

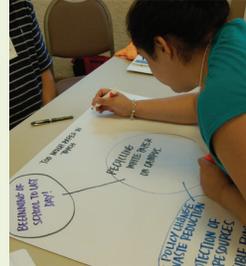


Teacher **Action** Guide

Environmental Education Program



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WHAT IS GENERATION EARTH?

**An environmental education program of the
Los Angeles County Department of Public Works.**

The Generation Earth program empowers students in grades 7- 12 to take action and address environmental issues facing Los Angeles County by supporting their environmental service learning projects. To do this, the Generation Earth program provides:

- Teacher workshops on how to facilitate environmental service learning with students.
- Waste reduction and recycling workshops for students and teachers.
- Water pollution prevention and drought response workshops for students and teachers.
- Personalized project support from Generation Earth staff.
- Access to a network of community partners and resources.
- Project Toolkits and guides.
- Free bus for a project-related field trip.



WHY GENERATION EARTH?

Understanding and addressing waste and water issues in the County of Los Angeles is at the core of the Generation Earth program. The landfills in Los Angeles County are filling up, making it imperative we find ways to reduce the amount of waste generated. We send billions of gallons of polluted water to the ocean – instead of replenishing aquifers. In Los Angeles County, nearly 100 million gallons of contaminated water and debris flow through the stormdrain system each day without rain. Rainy days can increase the flow to 10 billion gallons per day!¹ A historic drought has made water capture and conservation in Los Angeles County even more important.

**Rainy
days send 10 billion
gallons of untreated
water to the
Pacific Ocean!**

¹ https://dpw.lacounty.gov/prg/stormwater/page_30.cfm

These challenges are multi-faceted and complex, but the solution is simple: teach and empower communities to make their home a cleaner, healthier place to live. Reduce waste by re-thinking, reusing, recycling resources, and properly disposing what's left. Capture and clean stormwater by redirecting it into the ground, instead of letting it flush through our streets.

This is what the Generation Earth program strives to accomplish!

GENERATION EARTH IS A RECIPROCAL SERVICE

In exchange for all the resources, guidance and support provided by Generation Earth, we ask that program participants provide the following:

- Environmental service learning projects completed by students.
- Facilitation of the learning.
- Feedback and collaboration.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

The Los Angeles County Department of Public Works is committed to protecting our communities and the environment. Public Works provides public infrastructure and municipal services to protect and enrich the daily lives of over ten million people in Los Angeles County. Public Works is responsible for the design, construction, operation, and maintenance of roads, traffic signals, bridges, airports, sewers, flood control, water supply, water quality, and water conservation facilities.

Public Works is committed to the environment and leads, inspires, and supports our communities towards a healthy, waste-free future. Public Works provides sustainable water supplies and healthy watersheds while reducing flood risk for our communities.

Environmental Service Learning



IN THIS SECTION

- What is Service Learning?
- Seven Elements of Service Learning
- Elements into Action
- Generation Earth Ten Step Project Pathway

NOTES

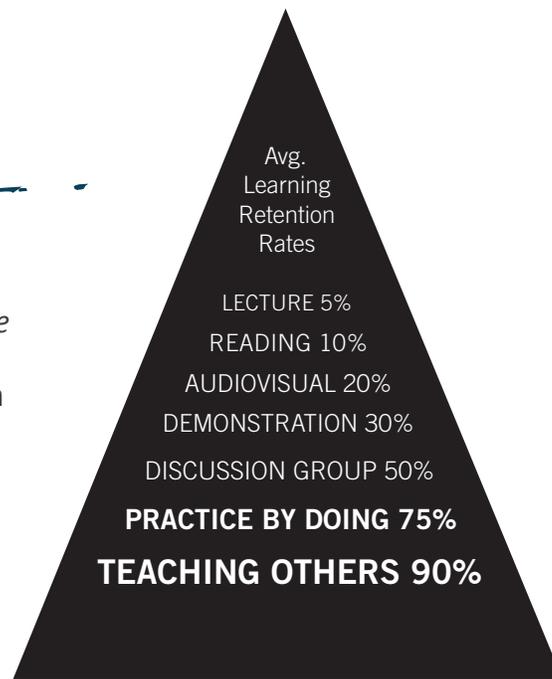
WHAT IS SERVICE LEARNING?

