CLIMATOPIA

A Children's Game for Teaching Climate Disaster Resilience

2021 Carolinas Climate Resilience Conference

Durham, NC

Session 6D, Wed. May 12, 2021, 8:30 – 9.30 am

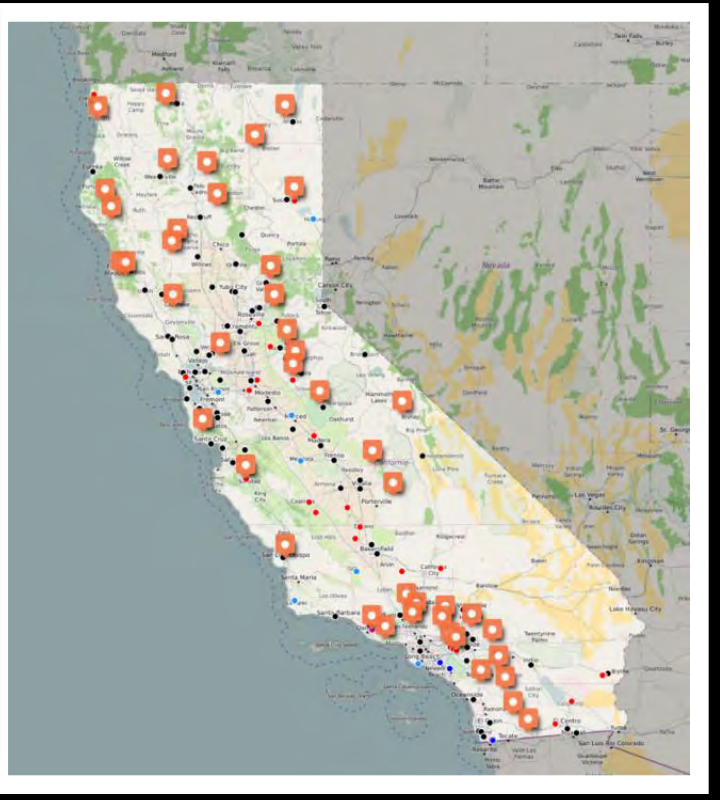
University of North Carolina, Chapel Hill

- Dr. Rachel Willis, Professor of American Studies & Economics
- Sydney Thomas, Biology and Environmental Health, UNC 2021
- Alex Pistiolis, Biology and Chemistry, UNC 2021
- Karla Cordova Araujo, Biology, Buckley Public Service Scholar, UNC 2023

Communicating Climate Change to Children

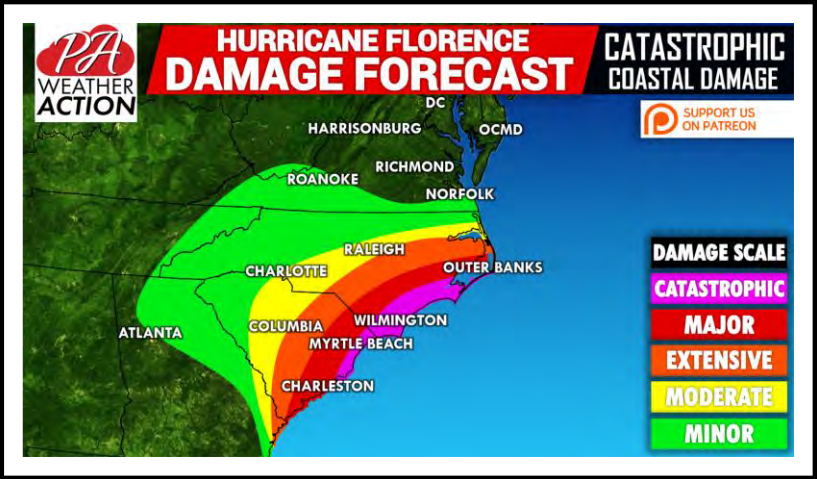
FIND ENGAGING WAYS TO TEACH ABOUT

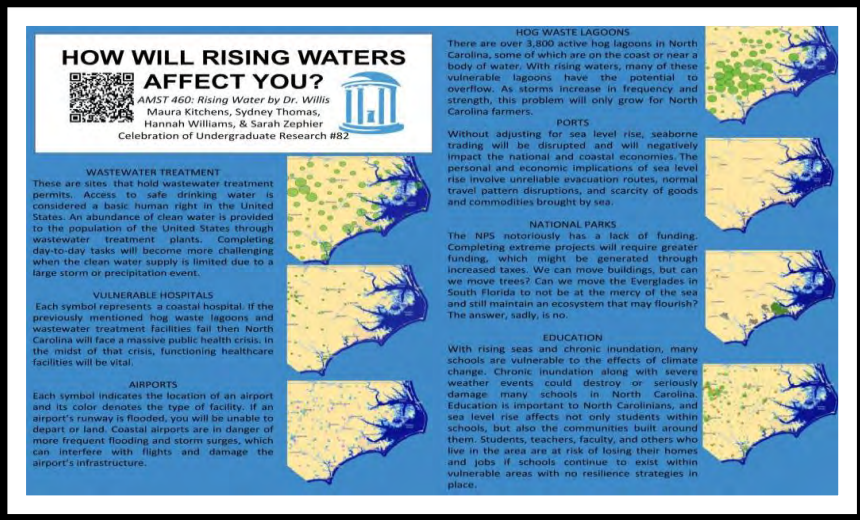
CLIMATE CHANGE WATER CHALLENGES



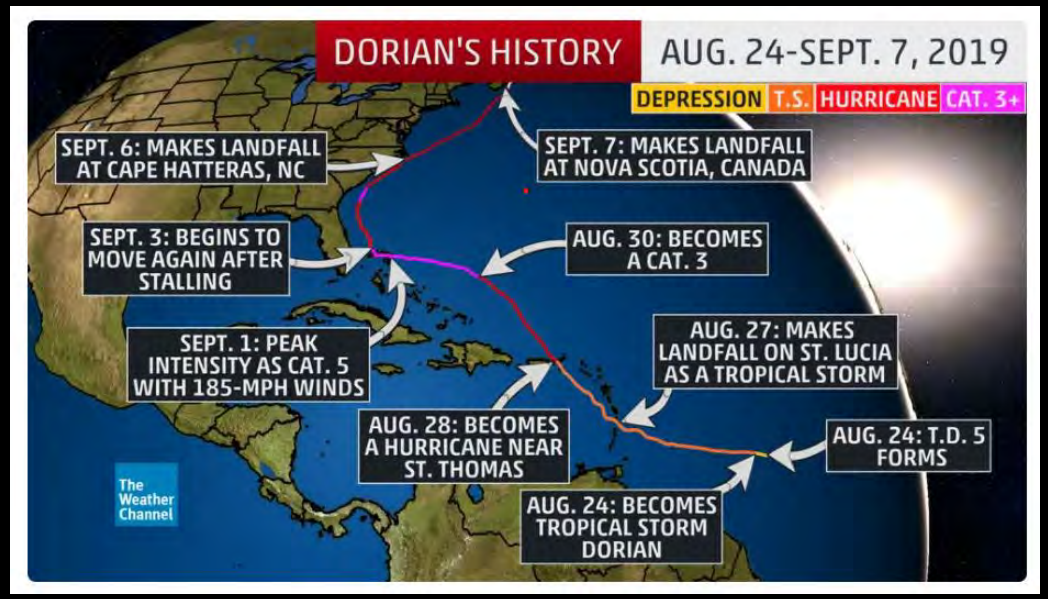
UNC – RISING WATERS
SPRING 2017 - SEMINAR VISITS NC COAST

Fall 2018 Rising Waters
Partnered with UNC's King Tide Project and Dr. Christine Voss to develop ArcGIS Sites





Fall 2019 Rising Waters – Hurricane Dorian & Early Game Development



Next step:
Develop a RESILIENT engaging fabric “game-to-go” with updated RESOURCES!

Spring 2020
Grad Seminar Communicating Climate Science

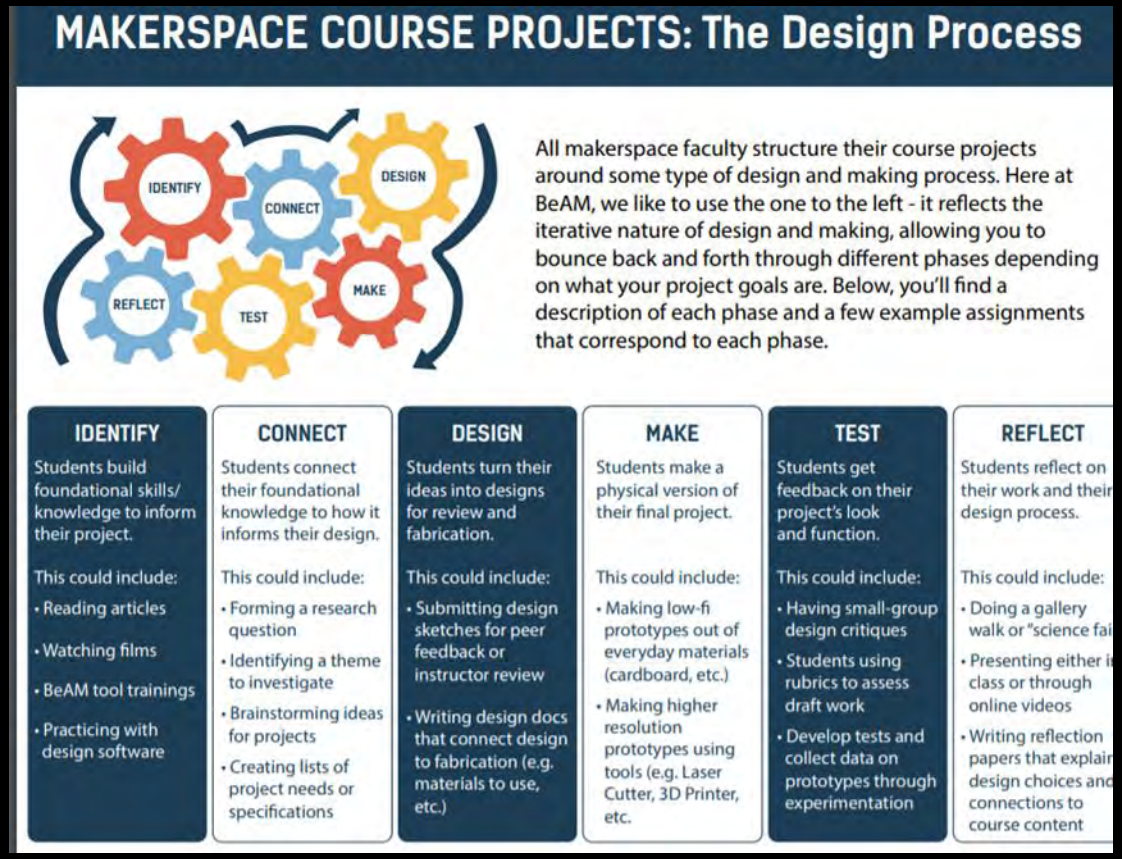
Communicating Water Challenges of Climate Change with the Visual and Performing Arts

American Studies 641, Spring 2020
Professor Rachel Willis
The University of North Carolina at Chapel Hill

Cover of 1905 edition of Claude Debussy's score of *La Mer*, based on Hokusai's *Wave*

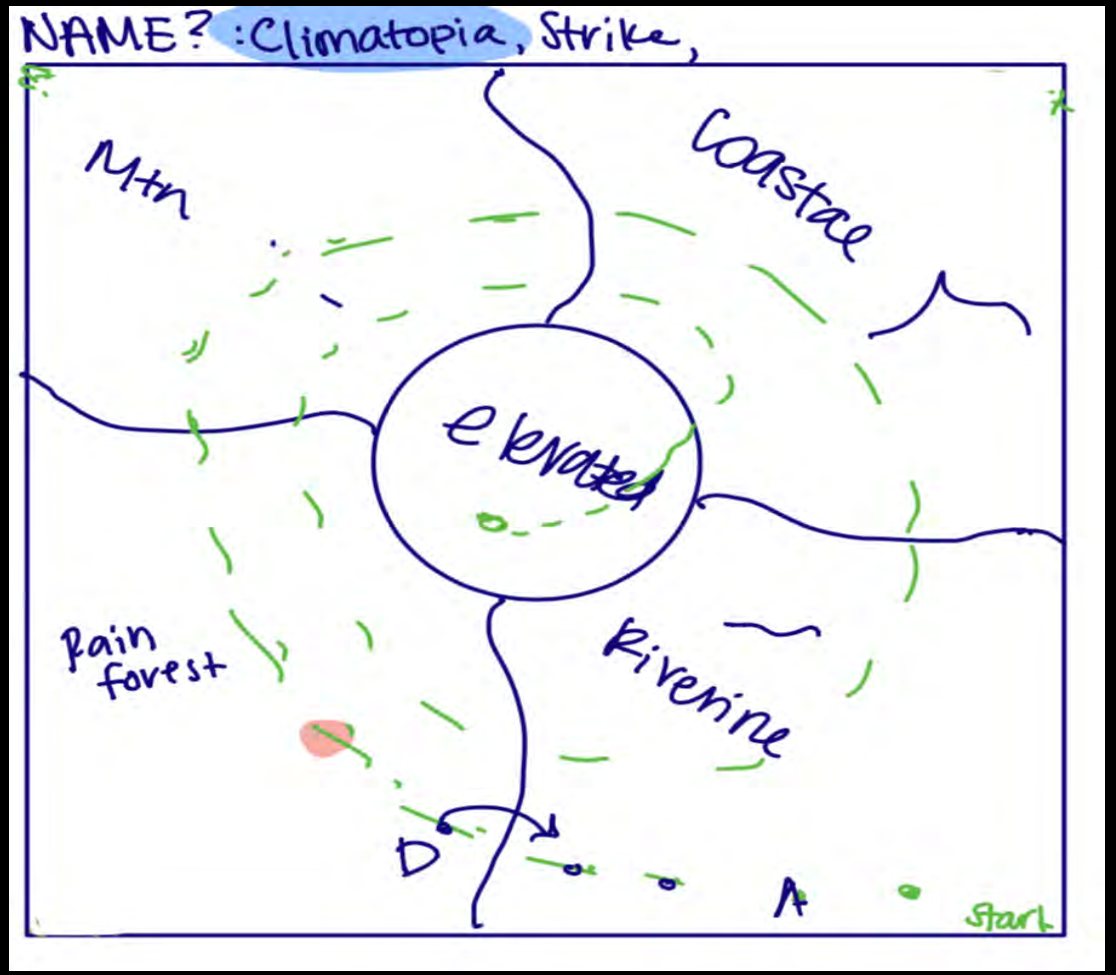
COURSE DESCRIPTION:
Climate change means water challenges that threaten people, property and the existence of nation states. Severe precipitation events from warmer air holding more water, sea-level rise, and more intense hurricanes, mean flooding, water quality, and foodshed issues for more than half the world's population. Drought, resulting wildfires, and the availability of life-sustaining water is a problem for others. Virtually everyone will be impacted by the massive global migration that will result from rising waters as a refugee, or as a member of a community that receives refugees, or perhaps both. The visual and performing arts are used to explore more effective ways to communicate this growing crisis.

Spring 2020 & developing BeAM Course Grant to use design process to make the game in a resilient format.

