornado Bottle, Emma feels confident in creating her own. After an hour of intense crafting, she finally completes her Mona Lisa of Tornado Bottles. Satisfied with her design, Emma uploads a picture of her own craft in response to the original uploader. She also adds this item to her list of "Favorites" in case she decides to make another in the future.

Justification

Because we found out through our research that reusing is more effective than recycling in protecting the environment, we wanted to focus on the element of reusing materials. This solution allows children to not only spend less time on the computer and more time performing arts and crafts, but also developing an understanding of what materials are recyclable or not. This application teaches the child to understand what items are recyclable simply by using the app. There are no extra facts or any preaching thrown at them; it's simply a native part of the system that will subtly teach them.

Furthermore, DesignCyle introduces a community element to our system, encouraging them to share their own content with one another.

Pros

1. Emphasis on reusability, which according to statistics is a more effective way to help the environment.
2. Users will be able to contribute to the project and share contents created by themselves
3. Sharing and feedback functions allow for participation in multiple ways

Cons

1. Requires a large user community to be effective.
2. Assumes users are interested in arts and crafts in the first place.
3. No direct reinforcement of recycling behavior.
4. Messaging may overemphasize the craft to the detriment of recycling.

Feedback

This design also received several votes primarily because DesignCycle employs a significantly different method of teaching about recycling. Here are some questions raised:
- The system might be too complicated for 8 - 12 old child to use. It might be better suited for a older crowd
- The effectiveness of the system will be hard to evaluate
- The system may not be very engaging, especially if the users are not interested in arts and crafts
- Some children may not have a mobile phone

The suggestions we received for the design are:
- Make it into a game to be more attractive to the users
- Define classroom as the setting to use the system
- Make the system into a website as well as mobile app
- Scan in items to search for possible designs in the database
- Add in competitive elements and let kids rate different design. Have a most popular design of the week

Conclusion

After reflecting on P2, it immediately became evident how helpful the feedback from the poster session was in understanding the strengths and weaknesses of our design alternatives. Since plenty of time was given to develop the three main designs, we were able to create three entirely different methods of teaching children to reduce, reuse, and recycle. Each focused on a different element of this theme, and we believe that each would successfully teach children. However, a decision will eventually have to be made.

Moving forward, we believe that a more hands-on, interactive game approach is the direction to head in. Although the prototyping stage will require more work with such a design, this approach would help teach children in the most entertaining and informative way. One aspect that we will particularly need to focus on is the way we will test the effectiveness of the system. We will need to develop an efficient way to test how much children have learned about recycling after using the system. As we near the prototyping stage, we may need to re-interview some of the children from P1 to ensure the optimal experience with our design, however the extra time dedicated to this will help ensure a quality product.

Appendix

♻ Team Fantasia

Problem
Encouraging children to reduce, reuse, and recycle

Design Criteria
Durable, small in size and fun to use. Should teach but not preach

Users
Children (ages 8-12) and secondarily, their parents

Whale Tale *An Orson the Orca Adventure Game*

Orson is a backpack connected to a mobile device, who is the child's guide through the game
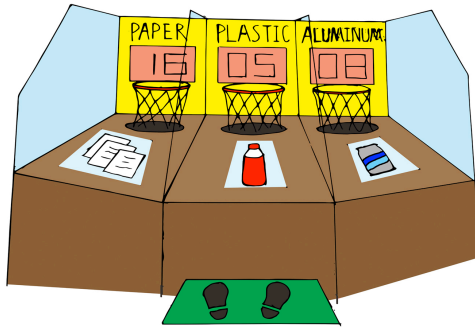
The child scans recyclables which are used as in-game items after the real-life items are recycled

As the story progresses, the child learns the habits of recycling while helping Orson through the levels

Pro Expandable narratives and themes   *Con* Requires an external peripheral

---

PlayBin *Play with your trash*

The child steps on the pressure plate to start the game

Items are recycled by being tossed into corresponding bins as interactive screens display interesting facts about the item
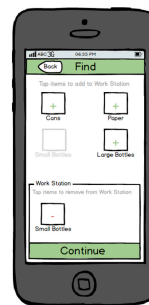
As items are placed into bins, the child is awarded redeemable points

Pro Teaches recycling through direct reinforcement

Con Recycling behavior not generalizable
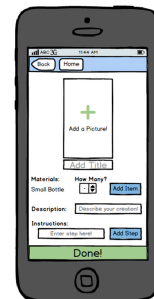
DesignCycle *Recycling your ideas*

