

The ECO Girls Archive and Seed Bank of Ideas

Compiled by Alexandra “LiLi” Passarelli



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Environmental and Cultural Opportunities for Girls in Urban Southeast Michigan (ECO Girls)

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Introduction

An ECO Girls Origin Story

*By Tiya Miles, ECO Girls Founder and Director
Valentine's Day 2014*

I often say that I am an unlikely person to have founded the ECO Girls project. I am a humanities professor whose research focuses on African American and Native American women's histories. I have appreciated nature and enjoyed the company of trees since I was a young girl, but I did not realize that environmental issues should be important to me until I attended an academic conference in 2005. The 35th Anniversary Conference of the Department of Afroamerican & African Studies at the University of Michigan in Ann Arbor became a turning point. A colleague from the School of Natural Resources and Environment, Professor Dorceta Taylor, urged Black studies scholars to take up the environment as a topic. Dr. Taylor noted that Harriet Tubman must have been environmentally conscious in order to help scores of slaves escape from the South. Tubman had to be aware and respectful of nature in order to succeed in her monumental task of escaping slavery herself and then assisting other freedom seekers. Tubman had to know, for instance, which side of trees the moss grew on, where the rivers flowed, and what plants in the woods were edible. At the end of her remarks that day, Dr. Taylor posed what I took to be a challenge. She asked if scholars of Black Studies would try to have an impact on major issues like climate change, or if those professors would just write histories after the fact about how people in Africa and the diaspora had been negatively affected. This lecture led me to see a link between black studies and environmental studies and to imagine my role in those fields in a whole new light.

The event of Hurricane Katrina in August 2005, just months after that conference, increased my sense of urgency regarding the environment. We all saw media images of black and poor people suffering because of a deadly storm. A few years later, the earthquake in Haiti of 2010 projected still more images across our TV screens of black community trauma and devastation in the wake of a natural disaster. These seemed to me to be examples—one of them quite close to home—of the way in which black and brown people around the world, people in the Global South, in Africa, Asia, the Caribbean, and even the American South, will suffer first and seriously as



our weather patterns become more erratic and extreme.

As my interest and worry grew, I searched for opportunities to learn more. In 2007, I attended an environmental justice tour of Detroit organized by a group called MELDI that formed to develop environmental leadership among people of color. On that tour I was stunned to see mounds of old automobile manufacturing materials right across the way from a public school, to learn about the construction of a polluting incinerator, and to pass brownfields left behind by corporations along what could have been beautiful riverside knolls. I left that tour with a sense of alarm. I took away the notion that Detroit and other cities like it in the rust belt Midwest have been hard hit by environmental waste and pollution, even as they have been devastated by the loss of capital that could have been used to address such problems. At the same time, I also saw examples of people trying to make change by forming green community organizations and developing urban gardening projects.

I knew then that I wanted to find some way to join with those who were working to make a difference. Because I am a college professor and writer, an educator, my thoughts turned immediately to an environmental education project. This project would have to wait for its development though, as my professional career and young twin daughters demanded significant energy and time. By the year 2010-11, I had earned a sabbatical leave from teaching, which I combined with a research fellowship. I used part of that time to think about possible avenues of local environmental action. I began to feel that one thing I could do—one small thing in the place where I lived—was to share information about environmental issues and practices of sustainability and flexibility with the most vulnerable communities: people of color and working

class families in our urban areas. I decided to start with children, with girls, for personal and political reasons. I have an M.A. in Women's Studies, and I have always had a strong interest in girls, especially girls of color, and the challenges they face as they form their identities in American society. Girls face a media and social sphere that projects what they should enjoy, how they should appear, and who they should be. Over the last several



years, cultural critics like Peggy Orenstein have argued that this projection has grown more and more narrow. Shades of cotton candy pink have taken over girls' toys and clothing. The princess figure (with her normative features, long hair, ball gowns, and the required Prince Charming) has come to dominate little girls' media (and toys, and Halloween costumes, and mall stores). Younger and younger girls are watching

television shows on Nickelodeon and the Disney Channel about teenagers involved in romantic plot lines. And the ideal of long blond hair and blue eyes as the epitome of beauty has not been dispelled despite the introduction of black Barbie dolls and Disney's Princess Tiana. Our popular culture puts boxes around girls that limit their visions of who they can be and what they can do in life. It draws their attention to things that make them think less of themselves (like body size) and to habits that are far from constructive (like an excessive desire for material goods and a fascination with shopping). Because all of this pink-and-pretty fluff is being pushed at them in stores and on TV, girls dream of being princesses rather than scientists. This limits them and the contributions they can make to society. One thing I have always wanted to do for and with girls was to open possibilities by creating alternatives to this hyper-feminized, pinkified cultural sphere. I wanted to help girls to explore their world intellectually and physically, to show them that what they can think, dream and do is more important than how they look.

Introducing girls to an awareness of nature seemed like just the right thing, because nature has a grounding, calming effect that can shut out the noise of consumer culture. Instead of watching Hannah Montana or I, Carly, girls could be out hiking, getting exercise and learning about trees, plants, and animals. The more they learned and did, I thought, the more their self-confidence in their knowledge and abilities would increase and they would realize through experience that they are special and valued because of what they think, feel, do, and create. Developing a thoughtful and active relationship with and in nature could present an alternative for girls to a stifling media culture. Besides the benefit to girls in their present lives – enhancing girls' experiences, broadening their horizons, and strengthening their skill sets – it seemed to me that by educating girls, my project could educate whole communities. We're familiar with the African adage: It takes a village to raise a child. Well, my thinking was: It takes a girl to save a modern village. Women are the major decision makers in households about domestic life: where and how to live, what to eat, how to spend, what to buy. If girls who will become those women start learning early that our lives depend upon the earth and that our ways of life can have positive or negative effects on the environment, which in turn shapes our human possibilities—then as women, they can steer their families and communities toward sustainable, resilient choices.

The idea was that environmental consciousness, respect for nature, and a desire to reach for balance with the natural world, would become a part of these girls' sense of self and a natural aspect of how they lived their lives. These notions would not seem foreign to them, or external to their communities. Girls of color would not hold the sentiment that we still hear too often today that environmentalism is a “white thing” that does not concern black or minority communities. They would not be disadvantaged in facing a future of uncertainty and environmental challenge because of their location in Ypsilanti or Detroit, or because of their lack of proximity to green spaces, wild places, or environmental education programs. And by adapting early to

a way of being that is deeply conscious of natural systems and environmental challenges, these girls would be prepared to help their families and communities adapt to, confront, and perhaps even prevent the most negative effects of climate change.

My hope was that ten years from that time or twenty years, or thirty – girls in the program, as well the female college and graduate students who teach the girls (and thereby learn alongside them), would be located in Michigan cities as well as places around the world. They would perhaps be pursuing careers in sciences, the arts, education, or social change while carrying an abiding respect for the natural world, practicing habits of sustainable living, and serving as leaders in their communities. When I closed my eyes and imagined these girls decades into the future, they were bright stars; they were glowing points of light that could help our communities to weather the coming storms. In this moment on our earth, we human beings are facing new and unfamiliar environmental challenges. We need to educate a generation of children who will be prepared to understand those challenges and help to solve them. The long-term goal for ECO Girls was to give these children a head start for tomorrow—for all of our sakes.

So that was the vision for ECO Girls before it had a name. This project was my first experience with developing a community program. And an early, significant piece of advice that I received from Claudia DeMegret, founder of Green Girls in New York City, was that I should proceed with openness and a willingness to try and fail. In 2010 I applied for a grant, developed a website, looked for partners to help build the project, and took a leap of faith. I always imagined ECO Girls as an environmental humanities project that linked nature with creative expression and the cultural aspects of our daily lives. I am convinced that people relate to nature through cultural values and stories—things that their families did or their communities cherished. In order to teach about environmental issues, I felt we needed to include story, creativity, and cultural values as a major component of the project. Through this combined environmental-cultural framework, I hoped the girls would come to understand that the life we enjoy derives from the earth, and that many communities have old stories and beliefs about why we should cherish these gifts of the earth as well as our relationships with one another. I organized what I had begun to think of as an “eco-cultural” curriculum through an emphasis on five themes: ecological literacy, food, water, energy/climate change, and sustainability.