Educators had been combining education with volunteerism and service for years before the term *service learning* appeared in the 1970s. Over the decades, many definitions have emerged - the Generation Earth program uses the definition by The National Commission on Service Learning:

Service learning is a teaching and learning approach that integrates community service with academic study to enrich learning, teach civic responsibility and strengthen communities.

Service learning integrates *learning by doing* and *learning by teaching*, to yield high learning retention rates, as seen on The Learning Pyramid (right – by the NTL Institute of Alexandria, Virginia).

Through integrating classroom learning with real-life experiences, students retain more. Because it is grounded in place-based experiences, service learning can be implemented across all geographic and socioeconomic settings, with all students (regardless of academic or developmental standing), and across all subjects - whether it's social studies, language arts, science, math, English, or electives.



ENVIRONMENTAL SERVICE LEARNING

Environmental service learning takes place in the context of the environment, using the surrounding community and campus space as a lab, where students make observations, ask questions, collect data, and analyze results to generate ideas, and put those ideas into action.

Learning becomes relevant and useful to students, as they are allowed to exercise skills in a real life situation. Youth become empowered to be positive agents of change for our schools and communities, when they see for themselves the impact they can have on their environment.

7 ELEMENTS OF SERVICE LEARNING

1

INTEGRATED LEARNING AND INSTRUCTION

The experience is tied to the curriculum (and vice versa), and applies academic content to real-world experiences – building scholastic achievement.

2

SERVICE TO THE COMMUNITY

The experience is place-based, serving and meeting the needs of the community that the student is a part of.

3

STUDENT VOICE

The experience comes from, and involves, the student in every aspect. They are a stakeholder and partner in the entire process – from identifying a community need, to selecting, planning, executing, and reflecting on a project.

4

COLLABORATION

The experience includes and involves other stakeholders in its planning and implementation; bringing together others in the community that contribute to, and benefit from, the project.

5

CIVIC RESPONSIBILITY

The experience demonstrates to students that they impact their community. Their voices, choices, and actions influence the way their community functions.

6

REFLECTION AND CELEBRATION

The experience allows students to reconstruct understanding through reflection, during and after the project, so they can acknowledge and celebrate what was learned and accomplished.

7

EVALUATION

The experience measures progress toward learning and service goals, and uses the information to adapt planning, provide next-steps, and identify success.

ELEMENTS INTO ACTION!

“If the elements of service learning are the ingredients, the stages are the recipe.”

Paraphrased from Cathryn Berger Kaye (2004)

To translate the elements of service learning into an experience, it is helpful to break the project into four stages. These stages structure the learning, and guide facilitators in choosing which activities to provide for students, and when.

THE FOUR STAGES OF SERVICE LEARNING

1. Investigation
2. Preparation and planning
3. Action
4. Reflection and Demonstration



Each stage works with one-another, and like the seven elements, are interdependent. Students are often in more than one stage at a time, and exploring an element of service learning at any point in the process. For the sake of planning facilitation, this guide discusses the four stages separately.

As additional support, on the following pages is a Ten Step Service Learning Pathway – written guidelines and visual representation; an example of how the Generation Earth program suggests moving through the four stages. Each step lists example activities you might choose to use with students, which will be discussed further in the guide.

GENERATION EARTH TEN STEP SERVICE LEARNING PATHWAY

FACILITATOR PREPARATION

1

Join a Facilitating Environmental Service Learning Workshop

Attend a workshop to learn about facilitating environmental service learning with students!

