

# Project Your Climate Future

a museum interactive about  
interconnectedness & agency

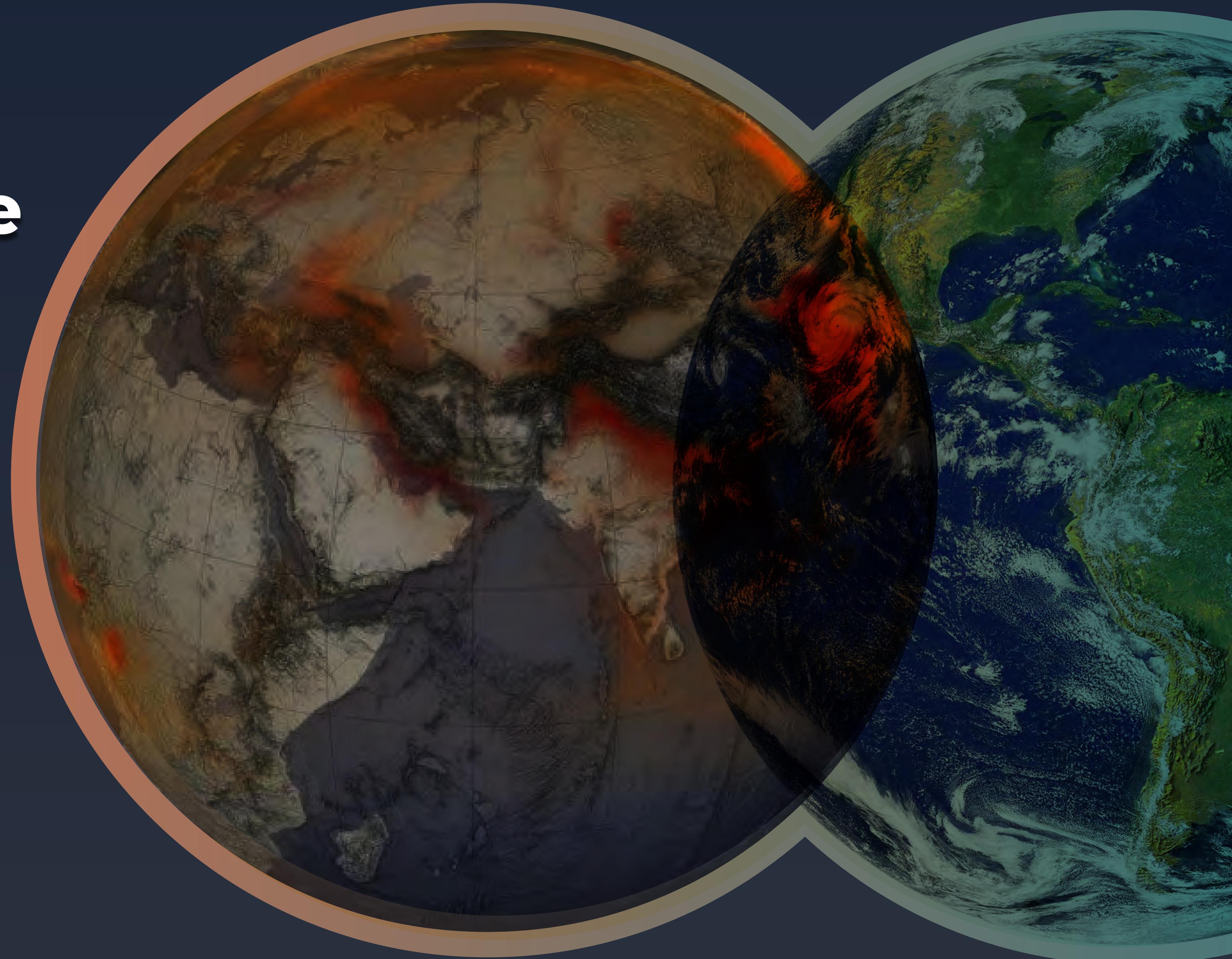
*IDeATe: Learning in Museums, May 6, 2022*

[view video demo](#)

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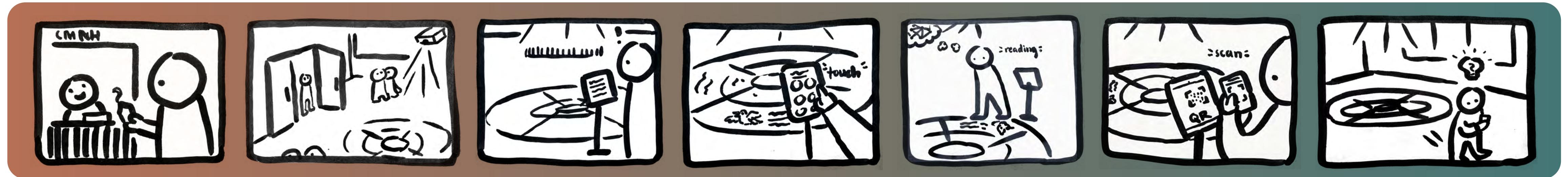
# How might we facilitate conversations related to interconnectedness and climate action in the context of a natural history museum?

In partnership with the Carnegie Museum of Natural History (CMNH) and Carnegie Mellon University's Integrative Design, Arts, and Technology (IDeATe) network, our team addressed the museum's curatorial aims of infusing Anthropocene perspectives into its exhibitions. By interpreting the museum's existing meta-label initiative, *We Are Nature: A New Natural History*, we designed an interactive museum encounter that addresses Anthropocene values of systems thinking and human stewardship. Overall, our goal with this project was to shift narratives surrounding climate change from doom and gloom to a sentiment of hope, positivity, and action.



Carnegie  
Mellon  
University

# Our exhibit models low- and high-emission climate futures for users based on their choice to take action at individual or collective levels.



Visitor enters museum ...   Enters the PaleoLab ...   Sees our interactive ...   Makes choices ...   Reads about effects ...   Accesses resources ...   ... and leaves reflecting.

## Physical Touchpoints

We set out to address the Anthropocene values of human stewardship and systems thinking with a two-channel installation that involves an interactive “control panel” of potential environmental actions for the visitor to select from, and a large projection of the resulting climate future that could spring from those actions. This interactive would be in the PaleoLab hallway to act as a conceptual bridge for visitors traveling between main areas of the museum, such as the *Benedum Hall of Geology* and *Dinosaurs In Their Time*. The storyboard above represents the physical journey a visitor would take to interact with our design.

## Emotional Experience

In the spirit of interconnected systems, we hope that our design would help users make connections between the subject matter of these different areas of the museum, while also introducing direct actions that individuals could take to influence the climate. From our research, we hypothesize that presenting visitors with concrete examples of activities in service of climate action would make them more aware, and therefore more motivated, to adopt these behaviors in their own lives. We also felt that displaying consequences of visitors’ actions in a speculative format would enhance this motivation.

The background of the slide is a photograph of a steep, densely forested hillside. A narrow, dark path or stream bed winds its way down the center of the slope. The vegetation is a mix of various shades of green, with some darker areas indicating thicker growth or different plant species.

# Research and Design Inspiration

## Learnings from Course Readings

One early informative reading for our project was Identity & the Museum Visitor Experience by John Falk. The conceptualization of the different types of museum visitors. This paper was a welcome reframing of the familiar personas of HCI into different visitor types that are based on identity-related motivations. These motivations may change based on a visitor's particular goals on a particular day and the context of the visit, such as if they are coming with friends, family, or on their own. This reading was helpful for us to consider different interests that different people would find in our exhibit. For example, the professional/hobbyist might be attracted to the factual presentation of the subject matter, while the experience seeker might be looking for a novel new interaction technique and photo moment, which we provided with a projection. The spiritual pilgrim might want to quietly explore the implications of the future states we alluded to, and reflect on what personal actions meant for the greater collective.



*Image of the 5 visitor types from John Falk's book*

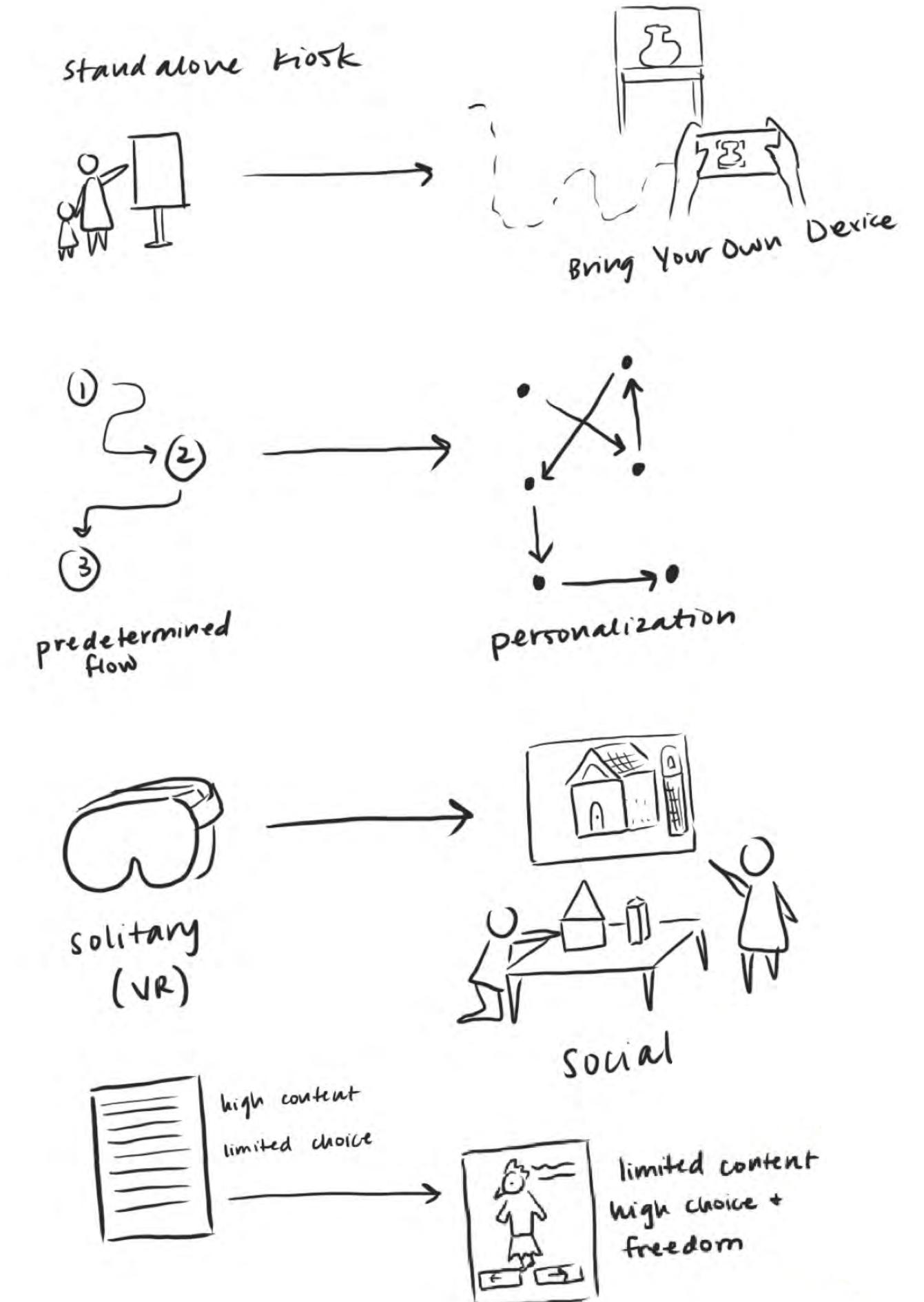
## Learnings from Course Readings

Another reading that was very helpful was Interaction Frames. My team was very inspired by the different types of individual and social interactions that could be prompted by different modes of information design and exhibit experience design. Individually we had already had some reservations about virtual reality as a medium because of its tendency to isolate viewers, but seeing the pros and cons made concrete in the writing helped validate our prior concerns. Social interactions and exhibit design as a social object was at the heart of our exhibit design, so we wanted to branch off into ideas that facilitate exploration and conversation.

Off the bat we were interested in exploring embodied interaction and augmented reality. The theory that embodied reality helped connect and teach abstract ideas in a way that simply visual or verbal mediums could not was fascinating and a core starting point in our desire to try out a floor projection with embodied trigger points. We tried

very hard to make the floor movement trigger points work, but ultimately came up against our own technical limitations and the pressing need to complete the prototypes on a tight timeframe. That being said, the idea of using space and light to give form to abstract ideas stuck with us into our final projection prototype.

We were also inspired to experiment with the right media form for our complex and abstract goals of teaching interconnectedness and systems thinking in the Anthropocene. We ideated on so many models of teaching different inputs and outputs in the context of futures speculation, and ultimately found that the projection and iPad was the most feasible and usable for museum goers. We also ideated on the use of Augmented Reality for our exhibit, but found that since we were building a new visual from scratch instead of overlaying visuals onto a phone-mediated depiction of the real world, there wasn't a need or a valid justification for AR to support our learning goals.



Sketch of interaction frames from the reading

## Learning from Subject Matter Experts

We interviewed Professor John Balash, Professor Terry Irwin, Professor Jessica Hammer, and Dr. Bonnie McGill from the CMNH Anthropocene Studies team as part of our background research with subject matter experts.

John Balash gave us insight into how to approach political topics in a museum space and technical tips for approaching XR in museums. He informed us of how museums usually avoid taking very political stances on the topics they discuss in their projects. However he did discuss that their approach was that anything can be discussed if mechanics of the system are persuasive enough. He also recommended including a playful lens to balance the heaviness of more political topics. This was particularly helpful when thinking about how we would visualize the topics in an engaging way that would ultimately strike a chord with audiences of all age groups. He also touched on how important it is to consider where the person is experiencing the AR and how creating an immersive environment can bleed into things we can do in the physical space. He gave us practical tips on how to approach AR if we chose to, such as being aware of some limitations such as the lack of internet, lack of suitable hardware (meta quest 2 and magic leap), and using hardware that is limiting (oculus). After ruminating on the importance of immersiveness in a social space such as the museums, we decided to take some of the virtual immersiveness of AR but project it into the real world with projectors so that people are not siloed into their individual experiences.



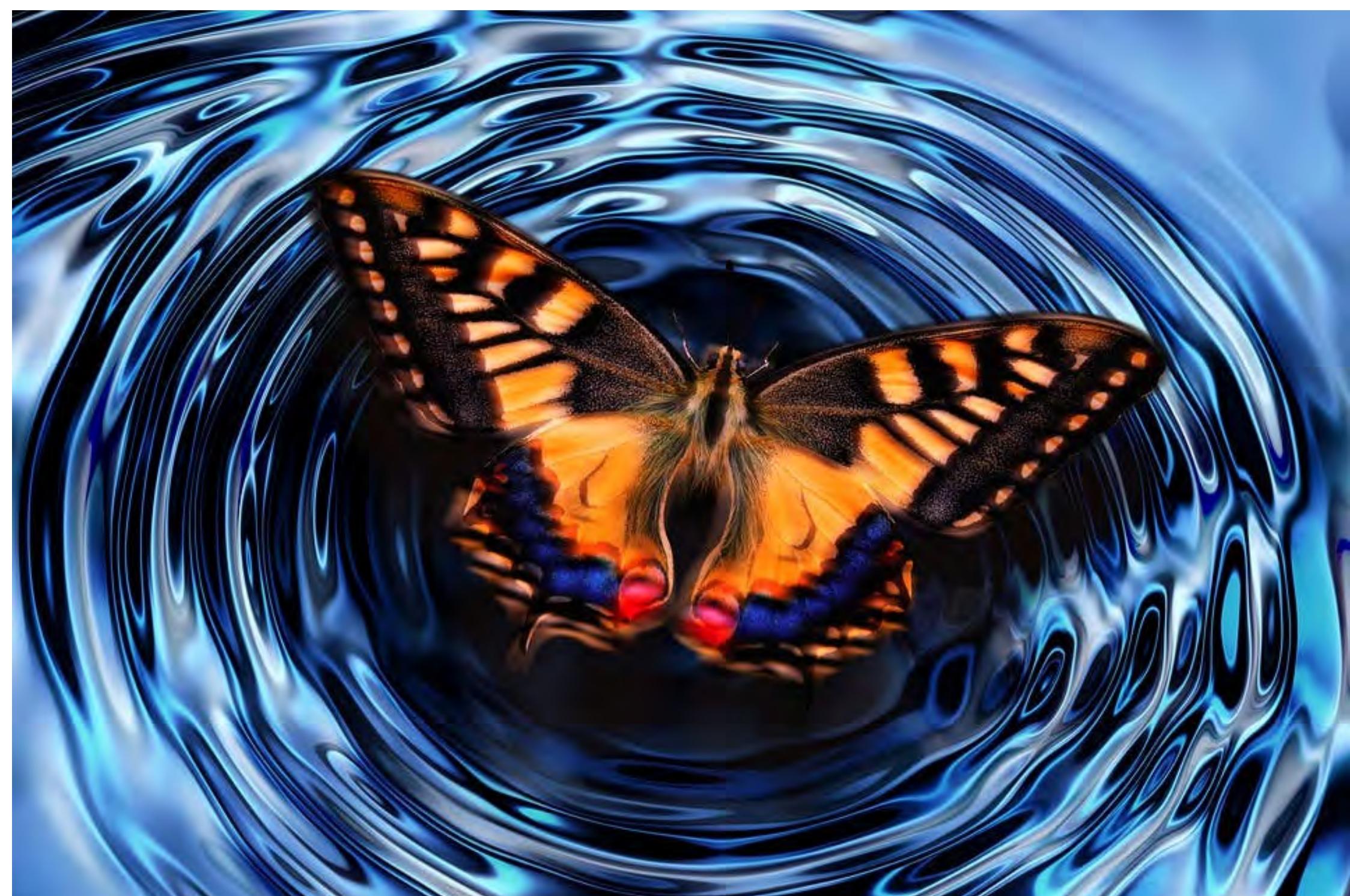
*Image of a project that John Balash worked on: the Rube Goldberg Machine at the Children's Museum*

## Learning from Subject Matter Experts: Terry Irwin

Our conversation with Terry Irwin was quite eye-opening when thinking about metaphors and conduits for stimulating learning about environmental systems. She has a rather radical stance in support of looking to nature as a reference to teach people how to model cooperative, non-competitive systems. This point inspired our original storyboard of a tree diagram to show the branching possibilities of the future states of the environment. She also pointed very enthusiastically to capitalism and Westernization as the ultimate example of how humans' competitive and hierarchical mindsets are overrunning our planet and causing these climate issues. We kept this in mind in our critique of capitalistic waste and extraction in the causes and effects that we showed on the projection.