With a staff made up of a diverse group of women, ranging from Department of Afroamerican and African studies staff to recent UM alumnae and enrolled graduate and undergraduate students, ECO Girls became active starting in September of 2011. We raised over \$50,000 in grants, local business, university, and parental support, which allowed us to fund our efforts for three academic year programs and two summer camps. In order to support Michigan families in need, we provided scholarships for girls on a sliding scale and included free, healthy meals and snacks

for all participants. We hosted over 30 successful weekend events for girls ranging from 3 to 6 hours each in Ann Arbor and in Detroit, including field trips to the Leslie Science and Nature Center, UM Museum of Natural History, Nichols Arboretum, Matthaei Botanical Gardens and Campus Martius Park. We organized two weeklong summer camps with 30 girls participating in activities on the UM central campus in Ann Arbor and at the UM Biological Station in northern Michigan.

All of our events were augmented by a curriculum that connected education about nature with cultural values and creative expression. For instance, our study of healthy food has included: examining seedpods from a cacao tree, learning about the benefits of fair trade chocolate and hearing traditional chocolate stories from indigenous South America; learning about food security in our community at the local food rescue bank and organizing a drive for donations; visiting local farms and farmers' markets, talking with farmers about their work, harvesting fruit, and cooking meals together based on family recipes; illustrating a story about animals who gather for a meal and celebrate the value of generosity; and writing and performing a skit about factory farms. Each weekend session with the girls also included activities that encouraged girls to reflect on who they were within the context of place/environment and community rather than in comparison to the narrow expectations of popular "tween" culture. Some of these activities have been: guided haiku poetry writing, essays to reflect on what being eco-friendly means to them, and listening to professional storytellers tell stories about plants and animals in diverse cultures.

ECO Girls aimed to ground girls' developing identities in a sense of connection to and knowledge of the natural world, to further girls' sense of bodily confidence through physical outdoor activity (like hiking in the woods, helping harvest crops on an Afro-cultural community farm in Detroit and tree planting with a community non-profit), to encourage creative and cultural production by and for girls, and to provide girls with a foundation for future leadership roles in their communities in the face of pressing environmental challenges. By holding many of our events on campus and having UM students serve as mentors, ECO Girls also exposed girls from diverse backgrounds to a positive university context, helping to break barriers of alienation for future college attendance. Based in Ann Arbor, ECO Girls has had a special interest in recruiting girls from Detroit, a city beset by environmental waste and pollution problems and as well as financial challenges.



From 2011-2014, ECO Girls participants met approximately once monthly during the academic year. Each of these meetings taught girls new knowledge and skills, leading, we hope, to a greater sense of self-efficacy in the world around them. Our project

resonated with members of the community. We garnered newspaper and magazine coverage and were featured in two stories on Channel 4 News in Detroit. This media coverage can be accessed from the Press page on our website: <http://www.environmentforgirls.org>. Currently, we are operating with the remaining funds of our last grant, and we are planning a hiatus due to both funding constraints and the departure of key staff members who are moving to other locations.

Developing ECO Girls has been exhilarating and deeply satisfying even amidst the stress of starting something new and unfamiliar. Although the project of ECO Girls has been very different from my academic work, I see connections between the two fields of endeavor. I care deeply for girls and women, people of color, poor people, and disempowered people of any background. I am dedicated to the work of preserving their pasts (through historical research and writing) and their futures (through community engagement and education). For the knowledge embedded in those pasts – the stories of creative resilience and survival – guided our communities through many a trial and can light our way forward even now.

This project has been a delight and a boon for me, the ECO Girls staff, and, I hope, for the girls involved and their families. At the end of three years, I am preparing to go on academic leave to study environmental history with the support of the Mellon Foundation. The ECO Girls project is moving into a stage of hibernation that will, perhaps, result in a new season of life and growth.



Part 1: Ideas

Mission Statement

The ECO Girls mission is to foster environmental awareness and stewardship, ecological literacy, cultural education, friendship building, self-confidence, and leadership skills for elementary and middle school girls in the southeastern Michigan cities of Ann Arbor, Ypsilanti, and Detroit. ECO Girls has the goal of encouraging girls to integrate environmentalism into their lives, share environmental knowledge with their communities, and contribute to environmental problem solving as future thinkers and leaders. Because cultural practice shapes personal and communal identities and therefore has the power to facilitate social change, ECO Girls treats culture as a critical link in the advancement of ecological consciousness and the vision of a just, sustainable future.

Our Philosophy

By Tiya Miles

Environmental Justice

With an environmental justice commitment at its center, ECO Girls especially aims to reach girls of color and girls in economically challenged areas who have less access to green spaces, whose neighborhoods too often become dumping grounds for pollution, and whose communities are under-informed about the effects and risks of global climate change and natural resource depletion. The conceptualization of ECO Girls also accepts the thesis of ecofeminist scholars that environmental issues profoundly affect women and girls. All over the world (with variations in definition and degree depending on geography and wealth) women and girls carry out domestic and community activities (such as gathering water & biomass for fuel, nursing babies, feeding families) that are dependent on natural resources within degraded environmental contexts. In economically privileged nations like the U.S., women frequently direct household shopping and consumption norms; they are therefore situated at the crossroads of culture change for families and communities regarding the creation (and recovery) of sustainable life ways.



ECO Girls organizers share the view that by fostering in girls a connection with and

understanding of nature, and by teaching girls about a range of cultural strengths, values, and strategies, we can build on solid ground the kind of self-empowerment that comes from knowing one's place in the world. Education, emplacement, and empowerment, then, become our stepping-stones of positive change – for girls and the women they will become, for their diverse communities, and for the earth that is the heart of it all.

Conceptual Notes for an ECO Girls Curriculum

The initial development of the ECO Girls curriculum in 2011 was motivated by a set of serious questions about our changing world and the place of girls and women in it. In the short term, we wondered: How can we inspire girls to experience and value their connection to nature and to respect and care for the earth? How can we encourage girls to treat themselves with that same quality of respect and to recognize their own strengths and talents? How can we foster an ethic of community service linked to the care of earth and self? For the long term, we wondered: How can we prepare girls and young women for a future that will likely be characterized by greater risk and social instability due to extreme weather events, climate change, and natural resource depletion (especially oil and water)? How do we encourage and teach creative thinking, flexible thinking, and practical skills that can contribute to resilience amidst challenges, shocks, and shifts in lifestyle? How can we prepare the girls in our program to be future leaders in their families, Michigan communities, and broader global context by sharing their skills, ideas, and talents? In response to these questions, we have imagined our curriculum as rich soil with various layers – soil that deepens as a student develops and spends more time in the ECO Girls program.

Curricular Layer 1: **Connection** (with the natural world), **Confidence** (mental, emotional, and physical in self and abilities), **Creativity** (generating new ideas, making links, self-expression, creating and appreciating beauty across cultures), **Community** (making friends from various backgrounds, appreciating our circles of relatedness, recognizing the necessity and satisfaction of working with others).

Curricular Layer 2: **Exposure** (to green and wild places in our region, to neighboring communities and cities, to a range of cultural histories and values), **Awareness** (of the natural world, of challenges to our environment), **Understanding** (natural systems, eco-surroundings, the human place in natural world).

Curricular Layer 3: **Skill Building** (learning how to do useful things, such as: recognizing plants and their uses, growing and harvesting food, using the strength of our bodies as energy sources), **Problem Solving** (imagining approaches and solutions to challenging tasks, situations, problems).

Curricular Layer 4: **Critical Consciousness** (perceiving a range of challenges to our environment as well as to natural and human communities, asking critical questions

about our cultural status quo especially regarding consumption, waste production), **Creative Alternatives** (imagining new cultural narratives and values, identifying and building on previous concepts and traditions from a range of cultural experiences, creating alternatives that foster stewardship, sustainable and resilient life habits), **Community Citizenship** (actively contributing to communities through participation, service).

ECO Girls Recitation

By Tayana Hardin

These words of reflection were written to help the Eco Girls focus our thoughts and gather a shared sense of purpose at the end of our time together.

We are grateful today for

Ourselves

Others

The earth

Let us remember the Five Pines to help

Ourselves

Others

The earth

Let us walk tall

Like the trees

Be strong

Like the stones

Be curious

Like the stream

And fly to our dreams

Like the birds

Until we meet again,

Let us love and respect

Ourselves

Others

The earth

Part 2: Quick Facts and Policies

ECO Girls At A Glance

By Zakiyah Sayyed and Tiya Miles

ECO Girls, a project housed within the Department of Afroamerican and African Studies at the University of Michigan, has a strong commitment to diversity at all levels of operation. The project founder/director and paid staff members are predominantly women of color. The project aims to recruit and retain children across a range of racial, cultural, class, and religious backgrounds in Southeast Michigan, as well as to involve a diverse set of UM undergraduate and graduate students as mentors and teachers. Too often, children living in the same urban areas do not interact with one another due to de facto segregation in schools, neighborhoods, and social circles. We aim to bring together girls from differing class and cultural backgrounds into one shared, affirming context to help foster connections and understanding across the boundaries of race, class, and culture even as we teach girls about the environment and their relationship to the natural world.