2

Connect with Generation Earth Staff

A Generation Earth staff person is assigned to each project to offer personal guidance and support. We are available via phone, e-mail, and will even visit your school!

3

Curriculum Integration

Consider how classwork might link to environmental issues in the community so the environmental service learning project is supporting classroom learning.

STAGE 1 - INVESTIGATION

4

Pre-Project Survey

Use the Generation Earth Pre-Project Survey to see what students are already doing, and how much they learned after doing the project. Turn these in to qualify for a free bus!

5

Explore the Community

Use media, interviews, surveys, and observations (MISO) to frame research activities to begin exploring the community.

STAGE 2 - PREPARATION & PLANNING

6

Dive Deeper

Revisit research tools to focus on learning more about a particular issue students found interesting, or joining a student and teacher workshop to learn more about waste and water issues in Los Angeles County.

7

Learn from Others

Take a field trip, invite a classroom speaker, or attend a workshop to learn more and gain skills to carry out the project.

8

Plan

Use the information from research to plan the project. Identify roles and responsibilities, next-steps, necessary supplies and permissions, and any other needs you have to make the project happen.

STAGE 3 - ACTION

9

Do the Project!

Put planning into action and make the project happen!

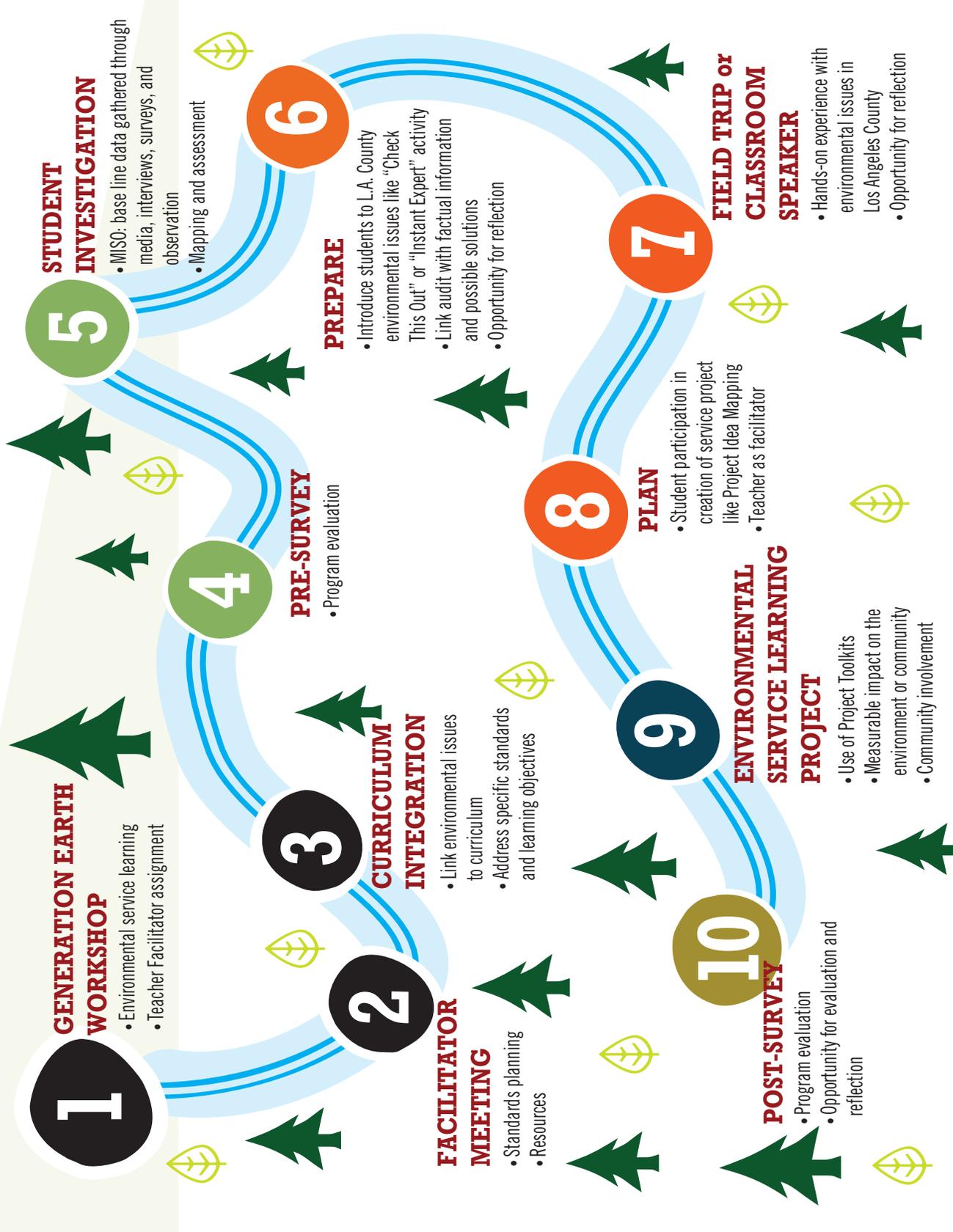
STAGE 4 - REFLECTION & DEMONSTRATION

10

Post-Project Survey

Take a second survey to see how much students have learned and accomplished!

Send a copy of post-surveys to Generation Earth, so we can show how much your student's learned!



1

GENERATION EARTH WORKSHOP

- Environmental service learning
- Teacher Facilitator assignment

2

FACILITATOR MEETING

- Standards planning
- Resources

3

CURRICULUM INTEGRATION

- Link environmental issues to curriculum
- Address specific standards and learning objectives

4

PRE-SURVEY

- Program evaluation

5

STUDENT INVESTIGATION

- MISO: base line data gathered through media, interviews, surveys, and observation
- Mapping and assessment

6

PREPARE

- Introduce students to L.A. County environmental issues like "Check This Out" or "Instant Expert" activity