Terry also expressed some concerns and doubts at the prospect that the museum would be able to truly convey systems thinking. That being said, we had a productive conversation about framing devices for expressing interconnectedness and the complex relations inherent in the expansive system of the environment. Key ideas that stuck with us were that every action in our ecosystem has a domino effect, such as in the Butterfly Effect and chaos/complexity theory. The butterfly effect was one of our leading metaphors when trying to build our own design model of how current actions affect future generations. We even started breaking down effects into time rings like waves that ripple out and touch on other systems during our sketching and

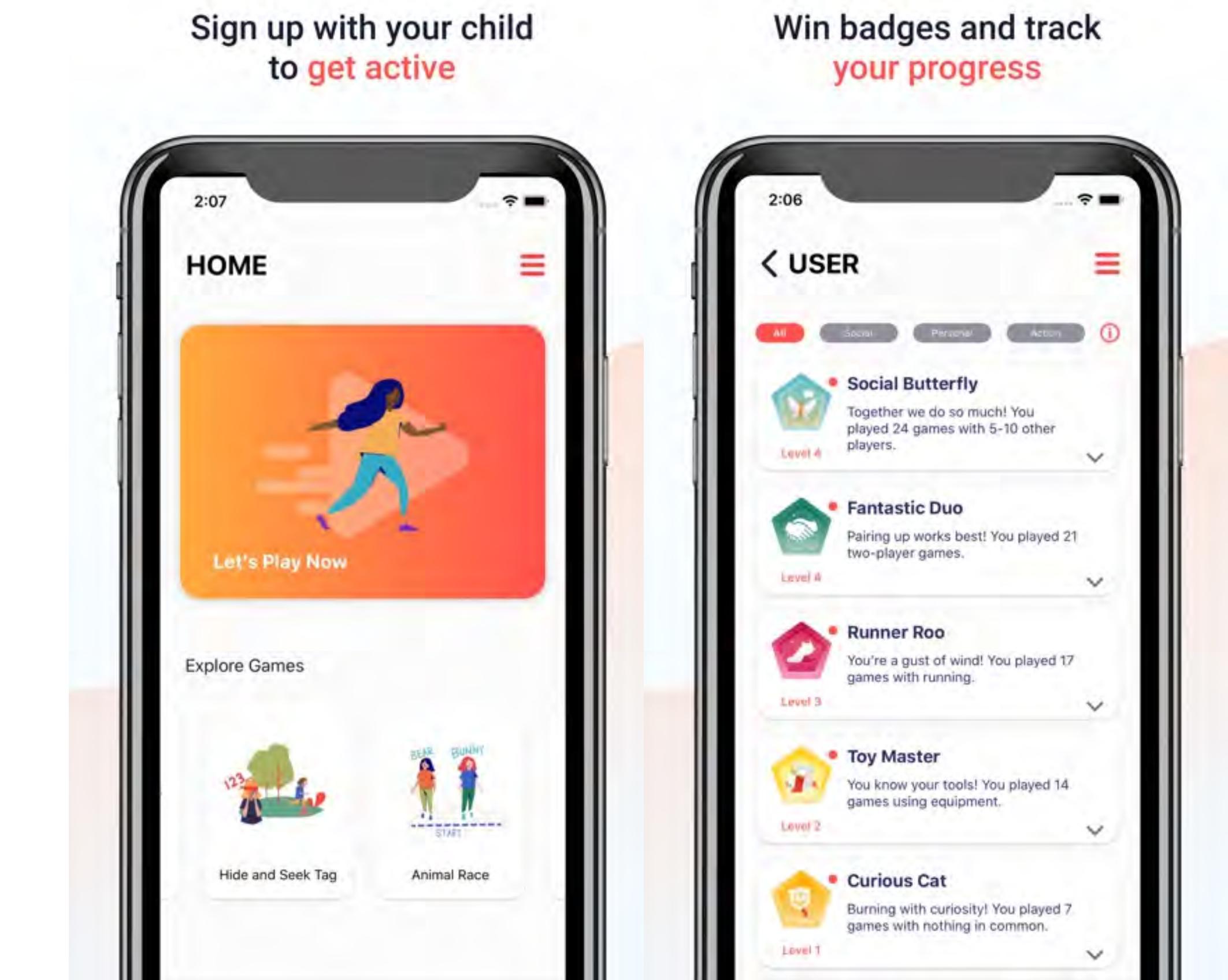
prototyping phases. Another key idea was that people's health is tied to the planet's health; everything manifests as interdependent, interconnected feedback loops. We wanted to make the effects of the environment on human health and wellbeing clear as a way to relate far away effects in a way that people rooted here in Pittsburgh would relate to.



*Artistic depiction of the butterfly effect*

## Learning from Subject Matter Experts: Jess Hammer

From speaking with transformational game design expert Jess Hammer, we gained valuable insight into how to make systems thinking effective for participants of a fictionalized universe of our creation. Our final takeaways were that people need something concrete to attach systems thinking to, as people with individual experiences rooted in an issue shifted into systems thinking successfully about that particular issue. In order to elicit real change in behavior, we were instructed to pick the action we want people to take and design towards that explicitly. As a result, in our “game” we made the good/bad actions abundantly clear both with visual and verbal indicators, and compounded the affective reaction of those actions with the very visceral high-emission and low-emission future visuals. Finally, we received pointers regarding our expectation of active spectatorship, specifically that we can't count on spectators as load-bearing pieces of design. Therefore, we wanted the experience to be one in which people could watch or choose to ramp up participation by actively managing the inputs.



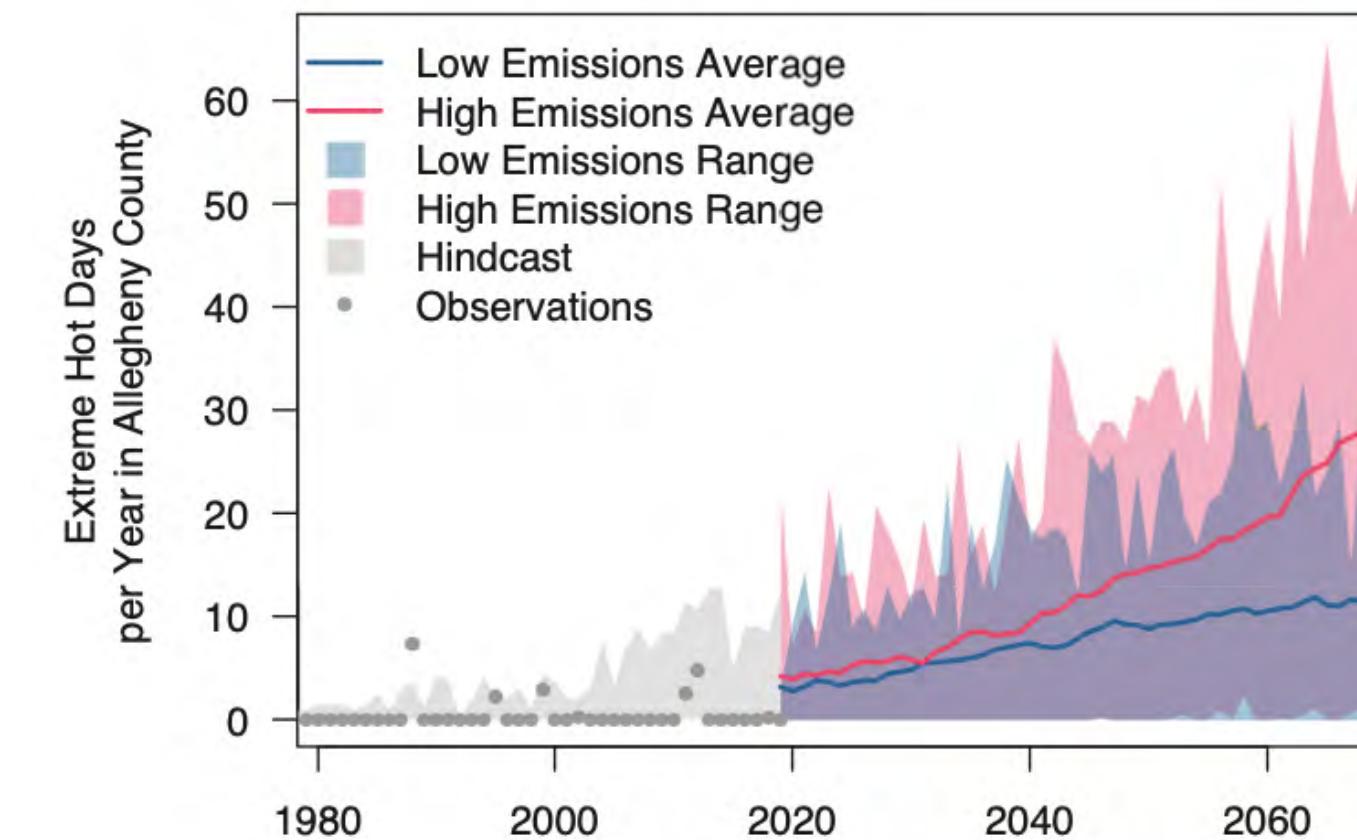
Screenshots of one of Jess Hammer's transformational game, *Frolic*

## Learning from Subject Matter Experts: Dr. Bonnie McGill

One of the most formative SME interviews we had was with Dr. Bonnie McGill. At the end of the day, after all of our futuristic game design ideation and XR experimentation, we were designing for a natural science museum, and thus our content needed to be strongly grounded in science. Bonnie not only directed us to valuable resources from which we directly pulled data and predictions about the potential future states of a low emission or high emission future, but we also received valuable advice about how to relate to visitors of this area. We learned to stay local in envisioning futures, prompting our decision to visualize effects on Allegheny County specifically. This helps people make personal connections to material. Furthermore, after this conversation we realized we can tailor design to this specific audience and their needs and motivations. For example people are concerned about the economy, jobs, and healthcare, so we made sure to note the positive economic impacts of transitioning to a clean energy industry in Pittsburgh, as well as the negative effects to health that a high emission future would have. This was incredibly effective in getting people to become personally invested and concerned with the personal implications that such negative effects such as ticks, humidity, and electricity overloads would have in Pittsburgh.

Finally, as a climate scientist Dr. Bonnie McGill led our learning goals by giving us examples of concrete and hopeful actions people can take. Importantly, we learned that the key to large systems wide change is to get civically involved!

This was actually the key learning goal that we wanted visitors to come away with. By appealing to local governments and let them know they care about climate friendly action, people can start with small changes (to home, schools, building codes) then work up to larger systems through political representatives. Furthermore, once people start to make small changes, it becomes part of their identity to become part of the solution. This identity shift was a huge design opportunity that we wanted to leverage in our ideation. Our key takeaways were to convey the urgency and local nature of the issue (through visceral visuals) while also emphasizing solutions and actions people can take (through accessible actions from the iPad). Finally, our guiding mantras was to focus on hope and action, not doom and gloom.

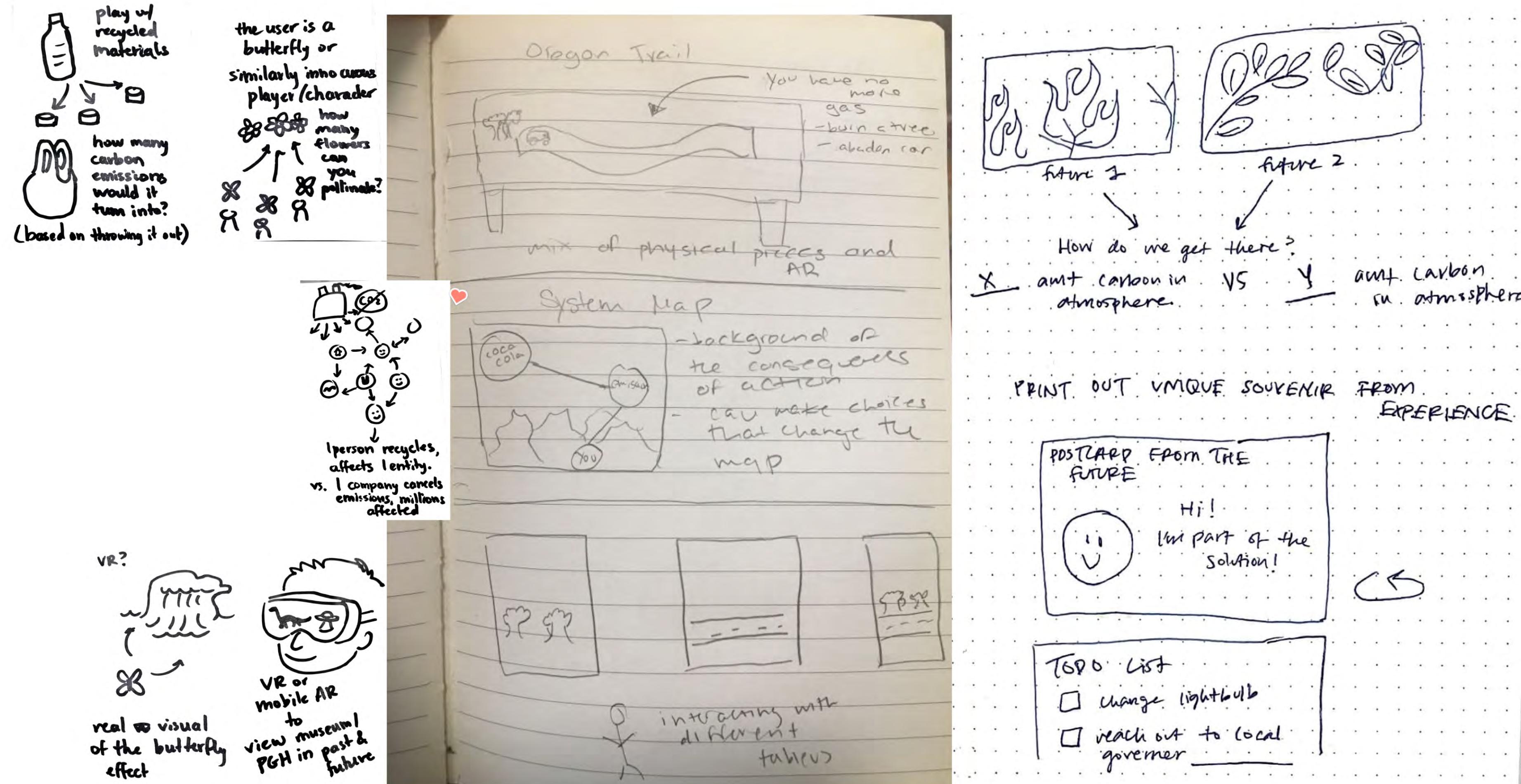


*Graph from the MARISA resource we used to inform our future states: [link here](#)*

# Prototyping



## Early Sketches



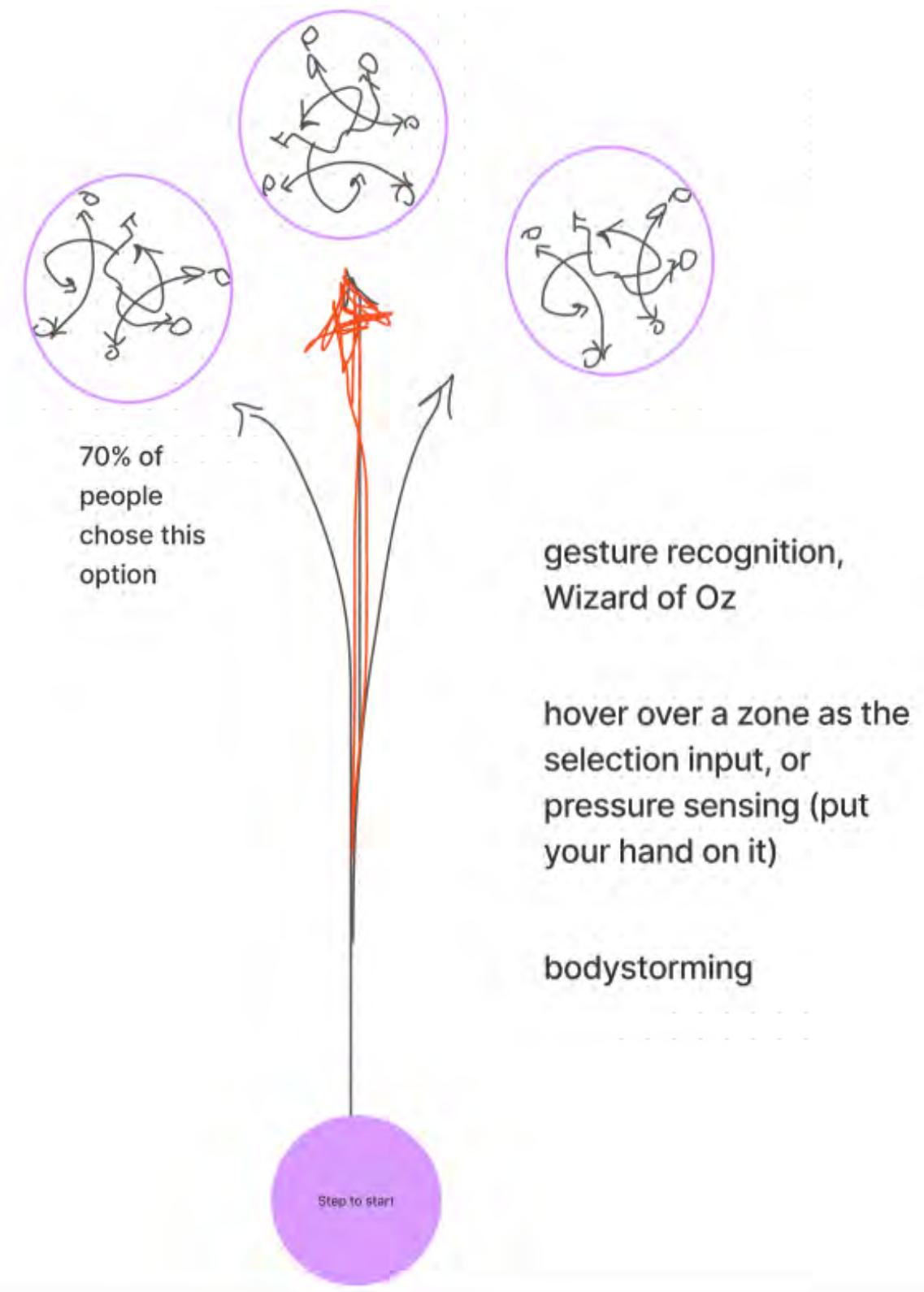
Example of team Crazy 8 sketches for exhibit