Since its inception ECO Girls has had a diverse makeup of participants, staff members, and student and community volunteers. Over the course of the three-year life of the project, ECO Girls has served 28 girls and has been staffed and supported by 28 team members.

The following two tables show the total ethno-racial make-up of our program for our participants and our full staff (this includes paid staffers, UM Student volunteers working with the project for credit, and community volunteers).

| Ethnicity | % |
|------------------------------------|-------|
| African/African-American | 57% |
| Afro-Native | 11% |
| Hispanic/Caucasian | 7.14% |
| African/African-American/Caucasian | 4% |
| Caucasian | 21% |

Figure 1: ECO Girl Student Ethnicity for School Year Program 2011-2012

| Ethnicity | % |
|------------------------------------|-----|
| African/African-American | 46% |
| Afro-Native | 4% |
| Hispanic/Caucasian | 0% |
| African/African-American/Caucasian | 4% |
| Caucasian | 25% |
| Asian/Asian American | 7% |
| Asian/Asian-American (Indian) | 7% |
| Asian/Asian-American/Italian | 4% |
| Native | 4% |

Figure 2: ECO Girls Staff Ethnicity for School Year Program 2011-2013

In the 2012 camp session, we served 29 girls from 12 different cities across the Southeastern Michigan region. 62% of the participants were African-American/African, 14% Asian/Asian-American, 3% African/African-American/Multi-racial, 3% (white) Hispanic, and 14% Caucasian. Attendees came from diverse economic brackets ranging from \$0 - \$20, 000 (38%) to > \$100, 00 (17%).

In the 2013 camp session, we served 30 girls from the 10 different cities across Southeastern Michigan, 70% of whom were African-American/African, 10% Asian-American, 10% Caucasian and 10% Multi-racial. These attendees also came from diverse economic brackets ranging from \$0 - \$20, 000 (27%) to > \$100, 00 (30%)

ECO Girls Green Commitment Policy

By Alyx Cadotte

In addition to providing a unique experience of environmental and cultural education to our participants, ECO Girls is committed to upholding our values through “greening” our events whenever possible and keeping our environmental impact as low as we can. Our dedication to the environment goes beyond a policy statement and is woven into our daily lives and considered in every decision we make for the

program.

Our commitment to raising awareness about environmental issues and encouraging our community to be more eco-conscious is expressed in several different categories of our organization's operations.

Food

ECO Girls provides our participants with nutritious, vegetarian meals and snacks at our events. Our focus is on organic and/or local food options whenever possible. We emphasize minimal packaging and biodegradable tableware. Food leftovers are gathered for composting to reduce waste. Participants are provided with reusable water bottles when they join the program.

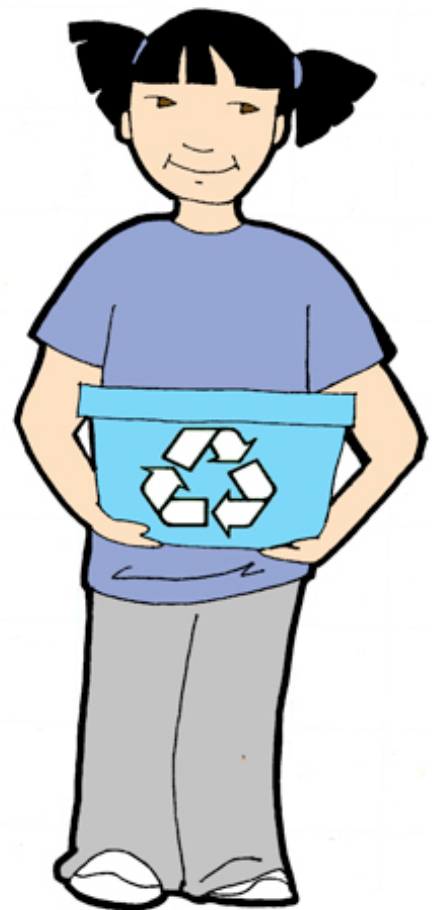
Transportation

Participants are encouraged to utilize alternative methods of transportation to and from our events. Walking and mass transit are utilized for our field trips.

Supplies/Materials

ECO Girls uses recycled products when possible in our activities and supplies. Our paper products are printed on various grades of recycled paper. The application process for our program is handled primarily online, an efficient and environmentally friendly alternative to paper. ECO Girls orders t-shirts for all of our participants that are 100% organic cotton. We support local businesses in our purchases.

We hope that by working together we will be able to make a real difference. There are still many ways we can improve our operations to be more eco-conscious and we welcome community input and assistance in our efforts!



Part 3: ECO Girls In Action

By Alexandra "LiLi" Passarelli

Each ECO Girls event or activity strives to foster:

- Among the girls, especially girls of color, a confident identity grounded in their intellect and connection to the natural world
- Creative expression
- Awareness of their potential roles as leaders in society and the diverse cultural ties they have to nature
- An understanding of the Five Pines: ECO Literacy, Water, Food, Energy, and Sustainability (for more information, see Part 4: ECO Girls Productions)
- Academic and career interests in Science, Technology, Engineering, and Math (STEM)

Below we feature our favorite ECO Girls original activities and adapted activities.

Girlhood & Girl Identity Activities

Chain of Talent

Kimberlee Woodward, a substitute teacher in Waterford, Michigan contributed this entry to an online volume of icebreakers. You can find more entries online: http://www.educationworld.com/a_lesson/lesson/icebreakers_for_kids_2.shtml#sthash.LNzyBYyV.dpuf.

ACTIVITY: CHAIN OF TALENT

PURPOSE: This activity is a self-esteem booster and a team building exercise that will highlight the variety of ways a girl can be intelligent and talented.

DIRECTIONS: Begin the conversation by asking the girls to share "Who can do something really well?" Next, pass out strips of



colorful paper. Each girl writes down the things they do well or know a lot about - one talent per paper strip. Each girl links her own chain of talent. Next, reconvene as a large group to create one giant chain of talent using all the individual chains. Solidify the variety and amount of talent among the group by having the girls hold onto the growing chain as counselors link the pieces together. Once the entire chain is constructed, lead a discussion about what the chain demonstrates. For example, all the students have talents; all the students have things they do well; together, the students have many gifts, skills, and expertise; if they work together, they can accomplish anything; the team is stronger when people work together. Hang the chain up as a reminder to the girls of the talents they possess and the benefits of teamwork.

FEMTOR Activities

With permission, ECO Girls has borrowed many wonderful activities from the It's Great To Be A Girl mentoring program, co-founded by Carol Lapidos at the University of Michigan. This program matches undergraduate femtors ("female" + "mentor") with middle school girls to create a supportive environment where girls can discuss and strategize around issues that affect their self-esteem. It's Great To Be A Girl created a FEMTOR guidebook. Below are a couple of our favorite adaptations from this source.

ACTIVITY: STEREOTYPE CARDS

PURPOSE: This game allows girls to experience the way people send non-verbal communication that is based only on knowing one fact about the other person. They will experience the subtle, and not-so-subtle ways people make decisions about who to like and who not to like with limited information.

DIRECTIONS: Hand out cards with one description on each, such as: short, tall, earns good grades, big feet, fat, big house, nerdy, average grades, poor, not good at sports, low grades, rich, short hair, lots of zits, popular, thick, lives in a little house, athletic, all name brand clothes, long hair, etc. The girls will walk around *silently* with the cards on their foreheads and give each other reactions based on the other person's card. None of the girls will know what their card says ahead of time. Then have them sit in a circle, place their cards face down on the floor, and talk about the reactions they believe they received. Alternatives: a) put cards on table and have people write reactions under it or b) counselors wear the cards.

PROBING QUESTIONS: What did you experience? Did you feel like people wanted to be with you? Was it easy to figure out if it was something good or bad written on your card?

NOTES TO FEMTORS: Be careful not to give the girls a card that pertains to them. If, for example, a girl is overweight, avoid giving her the card that says fat.

