Children's Environmental Education at the Champaign County Forest Preserve District

By: Taskeen Khan, Autumn Anzell, Michael Gates

December 13th, 2019

Milestone #3

ENVS 492 - Sustainability Capstone Project Based Learning

Children's Environmental Education at the Champaign County Forest Preserve District

Executive Summary

The Champaign County Forest Preserve District wants us to create educational programming that teaches their patrons how to behave more sustainably in their daily lives as well as inform their visitors of what initiatives the Forest Preserve is taking part in for themselves to be more sustainable.

To achieve the first part of this, we are creating sustainability modules that can be added on to the end of the classes that the forest preserve is already teaching. These modules focus on connecting sustainability issues to the daily lives of the students and teaching them how they can be part of the solution. We are also developing sustainability activities to be added to these modules. These activities are hands on projects that are geared towards learning sustainability in an interactive way and in turn making it more likely to create behavioral change in students. To take beyond the forest preserve district, we are also creating sustainability kits. These kits are meant for families want to teach their kids about sustainability from their own home, merging both the modules and activities. Not only do they provide information on sustainability, but they also include the supplies for activities.

To achieve the objective of informs patrons of the CCFPD's efforts to be more sustainable we are creating infographics that highlight the most significant changes the Forest Preserve has made to go green. These infographics are to be displayed throughout the Forest Preserve.
Templates and outlines are also being created in order to take this base of ideas and be able to expand to further enhance sustainability education at the CCFPD.

Introduction

The Champaign County Forest Preserve is made up of six forest preserves. The organization is focused on the conservation, preservation, and restoration of natural areas. They also aim to provide cultural, historical, and environmental opportunities with outdoor recreational experiences. The Champaign County Forest Preserve has recently begun to focus their main goals towards sustainability, recently creating a centralized sustainability Green Team and are starting to organize the best way to further advance their impact.

The Champaign County Forest Preserve is working towards encouraging patrons to act more sustainably, not only through their classes for children from grades pre-k to high school teaching students about nature and sustainable practices, but also through involving visitors in the organization's own efforts to go green. However, their current efforts emphasize providing information on sustainability, rather than fostering behavioral change and convincing students to use the information learned in class to lead more sustainable lives.

Climate change is a human caused issue that directly impacts billions of people everyday and will only get worse without changes in behavior. However, changes in the behavior of people have the power to make a significant difference. For example, if every American recycled just one-tenth of their newspapers, about 25,000,000 trees would be saved, which would be a step towards combating climate change (Recycling Statistics). One of the more impactful ways through which to inspire sustainable behavior is through education.

Youth sustainability education is especially meaningful. Research has shown that teaching students about climate change significantly increases their concern, and even has a large impact on their parents. An effect that is especially strong among conservative parents (Lawson et al, 2019). Not only does educating children have the power to change their parents perspectives, but is has also been found to change parents recycling habits and energy consumption behavior (Maddox et al 2011) (Boudet et al 2019). With an estimated 4,140 kids coming through the Forest Preserve District, this organization has an opportunity to make a substantial impact on the sustainability education and behavioral change of the entire county.

Teachers and organizations all over the country have attempted to encourage more sustainable behavior in their patrons through a variety of programs. The Chicago Botanical Gardens offers classes that emphasize using inquiry based, hands-on activities, in order to inspire behavior change in the participants. The Peace Corps has developed a checklist to think about when creating an environmental sustainability education program. This checklist includes, the activity's educational value, feasibility of activity, age appropriateness, and is the activity fun and engaging (Peace Corps, 2017).

In this project, we use these studies and what they tell us about enacting behavioral change to adapt the education system at the CCFPD to a more modern and effective system. This will be implemented by making age specific modules and activities that relate to the lives of the students and get them to be more engaged in sustainable action.

Objectives

To adapt the current educational system at the CCFPD, we plan on implementing the following deliverables:

1. 4 sustainability modules
2. 2 activity modules for each sustainability module
3. 1 Take-Home Sustainability kit
4. Promotional infographics
5. Outlines for creating modules, activities, and additional kits

There will be a focus on connecting sustainability to daily life, and solutions that everybody can take part in. The study “Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?” explains that campaigns that use information alone are ineffective at changing behaviors. What prompts behavior change is making people feel like the problem is something close to home, that will affect their lives, and making them feel like there are solutions that they can easily take part in, and through which they can make a difference.