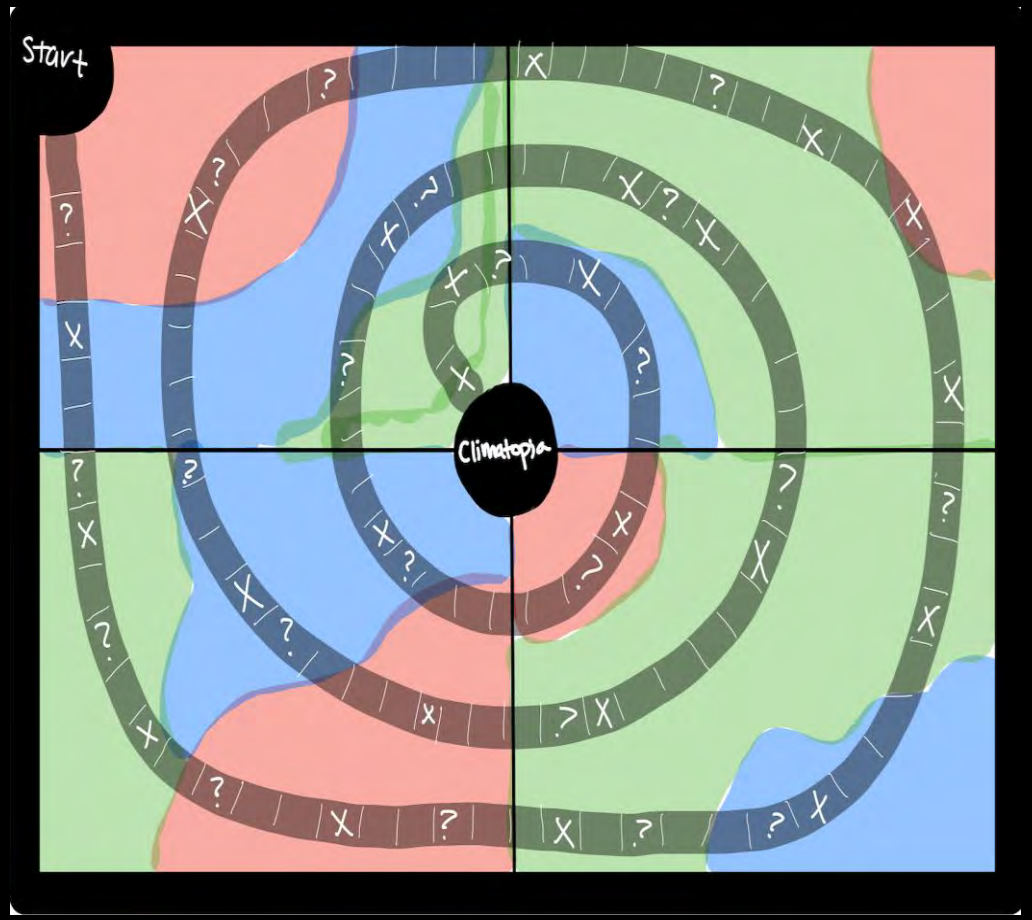


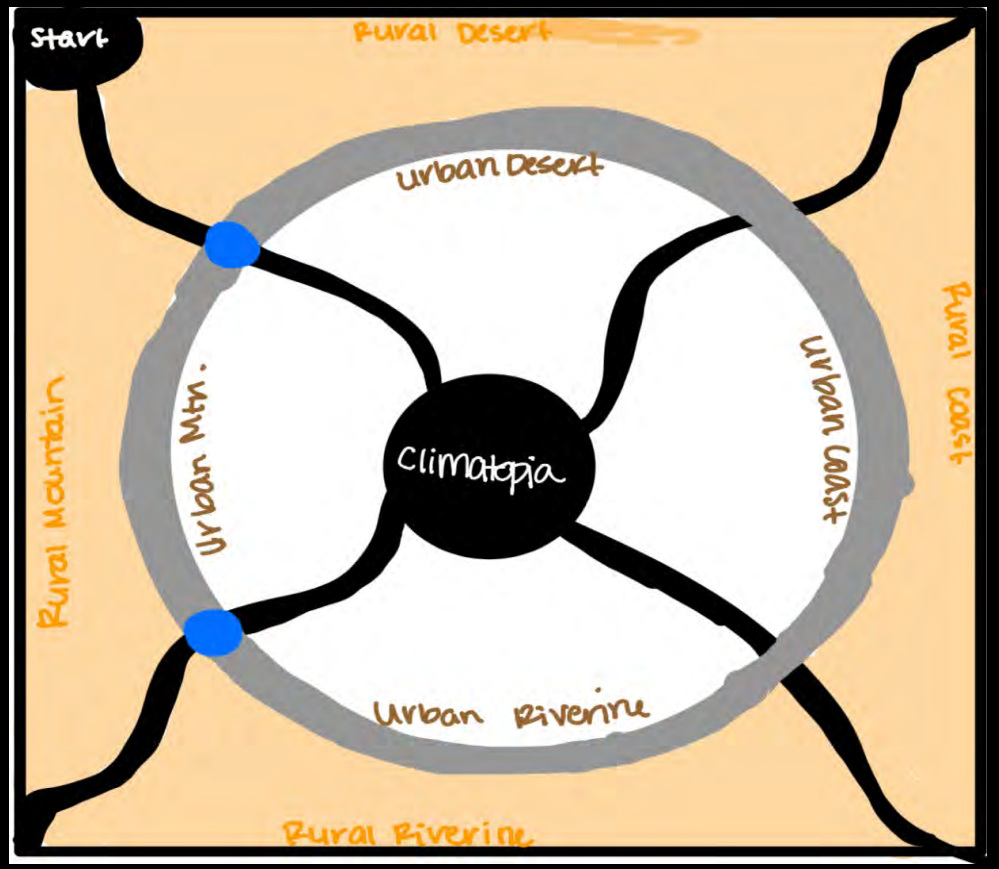
Sydney Thomas

Climatopia: The Early Stages

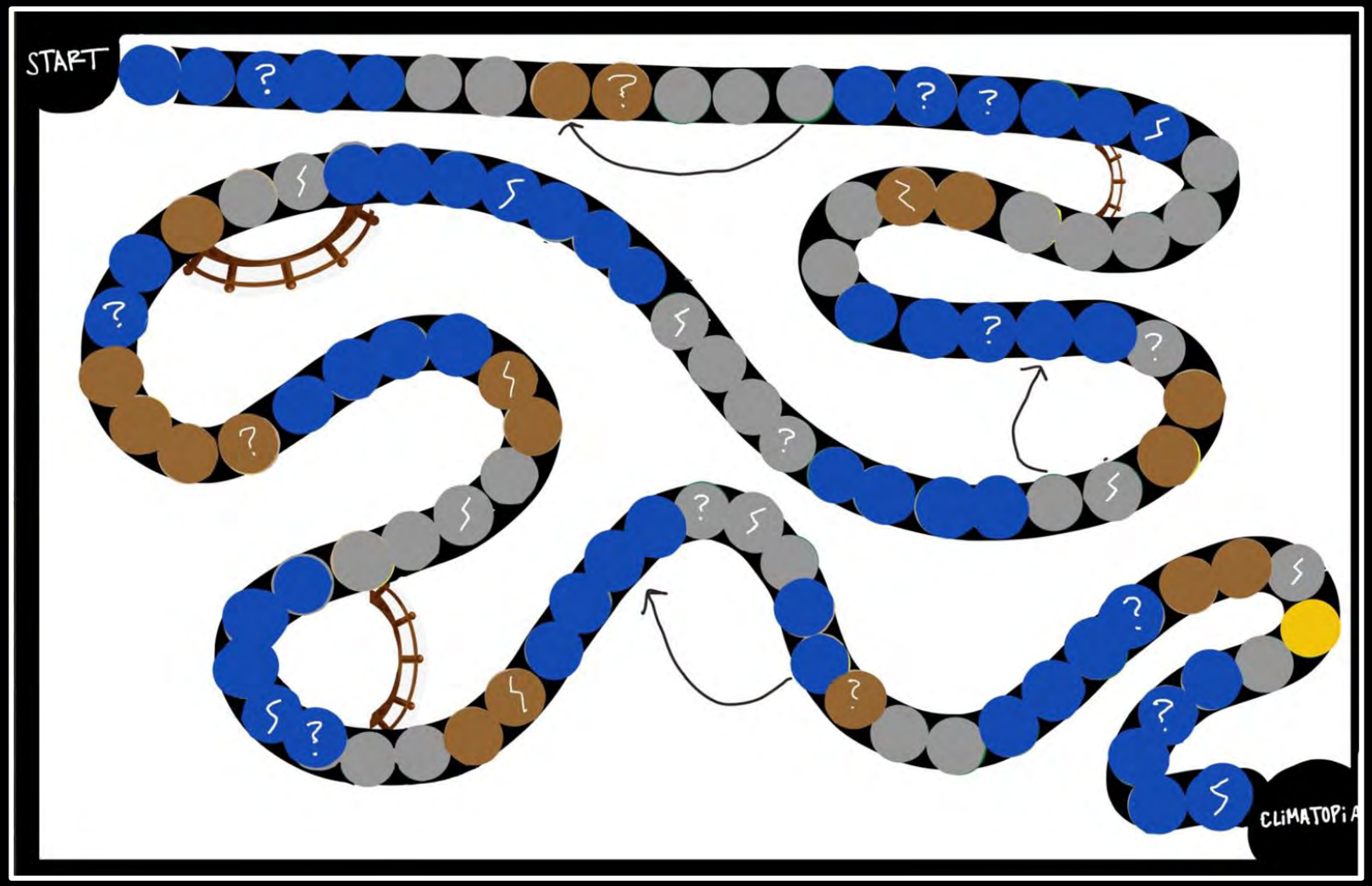


Spring 2020 Evolution of Game



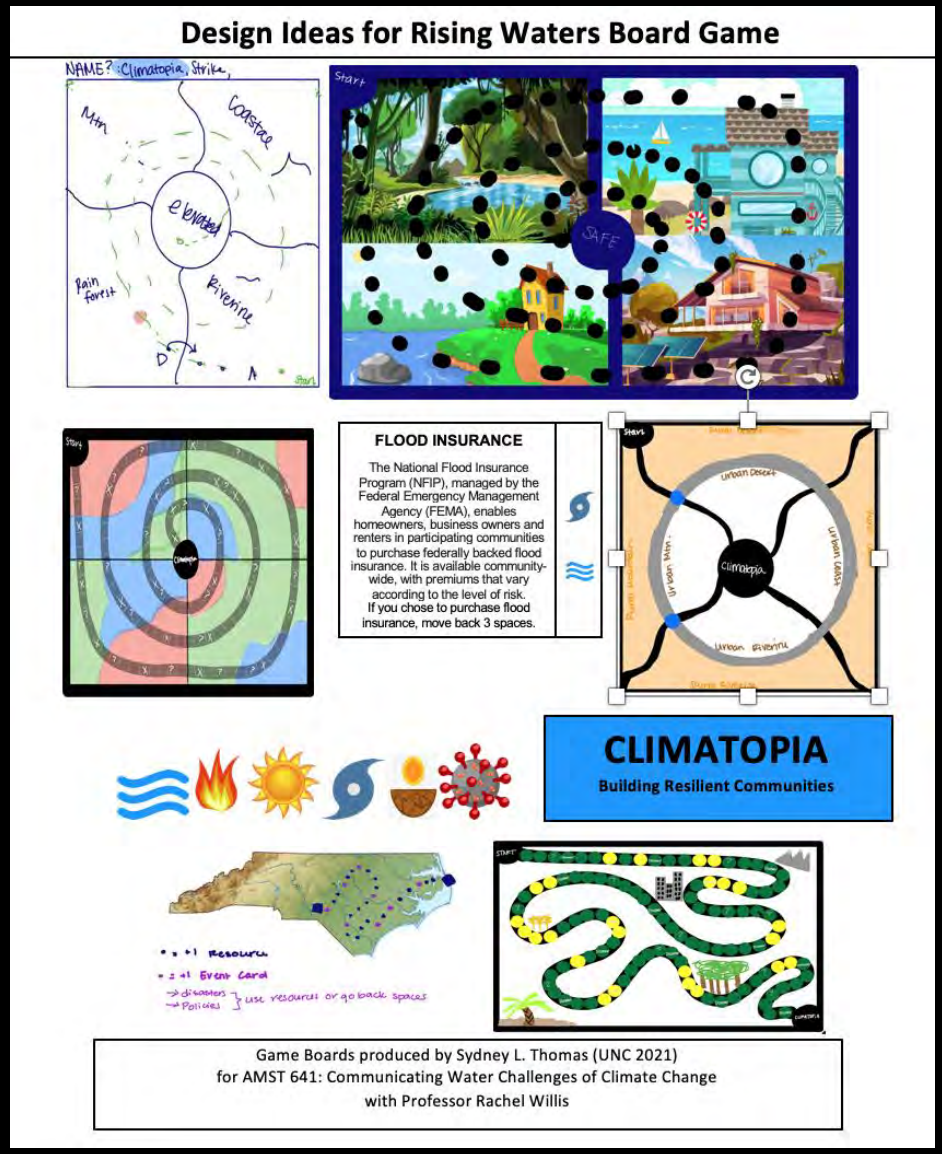


2020 Final Game Prototype

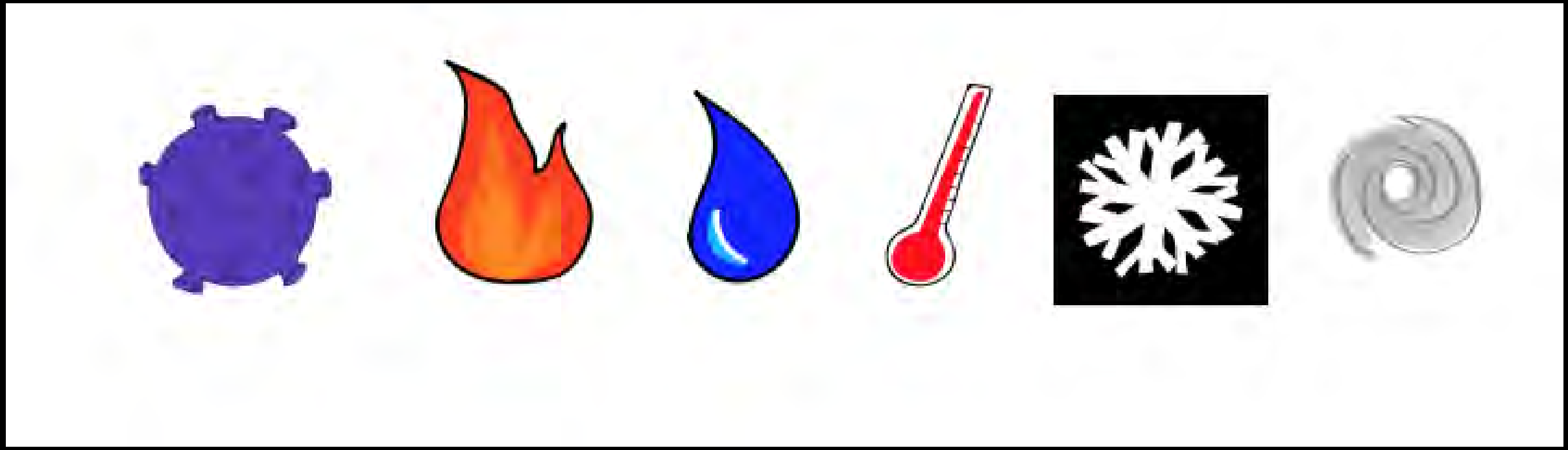


Climatopia: Fun for all, 8-88!

Summer 2020 BeAM Development of Project



Summer 2020 – Deciding on Disasters

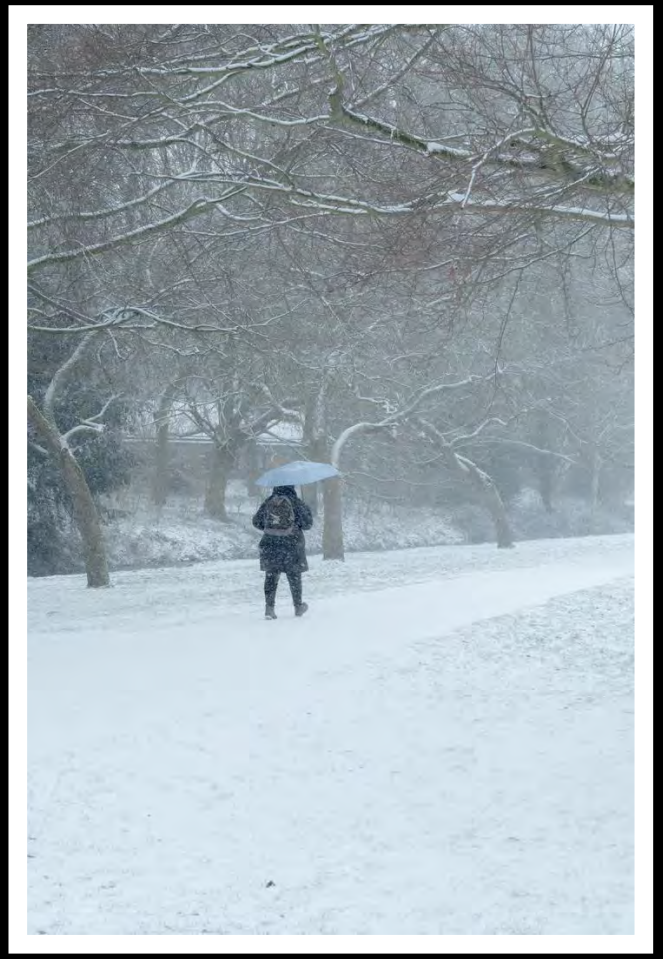


Hurricanes

Floods

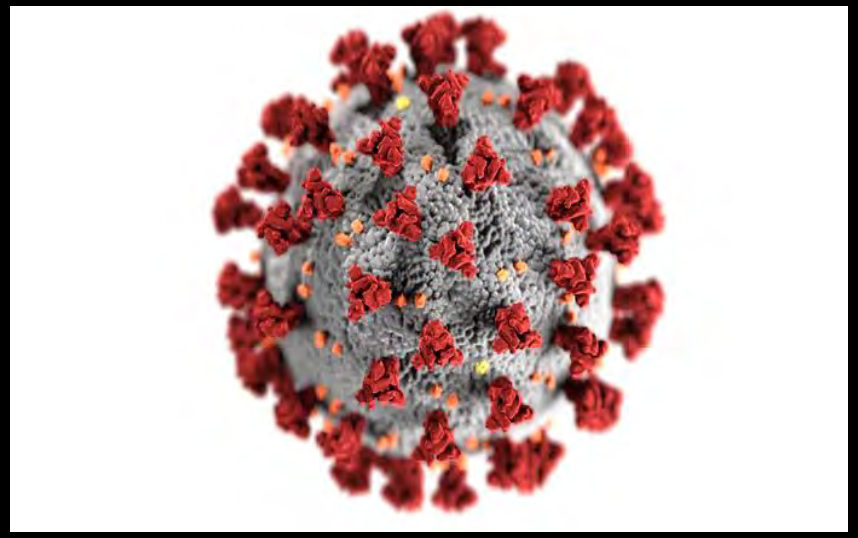
Droughts/Wildfires

Snowstorms



Extreme Heat

Disease



Goal for Makerspace in Course: Design and make CLIMATOPIA & resources in water resilient format

Makerspace Course List

Click on a course number below to read more about how UNC course instructors are incorporating design, making, and the makerspaces into their curricula.