ACTIVITY: WEB OF POSITIVE THOUGHTS

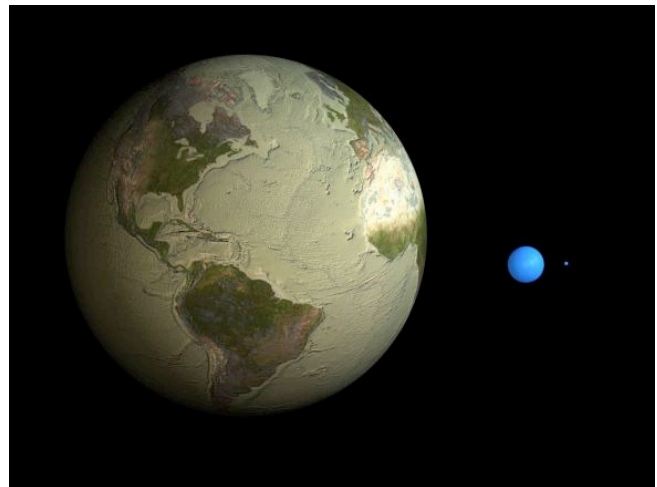
PURPOSE: This is designed to help the girls build their self-confidence by thinking about those things she likes about herself, and to help each other by delivering a compliment.

DIRECTIONS: All participants create a large circle. One person is given a ball of yarn to hold. The person holding the ball is asked to say one thing she likes about herself. Next, she must pass the yarn to another person who has not yet received the ball and give her a sincere compliment. The trick is that she must hold on the end of the yarn! This continues until everyone has received the ball of yarn once and web of compliments and support is created.

Protectors of This Earth

ACTIVITY: PROTECTORS OF THIS EARTH

PURPOSE: Water on our earth is a precious and finite resource. Water conservation demands serious attention with the rapidly accumulating effects of global warming. Through this activity, the girls will explore how and why women of local Ojibwe heritage value their water resources. In turn, we ask the girls how they are keepers of this earth and keepers of themselves.



DIRECTIONS:

Part 1: How Much Water Is On Planet Earth?

- Ask the girls how much water is on planet earth. Set out play-doh and globe-like objects to represent the *volume* of our water supply and our earth respectively.
- Reveal the correct ratios and show images of the planet's water supply. We used David Gallo's stunning graphic. Water may cover 70% of the earth's surface, but just a tiny fraction of the earth's *volume* is actually water. Only 1% of the earth's water is fresh water. About 20% of that

fresh water comes from the Great Lakes, which surround our state.

Part 2: Ojibwe Women as Keepers of the Water

- Two Anishinawbe grandmothers, and a group of Anishinawbe women and men came together to raise awareness about Great Lakes pollution and legislation. Each summer from 2003 – 2007, they walked the perimeter of the Great Lakes. This was called the Mother Earth Water Walk (www.motherearthwaterwalk.com). In accordance with their aboriginal beliefs, they fought to remind people that water “is very precious and sacred to our being, as it is one of the basic elements needed for all life to exist.”

Part 3: Keepers of the Earth, Keepers of Ourselves

- Stemming from the discussion of people being spiritually and culturally attached to their environment, now ask the girls to evaluate how they are in tune with nature or with themselves. Ask the girls how their culture or spirituality enables them to be protectors of their lifestyle. The girls can use their play-doh again to symbolize how they take care of themselves, their family, and their way of life.

Creative Expression Activities

Skit on Factory Farming

For Earth Day 2012 the girls were keen to perform a skit about factory farming. We helped the girls materialize their vision. This skit is also available on our website: <http://environmentforgirls.org/images/EGFactoryFarmSkit.pdf>.

ACTIVITY: EARTH DAY 2012 FACTORY FARM SKIT

Concept and story by ECO Girls Annika & Allea

Text by Alexandra “LiLi” Passarelli

Setting: Inside of a factory farm with all the sad, sad animals in different groups. The piggies are oinking very, very loudly.

Chickens: Shh! It’s nighttime. Everyone is sleeping.

Piggie: Oh, sorry. It’s always so dark in here.

Piggie: Yeah, we can’t tell what time it is.

Piggie: We feel sad that we can’t see the sun.

Cows are huddled together very, very closely in one spot.

Cows elbow each other and make grunting noises.

Cow: And we feel sad that we can't mooooooove around at all.

Chicken: Us too! We can't flap our wings at all.

All the chickens try to flap their wings.

Cow: It's too crowded in here.

Chicken: Why do we have to stay here and be sad?

Cow: Because people want our milk, eggs, and meat.

Calf: They even want my meat and I'm only a baby!

Sheep: This is a baaaaaaddd, baaaaaaddd place.

Chicken: Hey everybody, why don't we escape?

Everyone: Yeah! (Happy oinks, happy moos, happy chicken noises.)

Everyone runs outside (another side of the stage). A flock of ducks comes on stage.

Duckie: Hey! Where are you guys going?

Piggie: We want to live on a real farm.

A farmer comes on stage.

Farmer: You guys can come live on my real farm. The excited animals ask the farmer many questions.

Chicken: Will we get to play outside?

Piggie: Will we get to eat real food?

Cow: Will we get to sleep comfy?

Farmer: I promise!

Everyone rejoices.

NOTES: The older girls may close with an explanation of factory farming and why it is important for humans. They could possibly share ways to end the negatives of factory farming such as supporting litigation against factory farming corporations, choosing organic foods, or eating less meat and dairy in our everyday lives.

Cultural Activities

Culture vs. Environment Discussion

At Camp Bluestem 2013, we exposed the girls to an extensive discussion on the complexity of cultural perspectives in environmental conservation efforts. Although the topics and readings were challenging for the girls, we aimed to develop their confidence in analyzing complicated ideas and in forming opinions on controversial matters.



ACTIVITY: CULTURE VS. ENVIRONMENT DISCUSSION

PURPOSE: The purpose of this activity is to show girls that our treatment of the environment is rooted in cultural norms. Oftentimes people in different parts of the world with different lifestyles disagree about what to do with their environment. We present the girls with four examples of seemingly clear binaries of cultural conservation and environmental conservation efforts. Through discussion, we hope the girls realize “saving the environment” also involves people, and is a complicated process.

DIRECTIONS: As a large group, define “environmental conservation” and “culture” and ask the girls for examples. Next, split the girls into groups among the different “culture vs. environment” topics. Use a variety of topics featuring environmental efforts both in harmony and in conflict with cultural preservation, and issues found abroad and in the U.S. Each group will read articles with a counselor’s aid. Afterwards, the girls debate and discuss their opinions and must come to a solution. They will be presenting their ideas to the larger group. Next, follow up with a big group wrap-up discussion. ECO Girls chose for Camp Bluestem 2013 the following non-American issues.

Culture & Conservation Working Together Abroad

#1 Elephant conservation and elephant driver (mahout) culture preservation

Location: Laos

Article Source: NGO - Elephant Conservation Center

Quick background info for counselors:

- Laos is traditionally known as the land of elephants with a rich elephant driver (mahout) culture.
- Mahout culture was once heavily respected for their incredible knowledge and relationship with nature.
- Today mahout culture has lost respect; mahouts and their elephants have become cheap labor in the logging industry.
- This NGO seeks to help mahouts regain respect by shifting their industry to ecotourism and showcasing their incredible knowledge, which brings in money while protecting the elephants.

#2 The disappearance/desertification of the Aral Sea

Location: Aral Sea, Kazakhstan & Uzbekistan, Central Asia

Article Source: Bissell, Tom. "Eternal Winter: Lessons of the Aral Sea disaster." *Harper's Magazine*, April 2002.

Quick background info for counselors:

- This article was created by a passionate council that includes a particular bias. Please discuss that with the campers.
- The Aral Sea was once home to indigenous peoples, the Karakalpak, who were fisherman.
- The USSR pushed Kazakhstan & Uzbekistan to produce cotton, "white gold," which is a very water-intensive crop. An incredible amount of water was diverted from the sea for irrigation. The two nations continued to heavily irrigate and use pesticides.
- The rapid loss of the sea was disastrous for the Karakalpak. They lost their livelihoods and were uprooted from their lands.
- Today the Aral Sea is one of the sickest places on earth and has a destroyed ecosystem

Culture & Conservation In Conflict Abroad

#3 Bear bile farming and traditional Chinese medicine

Location: China

Article Source: NGO - Animals Asia

Quick background info for counselors:

- Bear bile is used in traditional Chinese medicine for many healing purposes.

- Today the bears are farmed for their bile and kept alive in tiny cages for decades.
- The bear bile trade is a lucrative one in East and South-East Asia.
- This NGO works with the Chinese government to end bear farming and to also change people's ideas about traditional medicine.

#4 Disproportionate health hazards due to pollution suffered by indigenous peoples living in the Arctic Circle

Location: Arctic Circle

Article Source: National Geographic News

Quick background info for counselors:

- Industrial waste accumulates disproportionately in the Arctic Circle due to natural wind and ocean currents, and nutrients moving up the food chain.
- Indigenous people of the Arctic Circle fight hard to maintain traditional lifestyle in eating traditional foods such as walrus and seals.
- Those very same animals are at the top of the food chain and have the highest concentration of industrial toxins.
- The health of indigenous people here is disproportionately severe to their tiny contribution to industrial waste.

