

Becoming an Expert

Unit #1: Get Connected

(Systems Thinking and an Introduction to the Green Ambassador Program)

DRAFT

Approximate time: 3 weeks

Goals: At the end of the unit students will answer these questions: What makes a healthy system? What is a system? How is our man-made world creating an unhealthy system?

Outline of Unit:

1. Systems thinking
 - a. Theory of systems
 - b. Ecosystems
 - c. Community systems
 - d. Make a system
 - e. School as a system
 - f. Principles of good systems
 - g. Ecological Footprint (how to measure a healthy system)
 - h. Systems tour of our school

Main Activities

- Create a self-watering container system and use it to teach systems thinking (input/outputs closed vs. open)
- Start out by doing systems challenges with each other to see how all things are connected.
- Do a systems understanding of the school while taking the ecological footprint of the school
- Describe communities ecological and personal
- Understand permaculture and how its principles are used to measure a healthy communities
- Give ecological tours of the school
- Assess unhealthy communities

Handouts

- “Input and output of a school” worksheet
- School as a System
- What is an Ecological Footprint?
- “ECO FOOTPRINT of our School” worksheets
- Create a self-watering container system
- *Affluenza* handouts
- Ecological Footprint personal and recording sheets
- “Story of Stuff” worksheet
- School Tour worksheets,

Slide Show/Flash Presentations

- School Tour
- Systems Thinking
- Permaculture

Films/Videos

- http://www.servicelearning.org/lisa/bring_learning/fullvideo.php
- <http://www.storyofstuff.com/>
- *Affluenza*

Websites

- <http://www.eduref.org/Virtual/Lessons/Science/Ecology/ECL0043.html>
- <http://hubpages.com/hub/Community-Systems-Lesson-Plan>
- <http://www.wisegeek.com/how-much-garbage-does-a-person-create-in-one-year.htm>

Guest Presenters/Field Trips

- Puente Hills Landfill field trip, LATT forms filled out by first week of school
- ACE and Permaculture

Day-to-Day Plans

1. Introduction

a. Warm Up:

- i. *What do you think it means to be a GA?*
- ii. *What is community organizing?*
- iii. *What is service learning?*
- iv. *What has GA done in the past?*
- v. *Tell us one funny, weird or interesting thing about yourself (write this on a flash cards).*

b. Through: Watch the video “Bringing Learning to Life” at http://www.servicelearning.org/lsa/bring_learning/fullvideo.php and have a discussion of service learning with the class. Why is it important? Etc.

c. Beyond: Ask students to pair share “*What is community organizing and how does it relate to service learning?*”

2. Introduction to Green Ambassadors

a. Warm up: *What is an Ambassador?*

b. Through: Go over class syllabus – explain projects, warm ups, class expectations and objectives.

- i. As a group answer questions and clarify
- ii. Watch all of GA videos
- iii. Look at past class projects

c. *What is a Green Ambassador?* Have them describe it.

3. Procedures and Systems of a Class

a. Into: *What is a warm-up and how will we use warm ups in our class? Why are warm-ups part of a good classroom system?*

b. Through:

- i. Fill out sitting chart

- ii. Team building activity: Web of life activity (hand out 1): this activity will help one have a better understanding of how everything is dependent on everything else. It is important to remember that animals and plants have an important part on our planet.
- iii. Explain the activity before going outside.
- iv. Look around or think about anything that is in the school and write really big what you chose with a marker and stand in a circle.

4. What is a system?

- a. Warm up: How do we form community in our school? Give me an example based on the “Web of Life” game.
- b. Through: Share the Systems Presentation with the students (handout 2)
 - i. Create a self-watering container system (following instructions)
 1. While creating ask the students to write down the following:
 - a. *Closed or open system? Why?*
 - b. *Inputs and outputs of systems?*
 - c. *Whatever systems were needed to make this system happen?*
 - d. *How can we make this system more sustainable?*
- c. Beyond: Create a chart to monitor your system.

5. What is an ecological system?

- a. Warm up: *What makes up an ecosystem?*
- b. Through: Take students through an ecological system.
 - i. Play, Oh Deer, <http://www.eduref.org/Virtual/Lessons/Science/Ecology/ECL0043.html>
 - ii. This game is designed for younger children but it is an effective way for the students to understand the concepts.
- c. Beyond: *Wrap up the lesson by having students look at an ecosystem at the school and write, How does this relate to what you just experienced in the “OH Deer” game?*

