

FIELD GUIDE – Youth Landscape Education  
Family + Community Self-Guided Fieldtrip  
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February 2019 – July 2019  
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June 2019 – *report submitted*

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## ACKNOWLEDGEMENTS

This project is supported by Santa Ana Watershed Project Authority's (SAWPA) Disadvantaged Communities Involvement (DCI) Program, and Proposition 1 funding from the California Department of Water Resources (DWR). As well there is highly acknowledgement to the Education Department of the Waterwise Community Center at the CBWCD. This facility trained and supported me throughout my internship. Through education, acknowledging this internship to be a point of growth with knowledge of educating the community about being waterwise. Monica Curiel, the advisor throughout this internship specifically helped build environmental awareness to study, as it pertains to the lessons to youth on daily fieldtrips. Omeone within this education department allowed for the event coordination and community outreach be learned second hand, as this process is always an ongoing conversation. Jenna for educating, and training with articles of the youth, extended expectation with researched articles throughout the internship. Throughout the beginning of my internship Cal Poly Pomona, specifically the Department of Landscape Architecture, recognized the opportunity. Christina Rodriguez, Brian K., and the rest of the WRI/CSUSB program was in support of this internship program from daily feedback to updates and further opportunities.

## EXECUTIVE SUMMARY

Within the internship at the Chino Basin Water Conservation District, specifically the Waterwise Community Center, the main goal was to become an educator in the fieldtrip programs of age ranges from (TK – 6<sup>TH</sup> grade). Educating the youth about environmental science, and processes with tools they already have, such as the senses. Also, allowing to use the teacher’s behavioral ideals built in the classroom (What do they wonder about? What do they notice?), to take it further in education about what they are seeing in their local community, and what they can fix/help. Further, taking on another small project was a family field guide to explore the garden, and the wilderness park alongside the fieldtrip’s environmental science knowledge. Creating this resulted in a backpack filled with activities and scientific tools that the youth can walk around the garden and wilderness park, to experiment different techniques a waterwise plant scientist would test.

## PROJECT OBJECTIVES

Within the project of educating the youth on daily field trips, the original goals were outlined to learn more about each term that was not familiar or understood, in every lesson plan. This entailed a heavy breakdown and contrast from, for example terms such as: aquifer, and catchment basin. Defining and learning what the lesson is based on, allows for an educator to correct the youth who may only understand what the basin or aquifer is not, such as systems like the sewer system. Throughout the internship, each lesson plan is a lesson to be learned separate from teaching. Most often when one is teaching, there are behavioral ideals in mind, ease of language, and several other factors that can change the lesson of 'what' the educator is saying according to the class.

Through a potential career within the USDA recent graduates' program, there is opportunity to seek a forest service career within the Department of Agriculture. Maintenance of the land, and reporting within a Recreational Department would be an ideal future. This would carry an understanding of maintenance, with the terms of landscape, and an understanding of how the youth-based programs function. Applying the internship with this career opportunity would be building this internship's educator role and reforming it to an environmental educator role to the local areas.

This is how the job transformed, as defining terms then became the steppingstone to acting on 'how' to educate the youth. This entailed many processes such as, tone of voice, asking educational questions, and guiding the youth to make visual connections of content being learned.

## PROJECT APPROACH

Regarding the project of a fieldtrip guide, this involved studying the youth's movement, behavioral ideals and applying education of science/environment on top of these behaviors. Though there are systems we have at the Waterwise Community Center, like a groundwater recharge basin that has a huge part of the mission. For the youth to define groundwater, recharge, and basin separately, they often understand the mission and goal for the fieldtrip after the lesson. Small ideals like this can be applied throughout the job, as educating the community/local area is part of the job. Specifically, within this internship, there was an important role to understand how one says lessons, comparative to the 'what' the lesson plan is.

Due to the big challenge with not only what to study, but how you say the message to the audience, there was a change of study. How to create a balance of a sing-song tone of voice, and a "normal tone" so the youth can build understanding. As adults, there is a tone of voice that is understood quite quickly. Researching this skill, the youth lack, they must build this skill through a topic they are familiar with, so they are comparing what they know with what they hear. Throughout the fieldtrip, there are ideals that the youth are familiar with, these are cultural ties that allow for a conversation to be built from educator to student. Seeing 'pollution' in the basin is much less relative than seeing a hot Cheeto bag, or Taki bag thrown in the habitat of these ducks, swallows, and egrets that they are identifying and observing. Further, the more knowledge the educator has on how they are saying the message allows for the what to come across easily to the things the youth can relate to.