PROBING QUESTIONS: *During the small group readings and discussion, guide the girls through analyzing the article, defining the issues at hand, and exploring their thoughts and possible solutions to those issues.* What's the cultural part? What's the environmental part? Do we (ECO Girls, Americans, people in the West) affect the people or environment in the article's location? Who do you think is right? Is it okay to treat the environment that way? How can people change their lifestyle or politics to make everyone happy?

NOTES: Help the girls see the world through other people's perspectives, beyond an American lens! For example, when ECO Girls ran this activity, the girls were disgusted by the treatment of the moon bears in China and immediately came to a consensus on banning the practice as the best solution. The practice is nothing short of horrific, but we wanted to challenge their girls' knee-jerk reaction to "strange and foreign practices." We informed the girls that the world has many, many people who do not consume meat and who would be horrified by the animal cruelty found in American farm factories. We asked the girls would it be right for religious vegetarians to command meat-loving Americans to stop factory farming completely simply because it was "gross."

Geeky Girls

For Earth Day 2014, ECO Girls celebrated Nature, Nerd Culture, and Girlhood. We began this day by introducing a wonderful young adult science-fiction book called *Zahrah The Windseeker*. Nnedi Okorafor, the Nigerian American author, combines folklore and culture from West Africa with futuristic world-building to create a world where people grow their personal floral computers and the tops of organic buildings bloom. In this world, Zahrah is an outcast for her dadalocks, dreadlocks with vines, and is on a journey to discover her magical powers. We used Okorafor's work to begin a conversation about the girls and women we often see in the media.

ACTIVITY: GEEKY GIRLS

PURPOSE: In this activity, the girls critique the portrayal and lack of diverse representation of girls and women of color in the media. They also compare the stereotypes and narrow representation of women in the media with their own life and what they know to be true. ECO Girls focused on popular science-fiction media to show the girls the endless possibilities for positive representation for women of color.

DIRECTIONS:

1. Introduce the topic of conversation by asking the girls questions such as:
 - What is your favorite science fiction, fantasy book series or movie series?
 - What are some girl characters you like?
 - What are some girl characters that remind you of yourself?
2. Present the various tropes and issues on females of color roles in the media. ECO Girls chose these topics in popular young adult science-fiction media:
 - People of color as extraneous or minor characters i.e. *Harry Potter*
 - Casting white actors or white washing i.e. Katniss in *Hunger Games*
 - Desiring white characters i.e. Rue in *Hunger Games*
 - "Indigenous people" or groups of people of color who need saving i.e. *Avatar*
3. Loosely structured discussion.

PROBING QUESTIONS:

- Can you picture yourself in these hero roles? Why or why not?
- Why do you think we don't see many girls and people of color?
- How would you include your culture in media representations?

- How would you express girlhood?
- Who is a hero in your everyday life? How is she different or the same than your favorite girl hero?
- Why do you think it's important to see girls like yourself in movies and books?
- How does your favorite girl character resemble you?
- If a character does look like you, do you feel like she represents you and your culture?
- Does your favorite series have more than one character of color?

Five Pines Activities

Ecological Literacy Activities

Yarn Food Webs

Another popular ECO Girls activity is the yarn food web. In a yarn food web, each girl and her string represents a Michigan ecosystem element (such as a plant or animal). Their strings intertwine to demonstrate the critical connections in the ecosystem. The girls can visualize and evaluate the devastating effects of an unbalanced ecosystem by cutting the strings in the food web.



Michigan Species of Concern

Over the years ECO Girls has shown the girls many of Michigan's threatened, endangered, and invasive species. We explored these on different walks and hikes in the region. One of our favorite species to discuss is the peregrine falcon. The use of pesticides (particularly DDT) in the 1950s caused a widespread decline in their population, but since the ban of these pesticides, they have successfully returned to many areas. A pair of these falcons are living on a ledge at the UM hospital and have recently given birth to three falcon chicks that were named Mary, Sue, and Coleman, after UM's former president.

Terrariums

ECO Girls have constructed various types of homemade closed-system terrariums with dirt, gravel, grass seeds, and water inside of recycled glass containers or 2L soda bottles. Terrariums are miniature self-sustaining ecosystems due to the continual processes of water evaporation and condensation. Terrariums are useful in elucidating the interconnection between biotic factors and abiotic factors.



Water Activities

Boat Competition

ACTIVITY: BOAT COMPETITION

PURPOSE: Participants will build boats in small groups out of provided materials. Afterwards, each group's constructed boat will be tested to see which one holds the most pennies before sinking.

DIRECTIONS:

1. Introduce everyone to basic boat engineering, and provide materials.
 - a) Begin by allowing the girls to formulate questions about obtaining the information they need to know in order to build their boats. Write these questions for everyone to see with the title "What We Need to Know."
 - b) Next, explain the design limitations. This is the time to answer their previous questions. Write this information for everyone to see with the title "Constraints."
 - c) Also mention the opportunity for teams to earn extra materials.
2. One person from each team visits one of the special stations.
3. At the stations:
 - a) A counselor explains a unique boat culture and engineering practice in the world (e.g. Hawaiian outrigger canoes).

b) Afterwards, counselors conduct a quiz on the information presented and will award correct answers with bonus material (e.g. tape, tin foil, paper clips).

4. The teams re-group to share their newly acquired information and move on to brainstorm and build their boat.

5. Penny competition! Use pennies to test the design and strength of each boat. Load the pennies one by one to see how much weight each boat can hold before it sinks.

6. Discuss what contributed to boat design successes and failures.

Food Activities

Apple Race

ACTIVITY: APPLE RACE – FOOD AND CLMATE CHANGE

PURPOSE: The girls will compare the amount of energy used to import produce vs. buying local produce. After this activity, students should be able to concretely see the benefits of buying locally grown food, and have a greater understanding of their contribution to climate change. To stop the cycle of higher green house gas emissions, which lead to warmer climates, which result in decreased produce, it is important to understand the role we all play in the changing climate of our planet.

INTRODUCTION: It takes a large amount of energy and resources to transport food across vast distances. This has a negative impact on our environment.

DIRECTIONS: Each girl plays the role of a farmer who delivers to our local farmer's market in Michigan. Each farmer is placed at various points that represent places such as Fiji, Mexico, Washington State, and Michigan. The distance between the points represents the real distance in miles. Each ECO Girl farmer is tasked with delivering the same number of apples to the Michigan farmer's market in the same given amount of time. After the race, discuss how



much energy it takes to import produce from faraway places and its negative impact on our environment. Tie this in with a lesson on the Green House Effect.

Farm to Table

ECO Girls adapted an activity developed by Seeds of Solidarity to promote among the girls awareness of the benefits of eating local food. We conducted this activity at a local community educational garden. The activity can be found online:

<http://seedsofsolidarity.files.wordpress.com/2012/03/7howmanymiles.pdf>.

ACTIVITY: 1,500 MILES TO BREAKFAST

PURPOSE: Students will...

- a) explore the concept of “food miles,” the distance food travels from farm to table;
- b) compare health and environmental benefits of local food with food that travels great distances;
- c) learn about local farms and foods, and how they contribute to a healthy community.

DIRECTIONS:

Part A) The girls compare a typical breakfast with one that is locally produced.

Part B) The girls compare and contrast salad mixes grown and bagged many miles away with those grown in our local community educational garden.

Farmer’s Market Scavenger Hunt

ECO Girls held a scavenger hunt at our local farmer’s market in Ann Arbor. The worksheet we created for the hunt can be found on our website:

<http://environmentforgirls.org/images/scavenger.pdf>.

ACTIVITY: SCAVENGER HUNT AT FARMER’S MARKET

PURPOSE: Girls will learn about organic and local food products in contrast to imported and genetically modified or synthetically enriched food products. The girls will also connect real people to their food in order for the girls to understand a farmer’s lifestyle and their essential role in society.

DIRECTIONS: The girls must ask farmers questions such as: How far away is your farm? What time did you wake up and how long did it take for you to get

here? Has your family always farmed? Do you use pesticide on your crops? If not, what do you use to control pests?

Food Terminology

ECO Girls emphasize eating natural or organic and local foods. When discussing industrialized agriculture, many challenging terms arise. Our vocabulary worksheet and crossword can be found online at

<http://environmentforgirls.org/images/vocab.pdf> and

<http://environmentforgirls.org/images/worksheet3.pdf>. Definitions have been adapted from Sustainable Table (www.sustainabletable.org). Sustainable Table celebrates local sustainable food, educates consumers about the benefits of sustainable agriculture and works to build community through food. Definitions have also been adapted from Merriam-Webster online dictionary.