The child can browse existing art projects uploaded by others

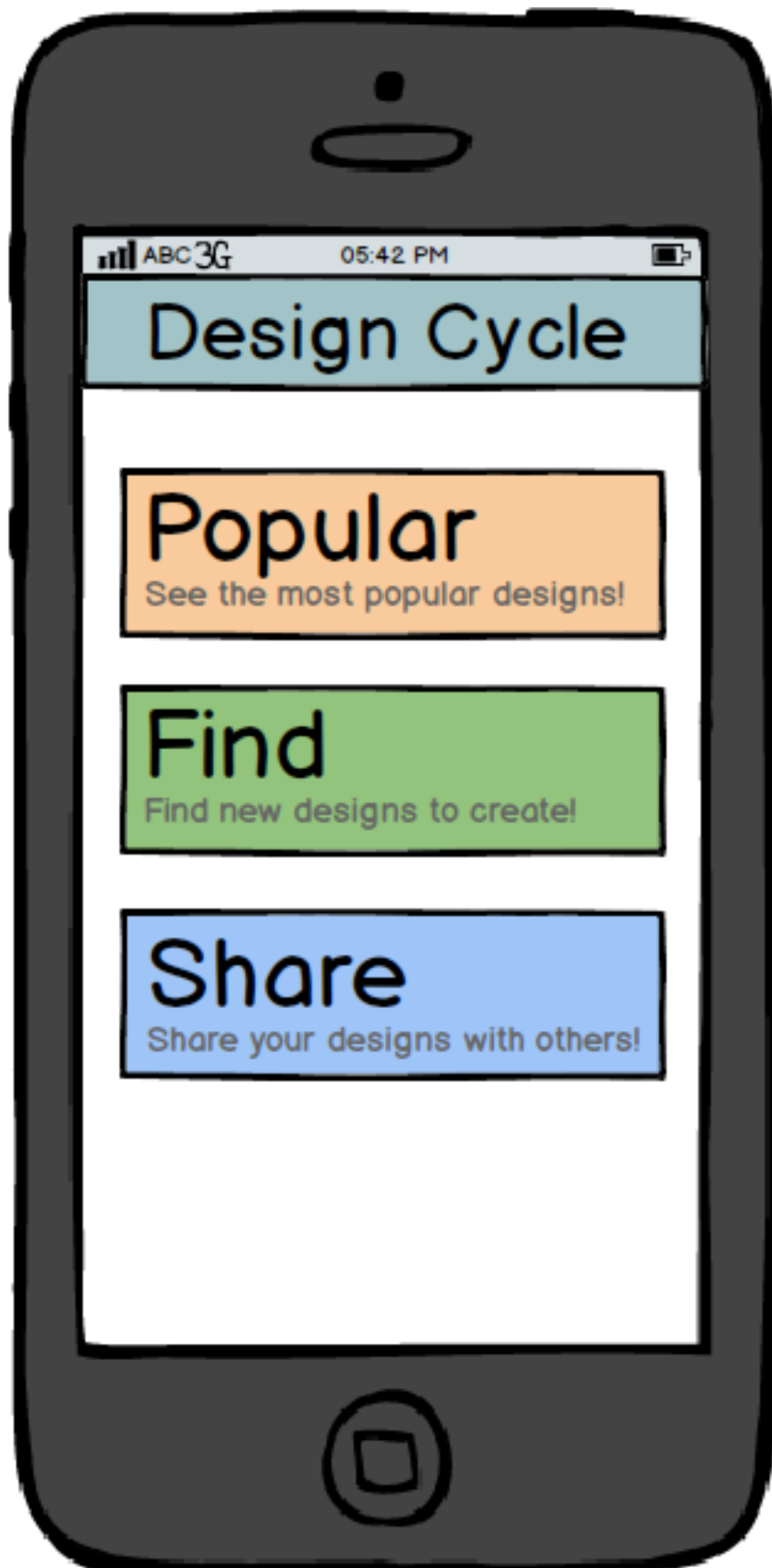The child can search for art projects by selecting each recyclable material

The child can share their creations by uploading their own tutorials

Pro Emphasis on reusability

Con Requires large user community

Dillon Eversman | Christopher Reinert | Mithila Tople | Qian Xie

Design Cycle

Popular
See the most popular designs!

Find
Find new designs to create!

Share
Share your designs with others!