- Link audit with factual information and possible solutions
- Opportunity for reflection

7

FIELD TRIP or CLASSROOM SPEAKER

- Hands-on experience with environmental issues in Los Angeles County
- Opportunity for reflection

8

PLAN

- Student participation in creation of service project like Project Idea Mapping
- Teacher as facilitator

9

ENVIRONMENTAL SERVICE LEARNING PROJECT

- Use of Project Toolkits
- Measurable impact on the environment or community
- Community involvement

10

POST-SURVEY

- Program evaluation
- Opportunity for evaluation and reflection

NOTES

STAGE I

Investigation

Investigation is where students begin to ask questions and collect information about their community. Students conduct a close-study of the community to identify a larger issue that will be explored more deeply in the next stage and lead to a project.

If an issue has already been identified, this stage quickly transitions into stage two, where students dive deeper into learning more about a specific need.



IN THIS SECTION

- **Education and The Environment Initiative (EEI)**
- **Investigate with media, interviews, surveys, and observations (MISO)**
- **Generation Earth Interview Questionnaire Sample**
- **Generation Earth Campus Water Audit and Waste Audit Samples**

EDUCATION AND THE ENVIRONMENT INITIATIVE

In October 2003, the Education and Environment Initiative (EEI) was signed into law, providing a framework for bringing environment-based education to students across California (Pavley, Chapter 665, Statutes of 2003). Using EEI is a great way to integrate environmental service learning into your curriculum, as part of the Generation Earth Ten Step Service Learning Pathway (see page 10).

WHY EEI?

The Education and the Environment Initiative examines topics through the lens of *California's* environment. Like service learning, it is relevant to students because it engages them in topics that impact their lives, including “the air they breathe, the water they drink, and the food they eat. EEI helps students understand their relationship to the environment while preparing them to be critical thinkers and 21st century problem solvers” (California Education and the Environment Initiative, 2016). Retrieved from www.californiaeei.org.