## Initial to Final Design

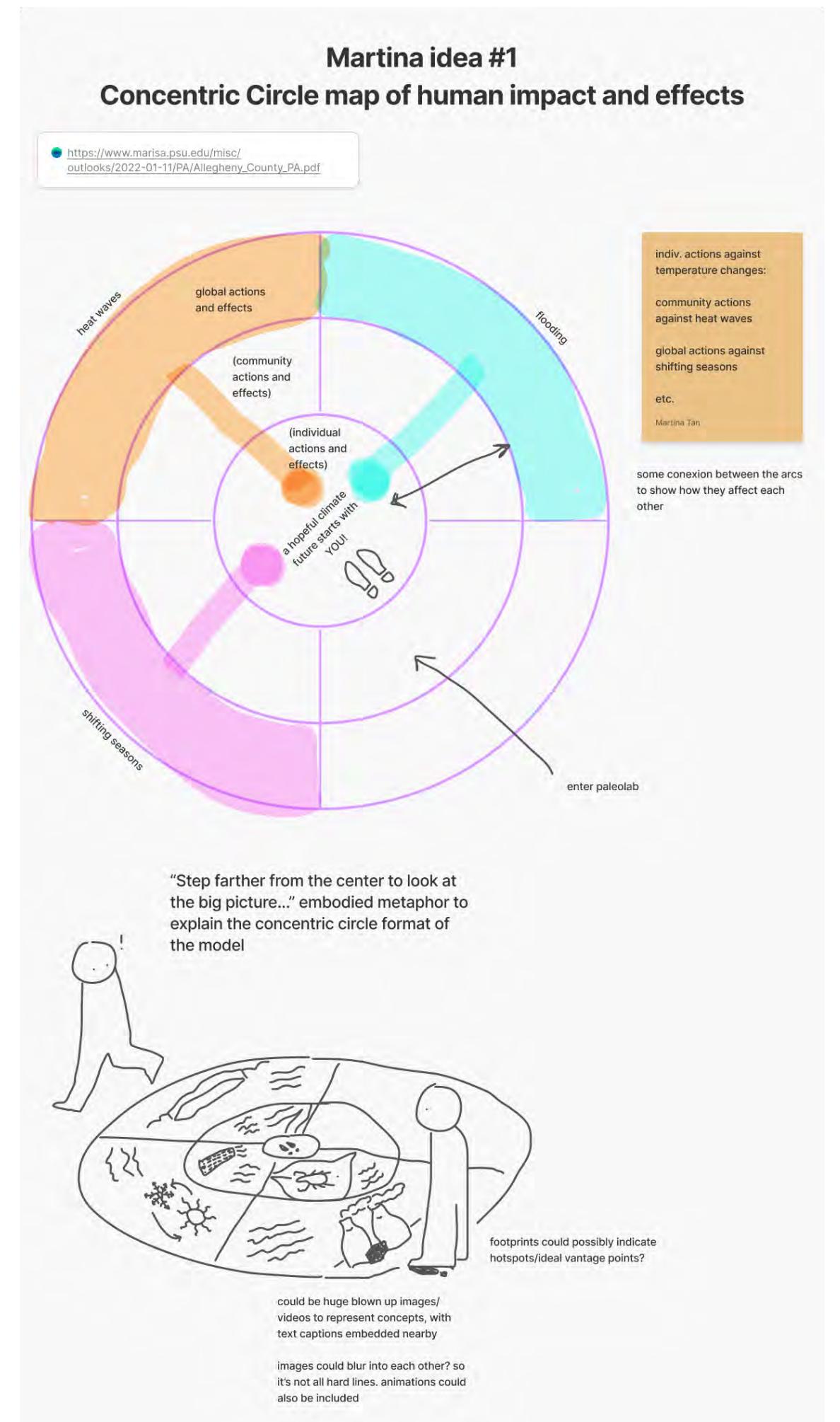
We were inspired by the We Are Nature labels in the Benedum Hall of Geology and the PaleoLab. We were drawn to using the tools of speculative futures and an interactive projection to connect the idea of fossil fuel use to how it impacts humans.

Our original idea was that people would see a floor projection of a timeline of the past of Pittsburgh and then get to vote on actions that would impact the future of Pittsburgh. As we discussed this idea with experts we realized that with our initial idea of a timeline that it may be too dense of a format of information and rather complicated for us to both create information for and code interactions for. So for our next iteration, we took a recommendation from one of the museum reviewers and focused on just the future state.

In this iteration, we focused more on how users could step on the initial circle to make choices and that would reveal text in other parts of the circle. While this was more manageable for us the interconnectedness of actions and effects was still complicated so we decided to use some documents recommended to us by Bonnie McGill to create more clear categories in which we would focus on. At this point we were playing around with how we could categorize actions and effects.



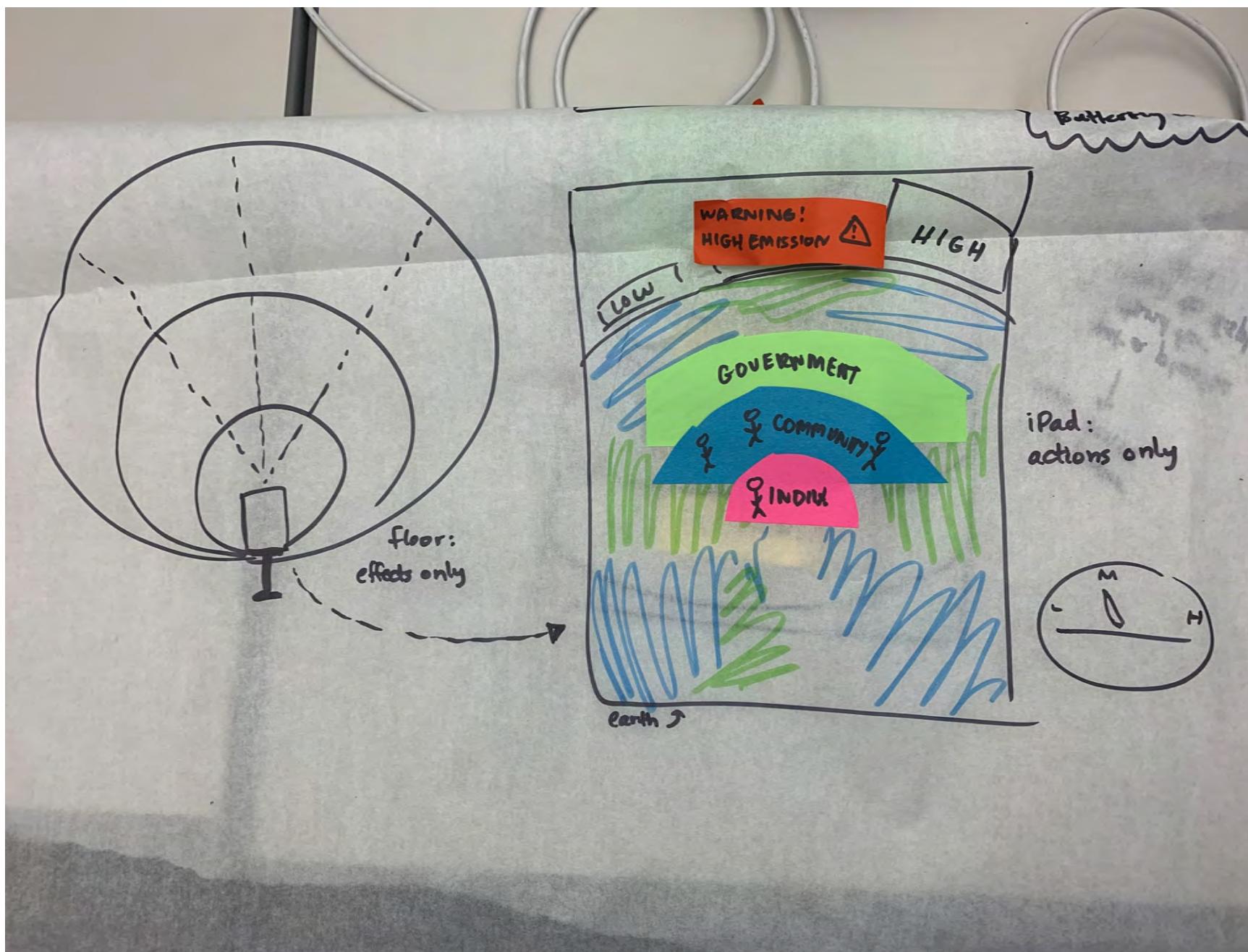
*Sketch of initial timeline idea with a solid line representing the past and the circles representing possible future states*



*Example sketch of possible iteration*

## Initial to Final Design

Eventually, after realizing the complications of creating this interaction, we ended up moving interactive elements to an iPad format and having the projection on the floor just show the effects. From here, we decided to focus on three concrete paths people could impact and used our resources to create stories about how user actions—both individual and collective and government—may impact future emissions.



*Sketch of possible control pad and floor projection appearance*

## First Round Prototyping

In this phase of prototyping we created a paper prototype of our projection and iPad interface. The goal of this prototyping session is to test the effectiveness of the information format of our exhibition, which includes:

- the visual organization of facts and imagery
- the hierarchy of action and effects related to climate futures
- the way that a user would interact with our exhibit to progressively access the pieces of our narrative on the potential future of carbon emissions

More specifically, we want to gauge the success of our exhibit format in addressing the following learning goals:

- (Stewardship of nature) Deeper understanding of specific individual actions one can take to address climate change
- (Systems-thinking and stewardship of nature) Takeaway of the importance of collective action and civic participation in engendering change on a larger, longer-lasting scale
- (Systems-thinking) Abstract understanding of the butterfly effect of individual actions on larger systems

## First Round Prototyping Protocol

For this round we had people do a think aloud while going through the exhibition and then we asked them these exit questions:

- What do you think we are trying to get you to learn from this exhibit?
- Would this impact the way that you think about your everyday actions?
- How did you feel about that process?
- How much do you feel that the actions you chose?
- What are ways you think you can participate in these actions in your community?

The users would make individual and collective decisions on the “ipad” by moving the cards and then this would affect the greater government action and the state of the projection.

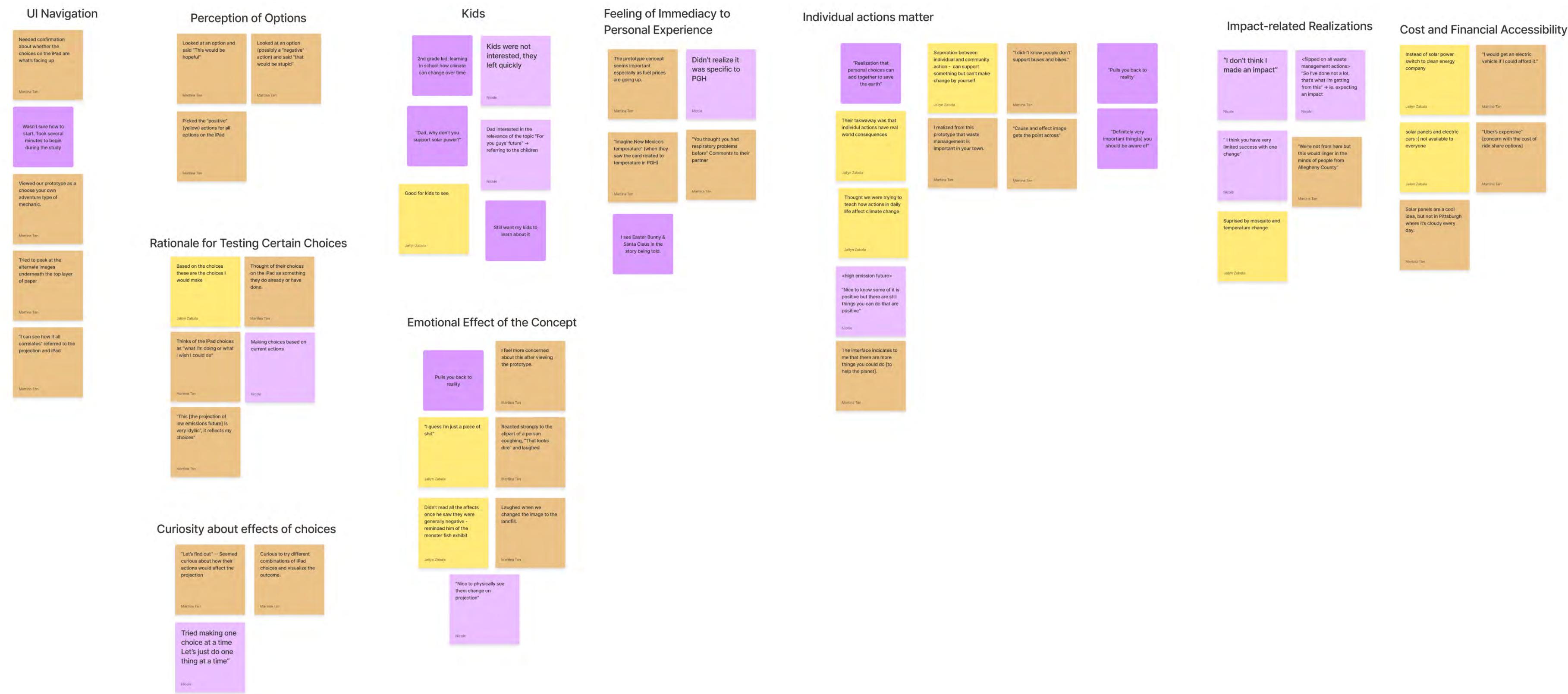


*Participant using the lo-fi prototype*

# First Round Prototyping Results

We saw that some **positives** from our prototype were that:

- A lot of users had fun while interacting with the prototype
- People used the prototype as a way to start conversations about their personal experiences with the people they were with
- Users clearly understood impact of actions



However there were some **negatives** as well:

- Options for action inputs were overly limited and narrow and were not actionable for people in Pittsburgh
- Effects on projection don't always directly result from choices made

This led us to make these **changes** in our next iteration:

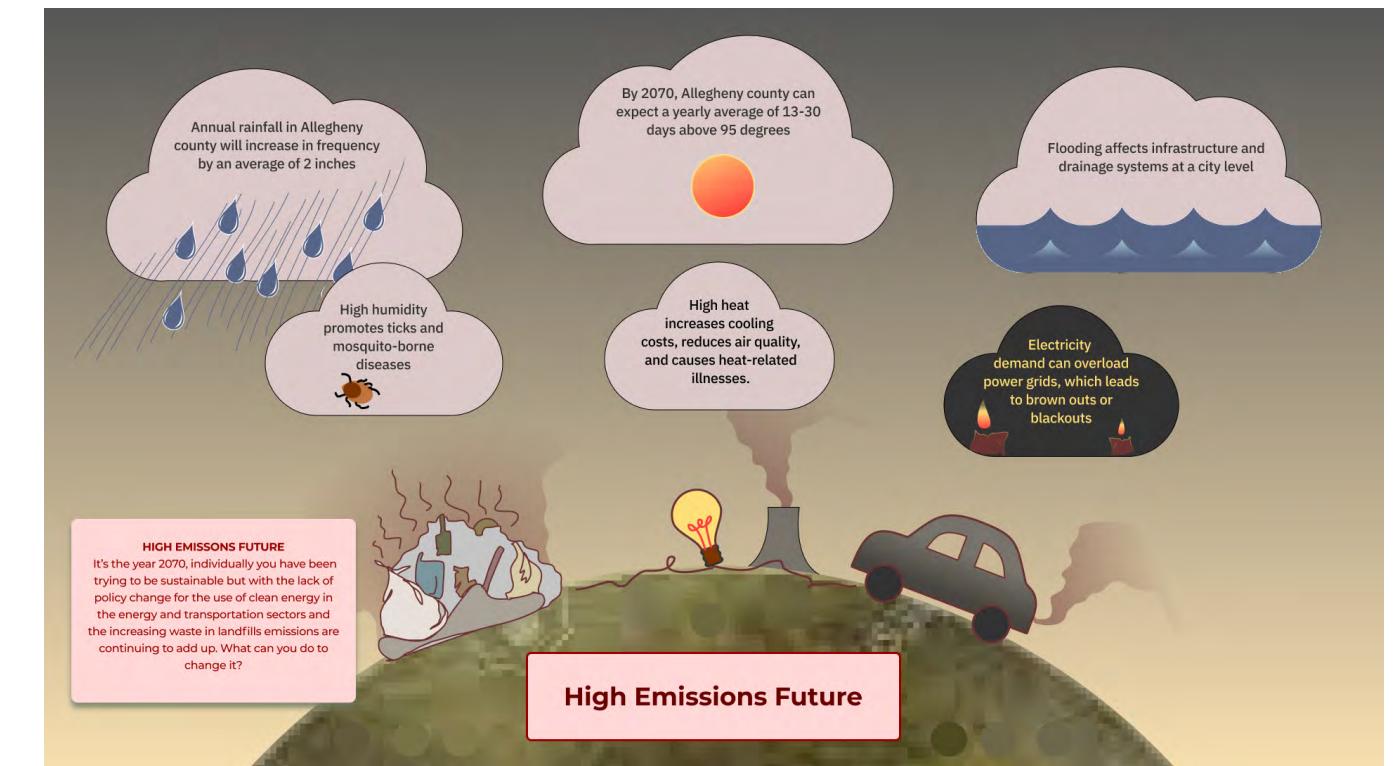
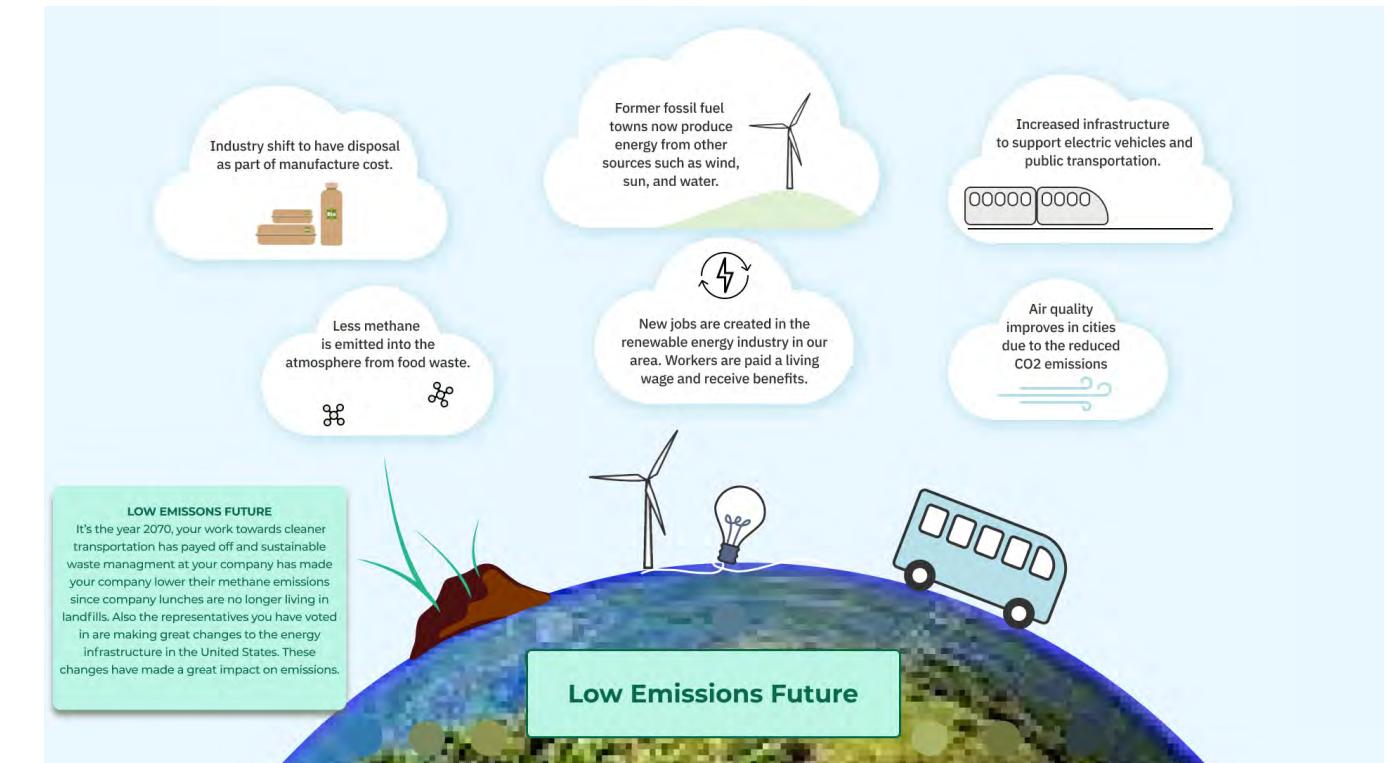
- Rework action options to be more accessible and less limited
- Prototype with interactive animation and projection

# Evaluation

## Second Round Prototype Description

Our project takes the form of an iPad “control panel” and a floor projection. Visitors will use the iPad to choose decisions to model for the future. The floor projection will display the effect of the actions on the future. The future model projection will show effects such as the overall high emission or low emission future, and specific effects on the future of transportation, energy, and waste management. On the iPad, there are 6 actions that individuals can choose to model. Half of the actions relate to individual, everyday choices and half relate to actions individuals can take to influence collective and governmental action.

The floor projection is the main aesthetic attraction of our exhibit. The effects projected on the floor will be animated for visual interest and sometimes include audio effects, such as heavy rain for the high emission future. The idea is that with more of a concrete and compelling visual of the future state, visitors will be more engaged by the information of the exhibit and more likely to take action as a result of understanding the consequences of lack of action.



*Examples of how the different actions on the control panel effects the projection*

## Second Round Prototype Evaluation

Overall we want to focus on the learning categories of attitude and knowledge and want to catch any problems with usability.

### Attitude

For attitude, we want to understand how users are feeling about their climate futures after interacting with the exhibit. Our goal is for users to understand that their actions can impact the future of climate so we don't want them to feel hopeless, but rather hopeful that they can change the future if they feel that it is going in a direction that they do not like. We will measure this using observation and one of our exit interview questions to understand how people are feeling while they use the exhibits as well as when they are no longer engaging with it.

### Knowledge

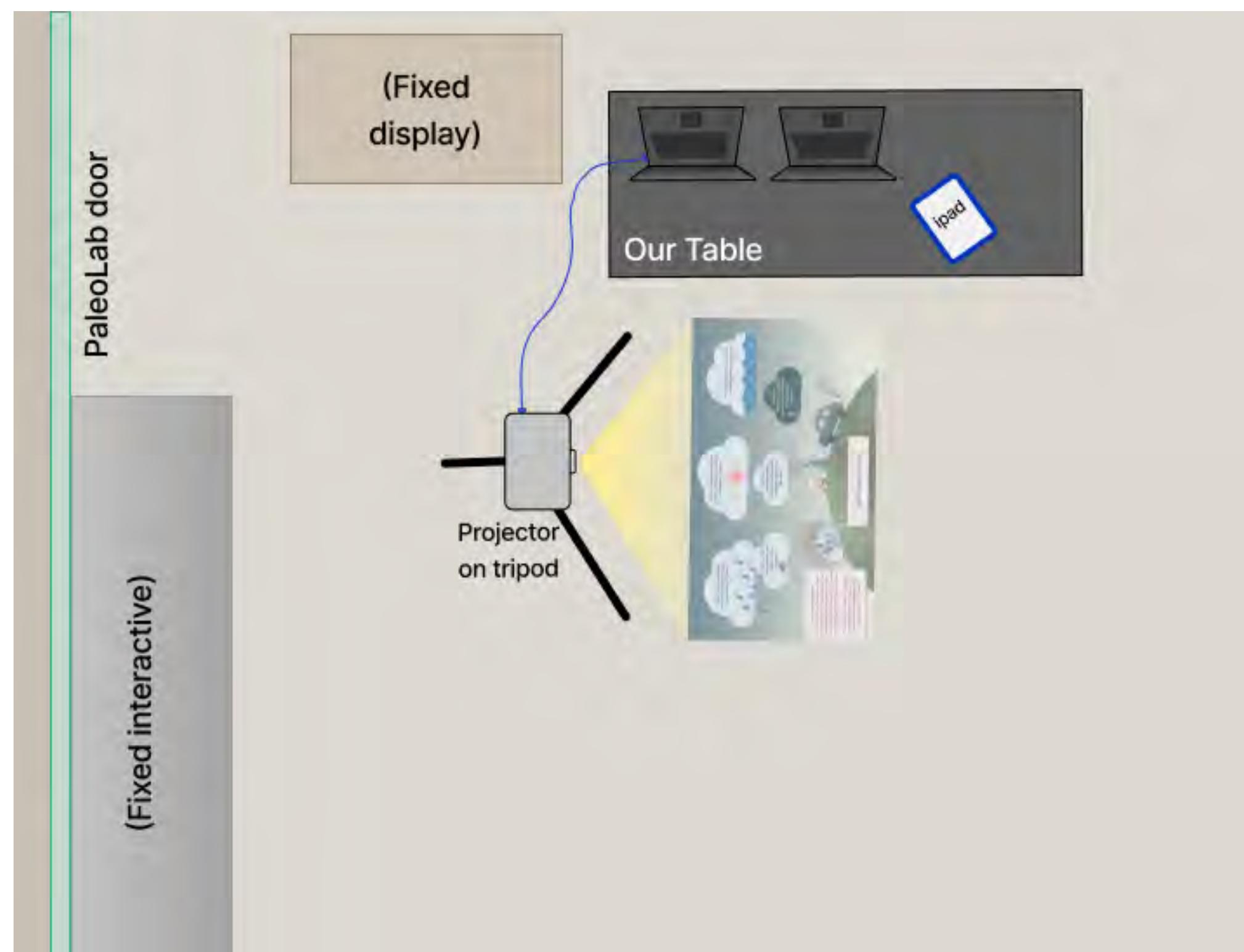
The knowledge category directly relates to the user's understanding of the systems thinking Anthropocene value that we have integrated into our exhibit. We will mainly measure these using exit interview questions.

Our specific learning goals are:

- Visitors understand that collective action is more impactful than individual action.
- Visitors understand that actions in one sector (ex. transportation or energy) can have effects on other sectors.
- Visitors will have an awareness about actions they can take to affect their climate future.

### Usability

We also want to catch any usability issues that may arise as people go through the exhibit. For our evaluation we used mainly observation to see what users were having problems with in terms of usability.

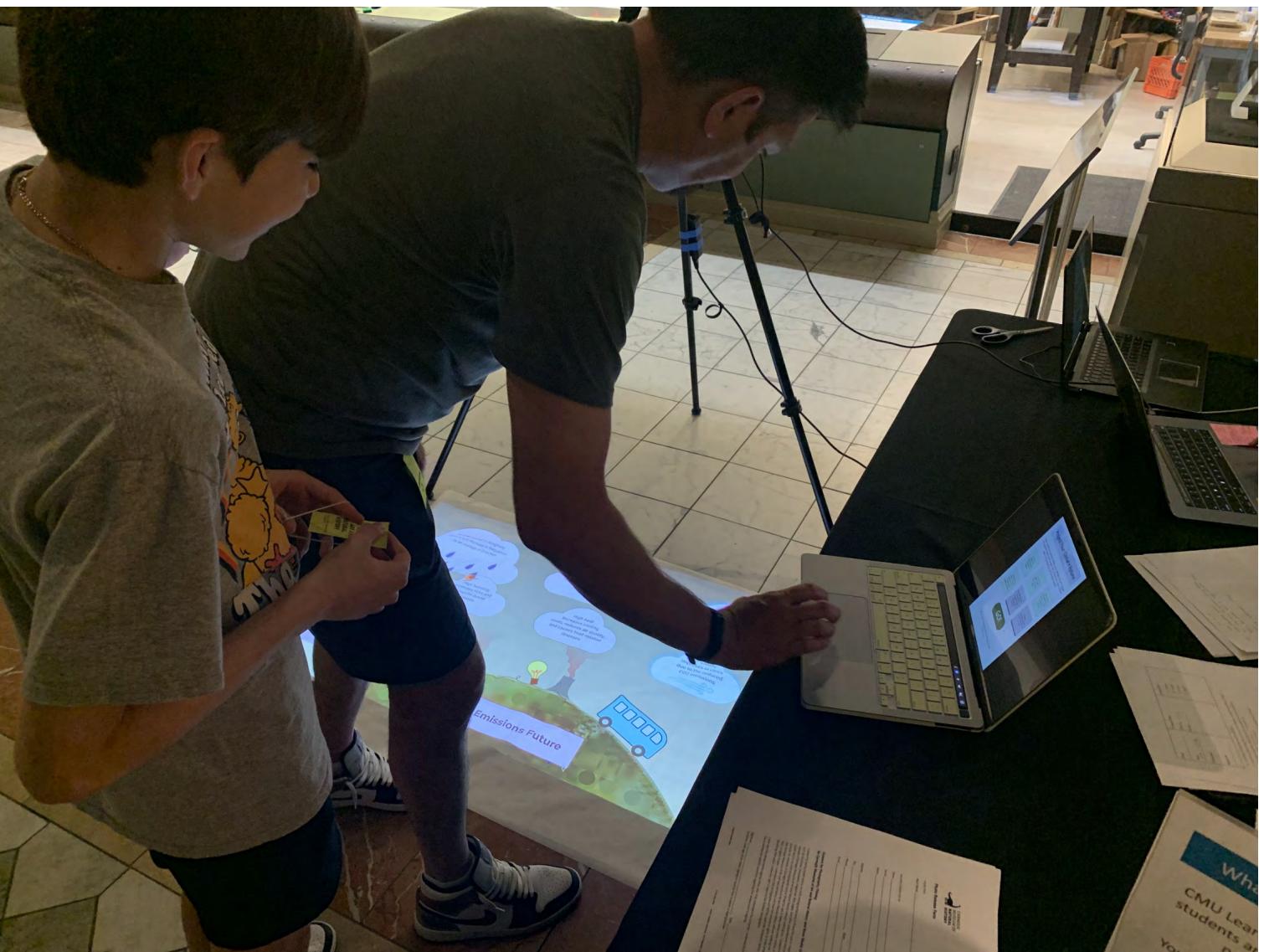


*Our setup in the Paleolab for our second prototype evaluation*

## Second Round Prototype Evaluation

### Observation

We convenience sampled participants from people that were walking around the paleolab in the museum. Once a participant approached the exhibition setup, we first gained study and media release consent. Then we allowed the users to explore the exhibit as they saw fit, providing minimal feedback during their exploration. The prototype was run using the “Wizard of Oz” method as one of our teammates would change the projection based on the actions people were taking on the control panel. One team member would take notes on the observation sheet and write down tallies for each observation category.



Family using the control panel and looking at the projection

Date: _____	Group Comp #Adult: _____ #Child: _____	Group Type <input checked="" type="checkbox"/> Family <input type="checkbox"/> School <input type="checkbox"/> Friend <input type="checkbox"/> Couple
Time: ~ 2:40. - 2:47	Observer: _____	
Subject#: 2		

1. Are they doing the activity? (Y/N)
2. Are they observing the activity or someone doing the activity? (Y/N)
3. Are they repeating the activity/trying different combinations?  
!!! This is neat! I like it! Is this going to be in the museum?
4. Are they expressing any positive feelings about the activity?  
"/negative  
"ok wow..." "It's hotter..." "rains more..."  
the more things you do, the more it changes.
5. Do they discuss personal actions related to climate futures?  
Yai we should recycle more. You don't turn your lights off.
6. Are they asking questions about the activity? (Note questions)  
So what the ones that you would do?  
Do I do anything else on here?  
- welcome to play around
7. Do they talk about scale of actions and effects?  
Trees! mosquitoes & stuff like that...
8. What role are they taking?  
I opera  
parent teaching child, & taking a lot talking about result.  
depending on what you pick, it changes.

*Example of filled in sheet. This was modified from the Barriault and Pearson tool.*

## Second Round Prototype Evaluation

### Interview Questions

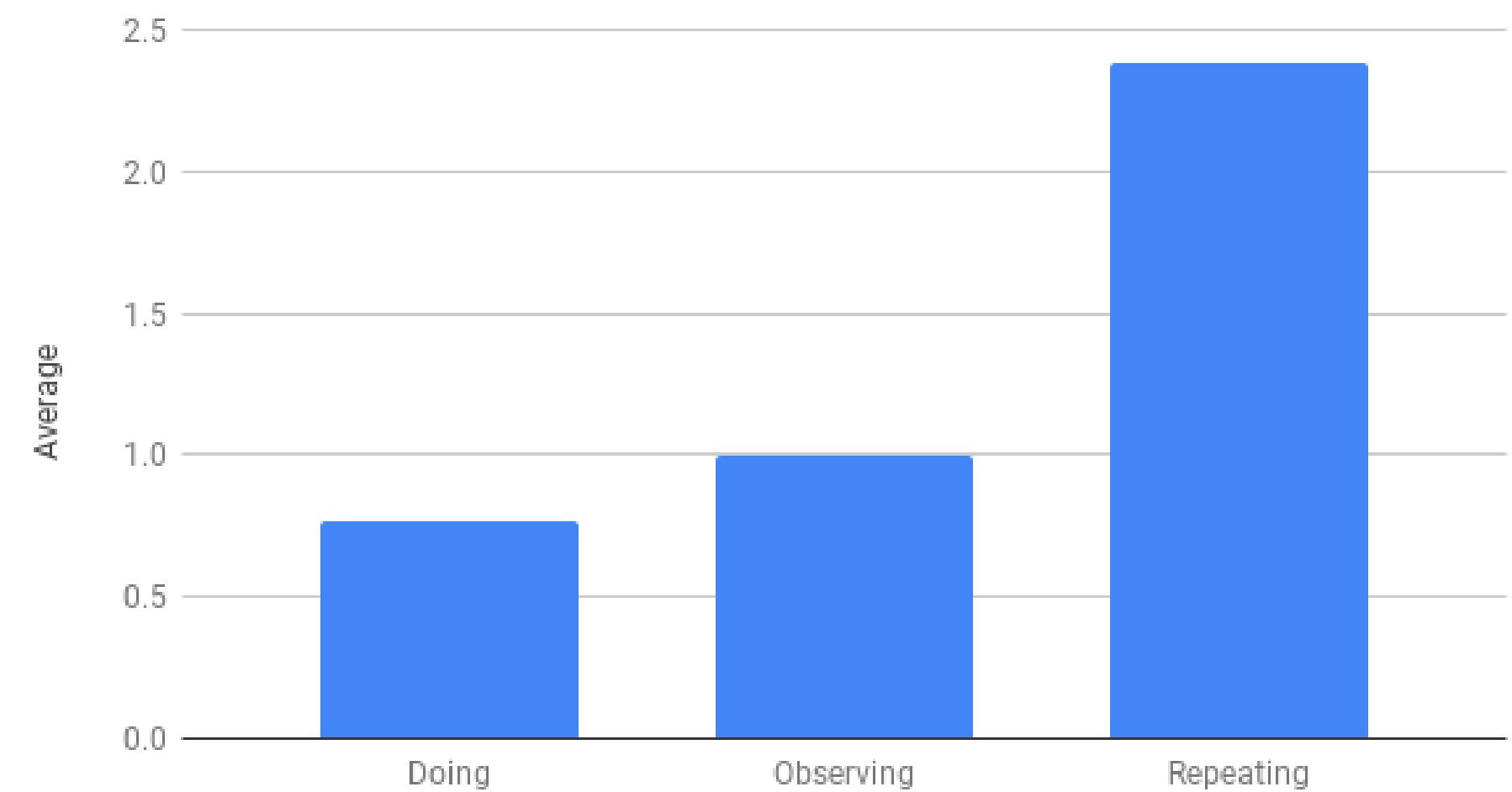
After the participants were done exploring then we asked them exit questions and demographics. The exit questions were:

- Is this your first time visiting CMNH? Yes, No  
[If no, when was your last visit? Are you members?]
- Gender
- Age
- How did your actions on the iPad affect the future state? How did that make you feel?
- Reflecting on the choices you made, what kind of takeaways do you have coming out of this experience?
- Is there anything new that you learned from this experience?
- Based on this experience, are there ways to participate in your community to affect your climate future that you didn't think of before?
- Which of these actions would you commit to taking as a result of the exhibit?  
On a scale 1-10, how likely are you to take these actions?