Through the internship this method shifted the project from Tk- 4<sup>th</sup>, to the youth teen age group from 4<sup>th</sup> – 8<sup>th</sup>. The activity is more than a sensory experience for the youth, but also a stimulation to question the environment around them. Further than filling out a scavenger hunt, youth teens can have a discussion of why they cannot find the clouds on a sunny day. This discussion can lead to same notions of why there is pollution in a parking lot, and the basin. Explaining that water, and wind travel the pollution humans leave behind. Then, a bigger question of water runoff that collects trash from parking lots, storm drains that fill and push this pollution into our basins. Basins making groundwater, that pollution can get stuck to make this groundwater not as accessible to go into the ground with as little chemicals as possible. This process of water, and storm drains is led by an observation pollution in our basin.

Through the iterative process of how to say things to the youth, one will learn the necessary skills to build for a future educator in any age group. Presenting as a landscape architect to a client, one can use this skill to anticipate their audience and apply knowledge accordingly. As an educator in college age groups, one can learn this sense of behavioral ideals/life balance and the educational push to each student.

The second part of the job entailed a project to work on for the families that come to visit the Waterwise Community Center. This is an activity filled backpack with tools of an environmental scientist. This allows for further exploration of the garden, and the wilderness park with waterwise ideals to be grasped either before or after the fieldtrips. A personal goal of the project was to make it easy to educate with little to no background of the topic. Often, with experience of the community, there are elderly/non-educated parents, guardians, and chaperones that bring in their kids. The adults often

have just as much questions as the youth, if not more. Through this backpack adventure for the kids and adults, it allows opinion of what is right/wrong be eliminated, and the education and fun be the driving forces. Although there are events that may occur that will not make it the most picture-perfect adventure, there will be an ultimate lesson that science is a positive and accessible lesson that all ages can explore and educate themselves!

Throughout the backpack there was an approach to make anyone feel confident educating about environmental science through the graphics. The activity journal is called a “Plant Expert Edition Field Guide”, that is heavily used within the field, but this field guide is less intimidating. No calculus here, strictly questions, and pictures of how-to, as well as noticing systems that are right in front of them, but the field guide can explain more of the process with just visual connections. For example, surface testing was one of the activities. This was an experiment that allowed the youth to see that not all plants like the same surface to be planted in. Soil is healthy for the plant, however there are other options such as rock/gravel, decomposed granite, compost, and more that can keep a garden more waterwise. This testing of water absorption into all these surfaces, is a basic tool to see how a big tree versus a small plant is going to survive a waterwise garden. The field guide tailors to more of the TK – 4<sup>th</sup> grade, however, this knowledge can be applied to people who are experts in the field, enabling them to break down a process like this.

Education on this big process is a matter of conversation and answers to observations. This guided my project to the end. This has made the difference on my internship as an educator as well. Conversation rather than graphic expression can only



come if the educator knows how to guide the conversation though. Building a field guide for parents to read and educate their youth on, needs an easy dialogue to read and further explain about all these processes. Therefore, the field guide is graphically friendly, and easy to see the connections of each station/experiment.

## PROJECT OUTCOMES

Throughout the internship there were several processes of trial and error. The two projects of educating the youth on fieldtrips, and the educating families through a fun field guide provided analysis that was applicable for future career skills. Involvement with the youth, allowed for the projects to transform the studying on what was said to more so, how to ask questions, and know the audience.

Through fieldtrips there was initial study of wordplay. This was pertaining to how to tell the youth about the process of water in the local area. Studying Landscape Architecture, the technical term groundwater recharge basin was not often broken down, but more often overlooked. Knowing the water cycle through elementary school, studying how a groundwater recharge basin works, entailed more depth; each word was to be broken down. This technique of breaking words down, applied to how the youth could grasp this system. This enabled the youth to see this scientific process of water, to start with a few terms they are already comfortable with. Terms easily picked up are often 'groundwater, and 'recharge', this way 'basin' was the only new term. Familiarity of objects, terms, and even cultural food enables the youth to feel comfortable of knowing pieces of the lesson, that way they can learn something new by the end of the fieldtrip.