It supports state standards, is a replacement curricula, and is FREE to use!

To learn more about how the curricula supports state standards, where trainings are offered, and to download units, visit <http://www.californiaeei.org>.



MAJOR COMPONENTS OF EEI

- **Uses five Environmental Principles and Concepts** to examine the interactions and interdependence of human societies and natural systems.
- **Supports standards-based curriculum** to teach the Environmental Principles and Concepts, and is aligned with California Common Core and Next Generation Science Standards.
- **Is incorporated into the State Board of Education's** criteria for adopting instructional materials.
- **Updates existing environmental education programs** to support learning of the Environmental Principles and Concepts.
- **Involves several state agencies and community partners to ensure success.** This includes the California Environmental Protection Agency, California's Department of Resources Recycling and Recovery (CalRecycle), California's State Board of Education, Department of Education, Office of the Secretary for Education, the Resources Agency, and partners from business and industry, educational institutions, non-governmental organizations, and professional organizations.

INVESTIGATE WITH MISO

MISO (**M**edia, **I**nterview, **S**urvey, **O**bservation) is a method of action research used to challenge students to use more than a single approach to collecting information, and lead them to authentic exploration and a more dynamic perspective of their community. These techniques offer several opportunities to support both California Common Core and the Next Generation Science Standards, and support the Generation Earth Ten Step Service Learning Pathway steps 5 and 6 (see page 10).

Media

Media includes (but is not limited to) internet searches, books, newspapers, pamphlets, news, video, photos, and podcasts or radio. Ask students to list possible environmental media sources, explore them, and share what local environmental issues might be identified.

Interviews

Interview others in the community, including other students and teachers, family members, or representatives from local non-profits and governments – what do they know or think about their environment? Students might develop their own questions to guide the conversation, or use questions from a Project Toolkit (example on page 16). Have students call or e-mail ahead to arrange a time, people are more willing to speak with a student, when planned in advance!

Surveys

Surveys might take the form of a list of questions that people respond to, or be a scientific survey to methodically collect data. Have students create a survey and ask others to complete it, or use a Generation Earth audit from a Project Toolkit (example on page 17).

Observation

Observe the community through mapping; mapping builds a sense of place and connectedness between students and their surroundings by asking them to closely observe and record what they see. Mapping can be a free-style activity with a pen and paper; or guided using a tool such as the site assessment in a Project Toolkit or through Jane Goodall's Roots & Shoots.

MISO Resources

- The Complete Guide to Service Learning
by Catheryn Berger Kay, Free Spirit Publishing
- The Importance of Action Research (Blog Post)
by Catheryn Berger Kay
<http://www.cbkassociates.com/2015/05/01/the-importance-of-action-research/>
- MISO, What is it?
Corning Painted Post Area School District
<http://cphspersonalproject.weebly.com/research.html>
- Jane Goodall's Roots & Shoots
<https://rootsandshoots.org/>



GENERATION EARTH INTERVIEW QUESTIONNAIRE SAMPLE

Interview Questionnaire

Name(s)

Date

Facilities / Plant Manager

1. Is there a need for any waste or pollution management or awareness on campus?

- If yes, What is needed?

2. Are there fertilizers currently being used to maintain the grass or other planted areas?

- If yes, What products are used?

Are they made with toxic chemicals that are potentially harmful to local water?

Are you willing to use non-toxic options?

3. Are sprinklers used to water the grass or other planted areas?

- If yes, Does the water spray out onto concrete and /or asphalt?
- If yes, Would you be willing to adjust or switch out the sprinkler heads?

