

CUT OUTLINE

# FIELD ACTION JOURNAL

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[DESIGNING FOR RESILIENT]  
SUSTAINABLE SYSTEMS  
PARSONS THE NEW SCHOOL  
INSTRUCTOR: CAROLIN MEES  
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THE BUILT ENVIRONMENT  
AND THE URBAN GARDEN

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# SOCIAL



Community gardens are part of a sustainable system because they filter rainwater, restore oxygen to the air and help reduce air pollution. Along with these benefits community gardens recycle leaves, organic waste and other items back into the soil and provide the much needed green space for many urban environments. By having community gardens people are more aware of living things and their ability to live a greener life. Who gardens in a garden? The community gardens in the gardens depending on the area sections are set up for each individual to create their own green space.





1. **Health:** Consumption of nutritious and delicious tasting produce.
2. **Ecological:** These community gardens provide green infrastructure and contribute to the ease of global warming.
3. **Social :** Increases responsibility and educates the community to be greener and live a more sustainable life.
4. **Economic:** Food growth can produce income through selling produce at local markets .



Community gardens increase a sense of community and ownership. They bring people together from a variety of backgrounds to become community leaders who are passionate about sustainable living. By having these spaces in urban environments people are able to understand where food grows from, the importance of community, issues concerning environmental sustainability and healthy living that is inexpensive. They become easily accessible areas to nutri-

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In the movie, *This Changes Everything* by Naomi Klein there is an exploration of climate change and social systems within the world. The film argues that climate change is not just a minor problem shoved between health care and financial problems, that it is a reminder to the people of the world to either embrace radical change, or radical change will occur physically upon the world. Through many examples such as Sandy, Power River Basin, and Alberta, Canada we can see that we have to fix our failing economic system and help our environment because it fuels our economy. The larger issue becomes capitalism vs. climate change. To defeat this battle of society versus environment we the people have to acknowledge our effect towards the environmental systems and the profit it brings us. By recognizing this problem, we can reduce emissions, live greener and think of alternatives to save the earth while still having the means to live.

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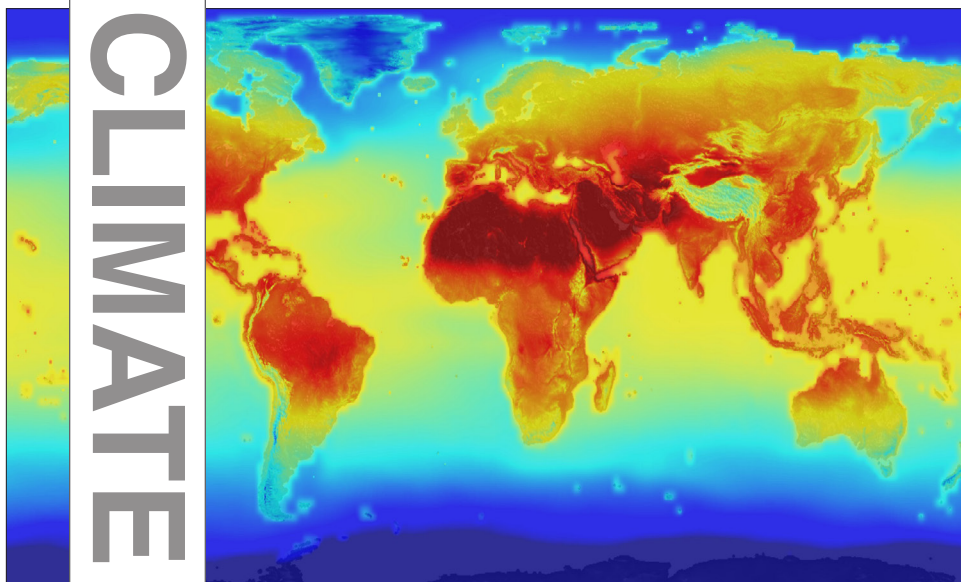
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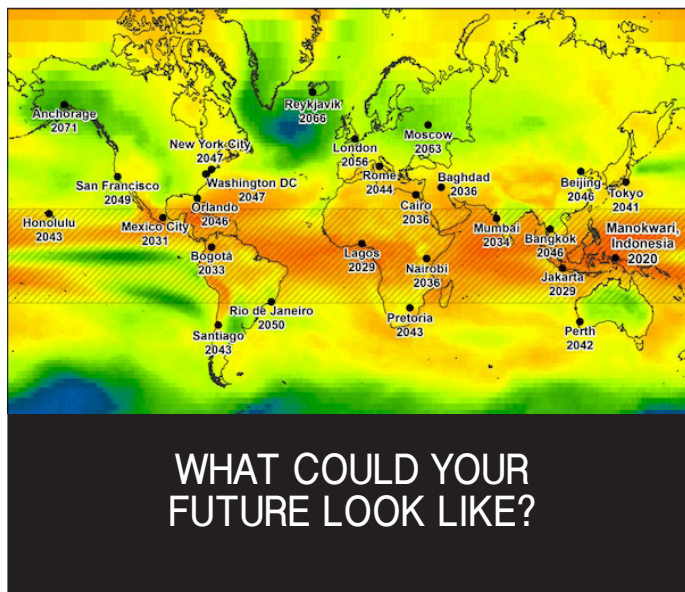