Back Share

Tap items to add to Materials Used

+

Cans

+

Paper

Small Bottles

+

Large Bottles

Materials Used

Tap items to remove from Materials Used

-

Small Bottles

Continue
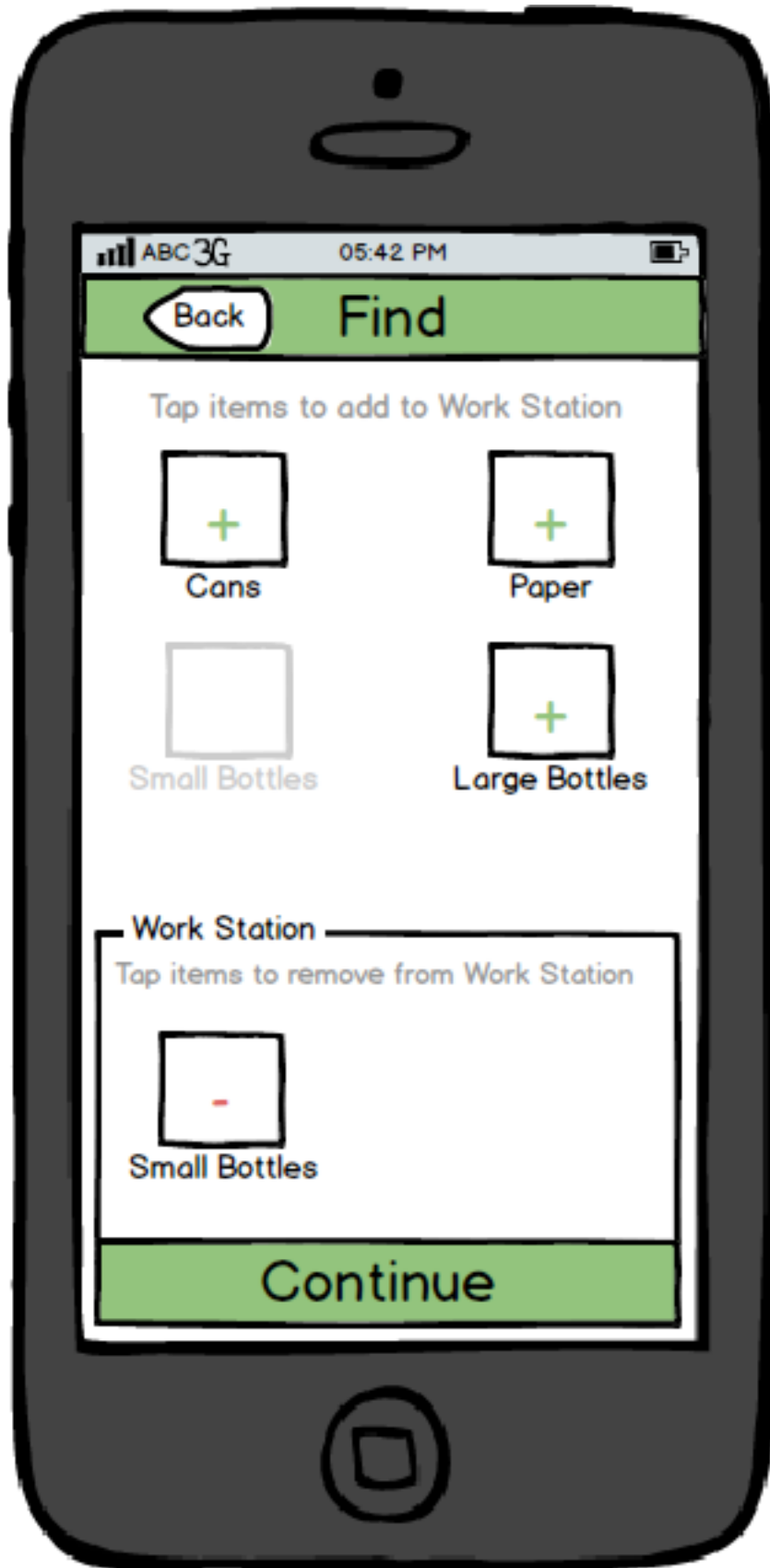
Find

Back

Tap items to add to Work Station

+

Cans

+

Paper

Small Bottles

+

Large Bottles

Work Station

Tap items to remove from Work Station

-

Small Bottles

Continue

Back   Home

Designs Using: Small Bottles

Tap designs to see details!