The outcome of the language of how to speak to the youth was tested for a final survey of the field guide when visitors take it for a test! This survey had to ensure the next intern, or project that was built off this, could get the correct information out to progress the community interaction with this field guide idea. The survey questions seemingly sounded easy to respond to but allowed for quality feedback on the Waterwise Community Center side. Questions, were along the lines of:

Survey questions:

01- Rate your wayfinding experience

a. 1 – 10

- i. This question would allow for one to see a correlation with age range of how difficult – easy the field guide was to read.

02- Check out system efficient?

a. If not, why:

- i. It was important to see how peak hours of only 02 backpacks being created played with multiple scientists or families.
- ii. Always important to ask why, if it was a bad experience.

03- What was the “fun” part for you?

- i. IE: favorite part means this is when the scientist learned something new, or there was a medium they enthralled with. Keeping these are a vital role for the youth.

04- Are you planning to come back?

a. No: did you finish?

- i. Making it clear that we would love for them to see us, always!

05-How could we have exceeded expectation?

- i. Improvement to the visitor’s standards, is a nice viewpoint.

06- Age range of the scientist?

- i. Follows with question 01 – making it seem indirect.

b. Options (4?) for categories

+ Tk-1 +2-3 +4-6 +Jr. high + up!

Further, there was also challenge with ‘how’ to speak to the youth. This meant that a healthy balance was to be met between no monotone pitch voice, and no compensation of excitement for a higher pitch in a voice when teaching. Projection of voice was to be implemented. This process took months of trial and error, as in the end there was a stronger knowledge of public speaking and analyzing on the spot. Teaching entails the skill of how people respond to different tones of voice.

Within the field guide, most is explained in the project approach, however, there is an outcome that derived from the approach. The approach was to make the activities easy to read to educate the youth with little to no experience. As well, guide questions to the educator/guardian to ask their scientist/youth. In initial research there most often was a system like one question and several pages of response. Finding this is not effective to keep the youth on a guided experiment, study for interaction was an outcome to my initial approach. Next there was questioning; how graphics can tell the mission of the Waterwise Community Center, but also guide the experiments. This would enable the youth to do it themselves, and the guardians/parents to make corrections or ask questions of what the youth is doing. Asking small questions and having several mediums of answers such as a box for text, a sketchbook for a drawing, and an action of hands-on activity in each experiment allows for the youth to express their observations in their different sensory outlets.

As for the education to the youth on the “bigger picture”, there are graphics such as a big tree, with surfaces below it to describe how the water passes through different mediums to become groundwater. Initially this might have seemed less relevant as not understanding how graphics can tell the story.

As well, there is a felt board element, and other tools to guide the youth to explain what they are seeing. This means that there is a place to put what they are seeing in the observation of the groundwater recharge basin, in a card picture form, or felt animal form, creating their own observation collection of data. Simply allowing for other mediums of expression, such as the card pictures to the felt animals, there are opportunities of outreach for more than one general age group or learning styles (words versus pictures). The youth will be able to connect with science, positively through a medium they enthrall with. Expression, educating, and evaluations are the outcomes of this project approach of making it easy for any youth to do science.

## CONCLUSION

Working with the youth at the Waterwise Community Center at the Chino Basin Water Conservation District there were three skills learned: education, evaluation, and empathy. Educating the youth about the environment allowed the youth to build more knowledge of science. Making an experience of the environment the youth are familiar with, and then adding something new that is science based, allows for a positive experience with science. Evaluation came through researching with the Rancho Santa Ana Botanic Garden, Huntington Children's Garden, and the Waterwise Community Education staff. Trial and error is a valuable lesson to apply to all educator positions. This internship, with support of WRI, has furthered the understanding of how to communicate, and how to teach with emphasis on the positive experience. Narrative to the youth was a restricted communication language, as it was catered to all ages of youth. This allowed for expression of thought, and empathy to be the main characters in the narrative; as this was the visuals, and the ease of the field guide. Future within the USDA career entails holding this skill of educating about the environment, evaluating a situation to research further, and communicating how to say things properly when given all diverse groups of an audience. Skills this opportunity has brought will allow hard work to push intention of duties past a "job requirement".

Thank you for this opportunity, truly.

Throughout the internship the research and references were from articles provided by Jenna Hoover. However, one stood out the most:

01. Matre, Steve V. (1990) *Earth Educational*. Greenville, West Virginia: The Institute for Earth Education.

Summary: Learning what to ask the youth when further instructing them on fieldtrips enable for the conversation to be guided with educational questions. Most often, asking too many questions will lead a conversation to be stagnant.