Energy Activities

Electric Energy Scavenger Hunt

ACTIVITY: ELECTRIC ENERGY SCAVENGER HUNT

PURPOSE: After this activity, the girls should be aware of everyday items which consume energy and how much energy in order to quantify their daily impact on the earth. Attach hidden but easily discoverable index cards on electrical devices featuring the kwh usage. For example, a laptop computer uses 50kwh.

DIRECTIONS:

1. Introduce watts, the basic unit of measurement of electricity and the equation "1,000 watts of energy for 1 hour = 1kwh."
2. Scavenge! Have the girls discover and record the electrical device and it's watt usage.
3. As a large group, create a line graph in order to compare the various electrical devices. Discuss which items use the most electricity and the ones that use the least.
4. Ask the girls to draw/visualize their plans for saving energy in their everyday lives.

NOTES: This activity is better suited for younger participants.

Food Fuel Race

ECO Girls put on a race, but the girls were restricted by the quality of their food fuel. Healthy “everyday foods” (e.g. fruits, veggies, whole grains, low-fat or non-fat dairy products, lean meat) allowed them to go faster. Unhealthy “sometimes foods” (e.g. French fries, hamburgers, pizza, candy, colas, desserts) slowed them down.

ACTIVITY: FOOD FUEL RACE

PURPOSE: Students will become aware of how choosing the right foods helps their bodies work better, keeping them healthier throughout their lives. Choosing the wrong foods will slow them down and make it harder to “win.”

INTRODUCTION: ECO Girls used this introductory script to students. “To be your best, it’s important to think about what you eat and how much you eat. ‘Everyday foods are more nutritious and provide better fuel for your body. ‘Sometimes foods’ may taste good, but they do not help our bodies work as well. The important thing is to make sure you are getting energy out of your fuel. The calories we eat and drink (energy in) provide fuel for our bodies to use for everyday activities and physical activities (energy out). That means that you need to balance energy in with energy out. Which foods will you CHOOSE to make your body work better?”

DIRECTIONS:

1. Introduce the activity and have the girls imagine themselves as racecars with food as their fuel.
2. Race!
 - a) Position the girls at their track lanes.
 - b) Every individual walks from the start line to the first station.



c) At the stations thereafter (about 5-10 feet apart), each girl randomly picks up a food fuel card from a station bucket. Those with “everyday food” fuel can skip, run, walk, etc. to the next station. Those with “sometimes food” fuel must crabwalk, bear walk, etc. to the next station. The winners should be those with the most “everyday food” fuel cards.

3. Share the “everyday” fuel cards that the faster cars had and discuss what made those choices better than the “sometimes” fuel cards.

Solar Panel Ovens

ECO Girls baked apples in our handmade solar ovens by following the instructions from the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy. The “Making a Solar Oven” activity is available online: http://www1.eere.energy.gov/education/pdfs/solar_oven.pdf.

Sustainability Activities

Bio-Inspired Gadgets

This was another one of our activities on Earth Day 2014 celebrating Nature, Nerd Culture, and Girlhood. The living digital gadgets and wholly organic world in Nnedi Okorafor’s young adult science-fiction book, *Zahrah The Windseeker*, inspired ECO Girls. After introducing the book to the girls, we asked them to create similar futuristic gadgets.

ACTIVITY: BIO-INSPIRED GADGETS

PURPOSE: In this activity, the girls will create environmentally compatible and fantastical gadgets for our futuristic ECO Girl. Let the girls explore their imaginations and the possibilities of living in completely green world.

INTRODUCTION: Even in today’s world, people look to nature for inspiration in science, technology, engineering, and math. ECO Girls presented the following real-world examples to inspire the girls:

- Science: nanotechnology that simulates the invasion mechanics of viruses
- Technology: climbing robots that simulate geckoes
- Engineering: airplane surfaces that simulates the complicated aerodynamics of rough shark skin
- Math: bio-inspired computing that simulates natural evolution to ‘create’ artificial intelligence

We then presented this scenario: “The year is 4999 AD. Earth is dying. Humans are leaving Earth in giant spaceships. To honor our earthling heritage and to remember our home, everything inside our spaceship is from Mother Earth and is integrated with living things. Invent gadgets our futuristic ECO Girl would be wearing or using.”

DIRECTIONS: Just like for the Green Dollhouse Events, ECO Girls provided industrial scraps for the girls to up-cycle in their creations.

Carbon Footprint

ECO Girls discussed carbon consumption and emissions, and outlined an action plan for Ann Arbor to reduce the city’s carbon footprint. This activity, called “One Foot, Two Foot, Red Foot, Green Foot,” was adapted by ECO Girls and can be found online: <http://learning.blogs.nytimes.com/2008/01/22/one-foot-two-foot-red-foot-green-foot/#more-4801>.

ACTIVITY: ONE FOOT, TWO FOOT, RED FOOT, GREEN FOOT

PURPOSE: In this activity, students will explore the concept of “carbon footprint” and the methods of reducing it.

DIRECTIONS: First, they will look to the example of one town’s effort to decrease greenhouse gas emissions in the article “A Community Tries to Shrink Its Footprint.”

Afterwards the girls will research and brainstorm technological innovations and behavioral changes that townspeople, and municipal institutions and organizations can use to decrease a city’s consumption of carbon-based fuel and carbon emissions.

Then the girls produce a proposal packet detailing the ways their city can reduce their carbon footprint.



Green Dollhouse Event

ECO Girls holds a green dollhouse event each academic year. On that day the girls are civil engineers, architects, and bold visionaries. We were inspired by the book *Green Dollhouse: Creating a Doll's Eye View of a Healthier World* by Emily Hagopian; the book was introduced to us by Debbie Taylor, director of the Women in Science and Engineering Program (WISE) and a member of the ECO Girls Advisory Group. The dollhouses in the book reflected creative and environmentally sustainable architecture and building materials, as well as inventive ways to live in our communities. The first time we held the event, the girls built one green dollhouse together in teams. For the second time, the girls collectively built a green city, with each team in charge of one important community facility (e.g. the hospital, the park, the supermarket, etc.).

ACTIVITY: GREEN DOLLHOUSE EVENT

PURPOSE:

INTRODUCTION:

1. Have the girls try to define and then present to them the definitions of sustainability and green design.
2. Have the girls say what they think engineers and civil architects do or look like. ECO Girls places great importance of featuring women and women of color in STEM fields and in leadership positions.

DIRECTIONS:

1. Provide basic information on green building features and standard. ECO Girls used this website - <http://www.jsvig.com/best-practices/project-green.html> - to show examples of environmentally friendly practices such as living roofs or rainwater harvesting.

a) State the building and/or city design considerations:

- energy
- water
- lighting
- interior/exterior
- functionality
- waste

b) State the design constraints. The girls must use green design features and address environmental issues in their building and/or city design.

c) Explain what building materials must be purchased or are free, what building materials are limited or unlimited, and what help is available. ECO Girls provided industrial scrap for the girls to up-cycle in their creations. Some materials such as glue were unlimited. Chaperones helped the girls with soldering and performed other similarly difficult tasks.

2. The girls determine as a community what facilities their city needs and where people will live, work, and play.

3. The girls split up into teams to brainstorm on different parts of the city. Upon approval of their blueprint by City Council (ECO assigned this task to project leader, Zakiyah Sayyed), their team receives funding.

4. Use money to purchase materials at "store." Stations are to be set up for the girls to use during the building process. One station was a store; another station was a "reuse center" where free supplies could be accessed by all teams.

5. Build!

6. Assemble the green city!

7. Discuss the features of each building and what the girls learned about teamwork and the design process.

STEM Activities

Citizen Science

Citizen Science is a crowd source or civic science network that invites non-professionals to participate. During Camp Bluestem 2013, ECO Girls planned to participate in the Firefly Watch project that asked people to record how often they saw fireflies since their numbers are purportedly dwindling. Discover more about Firefly Watch online: <https://legacy.mos.org/fireflywatch/>.

Soil Testing

ACTIVITY: THE GROUND WE WALK ON



PURPOSE: The girls will learn what plants need to grow and the difference between soil from an organic garden, compost, potting soil, and regular dirt. Next, discuss how climate change starts from the very soil in our backyard.

INTRODUCTION: Plants require 3 main nutrients to live: phosphorus, nitrogen, and potassium. Soil quality testing kits are readily available at gardening stores and the chemical reactions are safe, quick, and easy to read.