1. Sustainability Modules

The sustainability modules can be added on to any of the classes at the Champaign County Forest Preserve. The reason we choose to create modules that add on to existing classes, rather than create a brand-new class, is that research by the peace corps has found that adapting existing frameworks is a more effective way to implement educational change, compared to creating something new.

Each module will focus on one specific sustainability issue (deforestation, prairies loss, water pollution air pollution) and there will be a version of the module for high school, middle school, and elementary/preschool students. We choose these age groups because that is how the CCFPD divides up their existing classes. We choose the topics of prairie loss and deforestation because those are both issues the CCFPD is directly working to combat, through their land reclamation projects. This gives teachers a chance to talk to students about what the CCFPD is doing, and work towards one of our original goals of informing patrons of the CCFPD’s efforts to be more sustainable. Air and water pollution were chosen as module topics because the CCFPD’s survey on what environmental issues matter most to the local communities found both to be important.

Each module will be composed of a teacher’s guide and PowerPoint. The teacher's guide will provide details on four subtopics: how the sustainability topic connects to the class, how it affects students and the local region, solutions, and how students can get involved to help fix the problem.

For the how it connects to the class part of the teacher’s guide, we listed all the classes the CCFPD provides for students in the specific age range the module version is for and explained how each of those classes has a connection to the bigger sustainability issue.

The solution we provided are all based on what age range that version of the module is for, and what students of that age can do.

Each module will also come with a come with a power point, aimed at being a visual prop for the student’s as the teacher covers the content in the module. The power point has information that aligns with the main points on the teacher’s guide, as well as pictures that help students see the impact that that particular sustainability issue is having on the environment. Below is an example of the PowerPoint slides for the water pollution module for high school students.

What is water pollution?

When water is contaminated

How does water pollution affect you?

-Important to keep freshwater clean

-Algae blooms, caused by fertilizer, harm people and wildlife

-Algae toxins mixing with water disinfectants create harmful compounds

What are solutions?

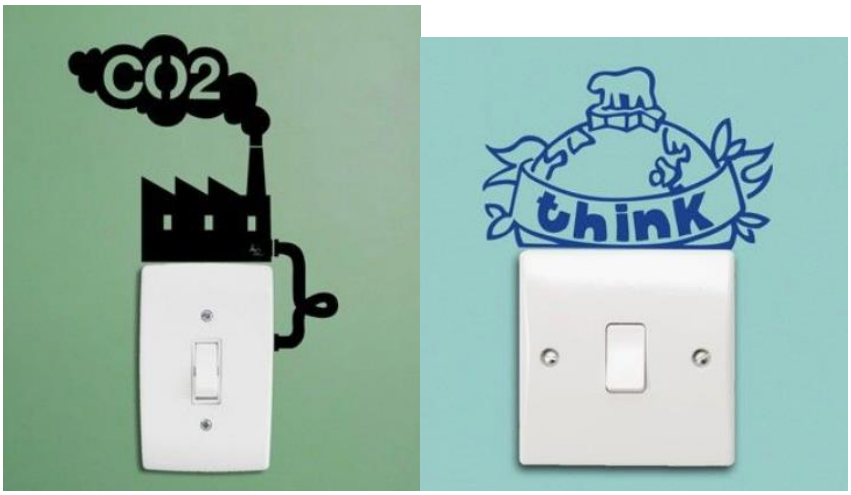
1. Be careful what you pour down the sink
2. Pick up litter
3. Create rain gardens
4. Keep fertilizers, yard, and pet waste out of storm drains
5. Only run the cloths and dishwasher when they are full

For the classes taught outside, where the use of a power point is not possible, the educator can go through the main ideas on the information sheet, and still teach their class about sustainability, just without the visual aid.

There will also be a blank version of the teacher guide provided, so that the ccfpd can follow the same format, but build new modules as they find new sustainability issues they want to bring to their student's attention.

2. Activity Modules

We also want to focus on providing students with take home products that will serve as prompts for sustainable activity. Four activities were created to supplement the four modules: deforestation, prairie loss, air pollution, and water pollution. Each activity has two adaptations: a version catered to the pre-k and elementary school age group and a version for the middle and high school age group. For the air pollution module, the activity is having younger students decorate a sticker that they can place above their light switches at home, reminding them to turn off the lights when they are not in the room. For the older students, the activity is designing a label to attach to their phone chargers, that reminds them to unplug them when not in use. The take home products that the students create at the end of the class will act as a prompt to support sustainability, but also tie in to the topic being taught in that class. For example, if the class is the insect class the park district already teaches, students can be taught how pollution from fossil fuel generated electricity harms insect biodiversity. Below is an picture of one of the activities, stickers to remind students to turn off the lights at home.