4. If there are any identified sprinkler, faucet or other water leaks would you be willing to have them fixed?

Taken from the Generation Earth

**WASTE REDUCTION AND
RECYCLING PROJECT TOOLKIT**

GENERATION EARTH CAMPUS WATER AUDIT SAMPLE

WATER AUDIT

Using a map of the site, students indicate where there are specific water-related elements on campus. They continue the process by showing the direction water takes and identifying any areas of concern. Finally, students conduct an interview with the Facilities/Plant Manager to learn more.

Procedure

1. Plan to divide into working groups when mapping and auditing the site.
2. Create a map of the site doing the following:
 - Use an existing map, removing any unnecessary information.
 - Download a map of the site from on-line.
 - Create your own map using a large sheet of paper.
3. Make sure each group has a map, Water Audit Guidelines sheet, and specific colored pencils or markers.
4. Have students follow the instructions to locate specific water-related elements and mark them on the map. Then, continue the process by using arrows to show the direction water takes and identifying any areas of concern.
5. Familiarize students with the areas they are observing and demonstrate how to gather the data, if necessary.
6. Back in the classroom, have groups report on their findings.
7. Create a combined map of all that was found, representing the site as a whole.
8. Have students conduct an interview with the campus Facilities/Plant Manager using the Interview Questionnaire.

Materials

- Water Audit Guidelines
- Colored Pencils/Markers (red, blue, green, purple, black) - 1 per group
- Map of site
- Interview Questionnaire

Helpful Hints

- Break the site maps into different parts of the campus for each group.
- If possible, plan to conduct the audit during a rain event or shortly after a rain event.

Where is the Water?

Have students identify where the water comes from, and where the water goes on campus!

Water Audit Guidelines

Walk around the entire assigned area looking for the items listed below and mark them on the map:

LOOK FOR:

- Places where water can get into the ground (grass, bare dirt, garden, etc.)
Use GREEN to show these places on your map
- Sources of water (faucets, drinking fountains, sprinkler, hose, etc.)
Use BLUE to show these places on your map →
- Places where water travels (gutters, down spout, drain, etc.)
Use PURPLE to show these places on your map →
- Trash and other things that could be harmful to water (food, trash, oil, etc.)
Use a RED X to show these items on your map



ALSO INDICATE:

- The direction water would travel. Use arrows to show the direction. Remember, water flows from higher points to low ones.
- Leaky water faucets or sprinklers.
- Where you found a lot of trash and other areas of concern.
- What type of trash was found and a possible source for where it came from.

Taken from the Generation Earth

**STORMWATER POLLUTION
PREVENTION PROJECT TOOLKIT**

GENERATION EARTH WASTE AUDIT SAMPLE

Waste Audit Tally Sheet

Name(s) _____ Date _____

Location _____

- Put on gloves before checking trash cans.
- Under each column keep a tally of how many of each item is found. Place additional items under "other."
 - Items marked with * indicate that these items may or may not be recyclable with your waste hauler.
- Take note:
 - Are garbage cans contaminated with recyclables?
 - Are recycling bins/dumpsters contaminated with garbage?

Trash	Items	Quantity	Notes
	Plastic Wrappers/ Foil Wrappers		
	Chip/Snack Bags		
	Straws		
	Napkins		
	Plastic bags*		
	Other		
Curbside Recyclables			
	Glass bottles/jars		
	Metal/alum. cans		
	Plastic bottles		
	Clean paper/ cardboard products		
	Styrofoam Products*		
	Beverage cartons/ Juice boxes		
	Hard plastic food containers		
	Food soiled paper trays/boxes*		
	Other		

Generation Earth • Waste Reduction and Recycling Project Toolkit

Track the Trash!

Have students identify what kind of waste is being generated on campus, how much, and where it's going.