DIRECTIONS: Each group of girls should test one nutrient for each different soil type. Have the girls record the data. Afterwards, help the girls graph the data. Emphasize how compost is naturally nourishing dirt that we can help 'make' by composting our food. The nutrients in potting soil, which full of manufactured fertilizers, will not have better numbers than compost. Tie this into a discussion on climate change stemming from the overuse of fertilizers and water runoffs. For example, the combination of today's agricultural norm of overusing fertilizers with runoffs due to the lack of permeable surfaces contribute to intense algae blooms, which destroys the balance of lake life, and the propagation of non-native plants, which destroys local ecosystems.

Strawberry DNA

As a fun summer activity ECO Girls has taught our campers how to make jams with freshly picked strawberries. We have also shown the girls how to extract the strawberry DNA. Search online for this popular middle school science activity. Here is an example: <http://www.scientificamerican.com/article/squishy-science-extract-dna-from-smashed-strawberries/>.



Part 4: ECO Girls Productions

The Five Pines

By Joe Reilly (with Manja Holland, Rachel Afi Quinn, and Tiya Miles)

Please Enter Our Forest: An Introduction to the “Five Pines”

The Eastern White Pine, native to Michigan, is our state tree. We have imagined five of these trees standing together in a grove, with each single pine tree representing a key idea that helps to shape the ECO Girls focus. Please enter our forest and rest underneath the shade of one of these ancient Grandmother pines. As you sit upon her soft bed of needles, listen quietly to her stories, rich with wisdom and knowledge of this place. Listen also to the entire community of plants and animals around you as birds sing and insects buzz. Feel the gentle breeze on your face and breathe with the trees. This is a safe place to be, and you can return here whenever you wish. You are home.

First Pine: Ecological Literacy — Getting to Know our Plant and Animal Neighbors

Plants

Take a deep breath. Do you know what you are breathing in? That’s right, oxygen. Okay now breathe out. What are you breathing out? Yes, carbon dioxide. Now do you know who breathes in carbon dioxide and breathes out oxygen? Plants! When we breathe, we are not breathing alone. We are actually breathing with all of the living plants on earth, participating in the life of the whole planet, just by breathing in and out. Cool, huh?

In addition to giving us oxygen to breathe, plants also give us most of our food. Fruits, vegetables, wheat, corn, maple syrup, and even chocolate come from plants! Plants also sustain the lives of many other animals. Plants help to keep our earth solid and prevent erosion. Perhaps most importantly, plants are really beautiful to look at and enjoy. Look outside and see how many plants are growing around you right now. Take some time to thank these plant friends.



Animals

Understanding animals helps us understand ourselves better because, guess what? We are animals! Sometimes humans like to think that we are separate from all other animals but the truth is we are just another part of the animal kingdom. We are part of the group of animals called mammals, animals that have fur or hair. Animals with wet smooth slimy skin that helps them breathe are called amphibians. Reptiles are animals with dry scaly skin. Can you guess what animals with feathers are called? You got it — birds! Fish are another group of animals and so are insects.

Each and every animal has special adaptations that help it survive. Some animals, like opossums, actually play dead to protect themselves against predators. Monarch butterflies are colored with bright orange patterns to warn potential predators that they are poisonous to eat.

All animals need three basic things to stay alive: food, water, and shelter. Most animals are able to find all of these things in their natural home, or habitat. Unfortunately many animals' natural habitats are being destroyed by human development, making it difficult for many animals to survive. That is why it is so important for us to take care of every part of the earth that we can — even our own backyards or patios!

Second Pine: Water

Do you know how much of your body is made of water? Is it more or less than half? If you answered more, you are correct! Our bodies are about 70%, or $2/3$ water. This is also true for the earth: about 70% of our planet is water. So to understand water is to understand each other and ourselves. How we treat the water is how we are treating each other and ourselves.

Does the earth ever create new water? No, the water that we depend on to stay alive and healthy today is the same water that was on earth when the dinosaurs were alive. The earth continues to clean and recycle this ancient water through the water cycle. As water evaporates, condensates, and precipitates, it travels around the world and sustains all life. Natural ecosystems called wetlands help to filter and clean the water for us all.



Third Pine: Food

What is your favorite food? Have you ever stopped to think about all of the different things that helped make your food so good to eat? Think of all the rain and water, earth and soil, worms and bugs, people and communities that helped to cultivate the seeds that produced the ingredients for your meal. Wow! That's a lot of different elements isn't it?

Sometimes we forget that our food comes from the earth and we fail to appreciate the hard work that is required for farmers to raise crops for us to eat. That is why we are working to plant and cultivate an ECO Girls garden. By gardening together we will learn how to raise food directly from the earth, and we will also enjoy the fruits (and vegetables) of our labor!

Fourth Pine: Energy

Start jumping up and down right now! Are you jumping yet? It's a lot of fun, isn't it? As you are jumping and moving around, begin to consider where your energy is coming from.

Does your energy come from the food you ate earlier today? Where did that energy come from? Your food was made of plants and animals. Where did their energy come from? Animals also ate plants and animals for their food. So where do plants get their energy? They don't eat food like us animals. Plants are called producers, because they produce their own food directly from the sun! The sun is the source of much of the earth's energy and is passed along through the food web to plants and animals (including us humans).

People have developed many technologies to harness energy from the earth and the sun. Solar panels, hydroelectric dams, and wind farms are all examples of "renewable energy" or energy that won't run out because sun, wind and water can make themselves anew. Unfortunately, much of the energy we use to power our electronics, run our cars, and heat our homes today comes from non-renewable sources such as oil, coal, and natural gas. These sources are called fossil fuels because they are made of ancient fossil materials left from plants and animals alive on earth a long time ago. Fossil fuels are finite and will someday run out. Plus, when we burn fossil fuels they release greenhouse gasses that contribute to global climate change, or the increase in temperature of the earth's surface. Increasing temperatures worldwide cause changes in climate across the globe.

Fifth Pine: Sustainability

Life has been growing and water has been flowing on the earth for billions of years. We humans have been around for a much shorter amount of time in the earth's

history, for only a few million years. We have a lot to learn from the ancient wisdom of our Mother Earth.

Many of our ancestors who were alive a long time ago knew how to live in such a way that they were in balance with their natural surroundings. Only in the last few centuries have humans drastically changed the ecology of the planet and created a way of life that is not in balance with the earth's natural communities.

How do we learn to live in sustainable ways so that all of earth's creatures can survive and be happy and healthy for a long time into the future? The answers to this question are found in the wise cycles of nature, in the stillness of the trees and the movements of the ocean waves. When we take the time to be quiet and listen to nature, we are reminded that we are just one part of an immense web of living and non-living things. Our earth has evolved in many brilliant ways that continue to sustain us, and will sustain all forms of life, if we live in accordance with this delicate balance.

It's pretty cool to be part of such a great big planet that takes care of us so well, isn't it? It also means that we have a special responsibility to take care of our earth, air, and water, not just for us but for all the people, plants, and animals that will live here long after we are gone.



Conclusion: Strength In Our Diversity

Just as our Eco Girls come from a wide range of backgrounds and experiences, our five pines — individual trees that together form a grove — remind us of the strength that is found in our diversity. When we come together and share our creativity and passion for the earth, ECO Girls forms an inclusive community modeled upon the forest ecosystem, recognizing our interdependence as part of a larger whole. We understand that the health and well-being of each girl is vital to the health and well-being of the entire community. It is within this ecological framework that we seek to embody our mission and ground our five pillars of thought.

The Ecoregion

Introduction

By Alyx Cadotte (with Nick Reo and Rachel Afi Quinn)

In this section, we want to share some interesting facts, ideas, and stories about our ecoregion here in Michigan and the Great Lakes. (Whenever we can, we'll add images, sounds and activities too.) An ecoregion is a huge regional ecosystem that has unique geography, soil types, and climate that support particular kinds of plants and animals. Within each ecoregion there are multiple smaller ecosystems such as different types of forests, lakes, rivers and wetlands. An ecosystem is a three-dimensional chunk of space that includes air, water, soil, plants and animals. It is kind of like a sandwich where the air and earth/water makeup the bread, and all the living organisms, or biota, are the meat, veggies, peanut butter or jelly in the middle. Every ecoregion is unique and contributes to our own individual sense of who we are and where we belong.

Throughout this section on our ecoregion in southern Michigan, we will be highlighting how Anishinaabe people (Native Americans also known as Chippewa/Ojibwe, Ottawa/Odawa, and Potawatomi) view the natural world of the Great Lakes region. Because the Anishinaabeg were among the first people in the Great Lakes area, they have a long memory of the land and its plant and animal inhabitants. Native American knowledge of southern Michigan's ecoregion can teach us all valuable ideas and perspectives.