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Currently our world is experiencing a climate change. Only covering 2% of the earth's surface, cities are a leading cause of climate change. Consuming 78% of the world's energy, producing 60% of all CO2 emissions and various greenhouse gases are major reasons we are directly harming our environment. We are currently undergoing a climate change where high temperatures are causing rising of sea levels, floods and weather extremes. If we do not take action we could be a direct threat to a global problem.



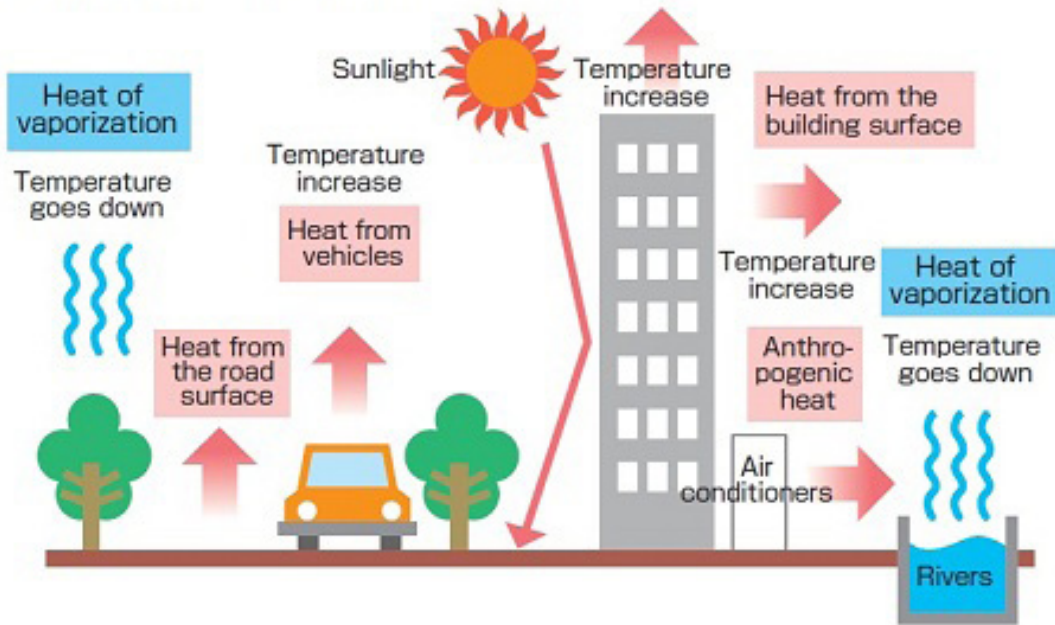


# HOW CAN WE CHANGE?



Though Many cities have not addressed climate change, we can effectively protect ourselves through proper planning, knowledge and management. Though we have advancements in technology often times we forget our actions can negatively impact the environment. Keeping in mind sustainability we can create change through technology. In urban cities buildings consume 30% of energy and that can be reduced through solar panels, efficient HVAC units and light colored roofing to avoid absorption of heat. Other minor changes can be capturing excess water for reuse, recycling and gardening. Such minor steps can lead to a healthier environment and keep us safe from the impacts of climate change. What can we do? Combining large spaces to save energy (In Dubai there was a combination in hotel, mall, supermarket and residences and that save almost 30% of energy), saving older buildings or create rules for greener and safer new buildings and lastly keeping the community informed, connected and engaged so that we can protect our community from the impacts of climate change

## ●How the Heat Island Phenomenon occurs



# ENERGY



Solar energy is one of the most common, accessible means of energy. Solar energy does not necessarily have to be obtained through solar panels because the energy the sun provides can provide warmth and basic energy naturally. Solar panels are made from silicon with tempered glass above and plastic underneath. Though it can be convenient and sustainable there are some flaws, some being: expensive, dependent on weather, or operated through batteries. Though these can be some negative flaws our advancements in technology have allowed us to integrate a natural source of energy into everyday objects such as fabric, tents, and transportation.