### Analysis

We saw that all participants engaged in transition behaviors as seen by the high repetition of the activity. People made many positive comments during use. This shows people were engaging with the prototype and were enjoying the exercise enough to repeat it.

Average for Exhibit Learning Behaviors



# Second Round Prototype Evaluation

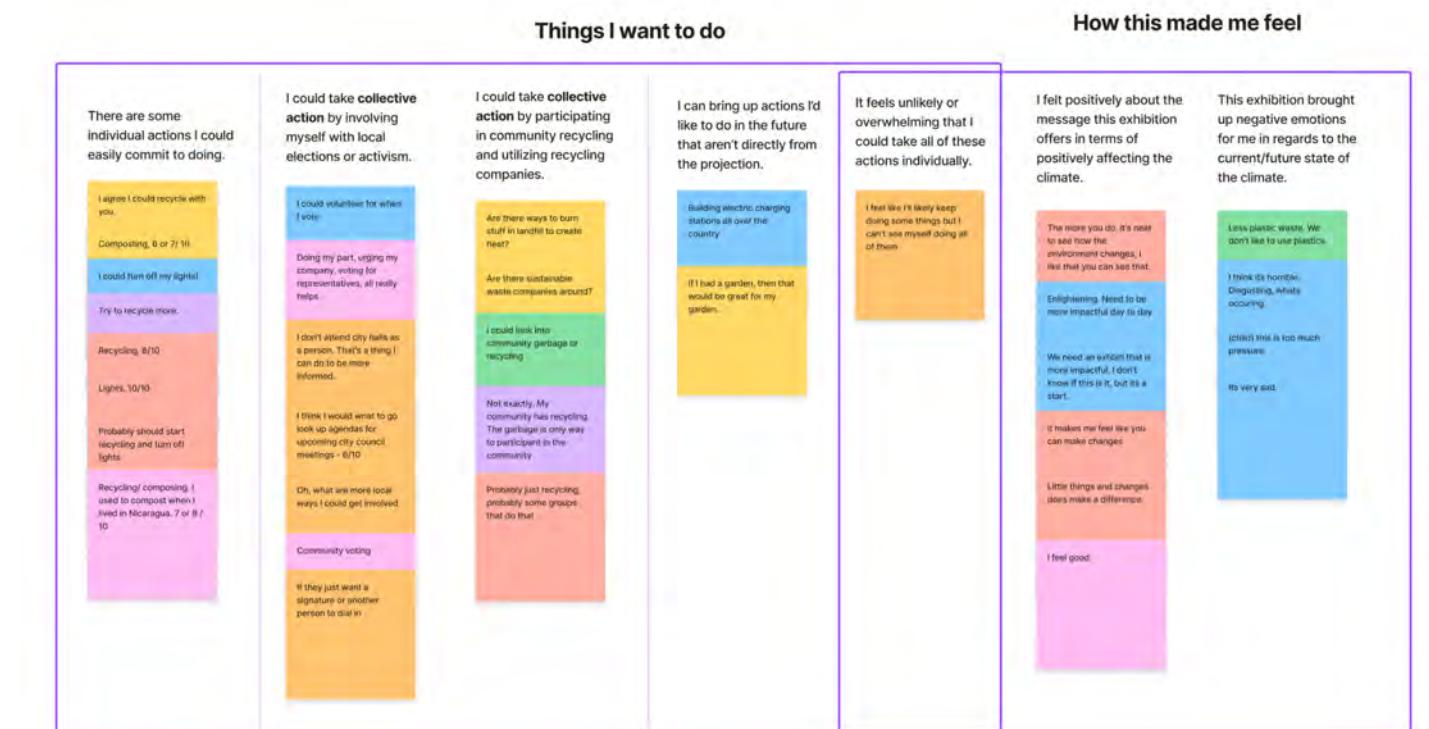
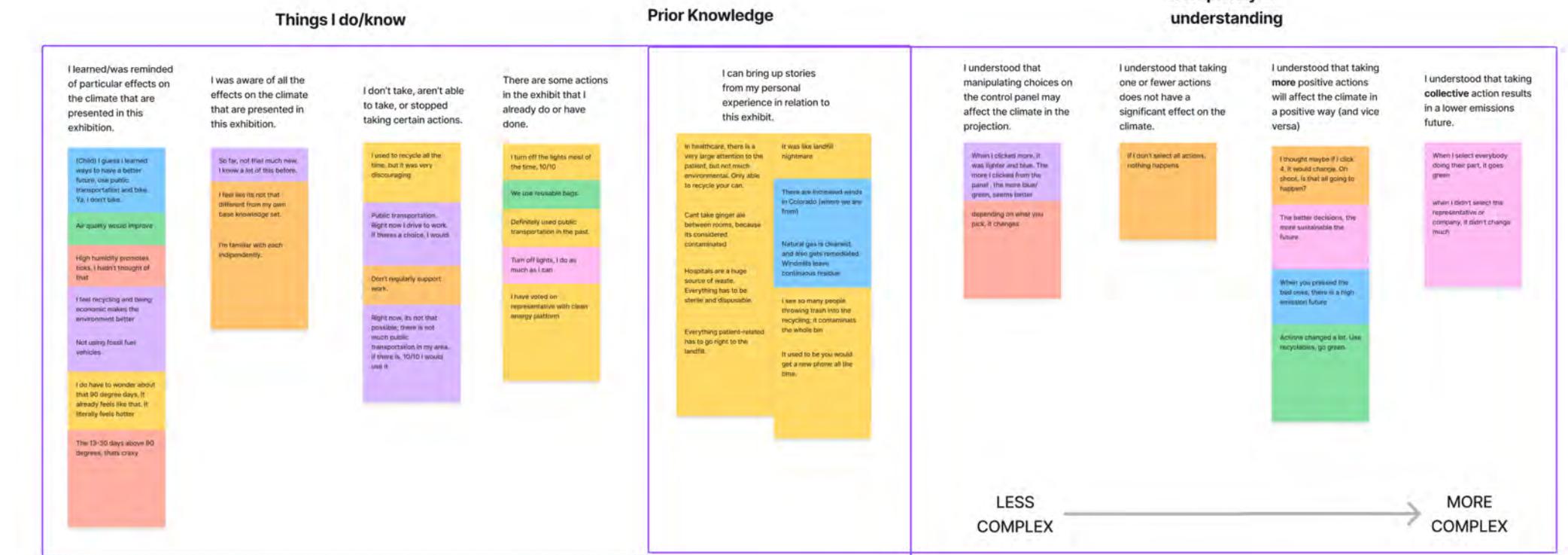
## Interview Insights

- Participants often committed to taking actions that they have prior knowledge of or have done before. But they often self-reported commitment as high.
- Less than 50% of participants understood the different scales of impact that individual and collective actions made on their future. Most simply concluded that taking more positive actions created a better future.
- There was a mix between people learning new information and confirming what they already knew.
- People came away with the intuition that few individual changes was not enough to change to a low emission future
- The facts from the projection and control panel facilitated conversations within participants.

## Usability

- Usability of the control panel was unclear.
- There was often an “Aha!” moment when people saw their choices resulted in changes on the projection
- People did not always read through the information and focused more on basic visual information like color.
- There is an order bias in how the options are laid out on the Ipad (some people only read the top row)

affinity diagram focus: what were common sentiments that visitors expressed about what they learn? what they knew? what they want to do and what they already do? how they understood and used the interface?



# Final Thoughts and Next Steps



## Team Successes: What Went Right

From our own reflection and from reviewers' comments about our work this semester, we found our strengths as a team to be our human-computer interaction and technological focus, as well as our willingness to tackle an inherently challenging topic such as systems thinking. We also made good use of our research methods and interviews with subject matter experts to ensure we were grounding the abstract concept of interconnectedness in concrete examples.

Within our team, we were able to quickly capture rich, qualitative data due to our collective experience with "scrappier" design research methods such as semi-structured interviews, Think Aloud, and Wizard of Oz, during on-site evaluations. This skillset also served us well during our research synthesis, during which we used the approach of interpretation notes and affinity diagramming to group together similarly themed findings. These methods were appropriate for the fidelity of our prototyping, and corresponded well with our thinking process as designers.

During our testing and reviews, people noted that they were surprised and impressed by the information we were able to include in our prototype. People generally appreciated the "reality check" of connecting their actions to systemic effects and stated that they would think more deeply about their individual behaviors after leaving the museum.

## Team Challenges: Future Considerations

As designers, we are used to making tradeoffs of time and depth of synthesis and development. Due to the restrictions of the project timeline and our own comfort level with software, we were not able to realize our farthest reaching dreams of fabricating an immersive, extended reality experience. However, we did manage to create a proof-of-concept with the technology that we felt more dynamic with. In the future, we would like to further engage extended reality interactions to make our projection directly responsive to physical triggers such as visitors walking onto the projection and using particular gestures. We would also want to explore more modes of human-computer interaction such as QR codes and soundscapes in this type of interactive.

Being quite new to the informal learning and natural history museum space, the three of us learned a lot about the type of information that can be effectively displayed in a museum environment. Considering human-computer interaction principles like cognitive overload, progressive disclosure, and feedforward, we know there are many usability aspects that we could fine-tune to make our exhibit and its message more digestible. In the future we would continue observational and think-aloud studies to pinpoint what UI/UX changes would best enhance our visitors' experience and understanding of the interactive.

## Museum Recommendations

We were successful in making a giant system feel personal and relatable by using both familiar and new examples of accessible actions people can take, thereby bringing an abstract concept into concrete terms. Pittsburgh residents have the ability to participate in civic engagement, and we brought that possibility to the forefront of their solutions by putting the actions prominently on the iPad. As usability testing showed, we could have improved in making clear that civic actions related to making an impact at a greater, collective scale. Therefore we would recommend denoting with labels or with images that civic actions vastly amplify the positive effects of individual actions. We attempted to send the message to visitors that individuals have a role in collective action when it comes to climate activism, though we believe we were only partially successful in that particular goal.

What did work well was tackling the Anthropocene values by introducing relatable examples of climate action and environmental justice. We had to adapt more complicated or politically charged examples in order to make our exhibit a more accessible entry point into understanding these Anthropocene values. We began with intentions of bringing social justice and climate activism into a museum context, and we learned that we have to be very socially conscious in our framing of the actions people can take. Therefore we adapted the actions to not depend on making purchases or investments such as EVs and solar panels, as these would be nice to have but most visitors noted that these

purchases were not feasible for them. This learning also allowed us to focus on civic engagement in people's local communities, which does not require purchases but does require time and effort.

Next, we were able to successfully spark future thinking and conversation by rooting actions in individuals' personal actions. These concrete and relatable examples gave our visitors a way into exploring additional actions that they are not yet taking. Our recommendation would be to expand on the concrete/relatable examples we gave in our exhibition. We suggest that the museum build off of these ideas by introducing explicit examples from communities outside of those who frequent the museum. This would expose the typical museum-goer demographic to gain a diverse perspective of different forms of climate action.

## References

Barriault, C., & Pearson, D. (2010). *Assessing exhibits for learning in science centers: A practical tool*. Download Assessing exhibits for learning in science centers: A practical tool. *Visitor Studies*, 13(1), 90-106.

Falk, John H. *Identity and the Museum Visitor Experience*. Walnut Creek, Calif: Left Coast Press, 2009. Print.

Hornecker, Eva, and Luigina Ciolfi. *Human-Computer Interactions in Museums*. San Rafael, California: Morgan & Claypool, 2019. Web.

# Appendix



# Initial Collages

**Nicole Collage 02/16**

The collage includes a circular diagram of the Doughnut Model, a bingo card for Earth Day, and several posters related to climate justice and environmental issues.

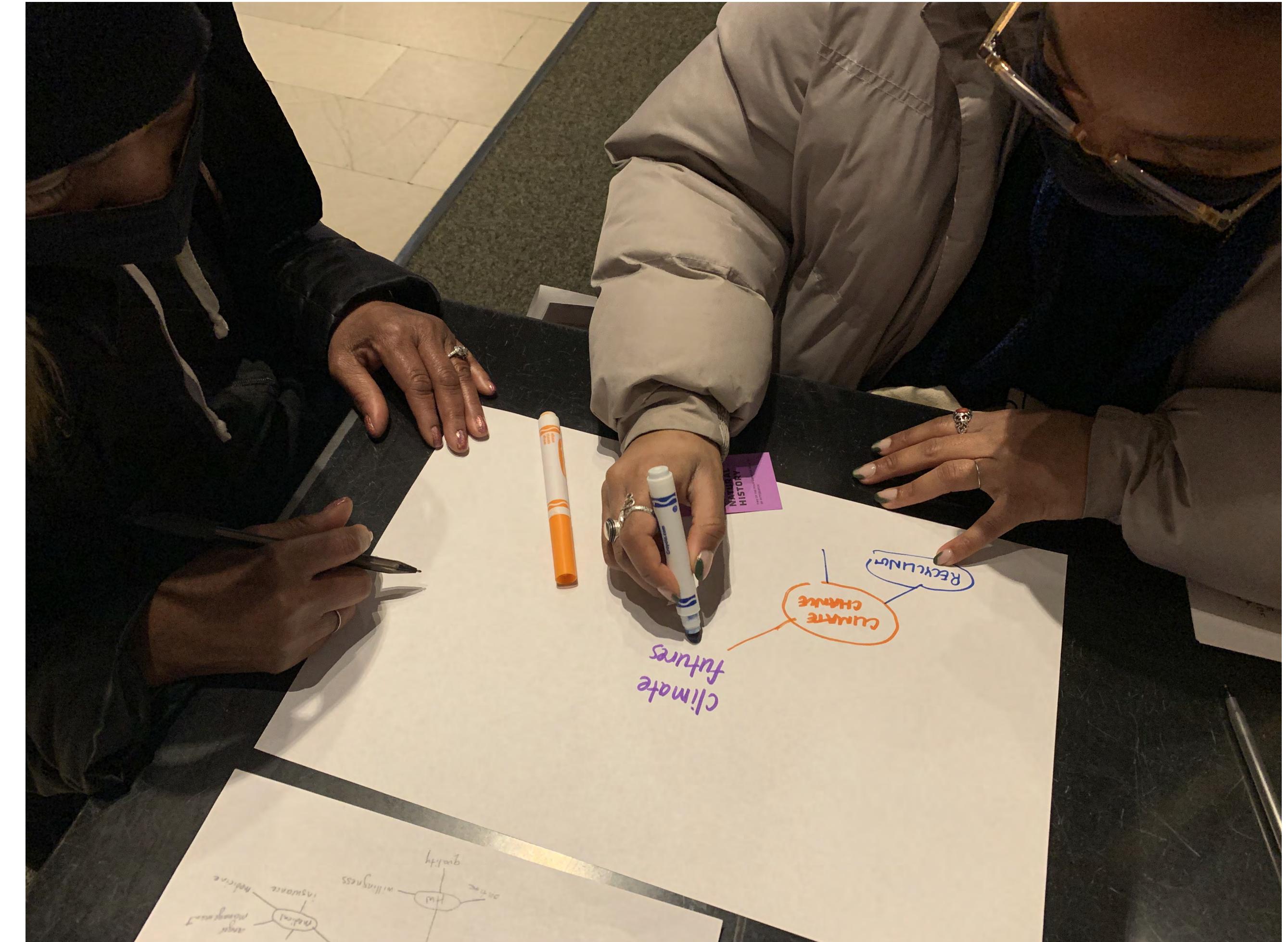
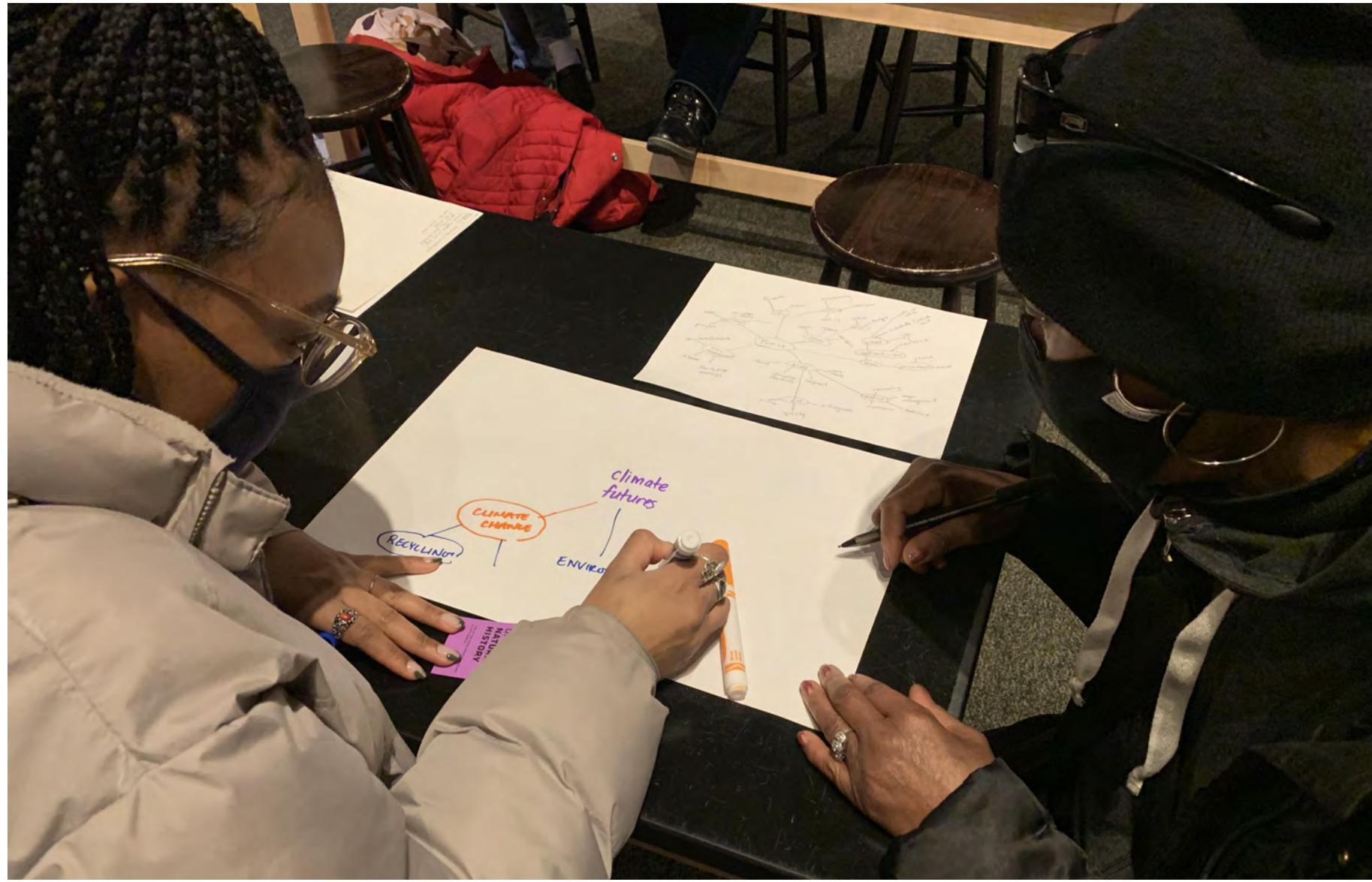
**Jailyn's Collage 02/16**