"Outdoor Activities for Kids and Why Outdoor Play Matters". Learning Liftoff, 18 June 2019, https://www.learningliftoff.com/5-outdoor-activities-for-kids/

3. Sustainability Kits

Beyond activities that can be done at the forest district, we want a way for people to learn about the environment and sustainability at home or in the classroom. The forest district already has different education kits that can either be loaned out to family homes or to different schools, and we feel that the forest district should create new sustainability versions. These kits would include different activities,

books, and educational materials that encourage families to make more sustainable choices as well as educated them about community initiatives and how they can get involved. Possible expansion to more kits with different age ranges as the focus as time goes on if successful.

4. Infographics

In addition to educating the visitors on what they can personally do, a focus on what the Forest District is doing in efforts to be more sustainable will be implemented. This will foster two main purposes, to boost the support of this possible initiatives and programs to make them more impactful, and also to show the visitors examples of the Forest District's commitment to sustainability and prove that other people are actively making a difference that they can relate to. These objectives will come in the form of different infographics that display these longer-term goals and initiative that the forest district has in a visual focused way.

Scope

Our major task is creating two sets of programs, one that focuses on educating visitors on how they can act more sustainably in their own lives, and another that focuses on sharing with the public the forests preserves sustainability initiatives. The purpose is to foster behavior change, and inform the public of the forest preserves efforts to go green.

Task 1: Research the forest preserves sustainability initiatives

1.1: Speak with sponsor

This will require talking to the sponsors about the preserve's recycling, land management, and educational initiatives. We will determine what aspects of these programs the forest preserves thinks are most important to share with the public.

1.2: Get data and information

We also want to research measurable differences the initiatives have made (such as reducing waste taken to landfills by x percent) so that we can share this with visitors. We also will research what the forest preserve is already doing to inform the public about these initiatives, so that we do not duplicate our efforts.

Task 2: Research what type of messaging is most effective at promoting behavioral change

2.1: Research literature

We will look at the literature to understand the most effective ways to change people's behaviors so that it is more sustainable.

2.2: Look at other forest preserves

We will also look at what other forest preserves are doing to prompt behavior change in their patrons.

Task 3: Create infographics that can be placed throughout the forest preserve

3.1: Collect articles and press releases on what the forest preserve has done

This shows what initiative the forest preserve and local media have deemed the most important

3.2: Determine what the most significant/eye catching changes the forest preserve has made to be sustainable are

We determine what information about the preserve's sustainability efforts is most important and focus on sharing that in a way that is as impactful as possible.

3.3: Create an infographic highlighting the changes determined in 3.2

We will create several infographics for the forest preserve to choose from.

Task 4: Promote the forest preserves green initiatives on their website

4.1: Collect articles and press releases on what the forest preserve has done

We will create a collection of articles and press releases so the forest preserve can create a section of their website dedicated to the media attention they have received

4.2: Compile info graphics

We will create a section of the website with all the info graphics, so visitors can click on them and have a quick way to learn more about the preserve

Task 5: Learn more about what is taught in each of the forest preserve's existing classes

5.1: Get information on each of the classes taught at the forest preserve from Stacey

We want our sustainability educational material to be integrated with what is already being taught, and not just an add on that seems disjointed. Learning about classes that are being taught will allow us to create educational material that blends well with what the forest preserve is already doing.

Task 6: Sustainability module

6.1: Research sustainability issues that connect to the forest preserve classes and local community

Find sustainability issues that both connect to the content being taught in the class, and to the community the forest preserve reaches. This can be done through the document that Stacey gave us that lists the environmental issues the local community most cares about

6.2: Create a module for each sustainability issue (one for deforestation, another for water pollution)

The module will provide information linking environmental issues to importance of sustainability to everyday life, and what is being taught in that specific class, as well as solutions that students can take part in

6.3: Modify the modules so they are grade appropriate

Modify each of the main modules to create a version that is appropriate for each of the age groups taught at the forest reserve. For example, create a version of the deforestation module that is geared towards elementary school students, and another that is for high school students

Task 7: Create a list of activities students can take part in to encourage sustainable behavior

7.1: Research activities

Research what type of activities students of different age groups best respond to and what are the possible environmental activities that take about 15 minutes to complete in a classroom.