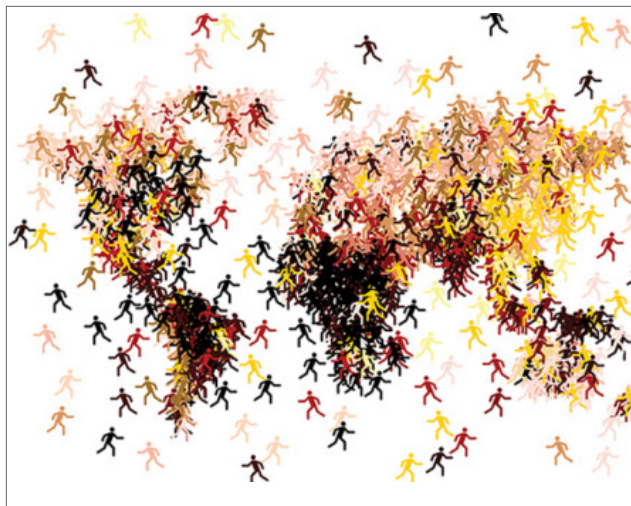
Thermal insulation can be provided through many things such as felt, wool, felt, paper, green roof, dark colors. Some ways to remain sustainable without wasting the sun's energy is to not put the panels on the south side but on the west side because we use more energy in the evening than during the day time. Solar energy can be integrated into everyday objects such as water heaters, chargers, screens, lights and air conditioning. Solar energy would be integrated into my design through panels on the side of my structure or through a sustainable fabric with solar threads.



# MOBILITY



Mobility is a large aspect of sustainable systems and a direct result of changes in the environment. When thinking about mobility, we have to ask ourselves: Why do people migrate? People migrate for many reasons, those that are obvious and those that are not. Some large reasons people migrate are political, social, economic, environmental problems. But these are broad areas that effect a lot of people. Many people migrate because of natural disasters, quality of living, being proactive in terms of climate change. Those who migrate it can be a recreational activity or just involuntary. How do they migrate? In today's day in age we can move from place to place by plane, ship, car, but without those resources options such as animals, walking, biking, and similar ways become a way of migrating.





Now we have to look at the formal elements of migration. What happens after one migrates? Where do they go, what do they live in, how can they sustain themselves? A good example to look at is nomadic people. They migrate by foot, animals, and even now more technologically advanced means of transportation. A big part of this process is to think about how much they can bring and move with them. With that said, it is best to have construction techniques where they can roll up, fold or interlock things so that they can become easily accessible. Then comes the material, when thinking about moving weight, size and practicality become leading factors in solving this problem. Items such as hay, blankets, clay, and yarn provide warmth and cooling while staying lightweight and easily movable.

Lastly how do they sustain themselves? First they have to think about location, placing themselves in the middle of nowhere can prevent them from surviving. Places near the water, food sources, plants and exposure to sun will allow them to stay healthy and provide them with basic needs of survival. Water access is important because hydration is key, a filtration process can be created through rain water collection or desalination from ocean water. Health care can be easily accessible through herbal remedies and plants and to create warmth and energy they need to have exposure to sun.

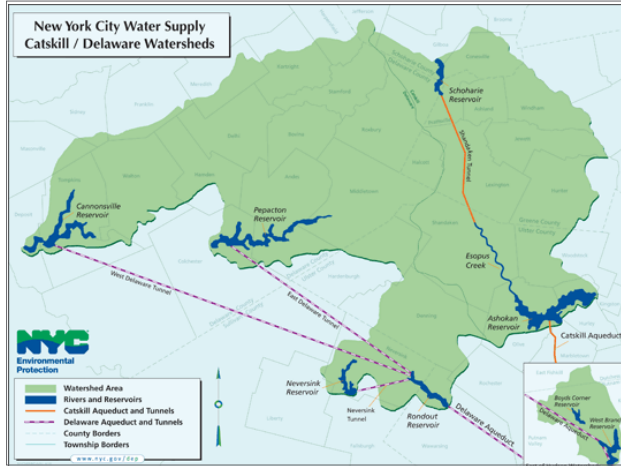




# WATER



The Catskill/Delaware watershed is 125 miles northwest of the city and provides 90% of the city's water supply. The city has upgraded its tech to prevent runoff such as septic systems, wastewater treatment plants in the community etc. Countries most use chlorine and chloramine to disinfect water supply, while others use a potable water system. Chlorine was first added to the US water supply in 1908