6. What is a community system?
 - a. Into: What makes up a community?
 - b. Through: <http://hubpages.com/hub/Community-Systems-Lesson-Plan>
 - c. Beyond: Once the students understand this, each will identify which community system they believe does the most to confront violence, and why. Also, each will identify the community system that perpetuates violence the most and what needs to happen that to stop, and why.
 - d. Once they come up with their answers, have a few share what they said and why.
7. How is the school a system?
 - a. Into: What other systems does our school depend on.
 - b. Through: Walk around the campus and find 10 other systems that are connected to our school
 - i. Fill out the “School as a System” handout.
 - ii. Discuss it as a class
 - c. Beyond: *What can change in or school? What would make our schools systems even better?*
8. What is wrong with our current systems?
 - a. Into: Guest presenter from ACE: community action education.
 - b. Through:
 - c. Beyond
9. What is my role with in a system?
 - a. Into: What is your role in creating a better system?
 - b. Through: Watch the movie *Affluenza* partway through
 - c. Beyond: Stop the video and ask one student to share what they learned.
10. What is my role within a system?
 - a. Into/Through: Finish watching *Affluenza*.
 - b. Beyond: An activity from the *Affluenza* handout.

11. What is my ecological footprint? And what is sustainability?

- a. Into: Questions based on Eco-footprint
 - i. Do you think that people's earth share has been shrinking or expanding in the last 10 years and why?
- b. Through:
 - i. Is there anything wrong with the personal earth share calculation? Why?
 - ii. What are additional items that should be considered to calculate a more accurate ecological footprint?
 - iii. What did you find surprising about your ecological footprint
- c. Beyond: Eco-footprint questions in teams and discuss. 15 mins. 1 Hectare = 2.47105381467165 Acres Also, have students write down their total footprint in acres in ECOLOGICAL FOOTPRINT chart.-Go over questions 1, 2, 3, 9.

12. What is our school's ecological footprint?

- a. Warm up: Create a warm up related to the previous day using math
- b. Through: Distribute "Our School as a System". What does our school system give out to the community?
 - i. What is one system that we can improve and how?
 - ii. What is ecological footprint? Distribute handout
 - iii. Use the "ECO FOOTPRINT of our School" worksheets for each group to determine the impact of our school.
 1. Walk the students through it step by step
 2. Record the information up on the board in order to have a clear understanding of what they should change on their campus.
- c. Beyond: What can you change on our campus to help lower its impact on the planet.

13. Trash audit and measuring results?

- a. Into: How much trash do you produce a day?

- b. Through: Read <http://www.wisegeek.com/how-much-garbage-does-a-person-create-in-one-year.htm>
 - i. Watch Story of Stuff (<http://www.storyofstuff.com/>) and fill out the “Story of Stuff Worksheet”.
 - c. Beyond: Discuss article. Discuss Landfill trip and responsibilities etc.
14. ½ class to landfill
15. ½ class to landfill
16. What is permaculture?
- a. Into: What did you experience at the landfill? What was the most interesting thing you learned from your visit to the landfill?
 - i. What gas is produced in the landfill and who benefits from it?
 - ii. Why is it a problem that the landfill is closing in 2010?
 - iii. What do you think of when you hear the word permaculture?
 - b. Through: Show the permaculture PowerPoint.
 - c. Beyond: what would make us a perm ant culture? Why do we need to transform our systems to be like nature
17. How do we use permaculture to check for a healthy system?
- a. Into: Warm up: List a principles of permaculture, define it and find an example of how that plays in your own life.
 - b. Through:
 - i. Go over the ethics of permaculture and ask the students to do a think pair share on the ethics of permaculture
 - ii. Go on a tour to show.
 - iii. Give students the principles of permaculture checklist. During the tour have them fill it out.
 - c. Beyond: why is important that we learn and implement a guide for a healthy system.

18. Becoming a tour guide

- a. Into: What is a tour guide?
- b. Through: Give picture tour of campus. Then give actual tour of campus. Have students take notes of each section and grade these notes.
- c. Beyond: Explain to students the main points and have them review for the tour with a partner.

19. Tour prep

- a. Into: Warm up: Reflect on the tour. 1. How do you think you performed as a tour guide? 2. What did you learn from your audience? 3. What did you learn about yourself as a guide? 4. Did you enjoy giving the tour?
- b. Through: Talk about the tour. Have each student become an expert on one of the stations. Assign students to that station so the tour will be split up and be at that part, and to know where the students go next.
- c. Beyond: Prep for Tour.

20. Tour rehearsal

- a. Assign everyone to a station.
- b. Send adults from school to go on tour. Have a checklist for them to assess them.
- c. Give students feedback for the next.

21. Tour (benchmark)

- a. Give tour to the freshmen class.
- b. Assess each group.

22. Sum up systems

- a. Give a study guide and sum up the systems unit
- b. Prepare students for test.

23. End of Unit

- a. End of unit assessment (written test)
 - i. Watch "A Day in the Life" GA video (if there's time)
- b. KWL chart about composting
 - ii. Announce next unit to students.