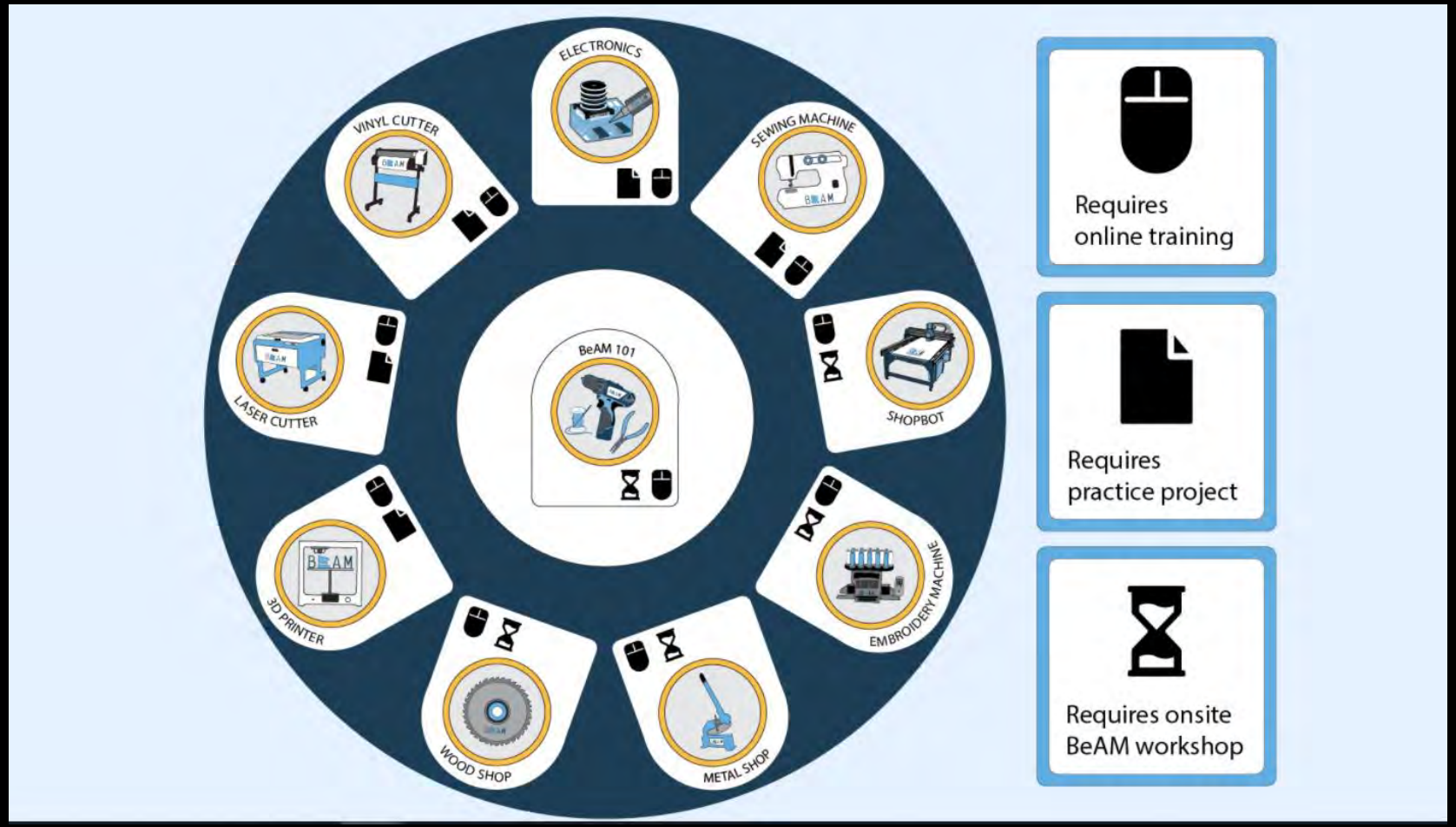
AMST 460: Rising Waters: Strategies for Resilience to the Challenges of Climate and the Built Environment

Faculty: Rachel Willis, American Studies

Rising Waters, AMST 460, is an APPLES service-learning seminar focusing on water threats from climate change to port cities, low-lying coastal areas, and land along rivers. Sea-level rise, extreme weather, and inadequate infrastructure all contribute. Students in AMST 460 collaborate on board games, including Climatopia, in which the goal is to build more resilient communities.

Pictured: An early visual prototype of the game board for Climatopia.

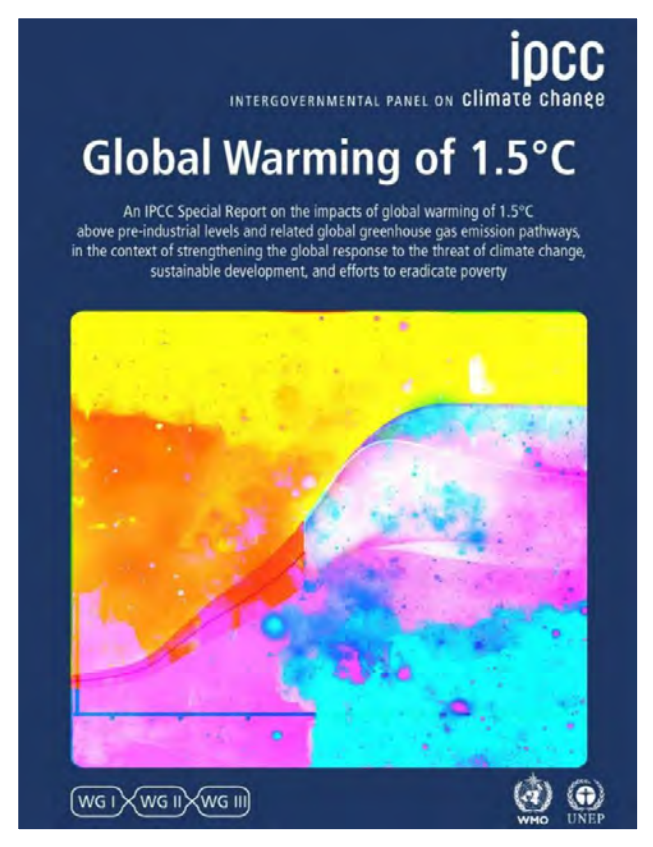
Fall BeAM Preparation

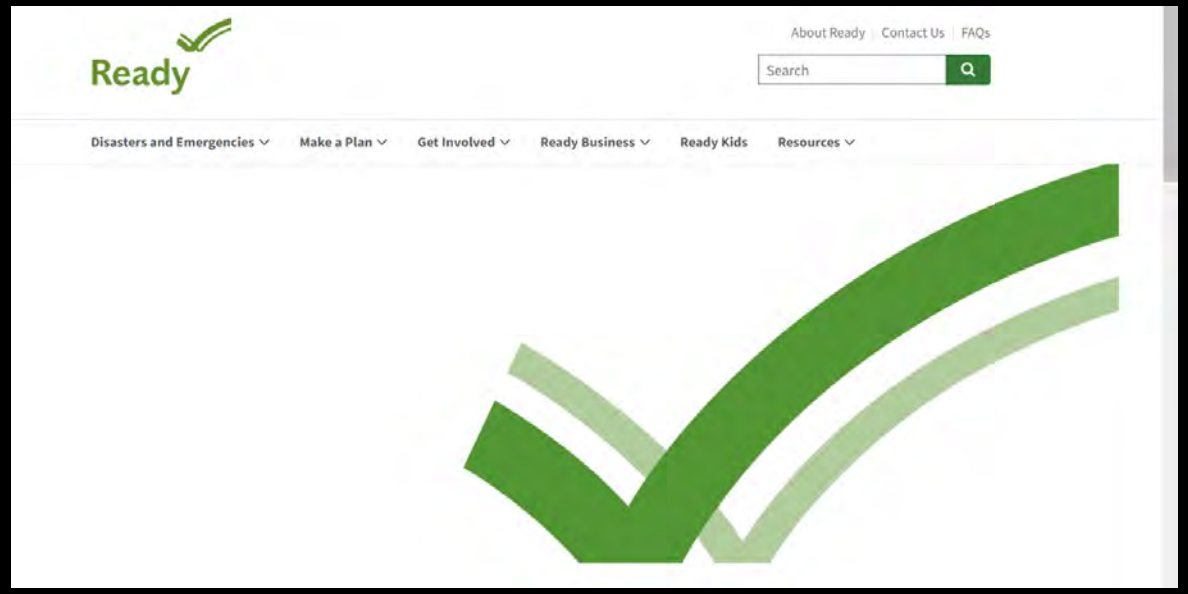


Alex Pistiolis

Fall 2020 Rising Waters
Course Focus and Structure

- Examining water threats and resilience strategies



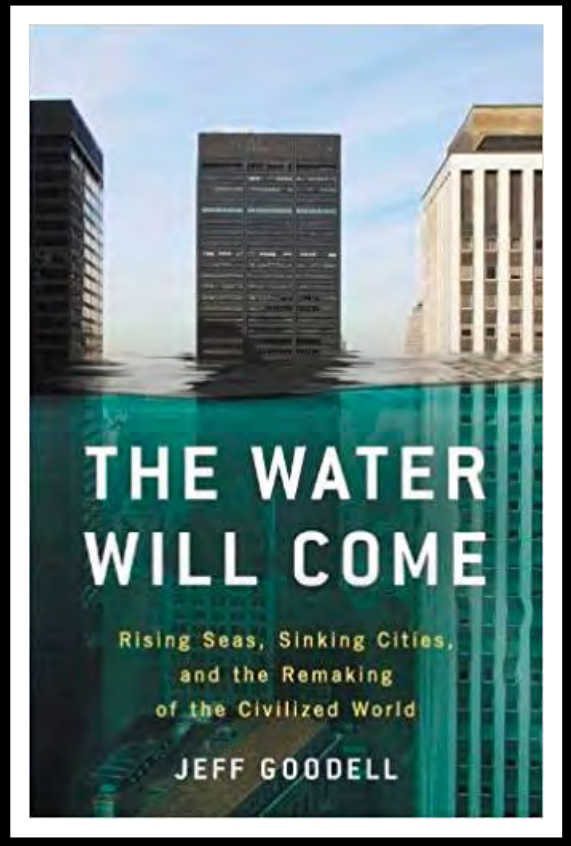


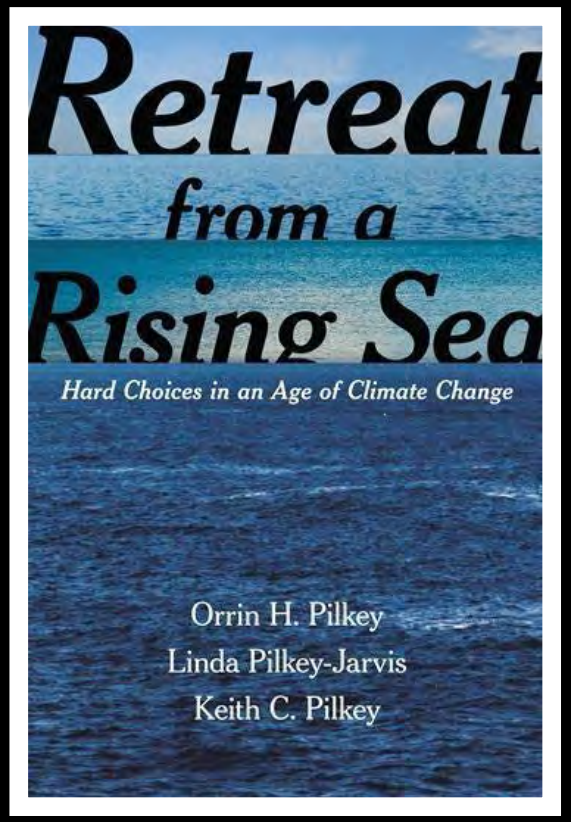
Fall 2020 Teaching Team Collaboration

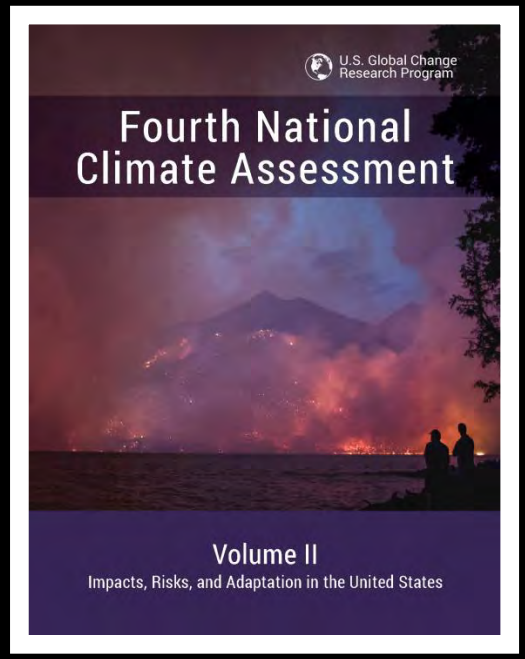
- Weekly meetings planning for Climatopia development

Readings for Rising Waters

- Books, IPCC and National Reports

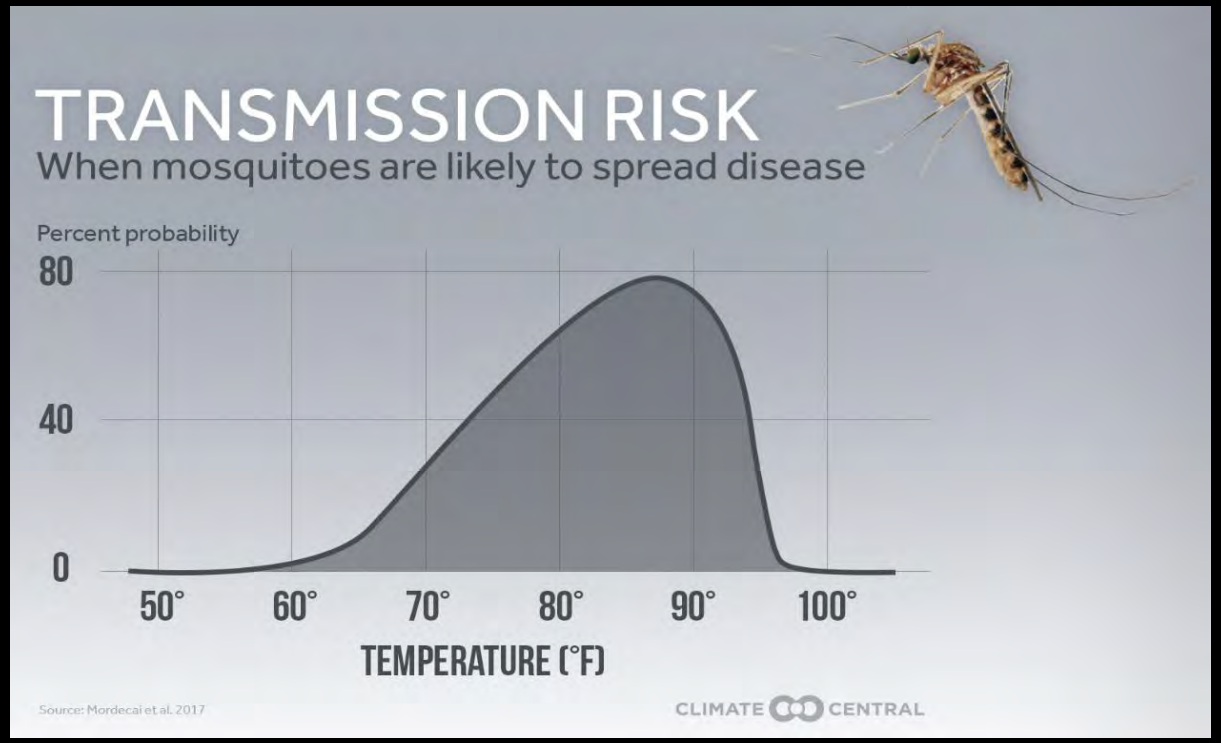






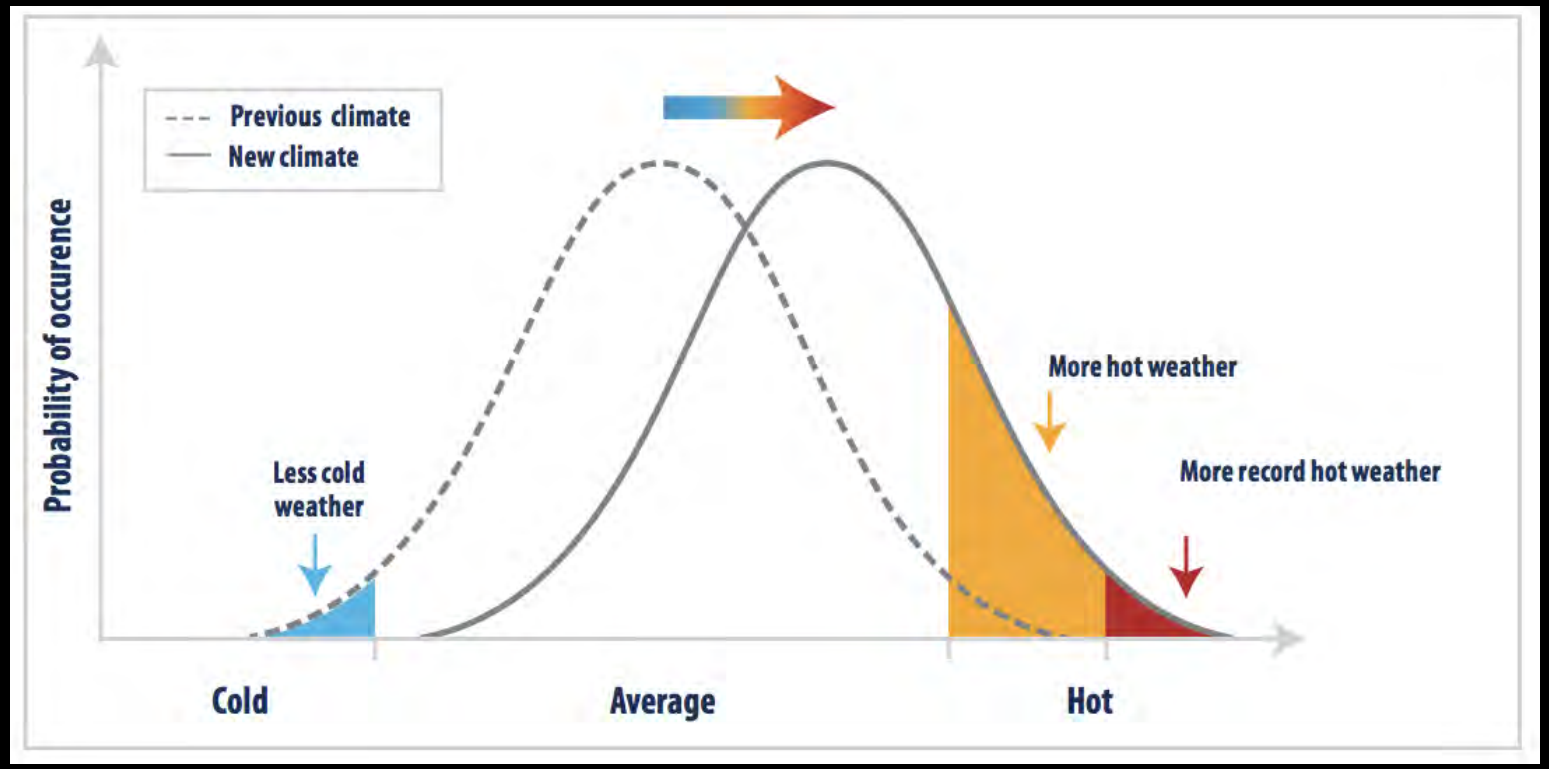
Climate Change and Diseases

- Increased range of vectors (IE: Mosquitos)