7.2: Create procedures

This list will include the activity, the supplies it needs, and how it connects to sustainability. It will be organized by the age group of students the activities are most relevant to. Teachers can choose the activity that they feel is the best fit for the class they are teaching. The activities will be things like creating reusable grocery bags from old t-shirts, decorating stickers that remind people to turn off lights, and making native flower bombs. Not only are these fun for students to make, but they help them act more sustainable at home. We will focus on making these activities accessible to students no matter what their background is.

7.3: Create a budget for supplies

Create a budget based on how many students per classroom, how many classes will be doing the activities, and how much the supplies cost.

Task 8: Generate Sustainability Kits

8.1: Create Ideas and Research Costs

Get a broad range of ideas for both school and take-home kits. The goal is to get as many areas of sustainability as possible and have a fun and easy activity for each.

8.2: Determine the Most Cost-Effective Ideas

Decide which ones are worth the investment and are realistic for the forest preserve. The other kits available from the forest district are around $50, these kits should be similar.

8.3: Develop Ideas into Useable Materials

With each idea chosen, come up with more detailed outline with what each would include. Meaning example statistics to include, example education materials, and activities procedures.

Task 9: Develop a Plan for Future Implementation of Project

9.1: Test Sustainability Kits

To test the effectiveness and feasibility of the activities provided in this base Sustainability Kit, the kit would be sent home first with different families of the park district. These families would test the materials and activities and finish a small survey about how well the activities went and how engages their kids were. Adaptation would be made, if needed, before full public release.

9.2: Test Modules and Activities

The modules and accompanying activities will have a testing phase that is one month long. Each module & activity will be presented twice, so teachers and students can provide us feedback. This means, that for the first month, only a few of the student groups (4 modules X each presented twice = 8 student groups) will be receiving the modules. This gives us the chance to test it on a small scale and make changes before rolling it out on a larger scale. Adaptation would be made, if needed, before full public release.

To test how effective the modules and activities are, one week after the students take a class that includes them, we will provide an email survey. The survey will ask how often they take part in sustainable behaviors related to the topic of the module they were presented with. For example, if a student's class was presented the module on deforestation, we would ask about behavior related to deforestation prevention, such as reusing paper. We would compare these results to those of students who took the preexisting version of the class, which currently does not have a sustainability module and

activity attached. This would be done in the testing phase, while just a small portion of the classes are being introduced to the modules. This will allow us to measure the effectivity of the modules and activities.

In conclusion, we are creating materials for the forest preserve classes that focus on teaching students sustainable behavior. We are also creating a infographic materials that will be located throughout the forest preserve that informs people of what the forest preserve is doing to be sustainable.

The three parts of the messaging for students are 1. Modules that explain sustainability issues, connect them to classes, and have solutions kids can do 2. An activity that is fun and also encourages future sustainable behavior. Also, there is an emphasis on the material for students being accessible to a diverse range of backgrounds. We will be testing our programs on a small scale, so that we can improve them, before they are applied on a larger scale.

Results and Discussion

Below is an example of a completed Teacher Guide for a module on water pollution

High School water pollution:

What it is: (ask students what they already know) When pollutants get into the water. The pollution can be anything from plastic bags that get blown into the water, to oil from oil spills.

Connection to class: (ask students how they think it connects to what they learned in the class).

Illinois ecosystems: All of the animals, insects, and plants that we learned about rely on clean water to survive. Organisms having clean water available to them is a key part of maintaining the health of ecosystems. Once consumed, pollutants collect and are stored within the animal's tissues. As animals are eaten by other animals higher in the food chain, these pollutants continue to collect and increase in concentration. This process is called bioaccumulation. Top level predator's wolves and eagles are particularly at risk due to the bioaccumulation of these types of water pollutants. This is just one way in which water pollution impacts entire ecosystems.

Tree ID: Trees need water to grow. Polluted water can damage their roots as well as make them more susceptible to disease. Furthermore, water pollution can contribute to acid rain, which is harmful to plants.
Additionally, the roots of plants can help purify water, so when we lose trees, we increase the risk of water pollution.

Mammal morphology: Mammals need clean drinking water in order to survive. Marine mammals are especially impacted by water pollution. Scientists have found plastic fragments in 43% of all marine mammal species. When animals ingest plastic waste, it can block their digestive tracts, and cause them to starve.

How it affects you:

Though 70% of the earth is covered in water, only 2.5% of this water is fresh. Of that, only 1% is accessible, and not trapped in glaciers or snow. Because of this, it is especially important to keep the limited sources of freshwater, the only water that we can drink, as clean as possible.