02. Rancho Santa Ana Botanic Garden: Judy Hayami.

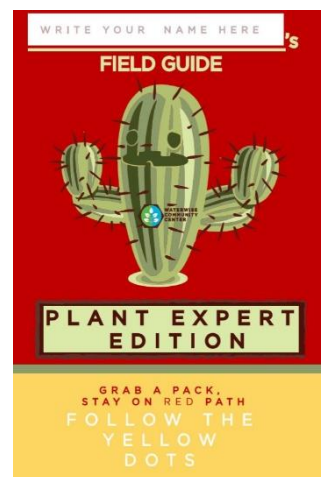
Summary: Working with Judy ensured that the tools for the self-guided fieldtrip would work for multiple occasions and would ensure educational usage for experiments.

03. Huntington Garden – Children’s/Youth Programs

Summary: Using this resource, fieldtrips to the place allowed to see the program inside and out. The paper brochure, the check-out system of backpack enabled activity, and the signage language communicating to the youth. Here, there was manners of high maintenance and funds that offered restrictions to the CBWCD facility but opened opportunity for the interaction with all ages.

04. Project Field Guide Images:

Cover page



## TOOLS

**TOOLS #01:** **LAY FLAT**

Scientists often use these tools when they are in a lab, or collecting samples of leaves and flowers.

**TEST TUBE**    **MAGNIFYING GLASS**

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**TOOLS #02:**

**CLIPBOARDS** Scientists use to collect data!  
*TIP - Keep it on your lap to stay FLAT!*

**PLAYDOUGH** Modeling forms allow scientists to capture TEXTURES, of plants!

**WHITE BOARD** Modeling forms allow scientists to capture TEXTURES, of plants!

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**TOOLS #03:**

**BEAKER/CUP** These tools are good for sound capture!

**LISTENING EARS** Scientists have to be aware of their environment!

**WATER** Scientists love to use water to study how to be waterwise!

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**TOOLS #05:**

**FILTER**    **BEAKERS**    **WATER**

**BOWL**    **SHOVEL**

**TOOLS #06:**

**MONOSCOPE** Scientists use this in big environments to collect small detail data!

## INVENTORY

### BASIC TOOLS

These tools you will pull out when you observe something extraordinary in the garden, each numbered with experiments!

**TEXTURE RING (TOOL #00)** Plant scientists have to compare plants to describe what they feel, or see!

**SKETCHBOOK** Scientists use this to CAPTURE what they see. MORE DRAWING, MORE DATA!

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### AT THE END:

01. CLEAN TOOLS
02. OUTSIDE RESTROOMS
03. ASK QUESTIONS!

The order of the experiments are only suggested, if only desired to do one activity in the garden, just make sure to:

**KEEP EXPLORING SCIENTISTS**

This sheet is where the **tools** that are in the backpack are explained and organized mostly for the guardians/adults with the youth.

**I AM...**

A PLACE ROCKS HAVE FORMED A BIG CIRCLE.  
I AM BY AN OBJECT THAT USED TO BE A BIIIIIGGGG TREE

ONCE YOU FIND THE ROCK CIRCLE,  
**PICK YOUR FAVORITE LEAF**

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**YOU ARE READY FOR**

## EXPERIMENT 02

**STEP 01** DRAW THE PLANT YOU FOUND, IN YOUR SKETCHBOOK!

**STEP 02** IDENTIFY ON TOOL #00

**EXPERIMENT TIME 03 INSTRUCTIONS:**

**LAP** SIT ON THE BOLDER YOU FOUND THE CIRCLE AT, PLACE CLIPBOARD ON LAP

**LAY** TAKE OUT PLAYDOUGH  
LAY IT ON CLIPBOARD

**FLIP**

**PRESS** GRAB A LEAF, PRESS IN DOUGH!

**REMOVE**

**SKETCH** HOW DOES THIS PLANT DRINK WATER?  
THINK CAN YOU SEE THE STRAWLIKE VEINS?

SKETCH IN YOUR SKETCH BOOK

**02**

**RECORD HOW HOT/COLD IT IS HERE:**

\_\_\_\_ °F    \_\_\_\_ °C

This sheet is an example of an **activity 02** for the youth (ages TK – 2<sup>ND</sup>). Both are almost final drafts of the Field Guide.