E-Waste	Items	Quantity	Notes
	Cell Phones		
	Electronic toys		
	TV/Computers		
	Ink Cartridges		
	Other		
Hazardous Waste			
	Batteries		
	Cleaning Products		
	Nail polish/Beauty products		
	Paint		
	Other		
Compostables /Green Waste			
	Food Scraps*		
	Grass clippings/ Landscape waste		
	Other		
Food to Donate			
	Unopened packaged food		
	Whole produce		
	Other		
Other			
	Reusable books / items		
	Textiles, clothes and shoes		
	Other		

Generation Earth • Waste Reduction and Recycling Project Toolkit

2

Taken from the Generation Earth

**WASTE REDUCTION AND
RECYCLING PROJECT TOOLKIT**

STAGE 2

Preparation & Planning

With a broad issue identified, students now continue research to learn more about the issue, identify possible solutions, and choose one to take on as their project. This stage involves collecting and analyzing information, assessing and assembling materials and resources, and practicing skills they will need to execute their plan.



IN THIS SECTION

- Check This Out Activity Sample
- Field Trips & Speakers
- Project Idea Map Activity

NOTES

CHECK THIS OUT! SAMPLE

Most Generation Earth Project Toolkits contain a Check This Out! activity to provide students with background information about a specific issue through reading, and sharing the information with others.

When the resulting info-graphics are created with care, and with the intent to be shared with the rest of the school or the local community to educate them about an issue, this activity can also become an environmental service learning project.

Below is a sample Check This Out! from the Waste Reduction and Recycling Project Toolkit, and a sample topic sheet on the following page.

CHECK THIS OUT

Students explore the subject of waste by working in teams to learn a specific topic related to waste reduction and share what they have learned through the creation of an infographic.

Procedure

1. Divide students into six working groups. Groups should be as close to equal in size as possible.
2. Pass out a different topic sheet to each group.
3. Each group has 15 minutes to:
 - Learn and discuss the topic
 - Use poster paper and markers to create an infographic answering the questions listed on the topic sheet
4. Each group shares and explains their infographic with the rest of the class.
5. As a class, discuss the need for waste reduction, at home and in the community.

Materials

- Topic Sheets
- Poster paper or dry erase board – 1 per group
- Markers – 1 set per group



Piles of Paper

Start Here!

Score! Two points! You're doing your homework and make a mistake in the first paragraph. So, you crumple the piece of paper and toss it in the trash. Did you think about the tree that the paper came from?

Create an Infographic that answers the following questions:

- How are paper products created?
- Why is it an issue?
- How much of this paper is wasted in Los Angeles County?
- What is something that can be done on campus to reduce paper waste?



- Trees are harvested and sent to mills and processed into lumber. The wood waste is sent on to paper mills, where it is manufactured into lunch bags, notebooks, paper, magazines, napkins, towels, and the list goes on and on.
- Making paper from raw materials (trees) requires large amounts of water and energy. Pulp and paper manufacturing uses more water to produce a ton of a product than any other industry,⁵ and is the third largest industrial consumer of energy worldwide.⁶ It takes 390 gallons of oil to produce one ton of paper.⁷
- Each year, the average student uses about 680 lbs. or about seven trees worth of paper.⁷ Paper products make up about one third of the total waste being produced in Los Angeles County.⁸
- Paper made from waste paper is called “post-consumer” recycled paper because it has been used and recycled instead of being landfilled. New paper made from recycled paper instead of trees creates 35% less water pollution and 70% less air pollution, and 75% less energy is used.⁹
- To reduce the amount of paper going to landfills, the first step is to collect paper products for recycling. Other ways to reduce include buying items in bulk to reduce packaging waste, using a reusable canvas bag instead of paper, using cloth napkins instead of paper, and lastly, purchasing post-consumer products.

FIELD TRIPS & SPEAKERS

Field trips and classroom speakers are ways for students to learn more about an issue or skill they might need for the project, and collaborate with community members. To support this, Generation Earth offers a free bus for a field trip that supports the completion of an environmental service learning project.

WHERE TO FIND TRIPS AND SPEAKERS

Trips and speakers can come from many places in the community after picking an issue or project, have students identify what they would like or need to know more about. Next, brainstorm what type of places or people that might provide information. Finally, make a list of potential locations to visit, or speakers to invite. Always feel free to ask a Generation Earth staff person for ideas!