Climate Change and Extreme Heat

- Warmer days are becoming the new norm

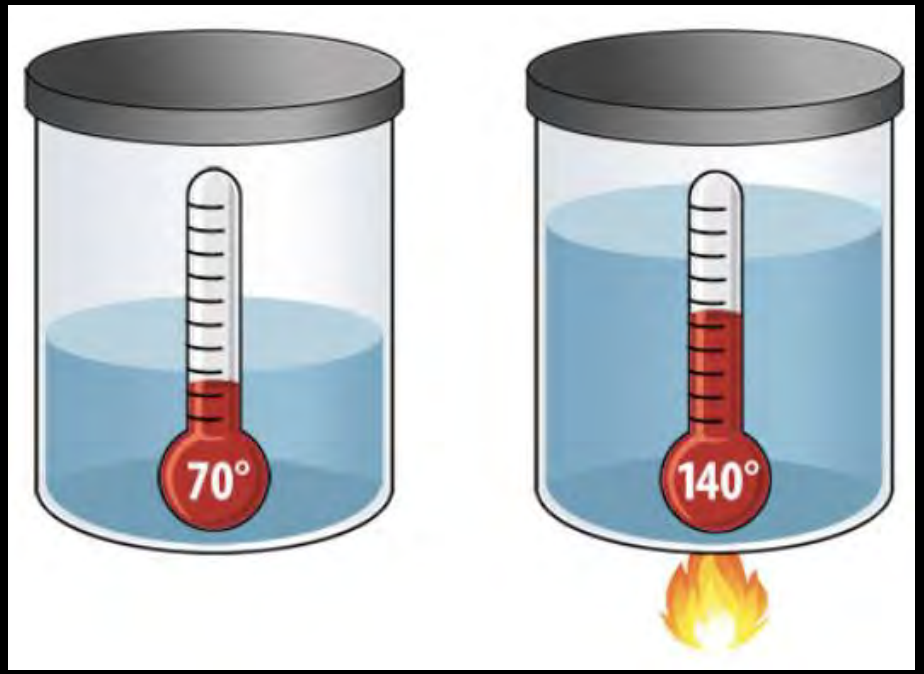


Climate Change and Flooding

- Melting of land ice is a major contributor to sea level rise

Climate Change and Flooding

- Increased temperatures are leading to sea level rise

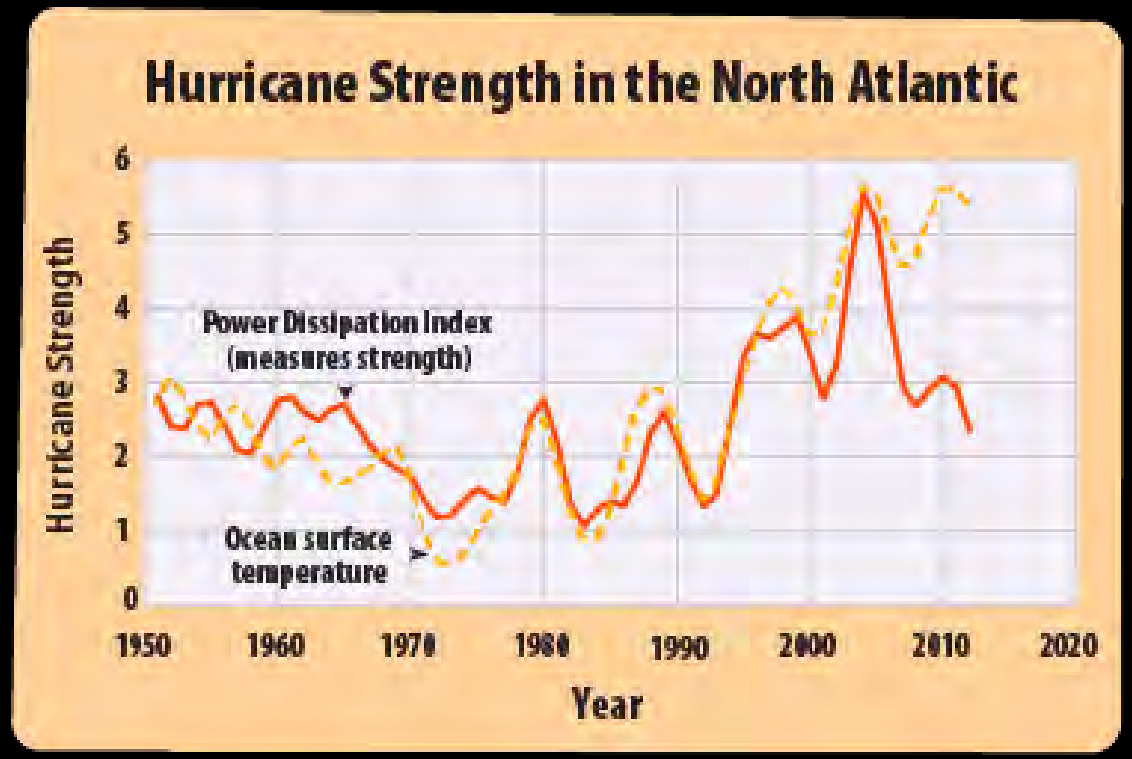


Climate Change and Snowstorms

- Increased frequency of extreme snowstorms

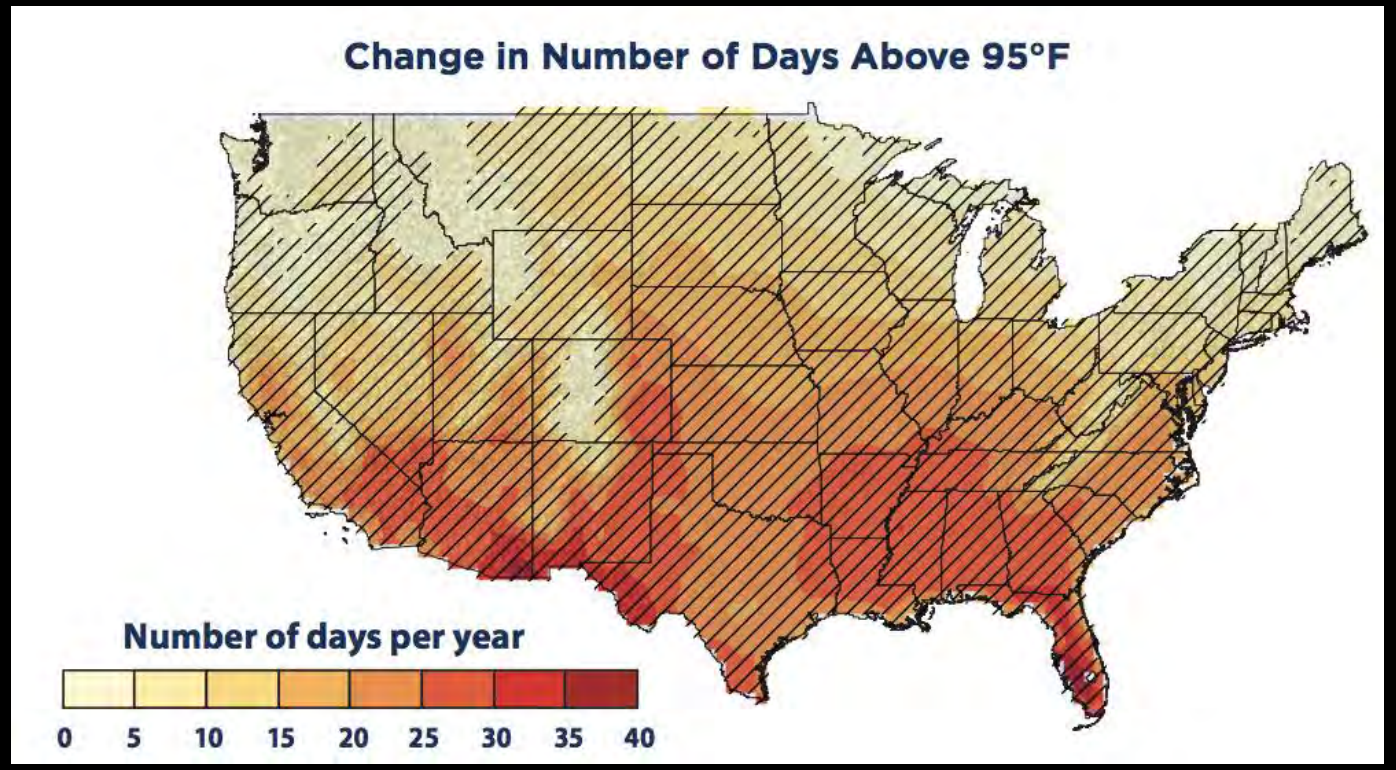
Climate Change and Hurricanes

- Increased severity of hurricanes



Climate Change and Droughts/Wildfires

- Increased risk for droughts/wildfires

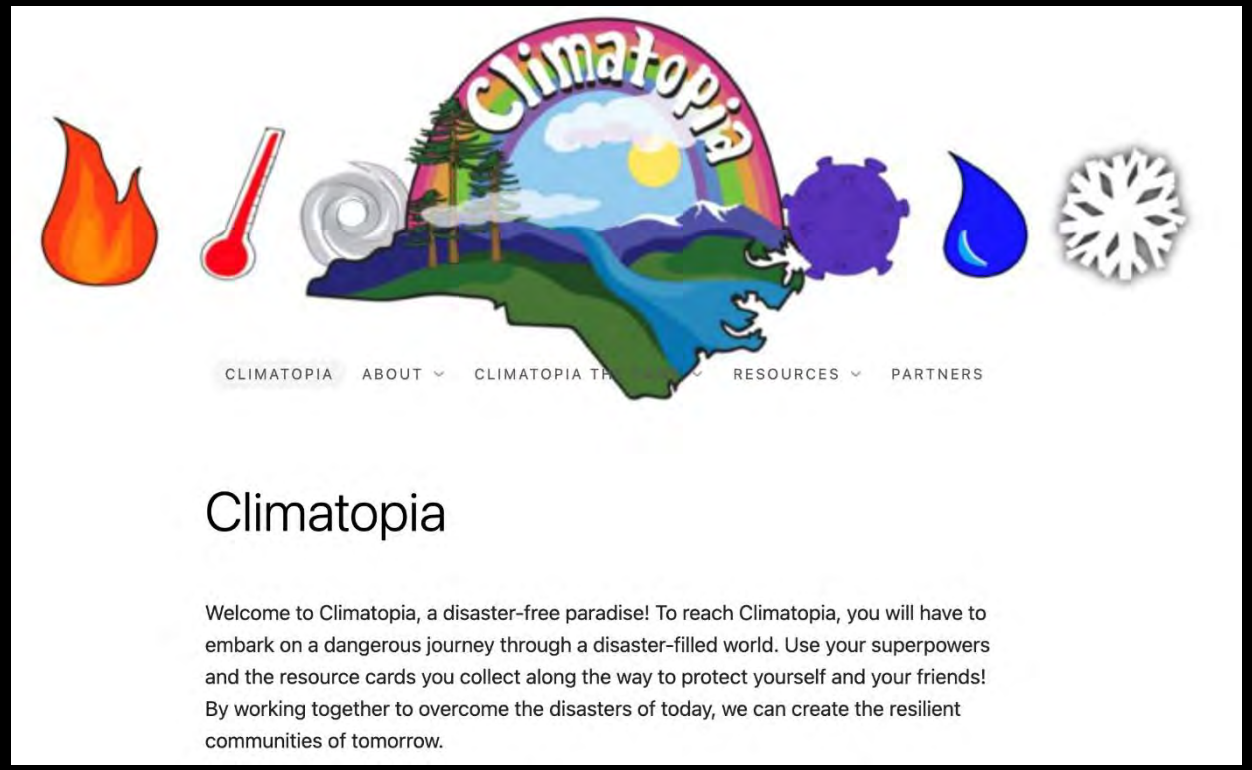


Adapting to the Pandemic

- Group meetings and playing Climatopia via Zoom

Media Project Team

- Climatopia Website – Work in Progress



Creative Team

- Designed the game board, disaster symbols, Climatopia logo, and resource/character cards, made preliminary plans for fabric design

Research Team

- Generated content for resource and character cards

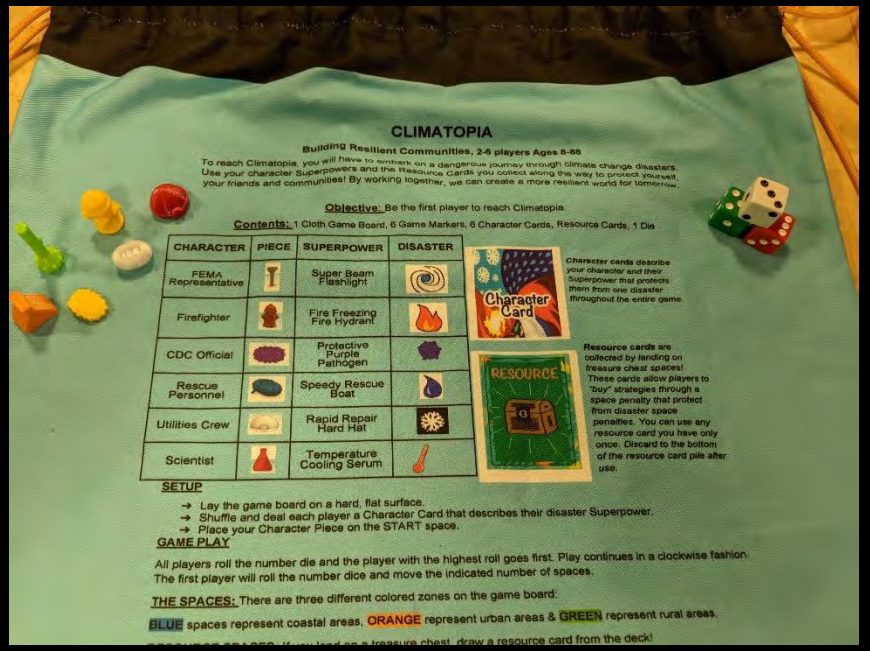
Rules Development & Cross-Team Committee

- Establishment of the super rule, using visuals, and gearing readability towards the youth.

Character	Piece	Superpower	Disaster
FEMA Representative		Super Beam Flashlight	
Firefighter		Fire Freezing Fire Hydrant	
CDC Official		Protective Purple Pathogen	
Rescue Personnel		Speedy Rescue Boat	
Utilities Crew		Rapid Repair Hard Hat	
Scientist		Temperature Cooling Serum	

Final Game Rules for Climatopia

- Through collaboration and using resource/character cards to overcome climate-related disasters, the first player to reach Climatopia wins



CLIMATOPIA

Building Resilient Communities, 2-6 players Ages 8-88

To reach Climatopia, you will have to embark on a dangerous journey through climate change disasters. Use your character Superpowers and the Resource Cards you collect along the way to protect yourself, your friends and communities! By working together, we can create a more resilient world for tomorrow.

Objective: Be the first player to reach Climatopia.

Contents: 1 Cloth Game Board, 6 Game Markers, 6 Character Cards, Resource Cards, 1 Die

CHARACTER	PIECE	SUPERPOWER	DISASTER
FEMA Representative		Super Beam Flashlight	
Firefighter		Fire Freezing Fire Hydrant	
CDC Official		Protective Purple Pathogen	
Rescue Personnel		Speedy Rescue Boat	
Utilities Crew		Rapid Repair Hard Hat	
Scientist		Temperature Cooling Serum	

Character cards describe your character and their Superpower that protects them from one disaster throughout the entire game.

Resource cards are collected by landing on treasure chest spaces! These cards allow players to "buy" strategies through a space penalty that protect from disaster space penalties. You can use any resource card you have only once. Discard to the bottom of the resource card pile after use.

SETUP

- Lay the game board on a hard, flat surface.
- Shuffle and deal each player a Character Card that describes their disaster Superpower.
- Place your Character Piece on the START space.

GAME PLAY

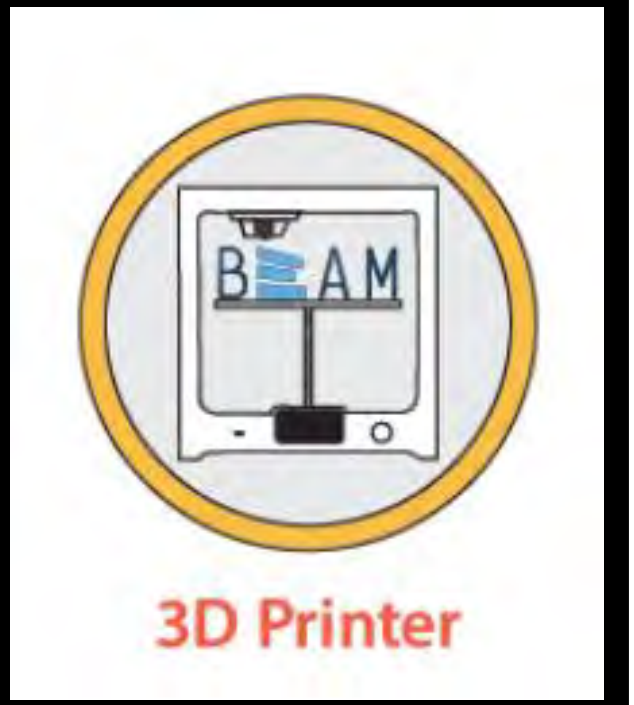
All players roll the number die and the player with the highest roll goes first. Play continues in a clockwise fashion. The first player will roll the number dice and move the indicated number of spaces.