**Testing**

- oTo ensure high water quality our water has chlorine, fluoride
- oData is collected every day and recorded on a computer to make predictions about quality and quantity of water
- oClimate change/precipitation is a factor to water quality
- oDisinfectant byproducts (DBPs) are a result of chlorine and other disinfectants reacting with the already present organic matter in the water
  - oSuch DBPs are trihalomethanes which are known to be carcinogenic

**Treatment**

- oCan use ozone, chlorine, chloramine, and UV light
- oReducing water age in pipes
- oAeration for stripping volatile compounds
- oDosing disinfectant and remote sites
- oSelf-cleaning systems use smaller pipes to reduce water age

**Supply**

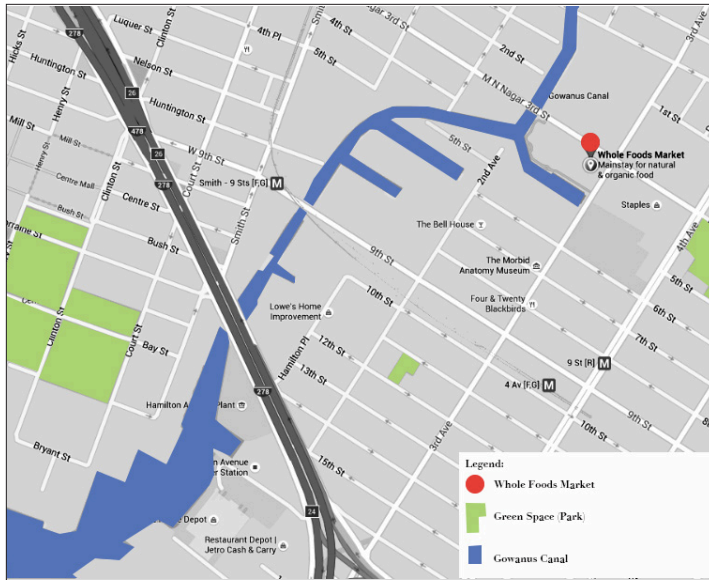
- oBefore sent to the city the water is treated with chlorine, phosphoric acid, sodium hydroxide to disinfect
- oMain water tunnels act like drains to take water downhill
- oRegularly tests water and sampling centers throughout NYC

**Taste**

- oWorried about lead run water for 30 seconds
- oTastes good because of location we have very little limestone rock in the Catskill mountains which contain low levels of calcium which has a bitter taste



# GOWANUS CANAL



CSO: combined sewage overflow

Dirty storm water and rain runoff sewage goes in to the Gowanus Canal. How and why do they occur?

They occur because of heavy rainfall and a combination of sewage water- Some of the main pollutants are toxic substances, solid matter, and debris. Right now the solution for this overflow is vegetation.





This process of growing food in water is a tedious and care-ful process. You do not realize how much clean water can af-fect the growth of the plant itself. The grow-ing process was slow and I did not see re-sults until after a week had passed by. I think I relaized the way you treat and care for the plant effects the pro-gress of its growth.



if we test the *Gonanus canal* then we will see light amount of purple due to a lack of percipitation and lack of ~~CSO~~ mostly pink and

Fill Out The following table with COLOR Predictions in the last column

GROUP NUMBER:		RIVER NAME:						
Plate #	Growth Media	Sterile H2O	Citrobacter (TC)	E. coli (FC)	River Sample	Role in Experiment: control, reference standard, or experimental	Color & Number of Colonies	
1	✓	200ul				control	Prediction: none	
2	✓		200ul			ref. stan.	Prediction: pink	
3	✓			200ul		ref. stan.	Prediction: purple	
4	✓				200ul	exper.	Prediction: dull pink	
5	✓				200ul(Filterd)	exper.	Prediction: white ( <del>light pink</del> )	

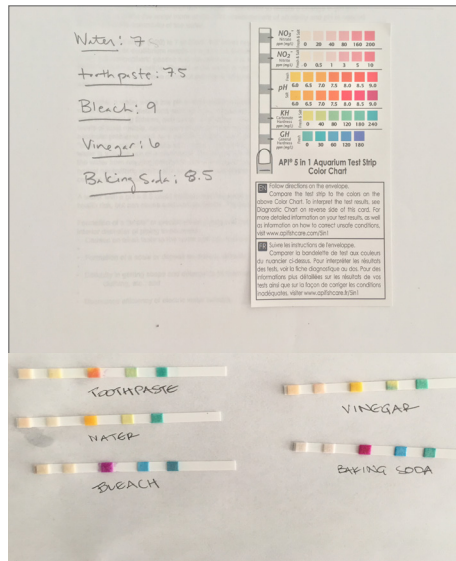
Hypothesis: if we <sup>test the *Gonanus*</sup> feed the ~~sample~~ food then we will see a change in ~~color~~ water. because of the coliforms found in the contaminated <sup>(light amount of purple)</sup> water that has been affected by lack of percipitation <sup>comparitive</sup>