The collage features screenshots from the game Horizon Zero Dawn, a VR exhibit at the Prado Museum, and images of polar bears in a trash-filled environment.

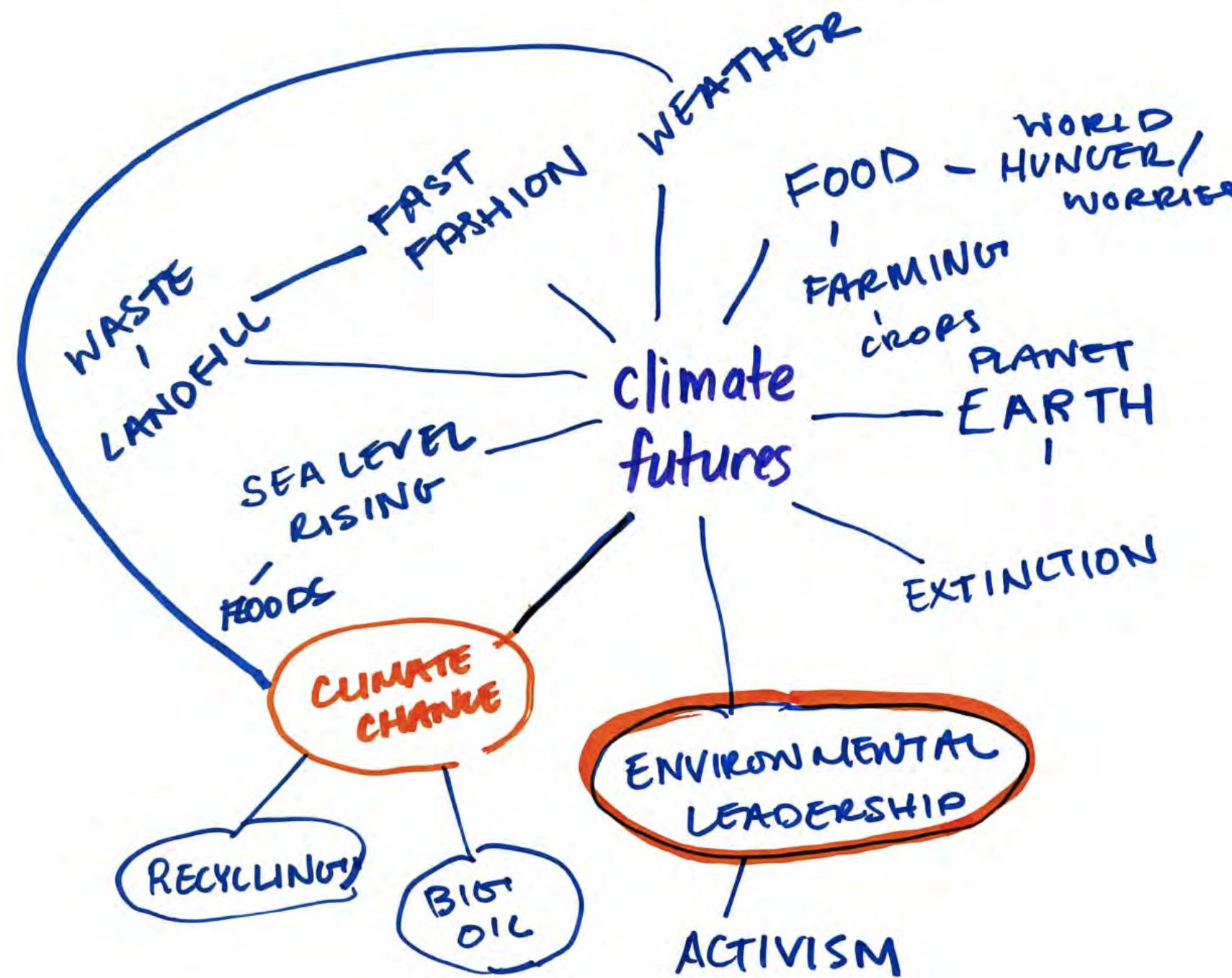
**Martina's Collage 02/16**

The collage includes a board titled 'Anthropocene Concepts' with various terms and references, and a section on 'Technology Inspiration' featuring images of futuristic architecture and exhibits.

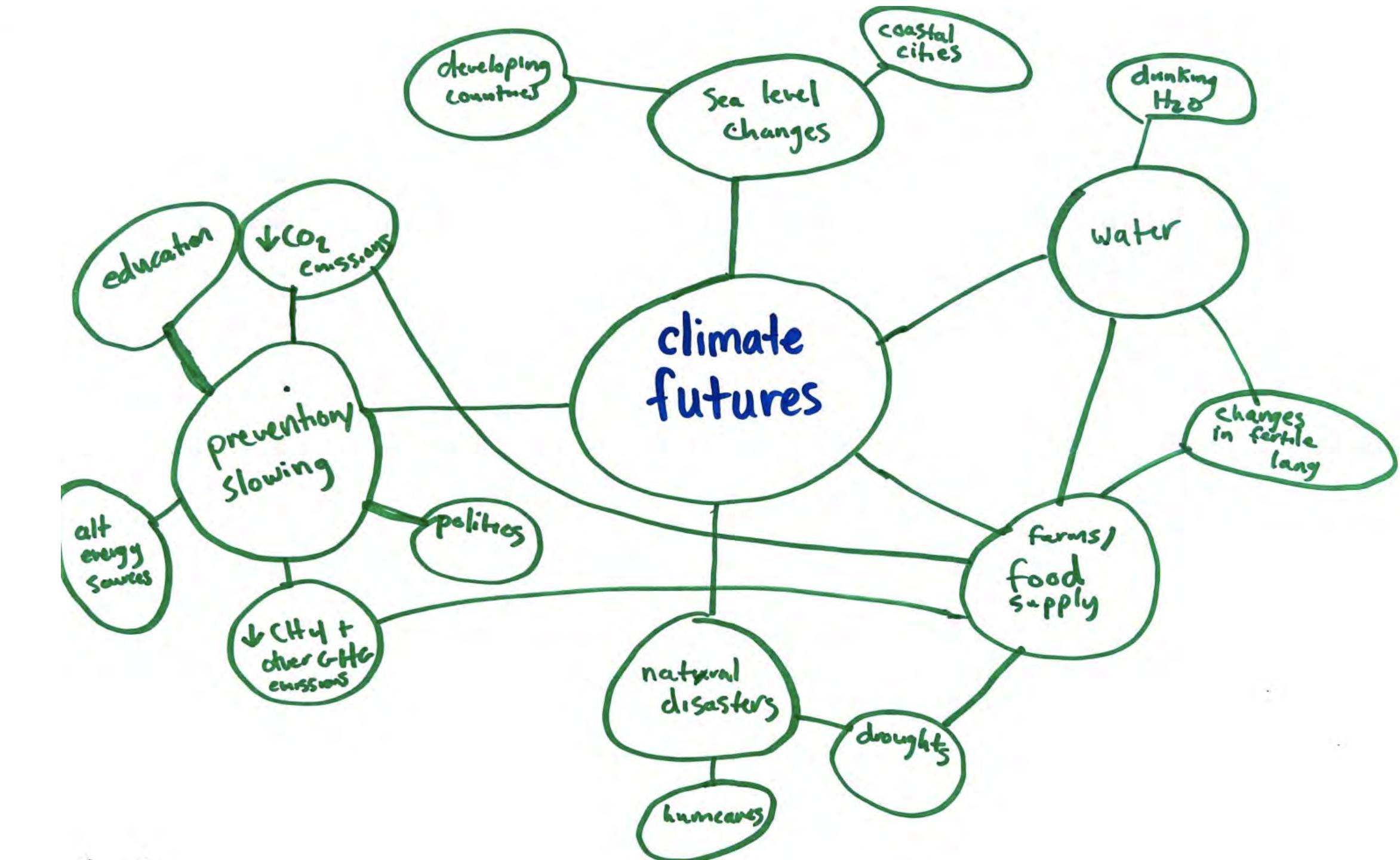
## Mind Map Process Photos



## Mind Maps



Group 1



Group 4

## Mind Maps

The world sucks.

global warming?

ice caps melting?

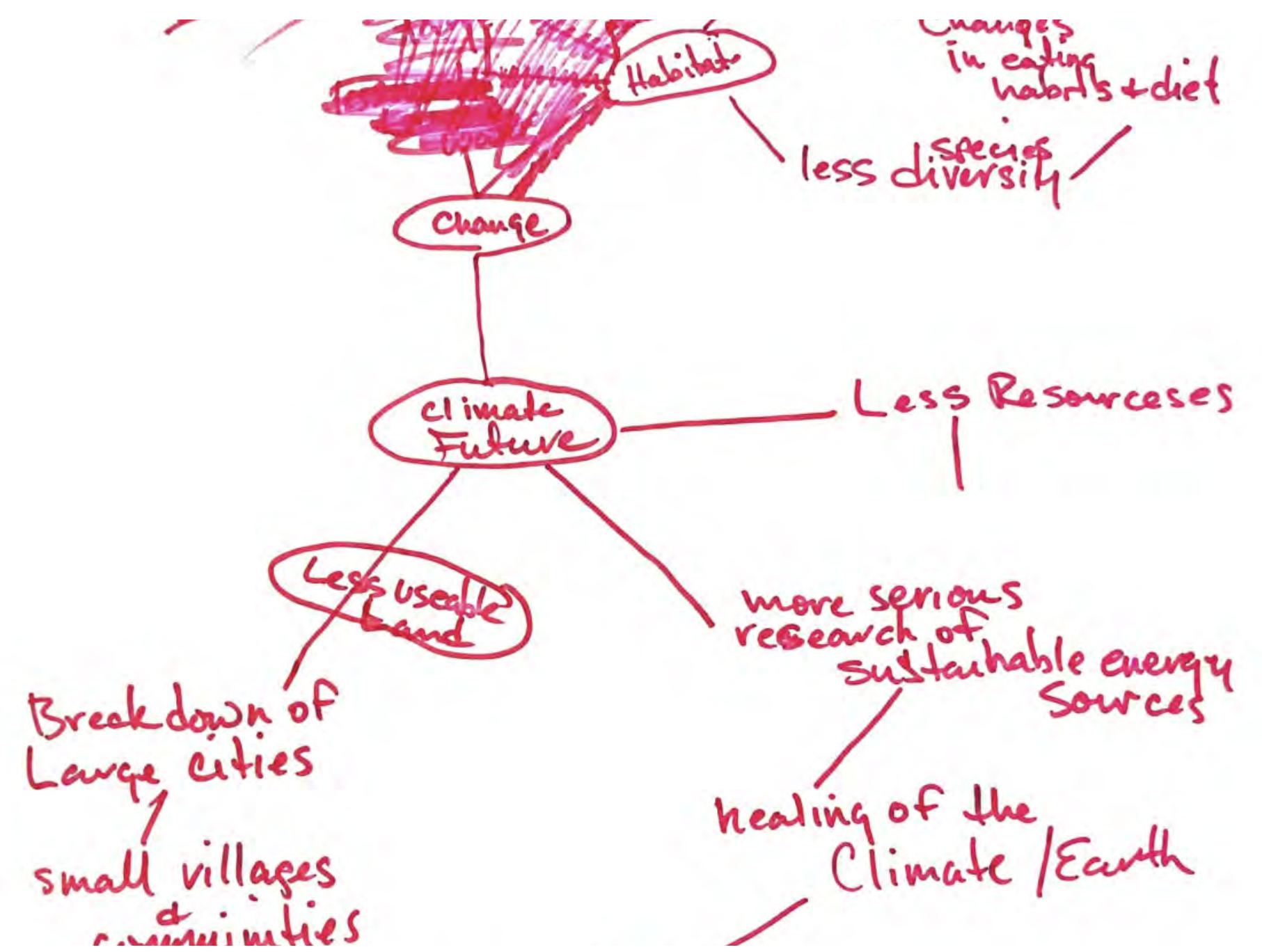
Climate futures

Volcanos erupting?