Tornado Bottle
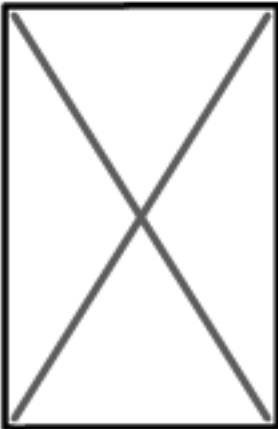
Bottle Rocket

Tornado Bottle

Materials: Large Bottle (2), Scissors (1), Duct Tape (1)

Description: Create a liquid tornado with this twisty design!

Instructions:

  1. Use scissors to cut the middle of

➕   ⭐

Back Home

+

Add a Picture!
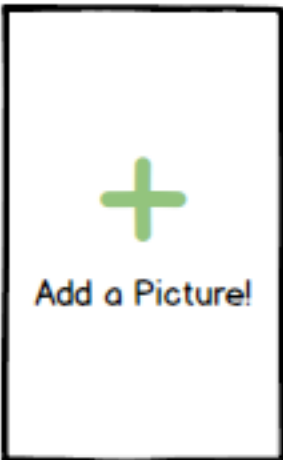
Add Title

Materials: **How Many?**

Small Bottle - ◆ Add Item

Description: Describe your creation!

Instructions:

Enter step here! Add Step

Done!

Team Fantasia Feedback Form
* Required

Whale Tale

1. **How effective is Whale Tale on teaching kids about recycling?** *
   Mark only one oval.

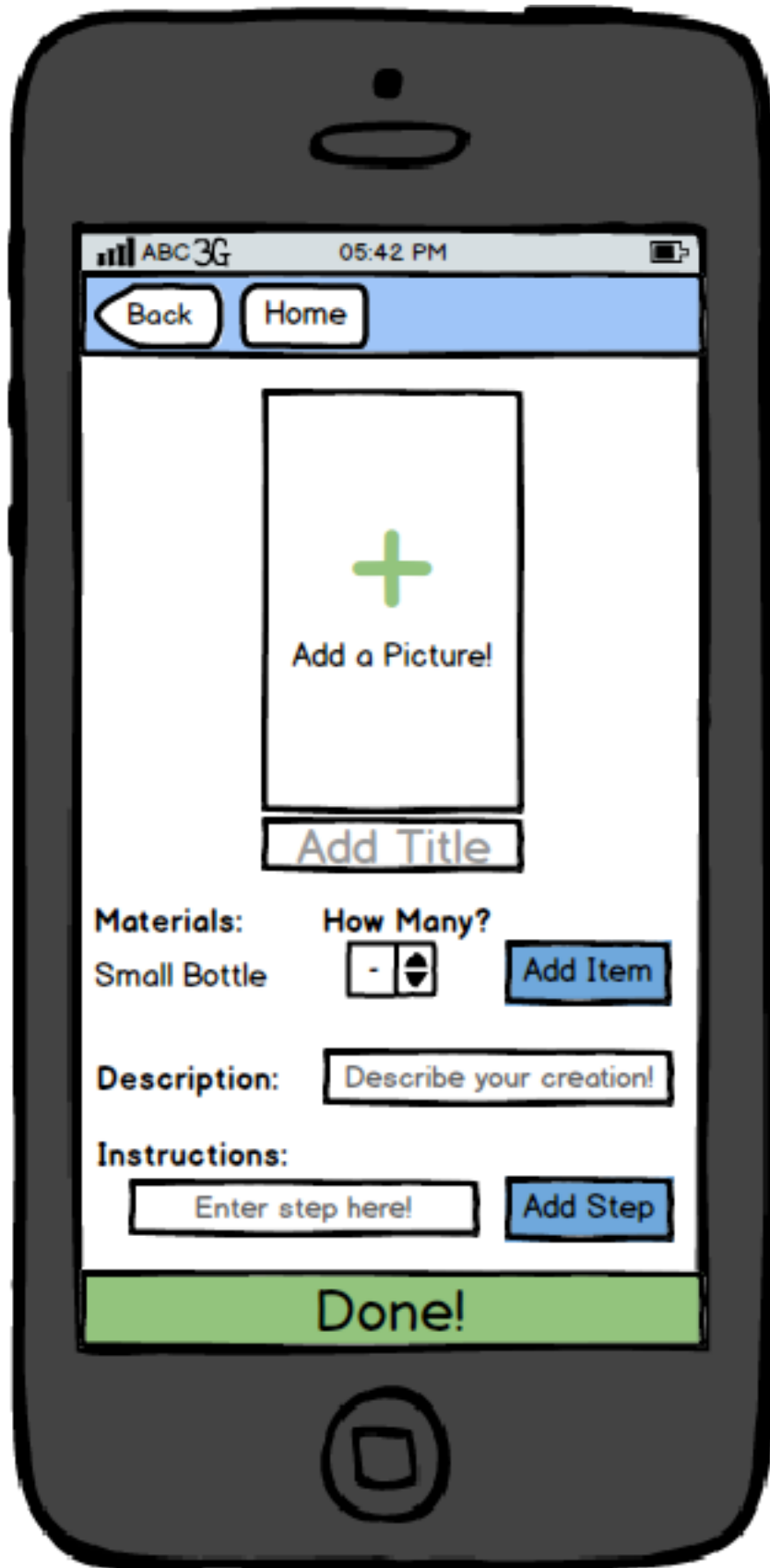 | | 1 | 2 | 3 | 4 | 5 | |
   |---|---|---|---|---|---|---|
   | Not effective at all | ◯ | ◯ | ◯ | ◯ | ◯ | Extremely effective |