Even for those Eco Girls who are themselves Anishinaabeg or are from other Native Great Lakes nations, there is a lot to learn and be reminded of about indigenous knowledge of the region. For instance, in the Anishinaabe language, known as Anishinaabemowin, there is no specific word for "nature." Plants, animals, and people are all part of one system, recognized as being inseparable and interdependent (dependent on one another). Here is a quotation from the book, *Sacred Water: Water for Life* that explains this idea: "Kinship extends far beyond the human family and makes for an appreciation of the world that is cooperative caring and interconnected" (p.34). And here is a story that I heard from an Anishinaabe language teacher that makes the same point:

It is said that animals were put in charge of hiding "wisdom" in the particular places that they lived. This meant that people had to know the animals very well — their habits and habitats — in order to find and access wisdom.

Beliefs such as this one, as well as specific knowledge about plants, animals and places, have been cultivated by Native people over several thousands of years living

in one ecoregion. Knowledge is passed down from one generation to the next. It continually accumulates and slowly changes across generations as people add their own experiences and observations to what their parents taught them. We are all part of the natural world, and we can learn fascinating and important things by paying close attention to the animals, plants, trees, water, and land around us, and by asking questions and listening to our elders.

The Michigan Great Lakes Ecoregion

By Joe Reilly

Where are we and what makes this place so special? Have you ever looked at Michigan on a map? You will notice that our state is shaped like a mitten and is made of two peninsulas. Each peninsula is surrounded on all but one side by water. So what?

This isn't just any old kind of water; this is fresh water, the very kind of water that all living things depend on, including us humans! Most of the earth's water is salt water in the oceans — less than 1% of Earth's water is fresh water available for human use. But it just so happens that the Great Lakes store one of the largest supplies of fresh water on the planet, with 6 quadrillion gallons (that's a lot!) of fresh water. This makes up 1/5 of the world's fresh surface water and 95% of the fresh water supply in the United States. This means that the mitten-shaped state is a very special place in which to live. It also means that those of us who live in Michigan and around the Great Lakes have a special and important responsibility to take care of the water in these lakes.


ECO Girls know that to take care of the water means that we also take care of ourselves and each other, and of all the natural ecosystems around the Great Lakes. We understand that the health of the lakes depends on the health of the surrounding woodland, prairie, and wetland ecosystems. It's all connected!

The Great Lakes provide homes to many species of plants and animals. When we bring together the first letters of the names of all five Great Lakes, it actually spells the word HOMES (Huron, Ontario, Michigan, Erie, and Superior). This acronym can help remind us not only of the names of each of the Great Lakes, but of the importance of taking care of our very special home on the planet.

Abolitionist Women's Recipes

In celebration of Black History Month, ECO Girls designed, wrote, and published a booklet of recipes by abolitionist women.

Food for the Fight features seven prominent 19th century women abolitionists and their recipes: Mary Brooks, Elizabeth Chandler, Lydia Maria Child, Angelina Grimke, Laura Haviland, Lucretia Mott, and Harriet Tubman. In addition to traveling and giving lectures, these women raised money for organizations committed to the abolition of slavery by hosting bake sales at antislavery fairs and abolitionist teas within their homes. Their recipes exemplify how abolitionist women used ingredients that were locally produced (rather than made by slave labor) and readily on hand (highlighting the importance of frugality and conscious consumerism). These recipes are a reminder that women have always worked as leaders for their own empowerment and the empowerment of others, using the tools of mindful consumption, repurposing, and a commitment to making and buying food products that heal, unite, and nourish. We hope to nurture these same values in our ECO Girls, so that they might, as the women abolitionists before them, be of service to their family and communities in our own times.



Elizabeth Margaret Chandler

Elizabeth Margaret Chandler was born in Center, Delaware on December 24, 1807 to parents who were members of the Hicksite Quaker faith. At a young age, after the death of her parents, she and her brother moved to Philadelphia with their grandmother. Elizabeth was a writer who used poetic verse to criticize the injustice of slavery. She also worked as an editor for Benjamin Lundy's anti-slavery newspaper, the *Genius of Universal Emancipation*.

In 1830 Elizabeth moved with her brother from Philadelphia to the Michigan Territory. While her brother was "becoming a backwoodsman," on a large acreage of prime land, Elizabeth, who called herself and brother "Strangers in a strange land," penned letters to relatives in Philadelphia. She related with nervous anticipation the increased numbers of white settlers arriving by way of the recently completed Erie Canal and the plan for a road between the towns of Adrian and Tecumseh. However her anxiety was tempered by her experience in the Territory, which she described as "an out-of-the-world kind of place." "From her perch within their 'humble dwelling' . . . composed of logs" that was "said to be the best log house in this part of the country," Chandler described the weather, howling wolves, and wild strawberries of her adopted country that was originally Potawatomi land. In a letter to a friend in Philadelphia, Elizabeth wrote about the green prairies, the rich sunlight and the profusion of wild flowers. "The charm and the 'religious quietness' of her new Michigan home held a special place in her heart to did the starry midnight moonlit evenings. These descriptions of her new home revealed Elizabeth's love of nature and reflected a strong yet delicate woman.

In Michigan Territory, Elizabeth continued her antislavery work by co-founding the Adrian Women's Antislavery Society with her neighbor, Laura Haviland, in 1832. Therein was the first antislavery organization in what would become the state of Michigan. Elizabeth was also a member of the free produce movement, a small subset of antislavery advocates who boycotted slave-made goods to strike a symbolic and economic blow against slavery. Since sugar was a major product targeted by the activists, Elizabeth avoided its use in her honey tea cake, which was described as "the toast of abolitionist teas."

*Pity the negro lady!
—the outcast of a frowning fate,
Long weary years of servile bondage wait.
Her lot uncheer'd by hope's reviving gale,
The lowest in life's graduated scale,
Wilt thou not weep to see her rank so low,
And seek to raise her from her place of woe?
Or has thy heart grown selfish in its bliss,
That thou shouldst view unmov'd a fate like this?*

—Chandler, from poem "The Kneeling Slave"

Elizabeth Chandler's Honey Tea Cake



8 tbsps unsalted butter, at room temperature
1 cup honey
1/2 cup sour cream
2 eggs
2 cups pastry flour
1/2 tsp baking soda
1 tbsps cream of tartar

Preheat the oven to 350 degrees Fahrenheit. Cream the butter and honey together until smooth. Add the sour cream and beat well. Beat the eggs to a froth and combine with the butter. Sift the flour, baking soda, and cream of tartar together three times (to ensure a light cake), then sift this into the batter. Stir well, but do not beat too hard, or the soda will be over activated before baking. Pour into a well greased 10-inch square pan and bake for 30 minutes.

Note: A 10-inch round cake pan may be used for this recipe. This cake also takes well to elaborately shaped molds.

Tested in the ECO Girls Kitchen: Our test of the honey tea cake produced a beautiful golden brown, round cake resembling cornbread in appearance. We used a delicious local, unprocessed honey in our recipe, a gift from the Iakabach Family Farm in Romeo, Michigan. We found the tea cake to be unusual in flavor with a sharp, tart after taste that we attributed to the cream of tartar, traditionally used to keep sugar from crystallizing. We would therefore suggest substituting baking powder for the cream of tartar in a one-to-one ratio for baking and enjoying Elizabeth Chandler's tea cake.

Michigan Territory must have been a magical place for Elizabeth, especially after living for considerable time in the bustling city of Philadelphia. She seems to have enjoyed the abundance of wildflowers and may have even seen some like the one pictured here: the Dwarf Lake Iris. This iris, known in Latin as *Iris lacustris*, is a native wildflower of the Great Lakes areas of Michigan and Wisconsin. Although it has always been a rare species, it is becoming even rarer because shoreline developments are invading its native habitat, as a result, it is listed as "threatened" on the Federal Endangered Species list. The Dwarf Lake Iris became the official wildflower of the state of Michigan in 1998.

Please enjoy the high-resolution PDF of the booklet on our website:
<http://www.environmentforgirls.org/images/FoodForTheFight.pdf>.

The Thankful Turkey

In celebration of this Thanksgiving, Brianna Winbush got the idea to create a short story that focused on gratitude and cultural diversity, entitled "The Thankful Turkey and Her Friends." Each page of the story was delightfully illustrated by one of the Eco Girls, so the girls could tell the story through their own eyes. This is our first book with a cover collectively designed by the Eco Girls.

Please enjoy the PDF of the booklet on our website:
<http://environmentforgirls.org/images/ThankfulTurkeyWeb.pdf>.