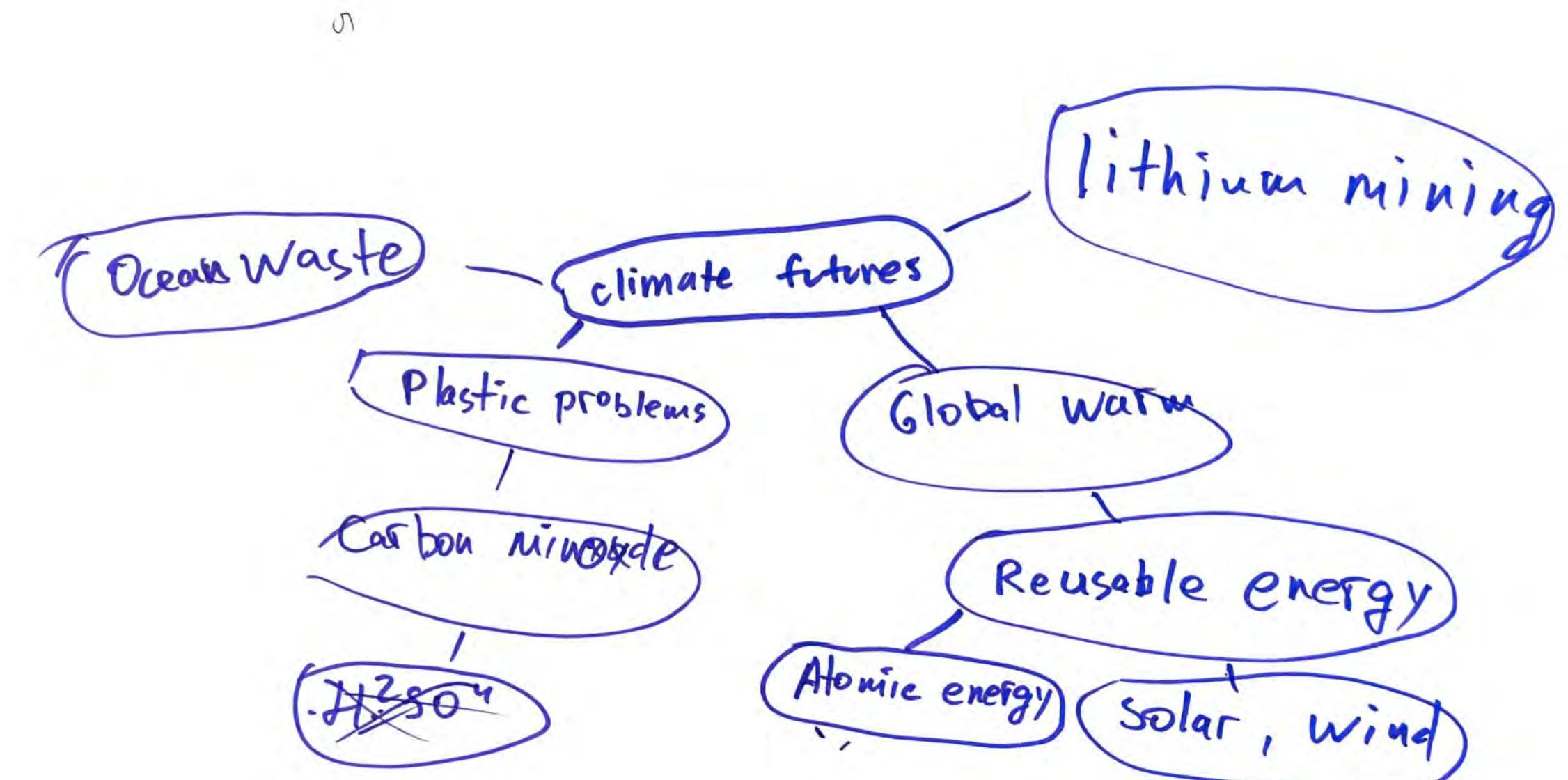
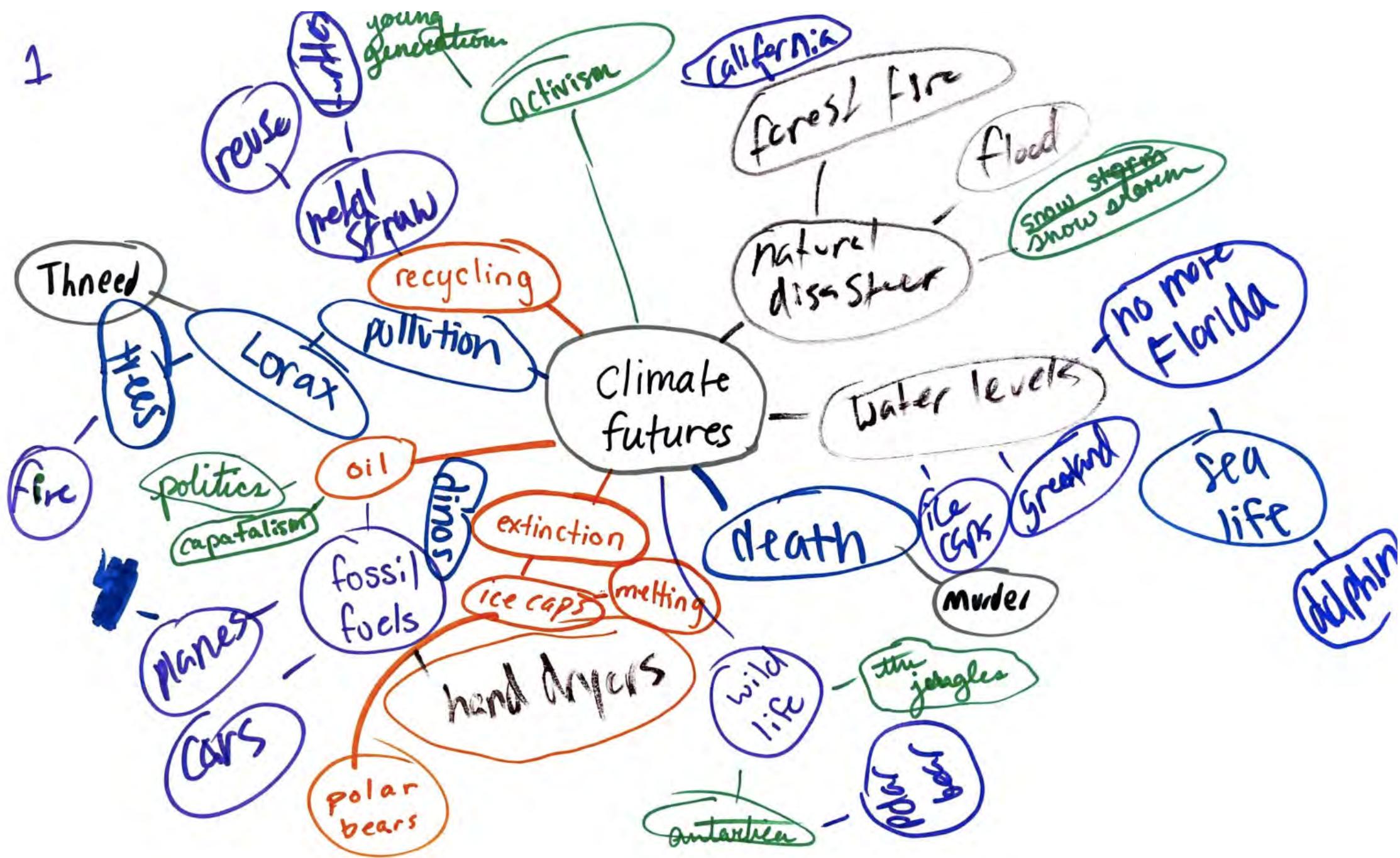
Dead polar bears?

fish dying.

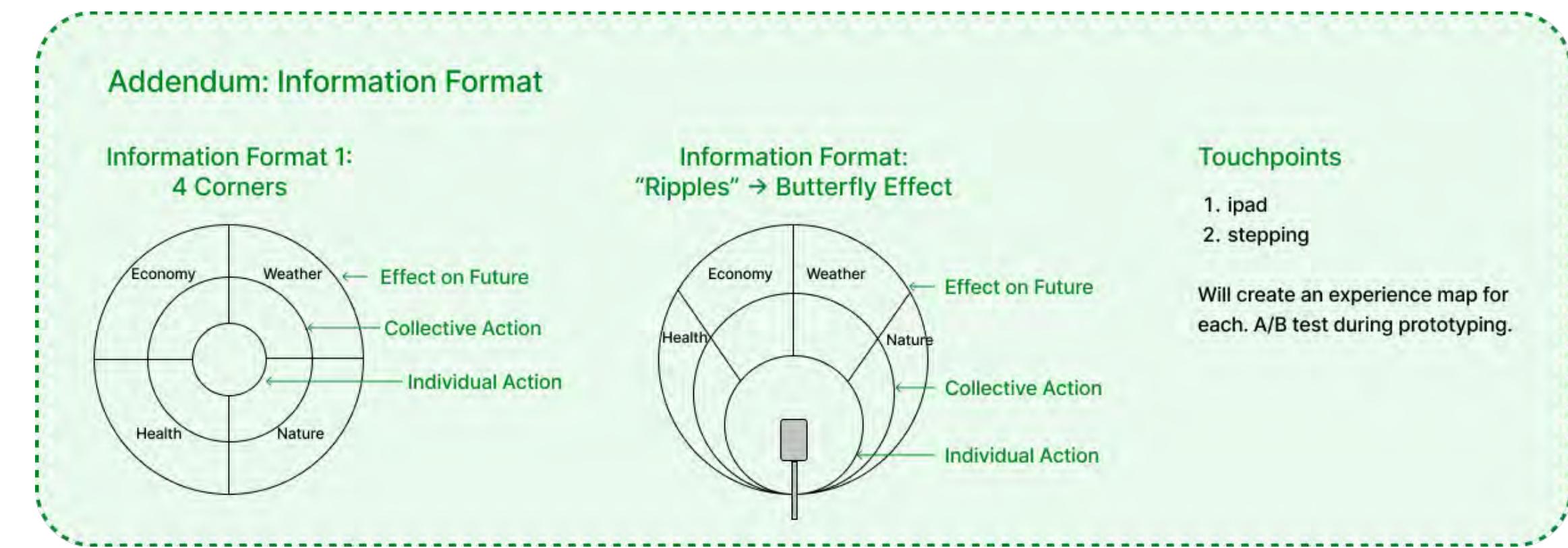
group 6



# Mind Maps



# Early Modeling



# Modeling

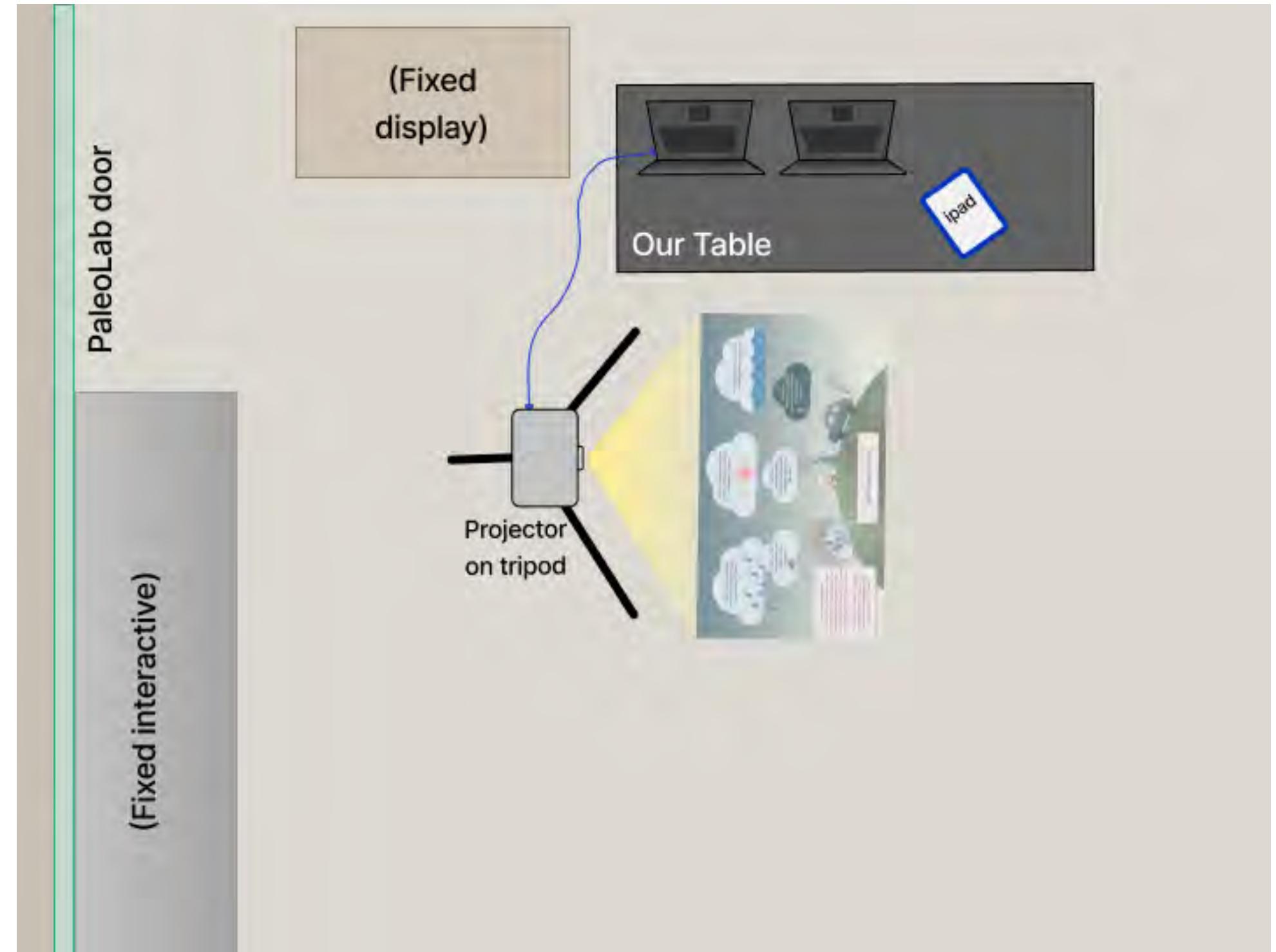
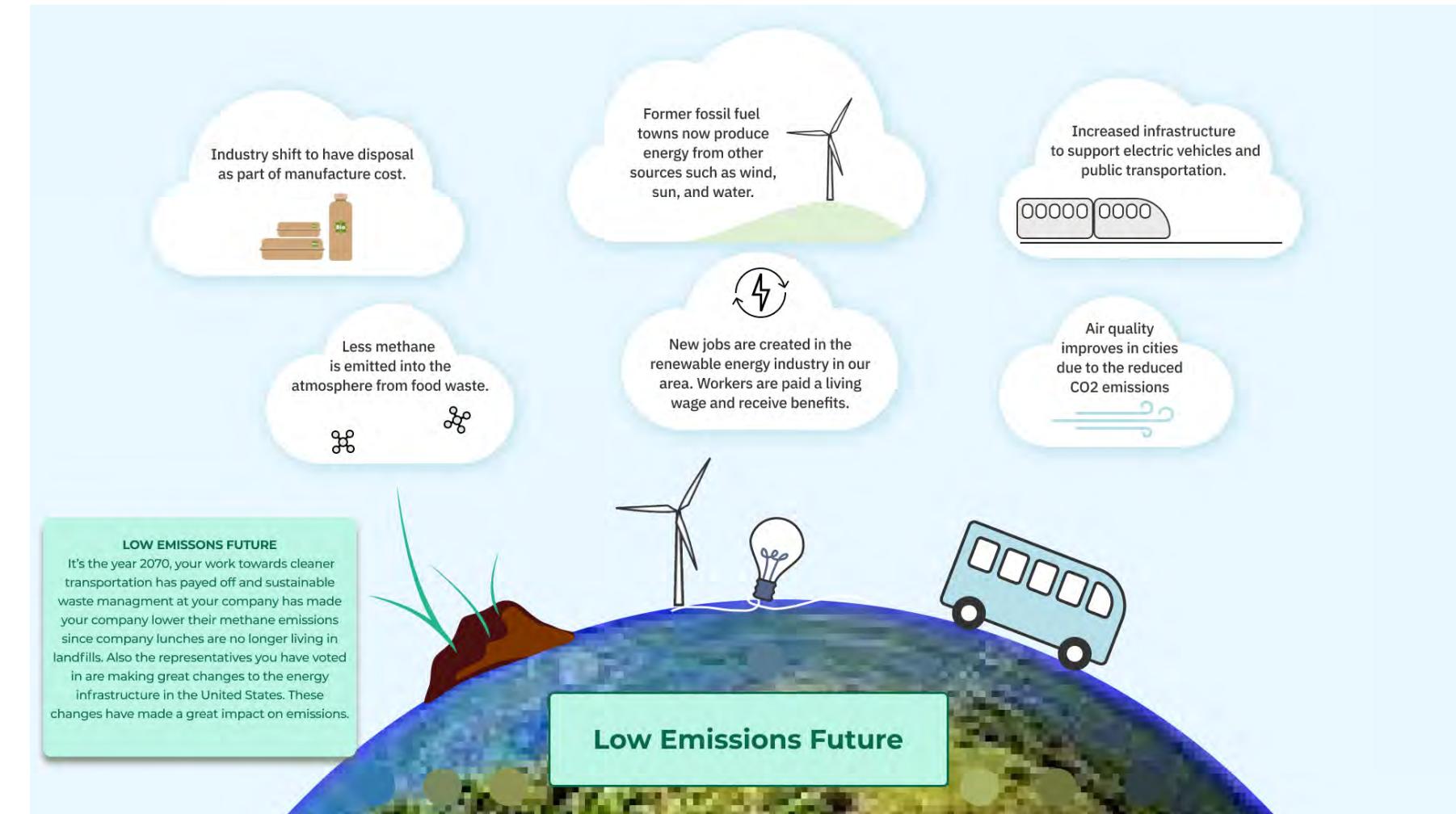
**Project Your Climate Future**

How would your actions affect your climate future? toggle the options below and press "GO" to see how your choices effect the projection on the floor ahead.

I sort my waste into recycling and compost at home.  
I turn off my lights when I am not using them.  
I take public transportation, bike or carpool to work/school.  
  