# LAB WORK

# MATERIAL



After conducting a pH test we were able to see the importance pH testing has on water quality. pH testing is the most critical variable of water quality parameters for healthy drinking and living standards. pH is a measure of how acidic and basic water is. The range goes from 0 -14, 7 being neutral. Anything below 7 is acidic and anything is a base. pH is the best indicator if water has been effected chemically. In our testing of pH we found that vin-egar was acidic, bleach and bak-ing soda were alkaline and water and toothpaste were neutral. High pH will effect the taste of the water because the material corrodes in pipes where as low pH will dissolve into the water as the material breaks down.







Squids live in climate oceanic locations. Each area has different species of squids but they are typically found in cool climates such as Antarctica. How does it change color? The squid's skin contains many cells of different colors. These cells are called chromatophores. Each cell can be made smaller or larger by the contraction of muscles. So the squid simply flexes the correct muscles to make the cells of the desired color larger and to make all the other colored cells smaller. The ability to change color allow squids to communicate, camouflage, and defend themselves. This could imply that they are adapting to their surroundings for defense they need to fight against predators, Squid are able to camouflage which could work with structures through smart electric fibers that can change the color of the structure based on location.

After attending the Material Connexion Library , as a designer I was open to many new sustainable ideas. Its one thing to implement in our environment but it is another to integrate it into many con-sumer industries. A vast majority of the options had the sustainability icons which were broken down as so: compostable, easily recyclable, low carbon footprint, recycled content, renewable, low toxic-ity, biodegradable, and lightweight. With those material icons placed on products the library aisles were broken down by category: carbon based, cement based, ceramic, glass, metal, natural, polymer, and process. with all these things in mind it is easy as a designer to be sus-tainable while able to remain on trend.

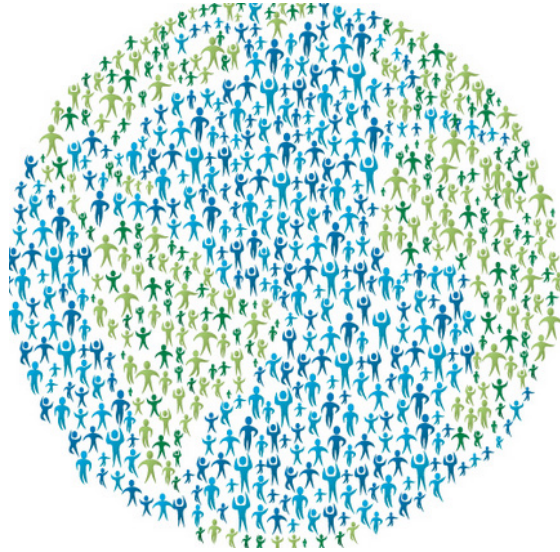


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# SYSTEMS



Systems are a set of connected things or parts forming a complex whole. Living systems are open, organized, things that interact with its surrounding environment. Most of these systems can live off of the environment with the use of sustainable energy and natural resources. A great example of this is honeycomb for bees. Honey bee colonies depend on population for survival and cannot create new colonies without of the help of other bees. Colonies and systems rise from patterns and do not think about the parts but the whole.



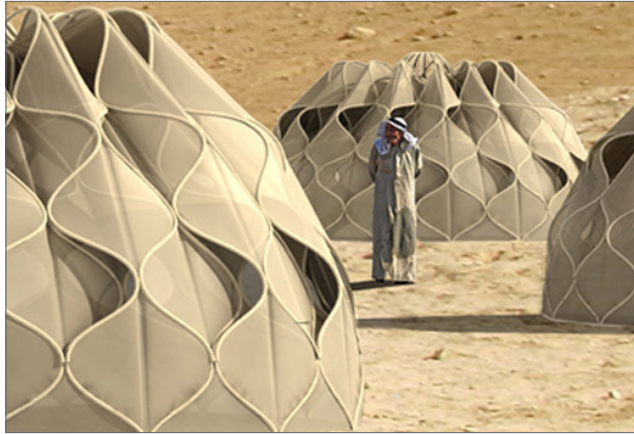
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Biological Colonies are several organisms living together. This type of colony relates to our 'systems thinking' task because there are many benefits to living in a colony. Some being; easier to seek out food, defense, increase in competition, reproduction and sharing resources such as energy, food, water, etc.



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