THE SPACES: There are three different colored zones on the game board:

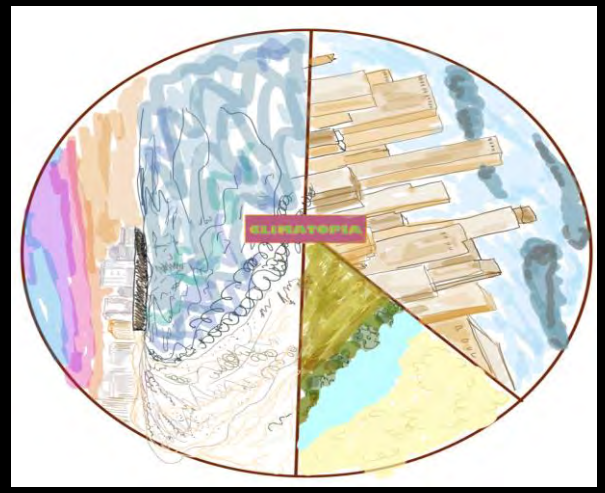
BLUE spaces represent coastal areas, ORANGE represent urban areas & GREEN represent rural areas.

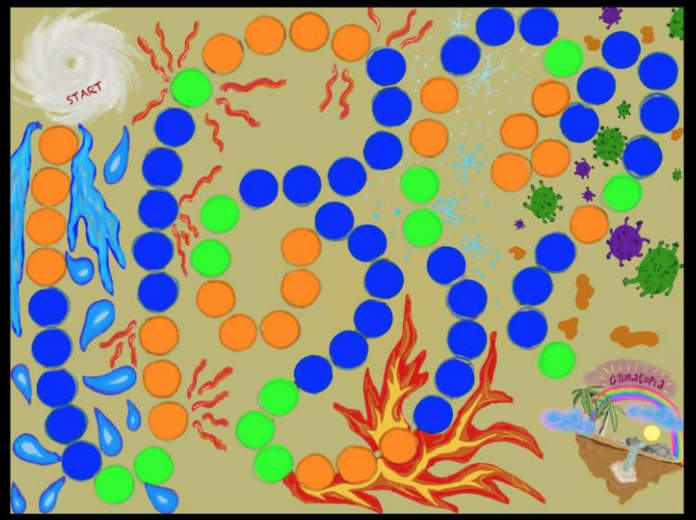
Sydney Thomas

BeAM Training, COVID limitations

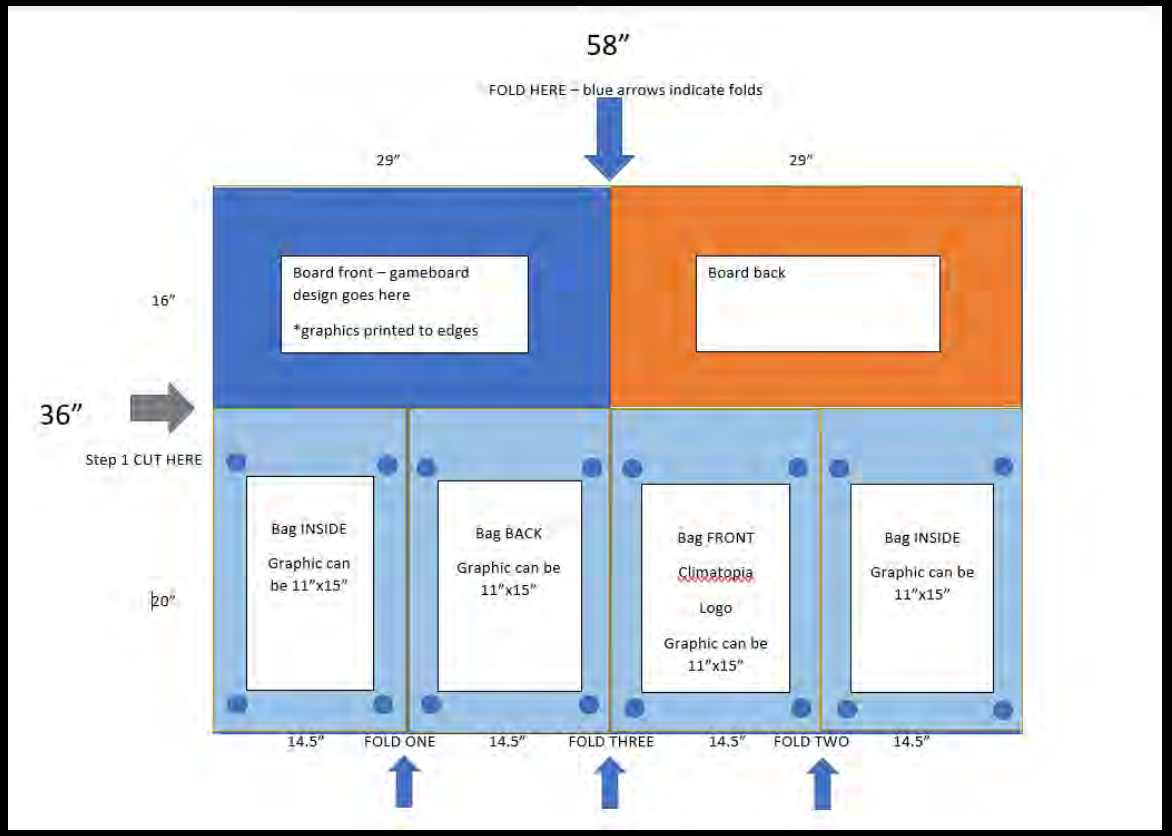


Creative – Game Board

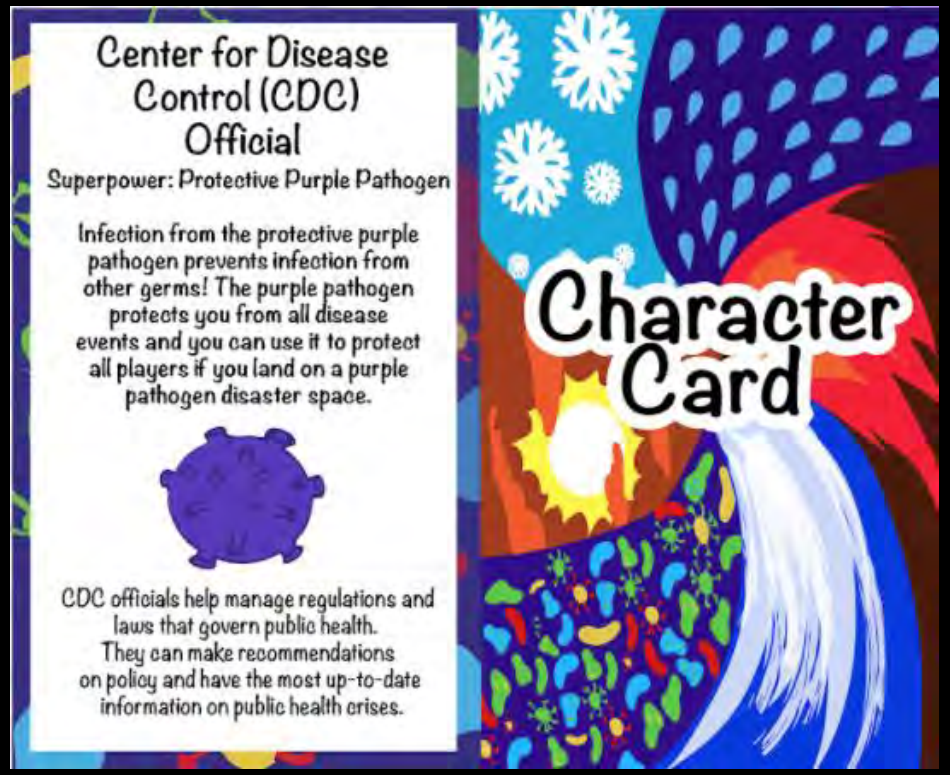


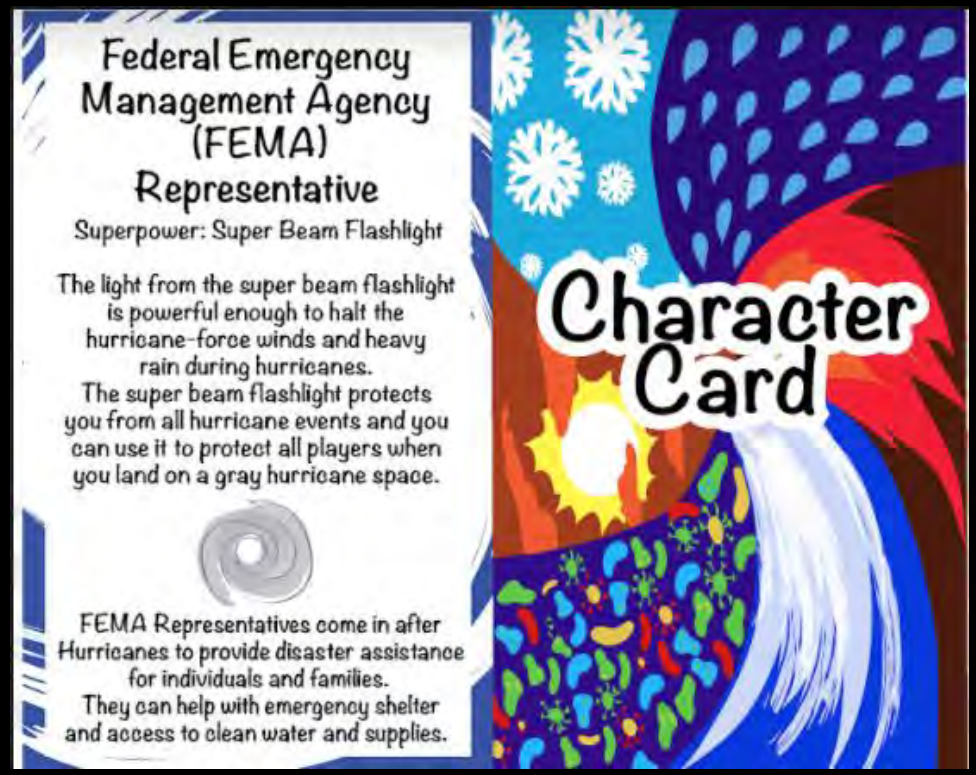


Creative – Backpack and Fabric Design

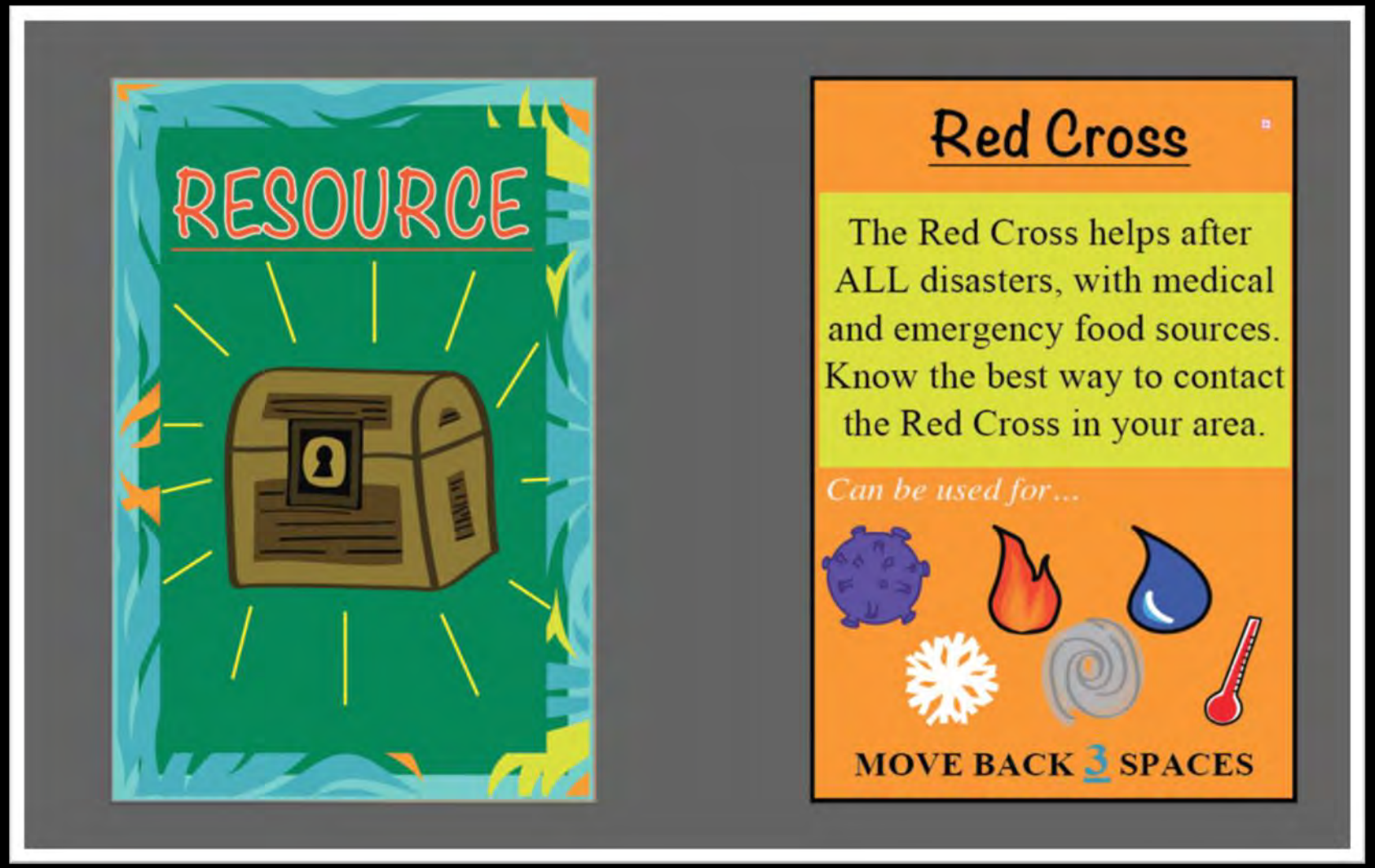


Creative/Research: Character Cards

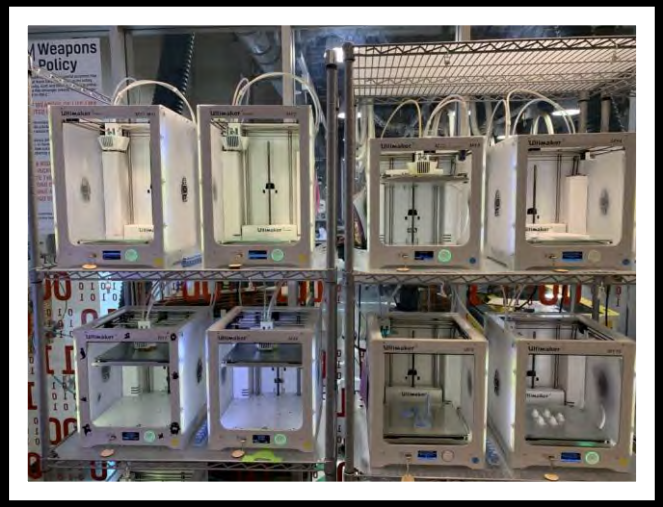




Research - Resource Cards

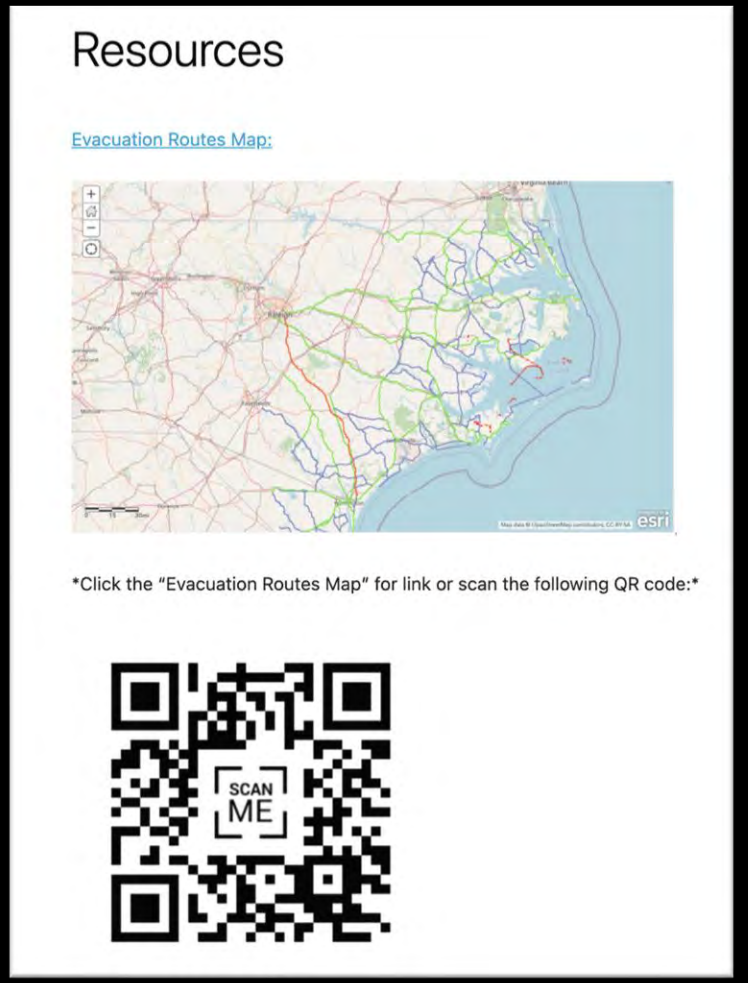


Digital – 3D Printing Makerspace

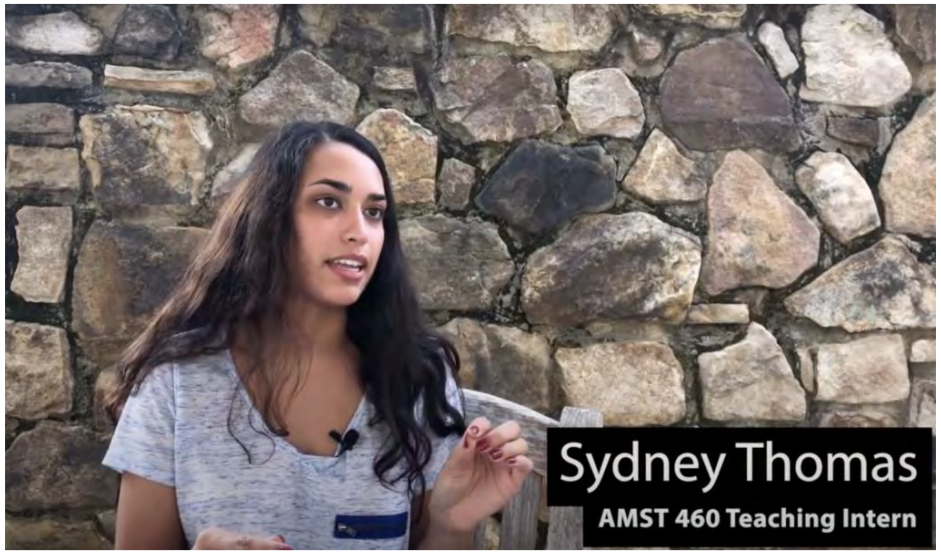


Digital – Maps of River Basins & Major Roads

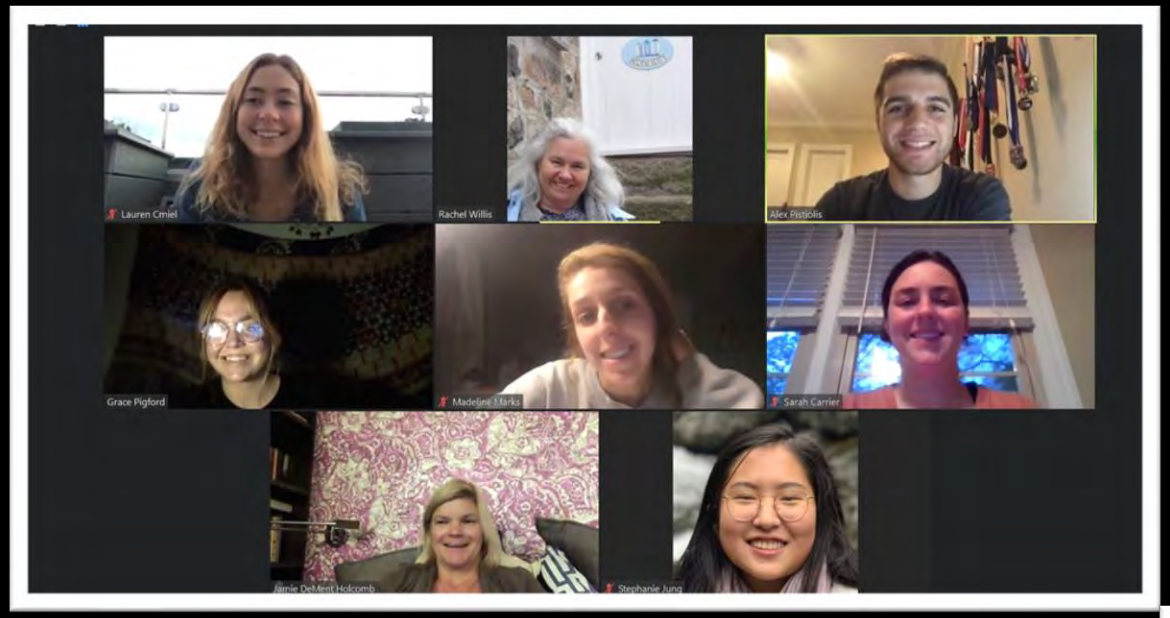
Media - Website (WIP)

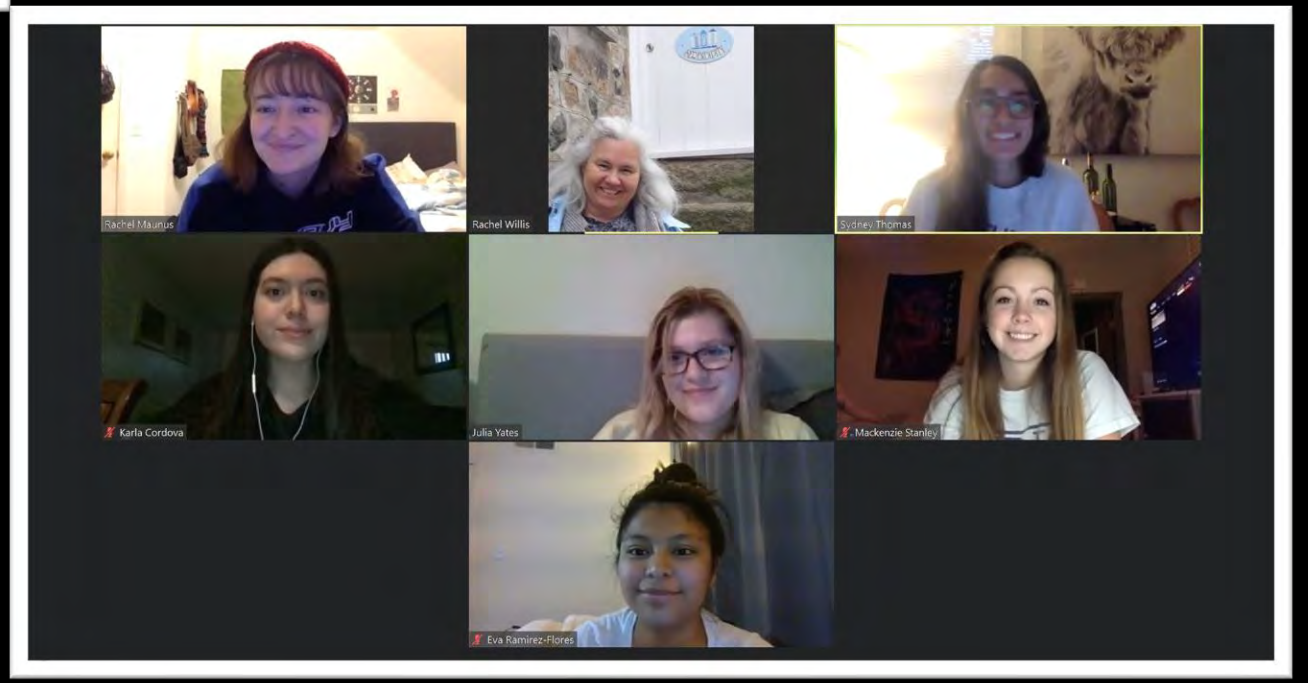


Media - Videos (WIP)



Team Collaboration & Game Testing





BeAM Kits and Class Project

Fall 2020 – Game Design & Sewing Small Bags

Resource Links

CLIMATOPIA was designed and produced by

Sydney.Thomas@unc.edu, Alex.Pistiolis@unc.edu , Karla.Cordova@unc.edu & Professor Rachel.Willis@unc.edu

In collaboration with creative UNC-Chapel Hill seminar students from:
Spring 2020 graduate seminar AMST 641- Using the Visual and Performing Arts to Communicate Climate Science
Fall 2020 AMST 460 - Rising Waters: Strategies for Resilience to the Challenges of Climate and the Built Environment
Grant support and training for CLIMATOPIA provided by UNC's Service-Learning Program at ccps.unc.edu/apples/ and the BeAM.unc.edu and Makerspace Staff

Updates to the game, resource cards, and new links on climate change science info at tarheels.live/climatopia
Instructions to order **CLIMATOPIA** fabric from Spoonflower.com and sew your own backpack & game board are also on the website!

CLIMATOPIA RESOURCE LINKS **ORANGE links especially good for kids!**

Understanding Climate Change Science

- The United Nations "Intergovernmental Panel on Climate Change" has the latest scientific information, assessment reports, and recommendations for global action **ipcc.ch**
- National Oceanic and Atmospheric Administration (NOAA) is responsible in the US for climate info **noaa.gov/climate**
- NOAA also has lots of education resources **noaa.gov/education**
- The most recent United Sates Climate Assessment **nca2018.globalchange.gov/**