I volunteer to help my work partner with a sustainable waste company.  
I vote for representatives with a clean energy platform.  
I attend town halls to advocate for electric public transportation

**GO!**

Want help integrating these everyday? Scan the QR Code



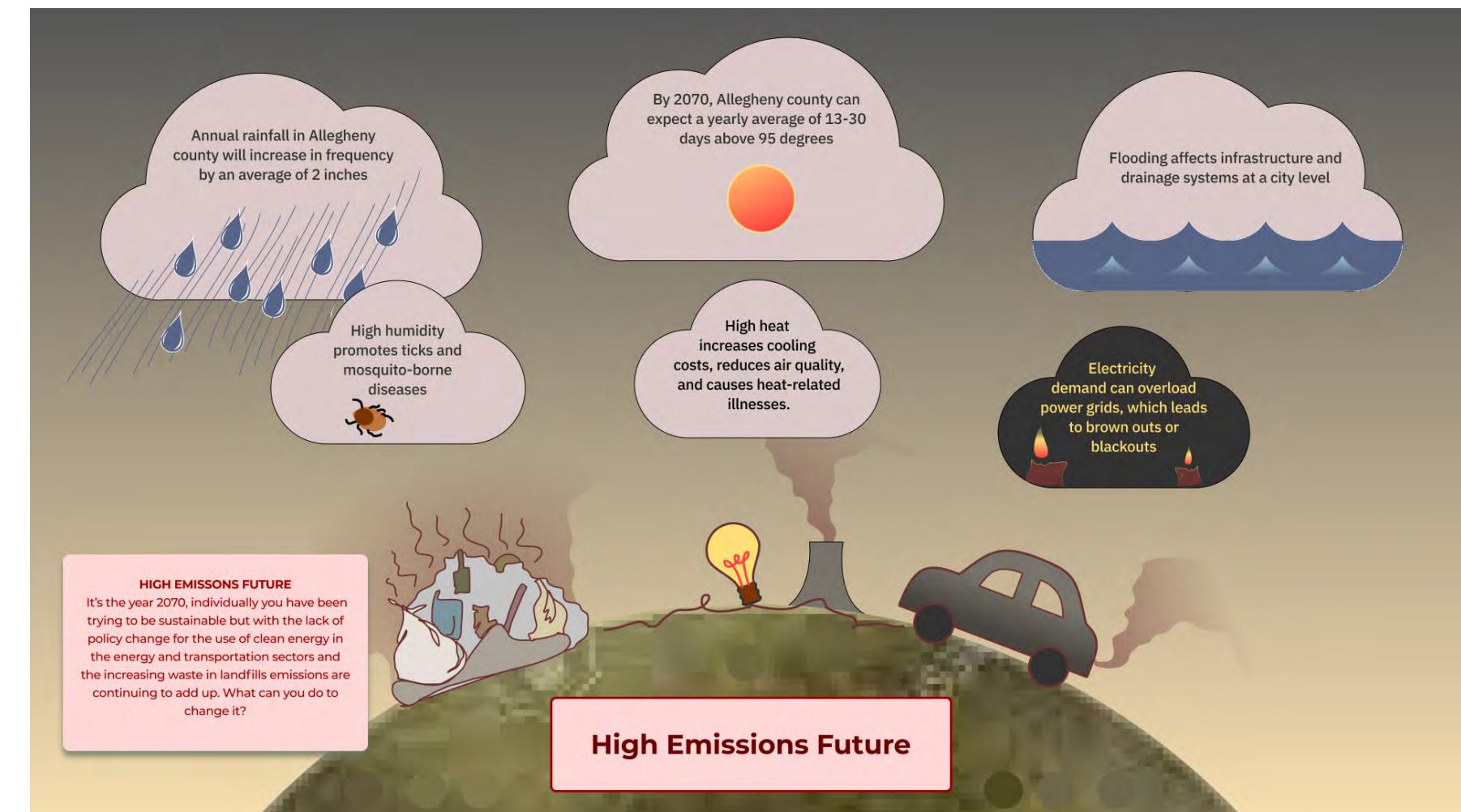
**Project Your Climate Future**

How would your actions affect your climate future? Toggle the options below and press "GO" to see how your choices effect the projection on the floor ahead.

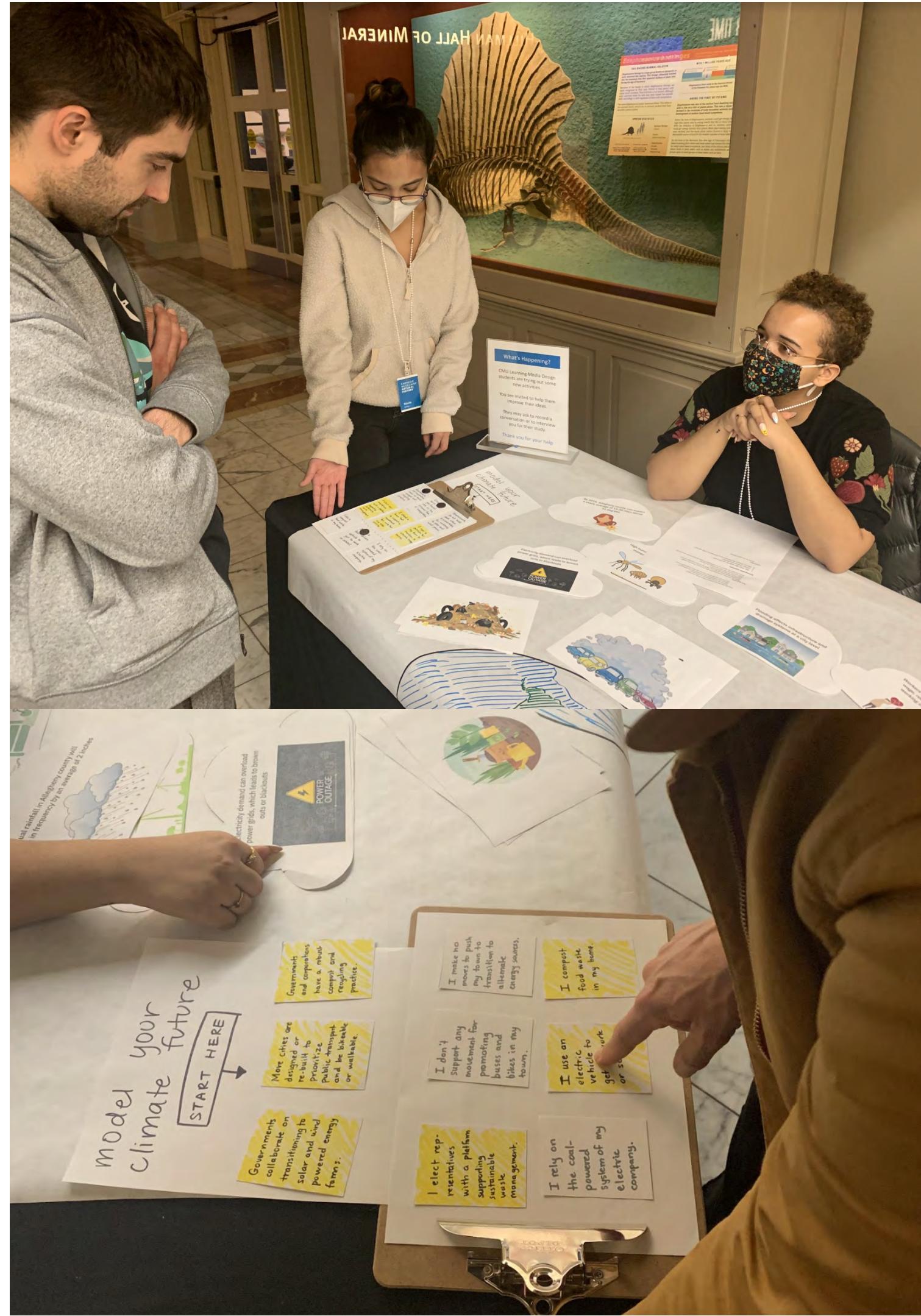
I throw all my recyclables and compost in the trash.  
I don't turn off my lights when I'm not using them.  
I drive by myself to work or school with a fuel-powered car.  
  
My company doesn't dispose of waste sustainably  
Representatives that do not support clean energy are elected.  
Public transportation continues to run on fuel.

**GO!**

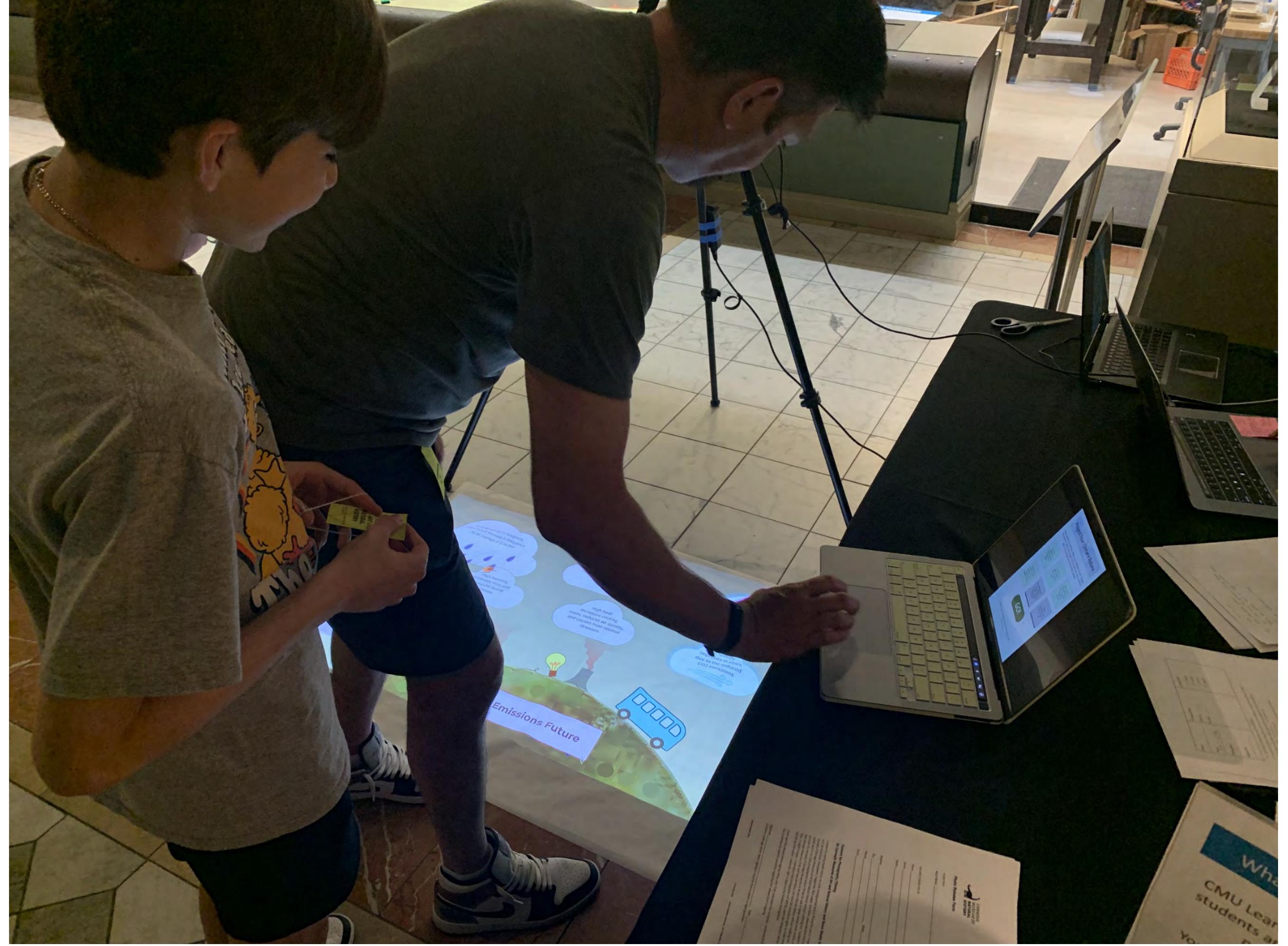
Want help integrating these everyday? Scan the QR Code



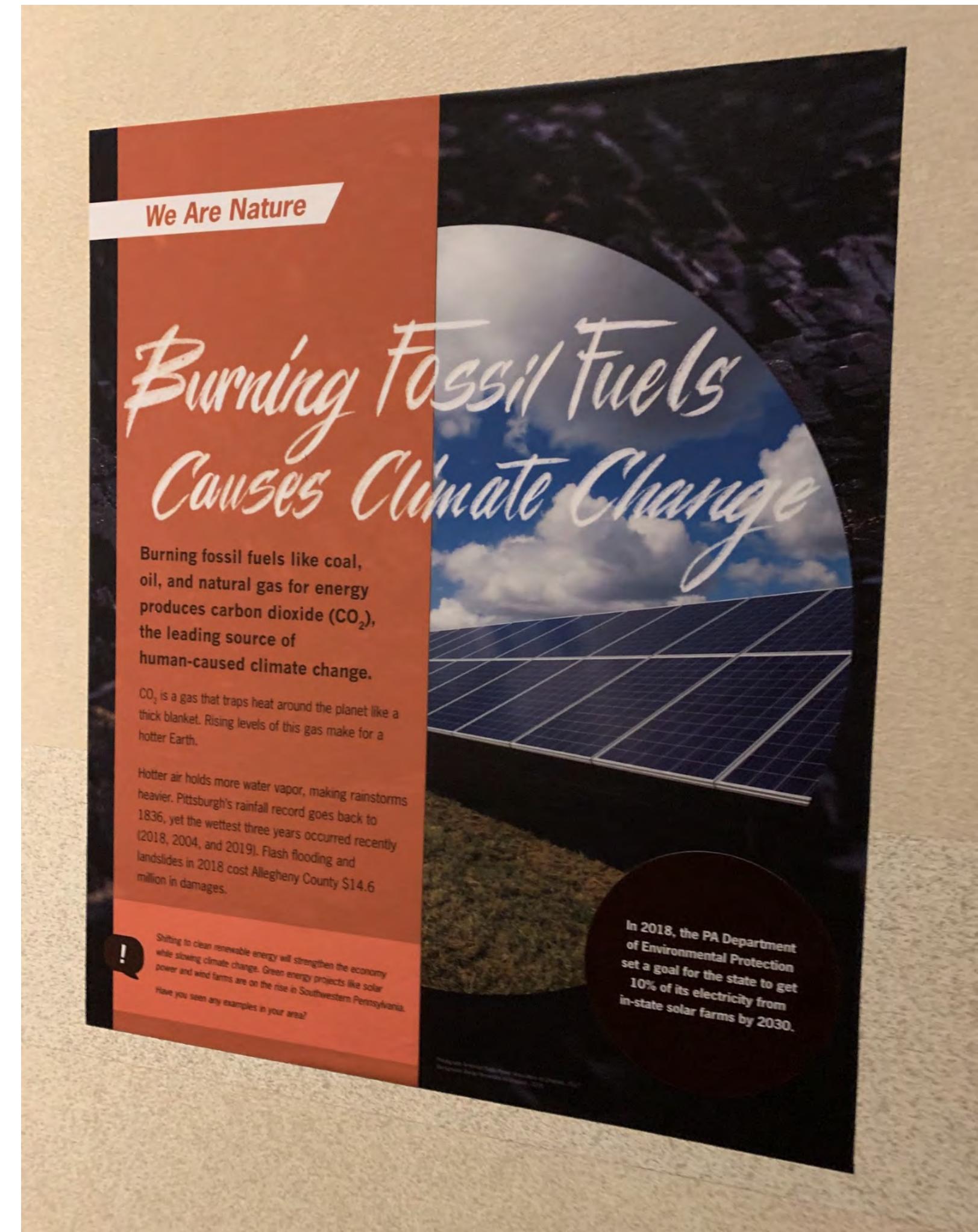
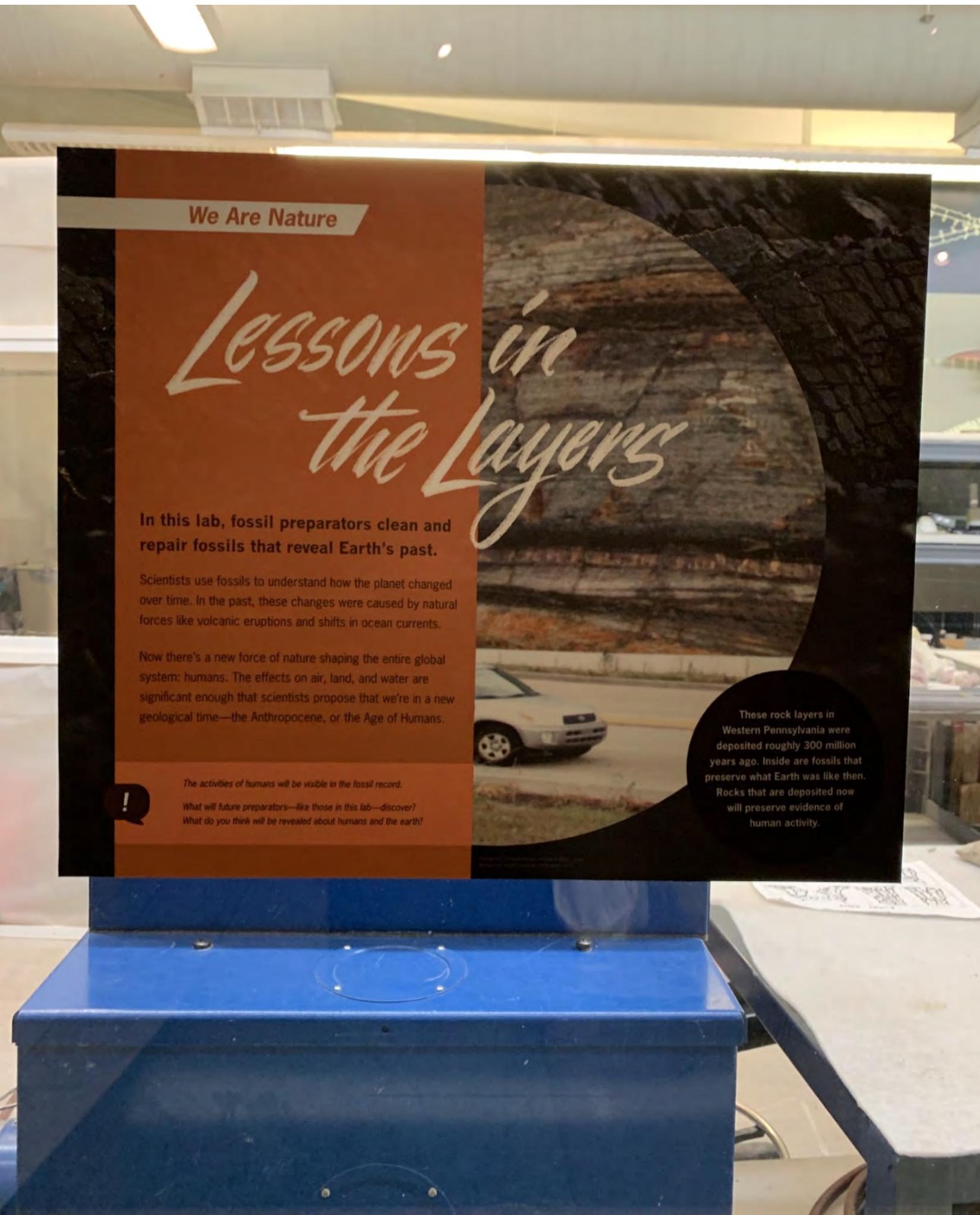
# Lofi Prototyping



## Hifi Prototyping



## We Are Nature Meta-Labels (Our Inspiration)



## Links to Evaluation Instruments

Personal Meaning Mapping:

[Protocol](#)

[Survey Results](#)

First Round of Prototyping:

[Protocol](#)

Final Evaluation:

[Protocol and Observation Form](#)