One form of pollution is fertilizer from farms being washed into rivers, and then ended up in the ocean. This fertilizer increases the growth of algae, creating algae blooms. This cause dead zones, low-oxygen areas where aquatic wildlife is not able to survive.
These blooms also decrease water quality and ruin popular beaches, vacation spots, and scenic views. Drinking, swallowing or swimming with harmful algal bloom can harm one's health.

Storm water runoff can carry nutrients directly into rivers, lakes and reservoirs. This boosts the growth of algae. When algae grows in large quantities, it can produce toxins as it decays. When disinfectants used to treat clean water mix with these toxins, harmful chemicals called dioxins can be created. Dioxins have been linked to health problems

Toxic chemicals can harm animals' health—and people can ingest these chemicals as they make their way up the food chain.

Solutions: But don't worry, there are solutions! You can help prevent water pollution (ask students how they think they can help and talk about their ideas)

1. Be careful what you pour down the sink, it could end up in water sources.
2. When cleaning your plate, don't put food down the disposer greasy food can allow grease to get into water sources, which is bad for the environment.
3. Pick up litter you find outside, otherwise it may blow into water sources and pollute the water
4. Create rain gardens that have plants that will slow the flow of water, and help filter contaminants out of the water before it goes down the storm drain.
5. Don't let pet waste be washed into storm drains.
6. Choose phosphate-free detergents, soaps, and household cleaners.
7. Select the proper load size for your washing machine.
8. Only run your clothes or dish washer when you have a full load.
9. Use the appropriate amount of detergent; more is not better.
10. turn things off or unplug them when you're not using them.

Activities:

Below is an example of a completed guide for an activity on the Prairie Loss Module

Activity: Seed Bombs
Objective: Understand the importance of native plants and benefits of having them at home
Ages: students of all ages
Time: 15 minutes
Supplies: Clay, water, soil, seeds of native plants, informational sheets on the seeds

Procedure: pre-k and elementary schoolers

Teacher explains one prairie plant and its benefits to nature and the community. Have students mix equal portions clay (kitty litter works) and soil with enough water to make the bomb form a ball that doesn't fall apart. Start will a small amount of water (about 2 tbsp), you can always add more water if necessary. Bomb should be a couple inches in diameter. Poke a hole into the seed bomb with a finger. The hole should be slightly less than halfway through the seed bomb ball. Put about 8 seeds into the hole then gently close the whole with soil. Wrap the seed bomb in tin foil and let the bomb dry for about 2 days or until dry. Unwrap the bomb and plant in soil or in a pot. (Seed bombs can be stored for up to a year in the tin foil before planting.)

Procedure: middle school and high schoolers

Show the 7 prairie seed options to students. Let students choose which seeds they want to use based on its benefits speak to them. Mix equal portions clay (kitty litter works) and soil with enough water to make the bomb form a ball. Start will a small amount of water (about 2 tbsp), you can always add more water if necessary. Bomb should be a couple inches in diameter. Poke a hole into the seed bomb with a finger. The hole should be slightly less than halfway through the seed bomb ball. Put about 8 seeds into the hole then gently close the whole with soil. Wrap the seed bomb in tin foil and let the bomb dry for about 2 days or until dry. Unwrap the bomb and plant in soil or in a pot. (Seed bombs can be stored for up to a year in the tin foil before planting.)

Sustainability Kits:

The sustainability kits are a compiled set of different activities aimed towards family time and enhancing sustainable behaviors. To get a broad base of education, the kits were designed to have activities based around the main areas of sustainability: water, energy, waste, and pollution. The deliverables are all unique, however the main outline for the guides are a quick introduction aimed towards informational learning and then activities included to prompt engagement and behavioral change. Not all the deliverables are fully developed but include a template that would be used to finish each. These deliverables are shown and described below:

- **Sustainability Cookbook** - An introduction to how the choice of food impacts the environment and multiple recipes to show feasibility and engage family
    - Example Recipe: Blackbean Burger Recipe
- **Activity Guide** - Included are different of activities aimed towards engaging kids and teaching them sustainability at the same time
    - Activities from modules and additional
    - Take-Home Test
    - Community Scavenger Hunt (Proposed)
- **Craft Guide** - Crafts using commonly recycled products to encourage kids to upcycle and think more about recycling and waste produced
    - Two Samples
- **Compost Guide** - Home guide to create a compost box with materials at home as well as explaining benefits of it personally and to the environment
- **"Small Works: Little Actions Everywhere"** - We have got approval from the author Sarah Lazarovic to be used and would be printed out and be aimed towards kids embracing the large issue that is making change.