- Independent organization of scientists and journalists communicating climate science facts **climatecentral.org**
- Environmental Education Games **kidsagainstclimatechange.co/start-learning/#games**

Preparing for Climate Disasters and Emergencies

- READY is a national public service campaign designed to educate and empower the American people to prepare for, respond to and mitigate emergencies, including natural and man-made disasters **ready.gov**
  This site has detailed info on more than two dozen types of disasters including **CLIMATOPIA**'S 6 climate change related disasters See *** Extreme Heat * Floods * Hurricanes *Pandemics * Wildfires *Winter Weather** for help in playing the game!
- Kid-friendly games on climate change and the environment **https://www.ready.gov/kids/games/data/bak-english/index.html**

Building More Resilient Communities (Planning and recovering from disasters!)

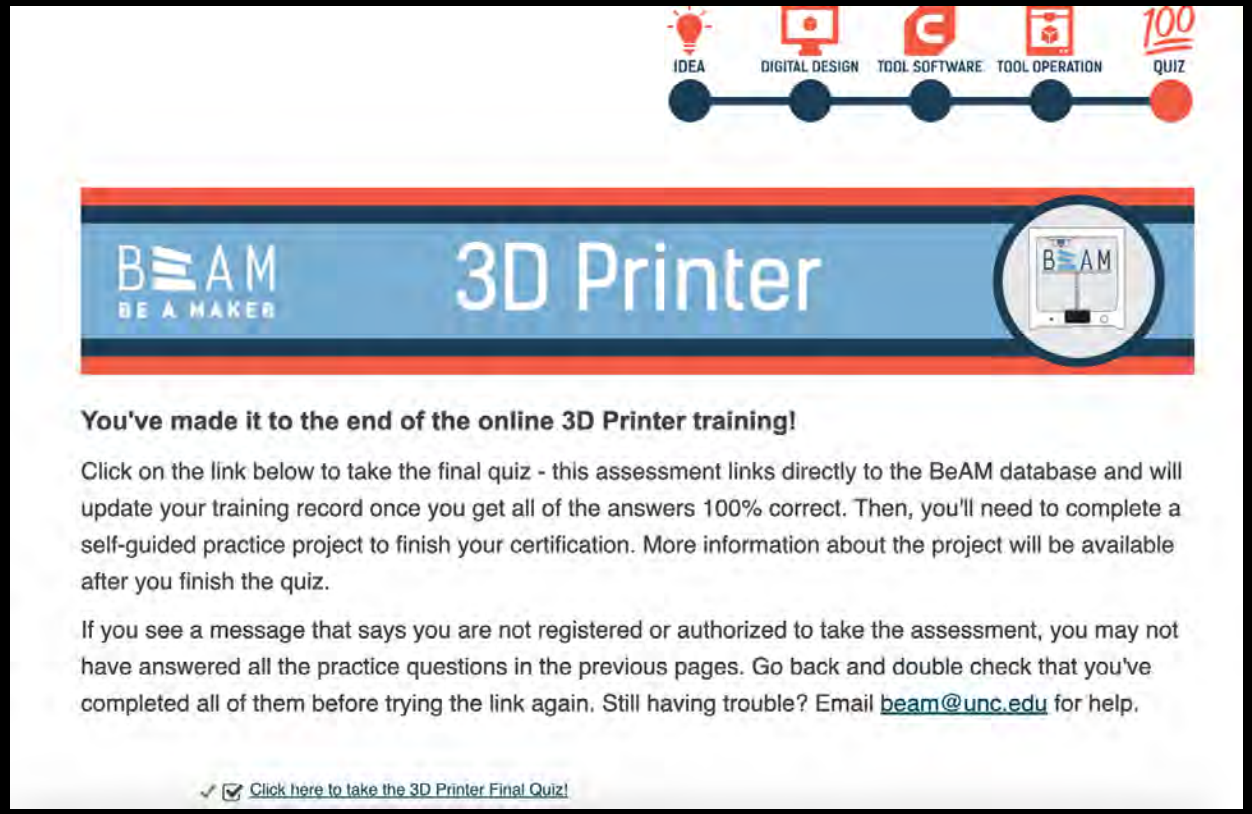
- Federal Emergency Management Agency mission is helping people before, during and after disasters. **fema.gov/**
- US Fire Administration's Fire prevention and public education **usfa.fema.gov/prevention/**
- Elementary through college-aged students can access opportunities and resources enabling them to respond environmental challenges monitored by NOAA. **oceanservice.noaa.gov/education/planet-stewards/**

Finally, our five favorite sites to learn about…

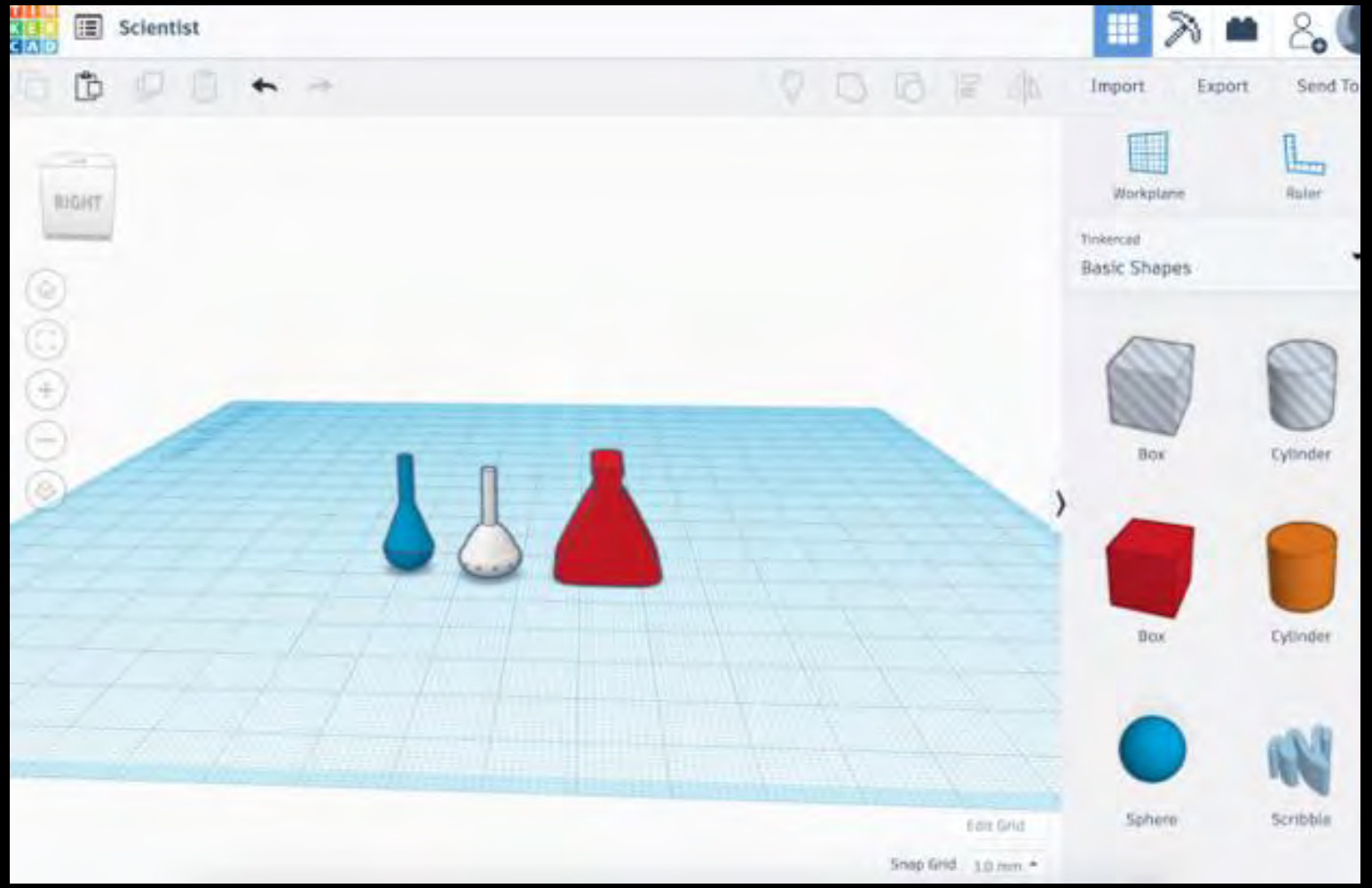
- **FLOODING:** a free online tool created by nonprofit First Street Foundation that makes it easy for Americans to find their property's risk of flooding and understand how flood risks are changing because of a changing environment. **floodfactor.com/**
- **OCEANS**: formal and informal opportunities for elementary through college-aged students to respond to environmental challenges monitored by NOAA. **oceanservice.noaa.gov/education/planet-stewards/**
- **HEALTH VULNERABILITIES**: Information to identify and address the impact of extreme weather and climate events by Carolinas Integrated Sciences and Assessments at the Southeast Regional Climate Center **convergence.unc.edu/**
- **EDUCATION RESOURCES**: The CLEAN Collection of Climate and Energy Educational Resources has 700+ free, ready-to-use learning resources reviewed by educators and scientists suitable for high school through higher education classrooms. **cleanet.org**
- **ENVIRONMENTAL INFO**: National Centers for Environmental Information, the world's largest climate data archive **ncei.noaa.gov/**