2. **Please Rate Whale Tale on Creativity** *
   Mark only one oval.

	1	2	3	4	5	
Not Creative- I've seen this before	◯	◯	◯	◯	◯	Extremely Creative- I've never seen this before

3. **Please Rate Whale Tale on Implementability** *
   Mark only one oval.

	1	2	3	4	5	
You could never implement Whale Tale	◯	◯	◯	◯	◯	You could implement Whale Tale effortlessly

4. **What did you like about Whale Tale?**

    ....

    ....

    ....

    ....

    ....

5. **What do you think needs to be improved with Whale Tale?**

    ....

    ....

    ....

    ....

    ....

PlayBin
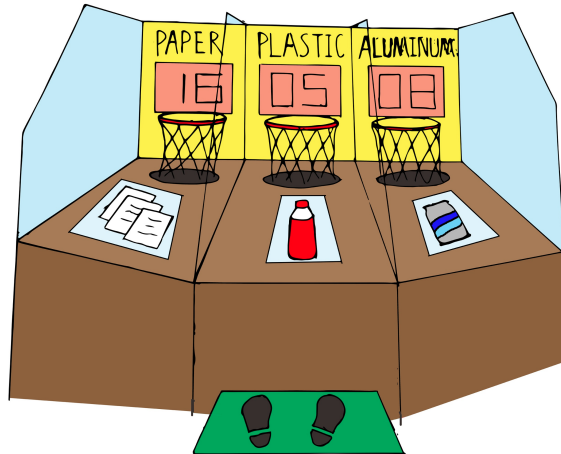
6. **How effective is PlayBin on teaching kids about recycling** *
   Mark only one oval.

	1	2	3	4	5	
Not effective at all	◯	◯	◯	◯	◯	Extremely Effective

7. **Please Rate PlayBin on Creativity** *
   Mark only one oval.

	1	2	3	4	5	
Not Creative- I've seen this before	◯	◯	◯	◯	◯	Extremely Creative- I've never seen this before

8. **Please Rate PlyBin on Implementability** *
   Mark only one oval.

	1	2	3	4	5	
You could never implement PlayBin	◯	◯	◯	◯	◯	You could implement PlayBin effortlessly

9. **What did you like about PlayBin?**

   _____

   _____

   _____

   _____

   _____

10. **What do you think needs to be improved with PlayBin?**

   _____

   _____

   _____

   _____

   _____

DesignCycle

11. **How effective is DesignCycle on teaching kids about recycling** *
    Mark only one oval.

	1	2	3	4	5	
Not effective at all	◯	◯	◯	◯	◯	Extremely Effective

12. **Please Rate DesignCycle on Creativity** *
Mark only one oval.

	1	2	3	4	5	
Not creative- I've seen this before	⬭	⬭	⬭	⬭	⬭	Very creative- I've never seen this before

13. **Please Rate DesignCycle on Implementability** *
Mark only one oval.

	1	2	3	4	5	
You could never implement DesignCycle	⬭	⬭	⬭	⬭	⬭	You could implement DesignCycle effortlessly

14. **What did you like about DesignCycle?**

15. **What do you think needs to be improved with DesignCycle?**

16. **Additional Comments**

17. **Which design do you like best** *
Check all that apply.

☐ Whale Tale

☐ PlayBin

☐ DesignCycle

Powered by

Google Drive