These materials will be printed out and included in a binder to be presented to the Forest Preserve District in an easily readable manner. An example recipe page from the Sustainability CookBook is shown on the next page.

Black-Bean Burger

Introduction

Courtesy of Sally's Backing Addiction, this beef alternative recipe dishes out an amazing meatless option for the nights you are craving a burger. While a lot of black bean burgers are mushy, partially drying out the black beans before hand make it so this burger gives you the big, thick, and hearty burger you deserve. Great source of protein and are as healthy as a burger can get. Try this out for an instant new favorite grill side special. Vegetarian and has the easy and delicious potential to be Vegan.

Ingredients

2 (14 ounce) cans black beans

1 Tablespoon olive oil

½ bell pepper, finely chopped

½ yellow onion, finely chopped

3 garlic cloves, minced

1 and ½ teaspoons cumin

1 teaspoon chili pepper

½ teaspoon garlic power

¼ teaspoon smoked paprika

½ cup bread crumbs or oat flour

½ cup feta cheese*

2 large eggs*

2 Tablespoon sauce of choice (Worcestershire, Ketchup, Mustard, BBQ Sauce, Mayo, etc.)

*If want to make vegan, simply do not add

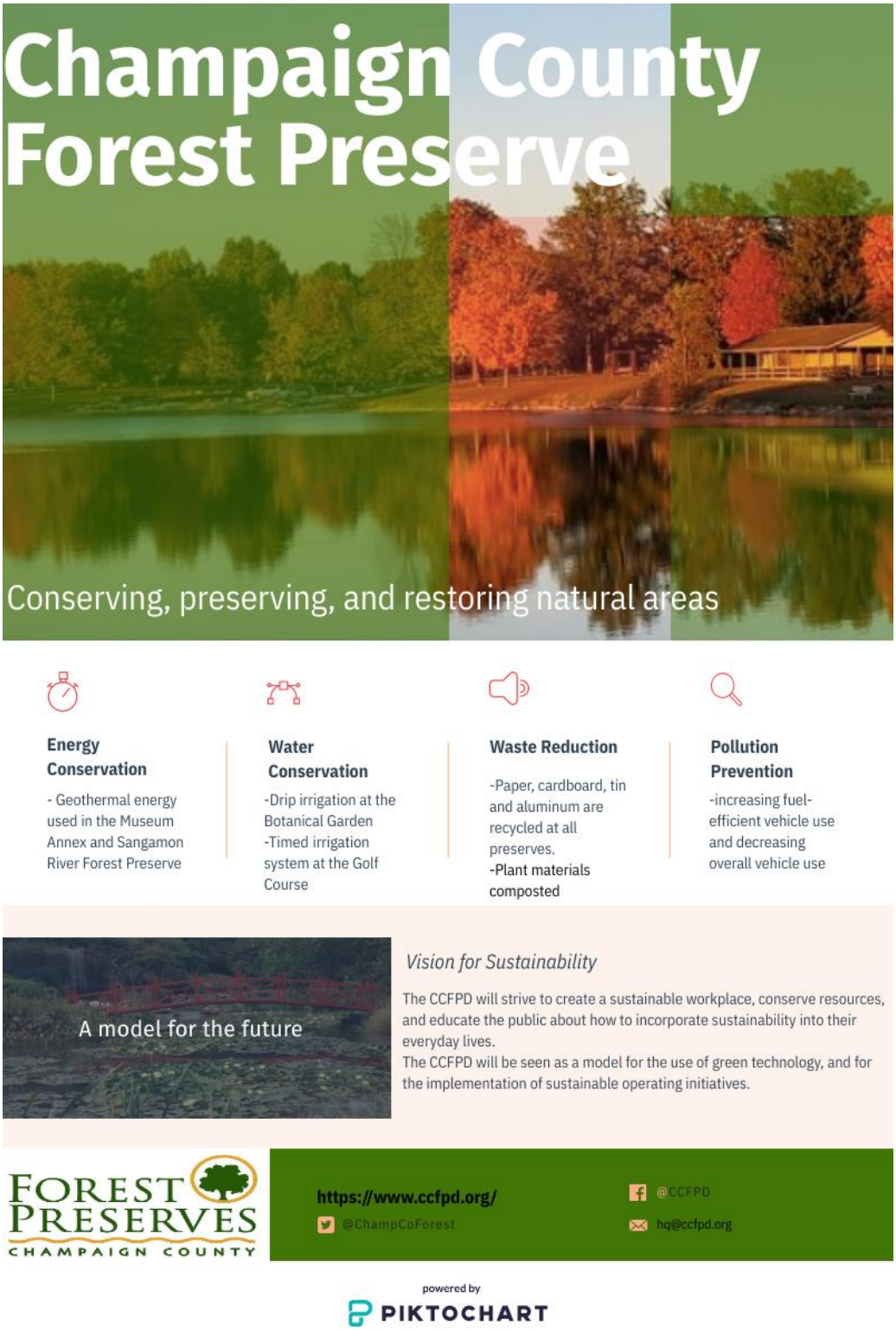
Recipe

Preparation Time: 30 minutes *Cook Time: 15-20 minutes*

Total Time: 50 minutes *Yield: 6 burgers*

1. Preheat oven to 325 ºF (163ºC). Spread beans evenly onto a baking sheet and bake for 15 minutes until slightly dried out.
2. Meanwhile, sauté olive oil, chopped pepper, onion, and garlic over medium heat until peppers and onions are soft (5-6 minutes). Blot carefully with towels to get moisture out.
3. Place into big bowl or food processor with remaining ingredients. Stir or pulse everything together. Add black beans and mash with fork or pulse mixture, leave some larger chunks of beans.
4. Form into patties with hands (1/3 cup each)
5. To Bake: Place patties on parchment paper lined baking sheet and bake at 375ºF for 10 minutes on each side.
6. To Grill: Place patties on grease aluminum foil and grill 8 minutes on each side. Grill at 350-400ºF
7. Serve with favorite burger toppings and enjoy!

Infographic:

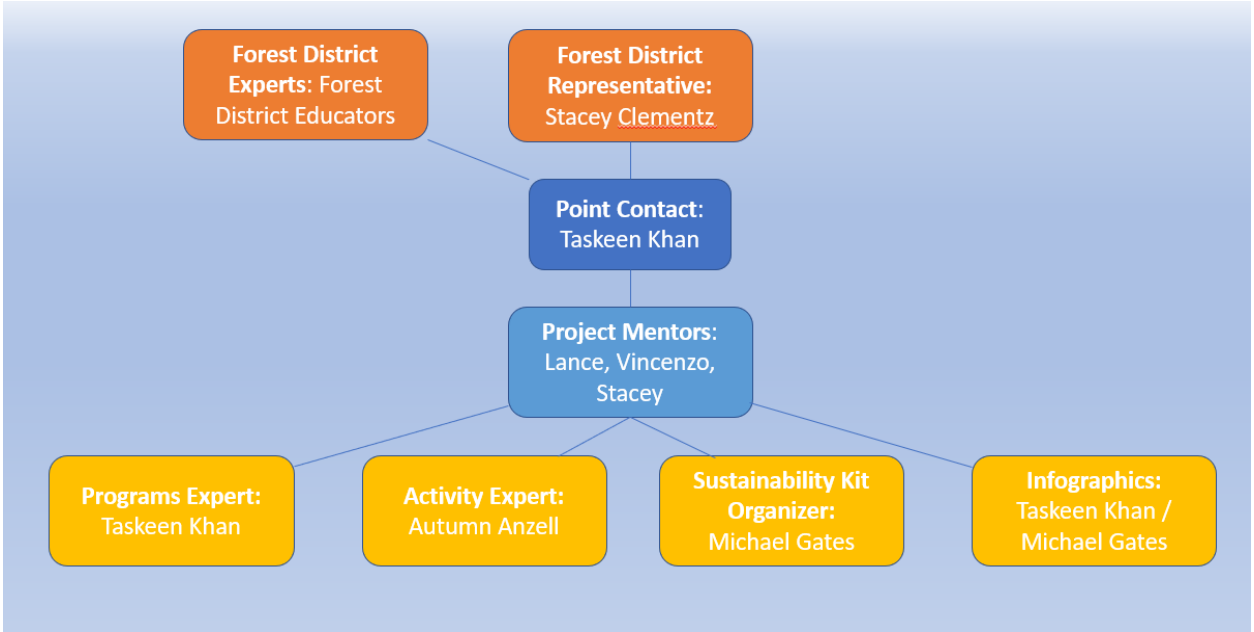


Project Schedule Update

Dates	10/14	10/21	10/28	11/4	11/11	11/18	11/25	12/2	12/9
Important Events									
Task 1: Research Forest Plans									
Speak with sponsors									
Get data and information									
Task 2: Research Messaging									
Research literature									
Look at other forest preserves									
Task 3: Create infographics									
Determine Areas of Interest									
Determine important information									
Create Infographic Visuals									
Task 4: Promote Forest Website									
Collecting Articles/Press Releases									
Task 5: Learn about classes									
Learnabout current education									
Organize and analyze where to edit									
Task 6: Sustainability Modules									
Research Sustainability Issues									
Create Script									
Repeat for all age groups									
Task 7: List of Activites									
Research activities									
create procedures									
create budget for supplies									
Task 8:Sustainability Kits									
Research Ideas and Costs									
Detemine most cost effective ideas									
develop ideas into usable materials									
Task 9: Test Materials									
Test Materials on the small scale									
Analyze results									

The duration of this project is 8 weeks. It is critical that task 1 be completed before beginning the other tasks to make sure we are on the right path. Task 7 and Task 8 are dependent on each other and Task 9 cannot begin until all other tasks are completed.

Organizational Structure



Budget

Each person will spend six hours per week on completing their task. And then there will be an extra hour every 2 weeks spent meeting with Stacey, our contact at the Forest District Preserve.
Each hour of our time is $20[1]. This is based on the average yearly salary for an environmental consultant. With the 10-week project this would sum to $3,900 for the entire project with salary expenses.

Beyond salary, certain equipment is needed for the new activities and kits. The sustainability kits would be a larger one-time investment but would require a small upkeep cost to maintain the kits. The initial investment for the family take-home kit should be around $50 per kit, with upkeep costs around $5 dollars per use based on the activity expenses. These kits may be rentable for $5 or free depending on the willingness of the Forest District, potentially making the long-term costs negligible.