Karla Cordova Araujo

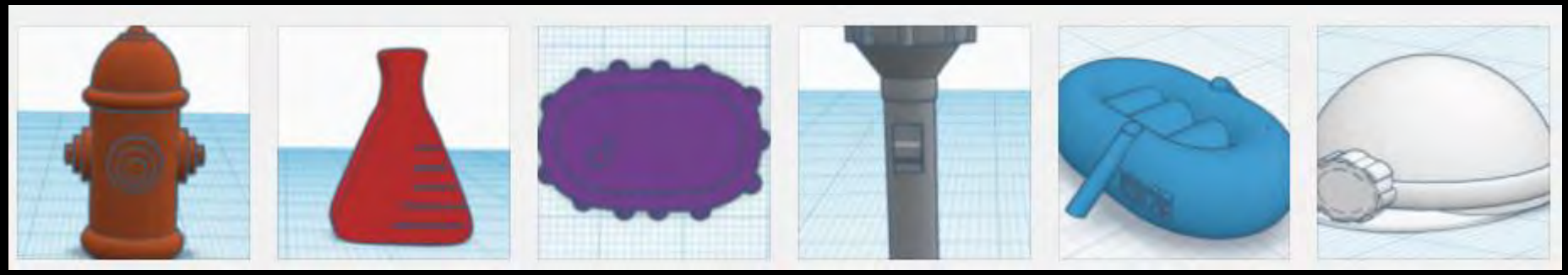
BeAM Makerspace 3D Printing

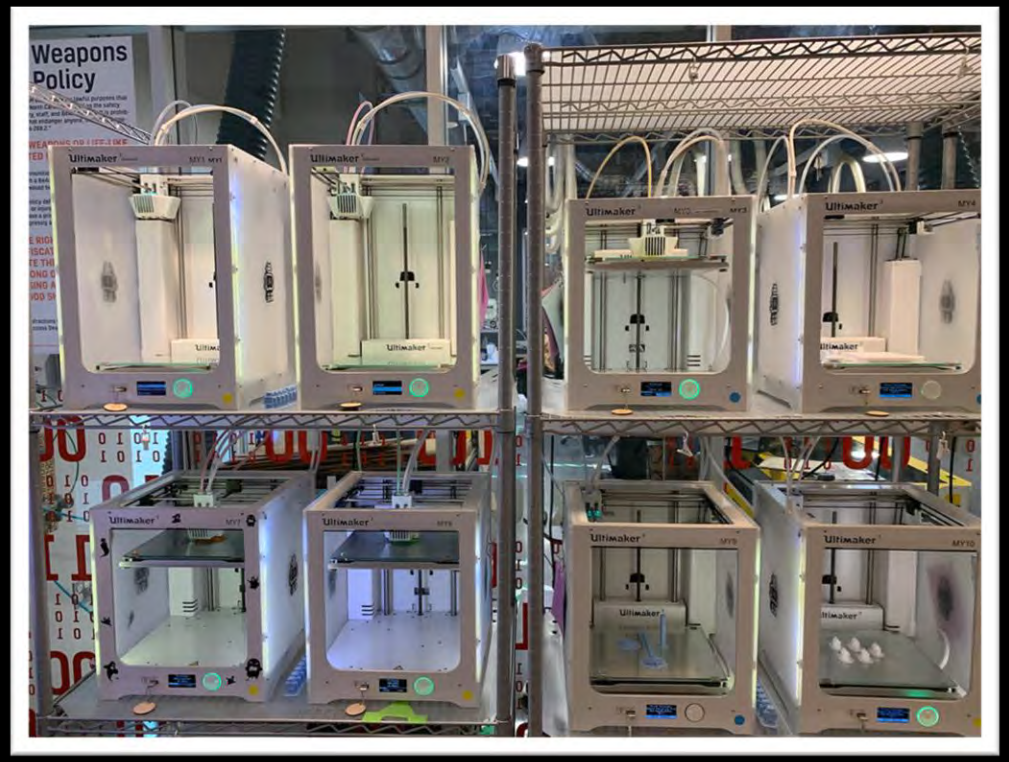


3D printing of characters begins with CAD

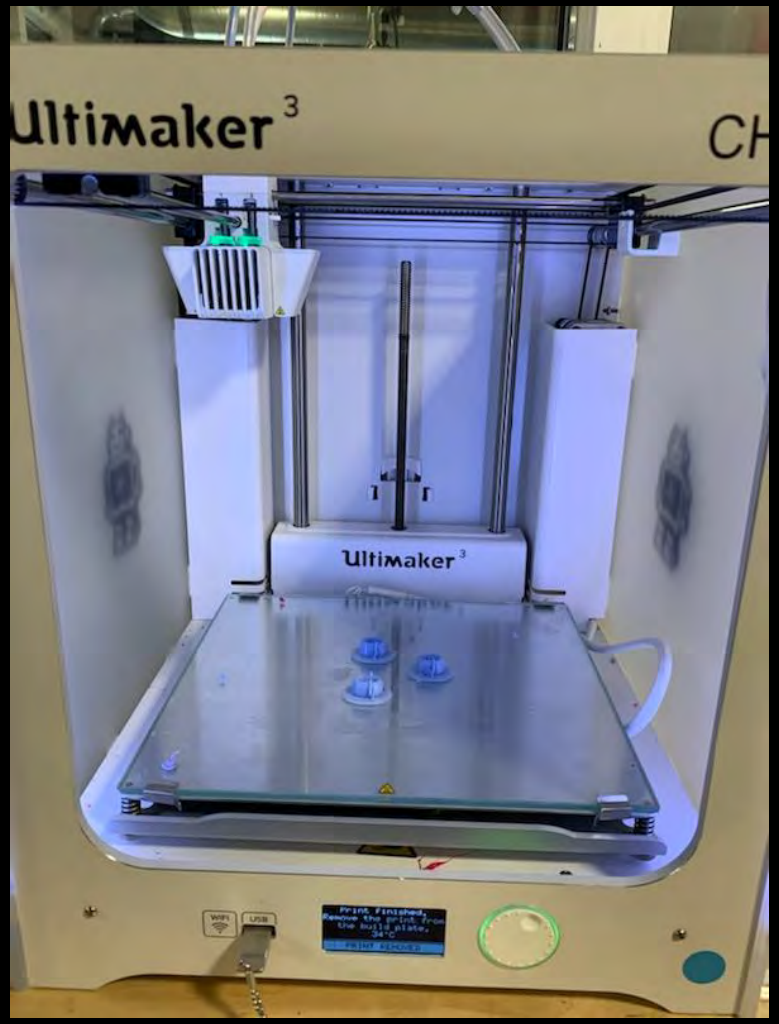


CAD Drawings go to 3D Printer

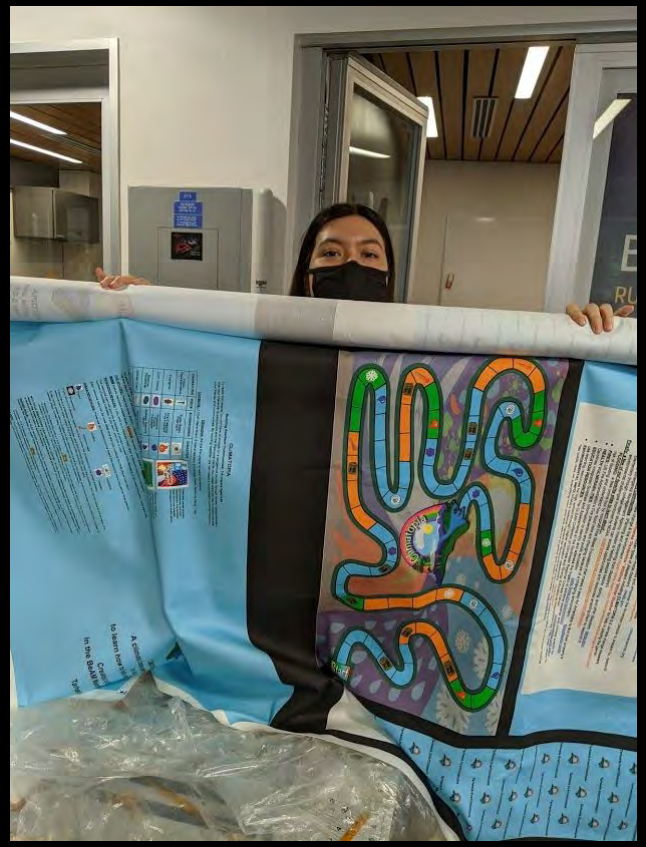




3D printing of characters

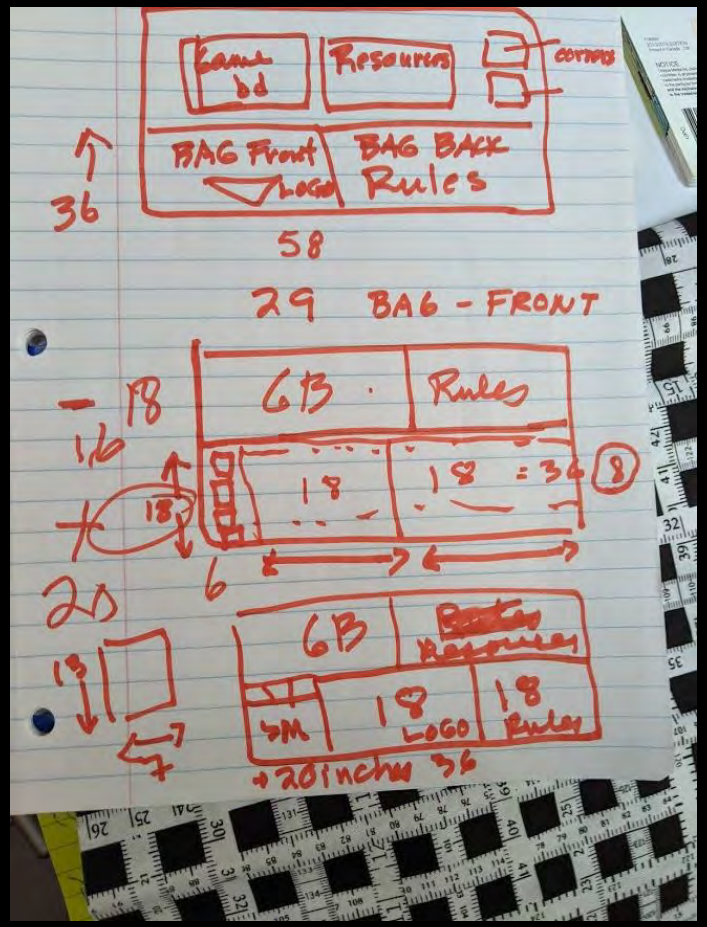


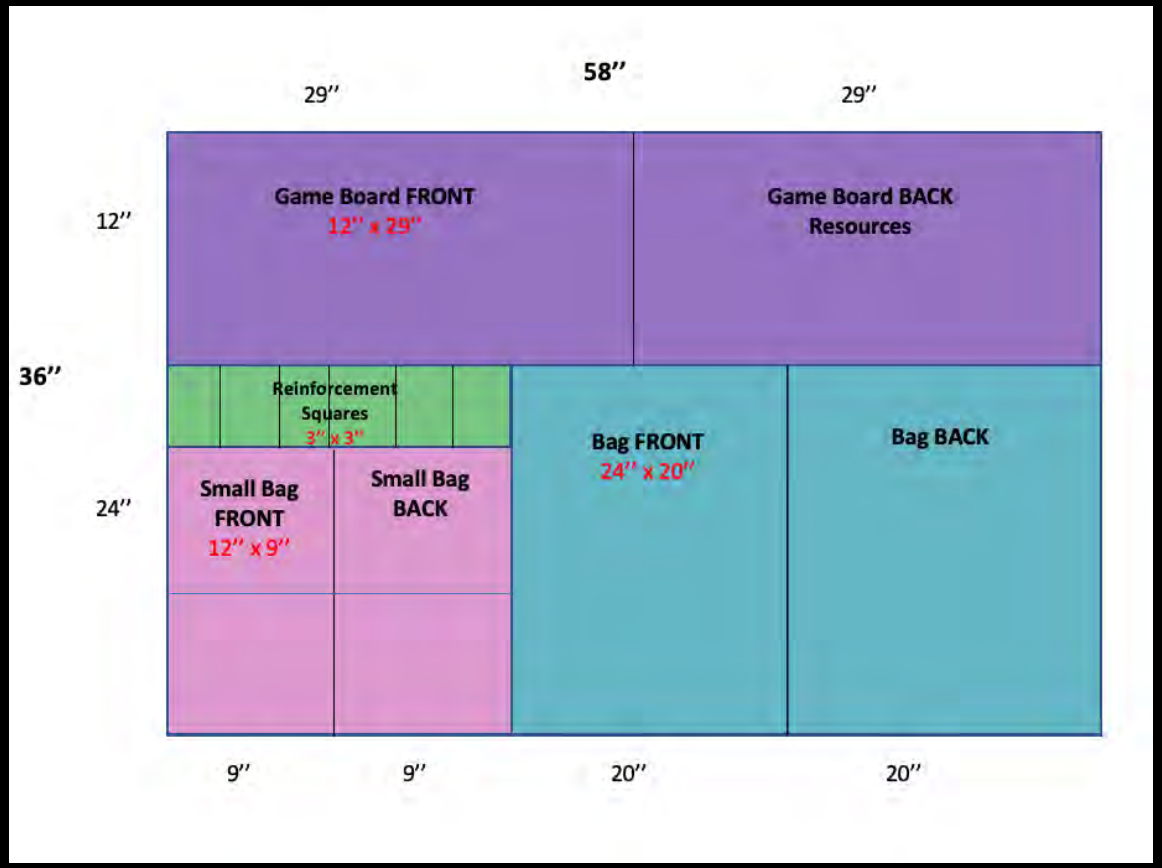
Independent Study – Spring 2021
Expanded to Sewing and Fabric Design



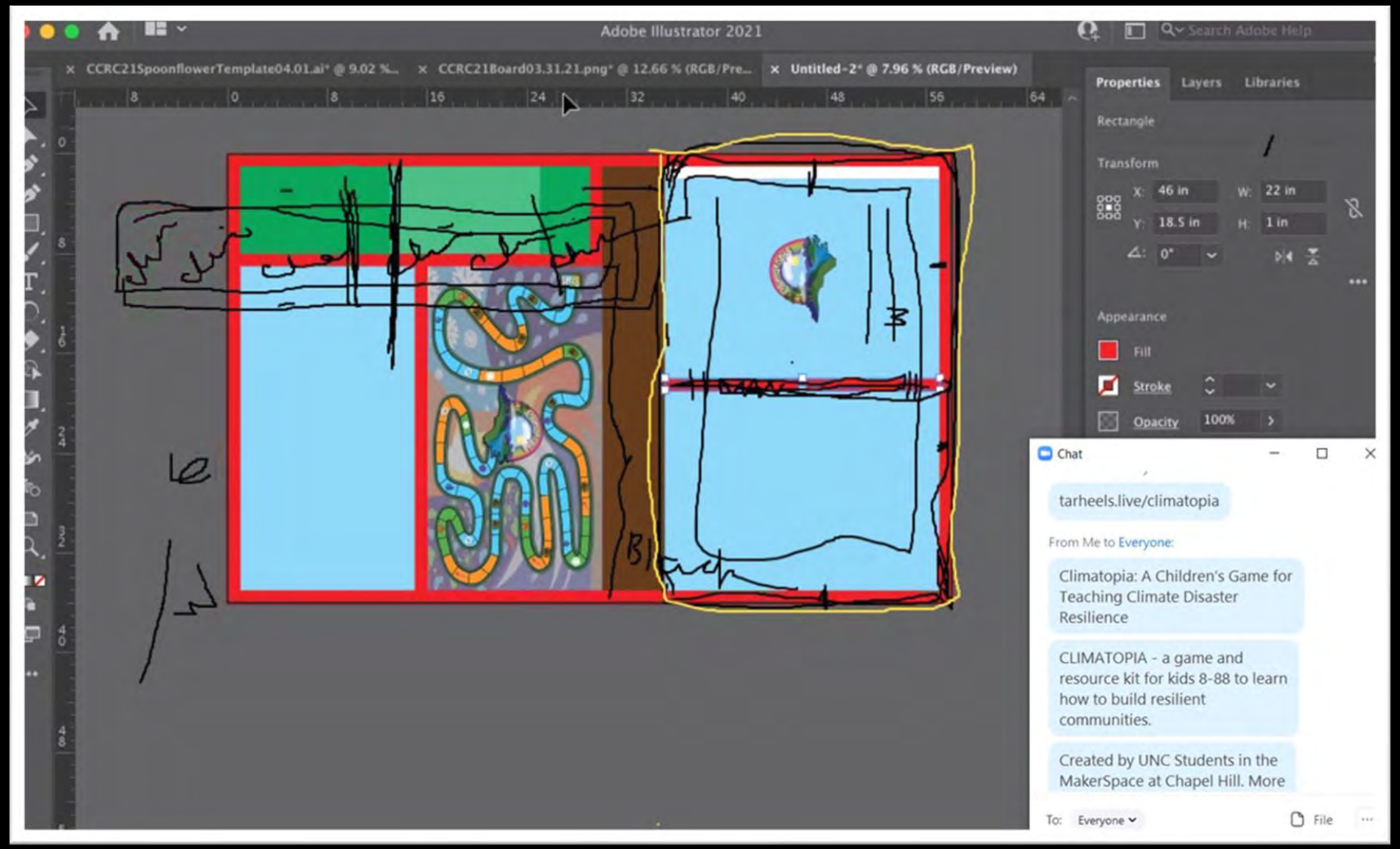
Machine Sewing Small Parts Bag

Designing Fabric Layout

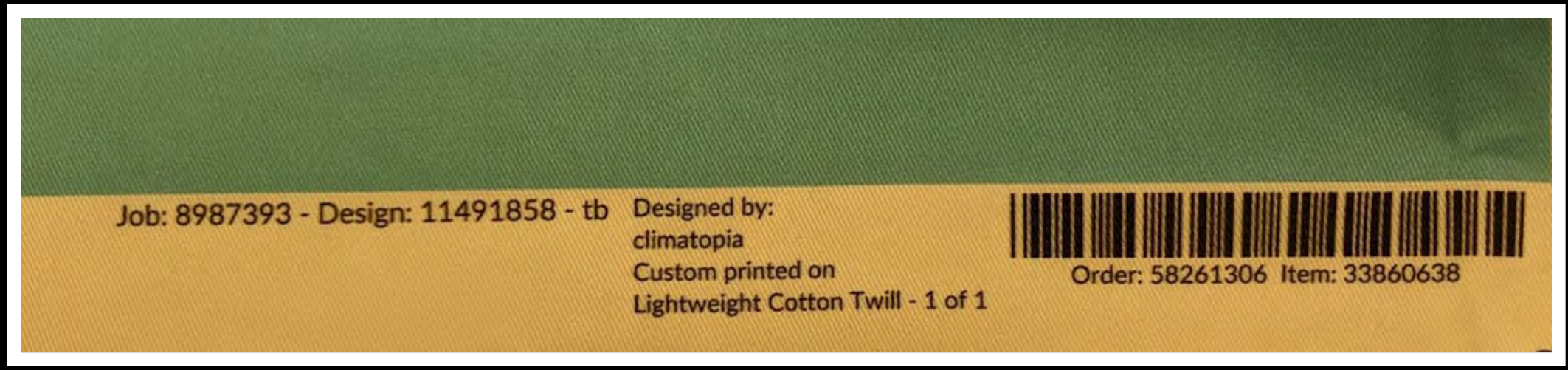




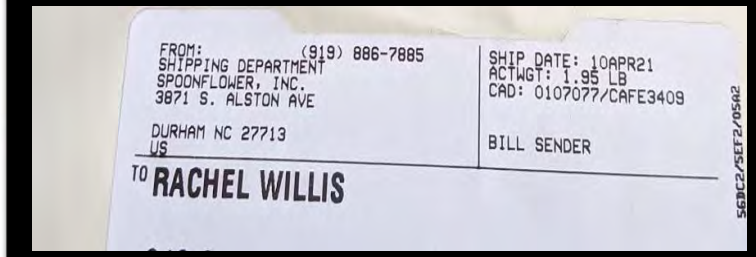
Creating Fabric Design on Adobe Illustrator