The education modules will be self-sufficient and reliant on the current module budgets therefore not requiring additional capital investment. The activities associated with the modules would require extra capital, although mostly self-sufficient as well. With class sizes and number of classes per year in consideration, the implementation of the activities on the course would only require anywhere from $0 up to a possible $150.52 dollars per year long term costs depending on what the Forest Preserve District has available and $53.45 in onetime costs. The activities were designed around the current supply of materials at the District, keeping the costs very low.

References

Chicago Botanic Garden (Ed.). (2019). Youth and Family Programs. Retrieved from https://www.chicagobotanic.org/education/youth_family.

Kollmuss, A., and Agyeman, J. (2002). "Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Research*, 8(3), 239–260.

Lawson, D. F., Stevenson, K. T., Peterson, M. N., Carrier, S. J., Strnad, R. L., & Seekamp, E. (2019). Children can foster climate change concern among their parents. Nature Climate Change, 9(6), 458–462. doi: 10.1038/s41558-019-0463-3

Forest Preserves of Cook County (Ed.). (2019). Conservation@Home. Retrieved from https://fpdcc.com/nature/conservationathome/#overview.

Maddox, P., Doran, C., Williams, I., & Kus, M. (2011). The role of intergenerational influence in waste education programmes: The THAW project. *Waste Management*, *31*(12), 2590–2600. doi: 10.1016/j.wasman.2011.07.023

McKenzie-Mohr, D. (2011). *Fostering sustainable behavior: an introduction to community-based social marketing*. New Society Publishers, Gabriola Island, B.C.

Waterman, R., and Peters, T. (n.d.). *In Search of Excellence: Lessons from America's Best-Run Companies*.

"Recycling Statistics." Edited by BYU Idaho, *Recycling Statistics*, 2019, www.byui.edu/university-operations/facilities-management/recycling-and-sustainability/recycling-statistics.

"Average Environmental Consultant Salary" *PayScale.com*, 2019, https://www.payscale.com/research/US/Job=Environmental_Consultant/Salary

Boudet, H., Ardoin, N. M., Flora, J., Armel, K. C., Desai, M., & Robinson, T. N. (2016). Effects of a behaviour change intervention for Girl Scouts on child and parent energy-saving behaviours. *Nature Energy*, *1*(8). doi: 10.1038/nenergy.2016.91

"How Teaching Kids about Climate Change Can Influence Their Conservative Parents." *Los Angeles Times*, Los Angeles Times, 6 May 2019, https://www.latimes.com/science/la-sci-climate-change-kids-parents-20190506-story.html.

Peace Corps, USAID, & Feed the Future (Eds.). (2017). *Environmental Activities for Youth Clubs and Camps*. Peace Corps.