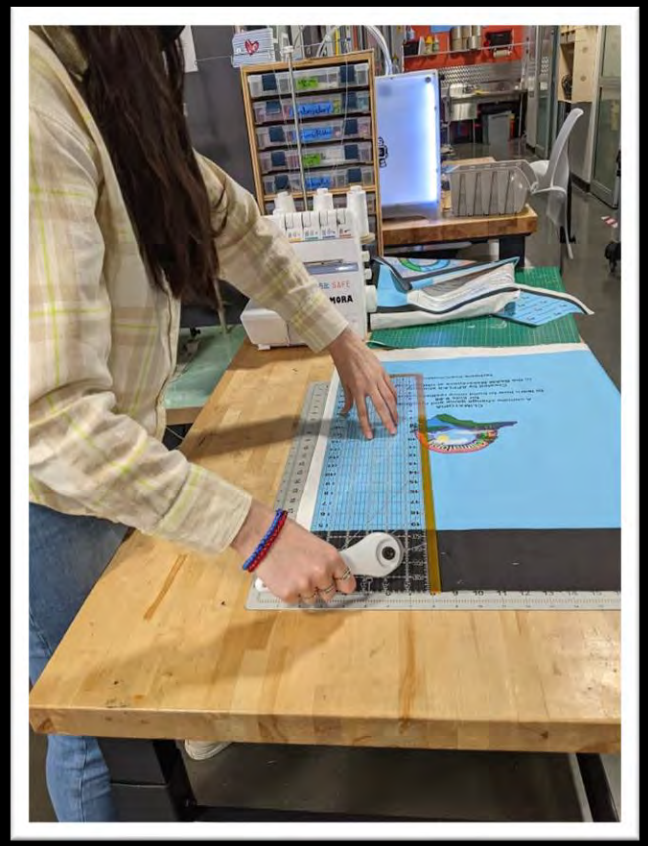


Spoonflower Order

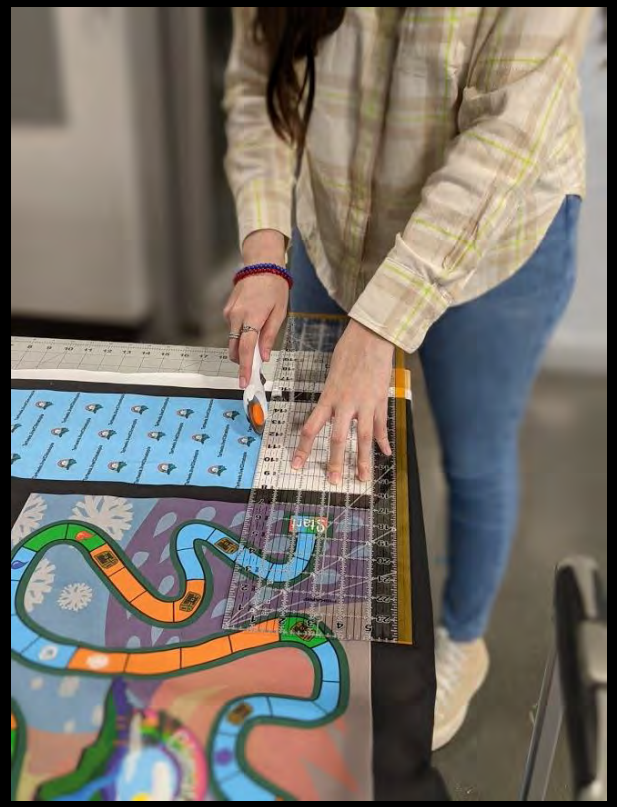


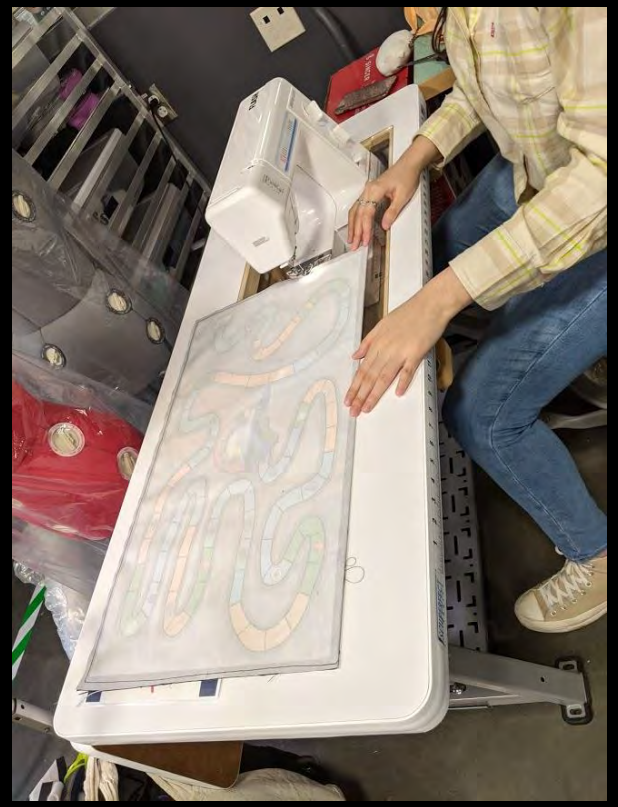
Printed Fabric Arrives from Spoonflower!



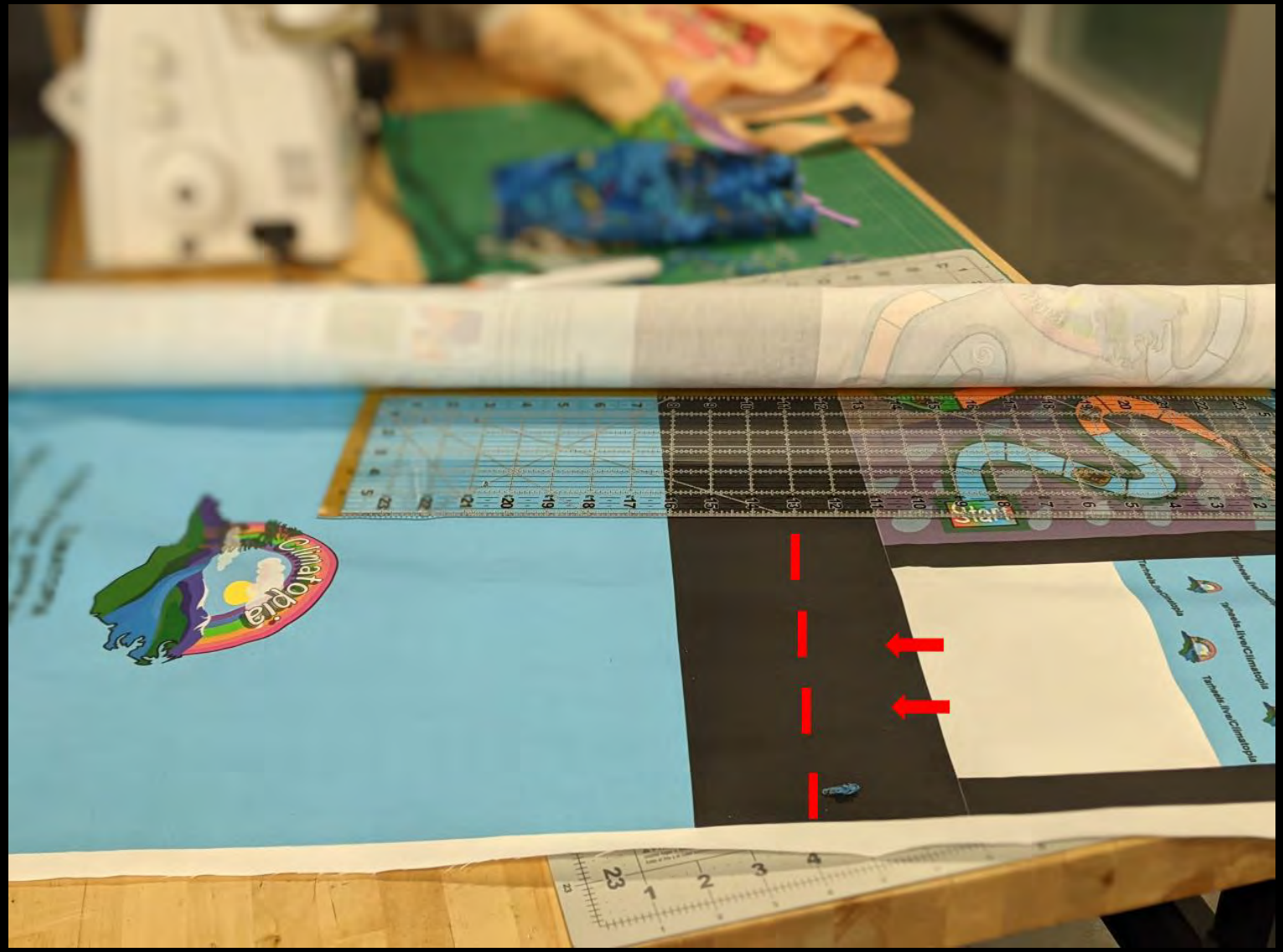


Cutting and Sewing Game Board & Backpack





Future Design Improvements



Fall 2021 Rising Waters 460

Dr. Rachel Willis

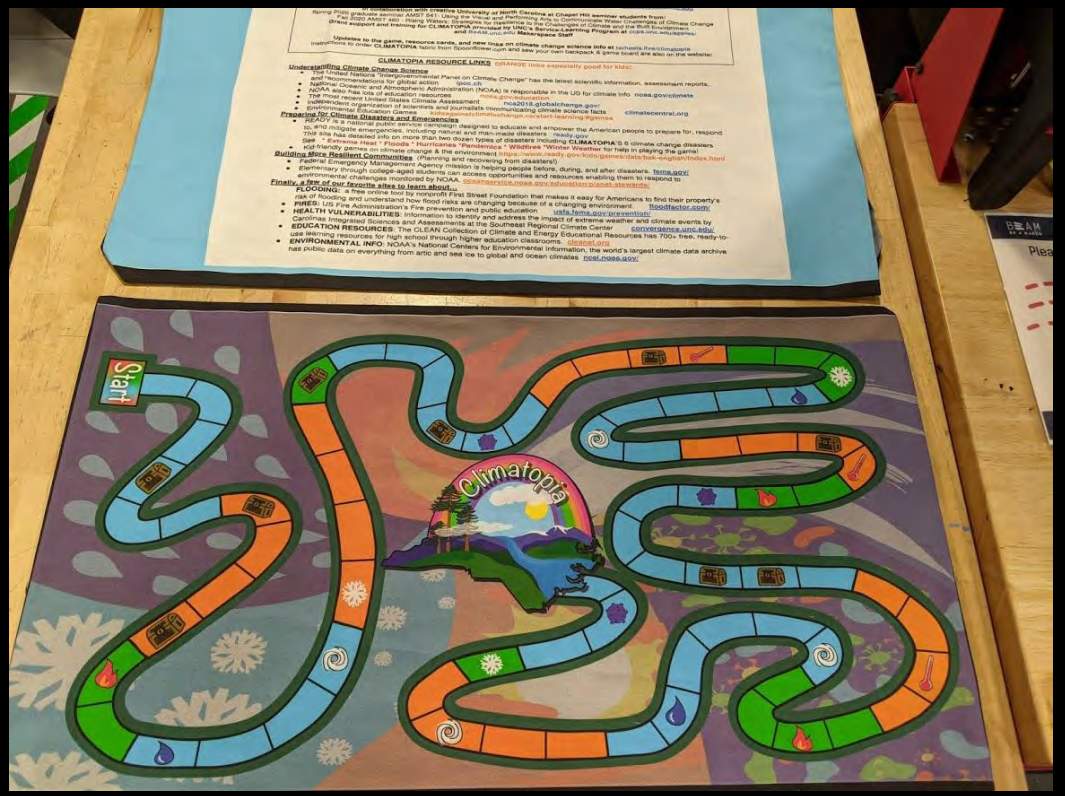
Next Steps for CLIMATOPIA

- SUMMER 2021 FIELD TESTING

- FALL 2021 AMST 460 - RISING WATERS SEMINAR
- IMPROVING CLIMATOPIA
  - Game board
  - Resource cards
  - Links
  - Website
  - Fabric design and sewing instructions
  - Producing complete games including board, parts, cards, and backpacks in BeAM Makerspace

- SPRING 2022 – AMST 398 SERVICE – LEARNING SEMINAR
  - Partner with environmental education sites
  - Introduce and distribute climatopia

FACE CLIMATE CHALLENGES
BUILD RESILIENT COMMUNITIES

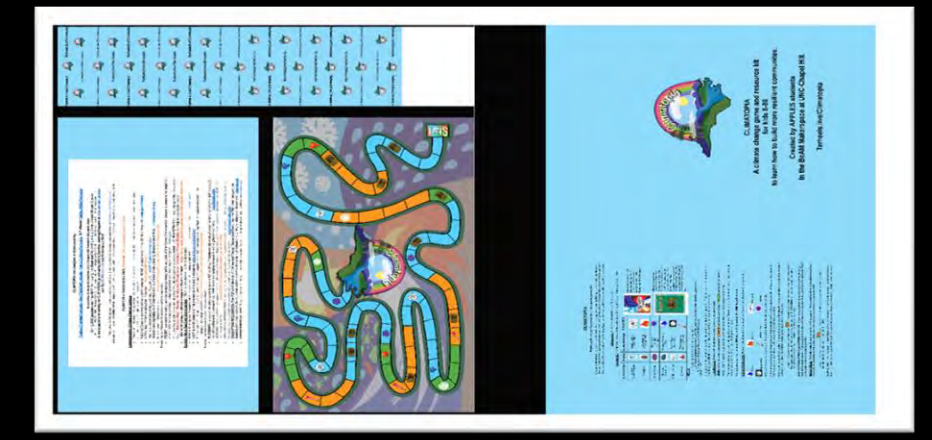


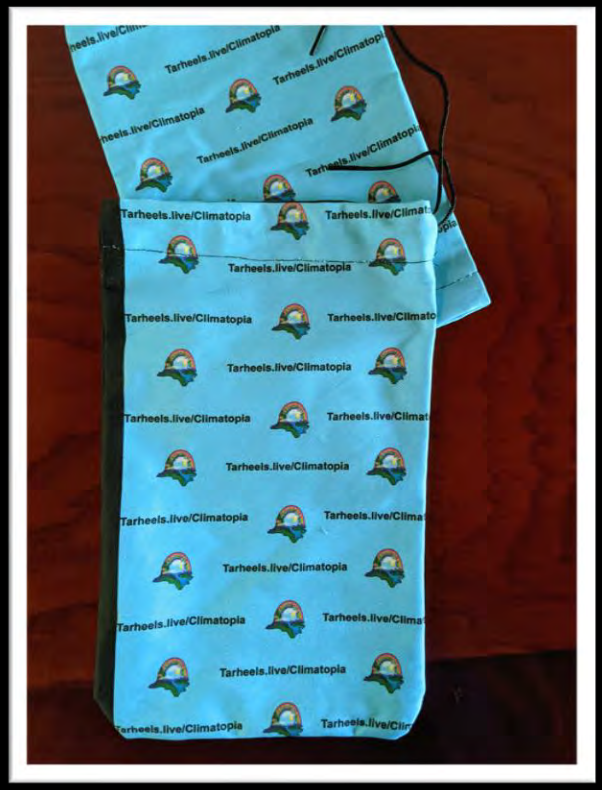
SUSTAINABILITY AND COMMUNICATION GOAL**: TO MAKE CLIMATOPIA SHAREABLE**

SEW YOUR OWN: Buy a yard of fabric from SPOONFLOWER.COM
Make your own CLIMATOPIA Backpack & Game!

USE THE CLIMATOPIA WEBSITE:
Sewing instructions
Print cards
Get ideas for character markers

*** Hotlinks to new accessible information to understand climate science, implement strategies for building better communities, and obtain updated resource information.





QUESTIONS?
SUGGESTIONS?
ADVICE?

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