GET A FREE BUS!

- Submit your student's pre-project surveys to Generation Earth.
- Complete a Generation Earth Transportation Request Form.
- Submit your student's post-project survey when the service learning project is finished.



BUS FAQs

- *How many buses can I request?*
One bus per teacher, and two per school, per year.
- *How many people can be seated on a bus, including adults?*
58
- *How long may a field trip last?*
5 hours maximum
- *When should I submit a Transportation Request Form?*
Buses are subject to availability, request them as far in advance as possible, no later than two weeks before your field trip.
- *What is your cancellation policy?*
Contact us no later than 48 hours prior to the field trip. Late cancellations forfeit your bus for the year, and you may be billed.
- *How will I know that my field trip request is confirmed?*
A confirmation from Generation Earth staff is e-mailed to you when the bus is confirmed.
- *What do I do if I lost something on the bus?*
Generation Earth is not responsible for lost or stolen articles on your field trip. We will do our best to put you in touch with the bus company to ask about lost items.

PROJECT IDEA MAP ACTIVITY

There are many ways to organize the planning of a project. One tool Generation Earth offers is using an Idea Map – a graphic organizer to structure the planning. This can be a tool used for an initial planning brainstorm or a living document that is created when students first identify an issue to explore, and revisit and update as planning continues.

PROCEDURE

1. Break students up into working groups.
2. Distribute an Idea Map worksheet to each group.
3. Review each section - their answers and ideas will be represented on the poster paper.
 - **Environmental Issue** – Record what issue was revealed as a result of their investigation.
 - **Project Idea** – Record project ideas that might address the issue.
 - **Project Goal** – Record the outcome the project will achieve (helpful hint: quantifiable goals are easiest to assess, but not necessary to a project's success).
 - **Human Resources** – Record who in the community (including themselves!) might be able to contribute to the project.
 - **Supplies and Materials** – Record what things they will need to complete the project.
 - **Time-line** – Record an estimated time-line to show how much time the project will take to accomplish.
 - **The Bigger Picture** – Record the larger impact to the community and the environment.
4. Have groups present their ideas to the class.

TIME

- 45 Minutes

MATERIALS

- Poster paper – 1 per group
- Markers – 1 set per group (pencils or sticky-notes can also be used)
- Idea Map handout – 1 per group

WRAP UP

- Once complete, have each group present their ideas to the class.
- As a class, looking at the resources, materials, time, and impact on the community, have students assess and choose which project seems most practical and most exciting to them.



IDEA MAPPING STEPS

1

IDENTIFY THE ENVIRONMENTAL ISSUE

Record the environmental issue you will address on your campus, or in your community.

Do you notice a lot of trash on the ground, or at parks, rivers, or beaches near your school? Is there recycling at your school? Is there flooding when it rains?

2

PROJECT IDEA

Record what actions you might take to address the issue.

You might organize and do a clean up to pick up trash, or teach others how to recycle. Maybe caring for a native garden might help. What types of actions will help make the problem better? This is going to be your project!

3

PROJECT GOAL

Record what you would like your project to achieve.

It's helpful to consider a goal with a numerical value. Maybe the goal is to have the campus fill half the number of dumpsters in six months than are filled now, or the class will care for 10 trees, or mulch 16 square feet of a garden.

4

HUMAN RESOURCES

Record what people or organizations might support the project.

Can other students help clean up? Is there a local organization that can show you how to plant a tree? Maybe a family member can provide transportation. Don't forget what kinds of skills YOU can bring to the project!

5

SUPPLIES/MATERIALS

Record what is needed to do the project.

Does your project require tools? Permissions? Supplies? Does anything cost money? How or where might you get the supplies and materials?

6

TIME-LINE

Estimate a time-line when your project needs to be completed.

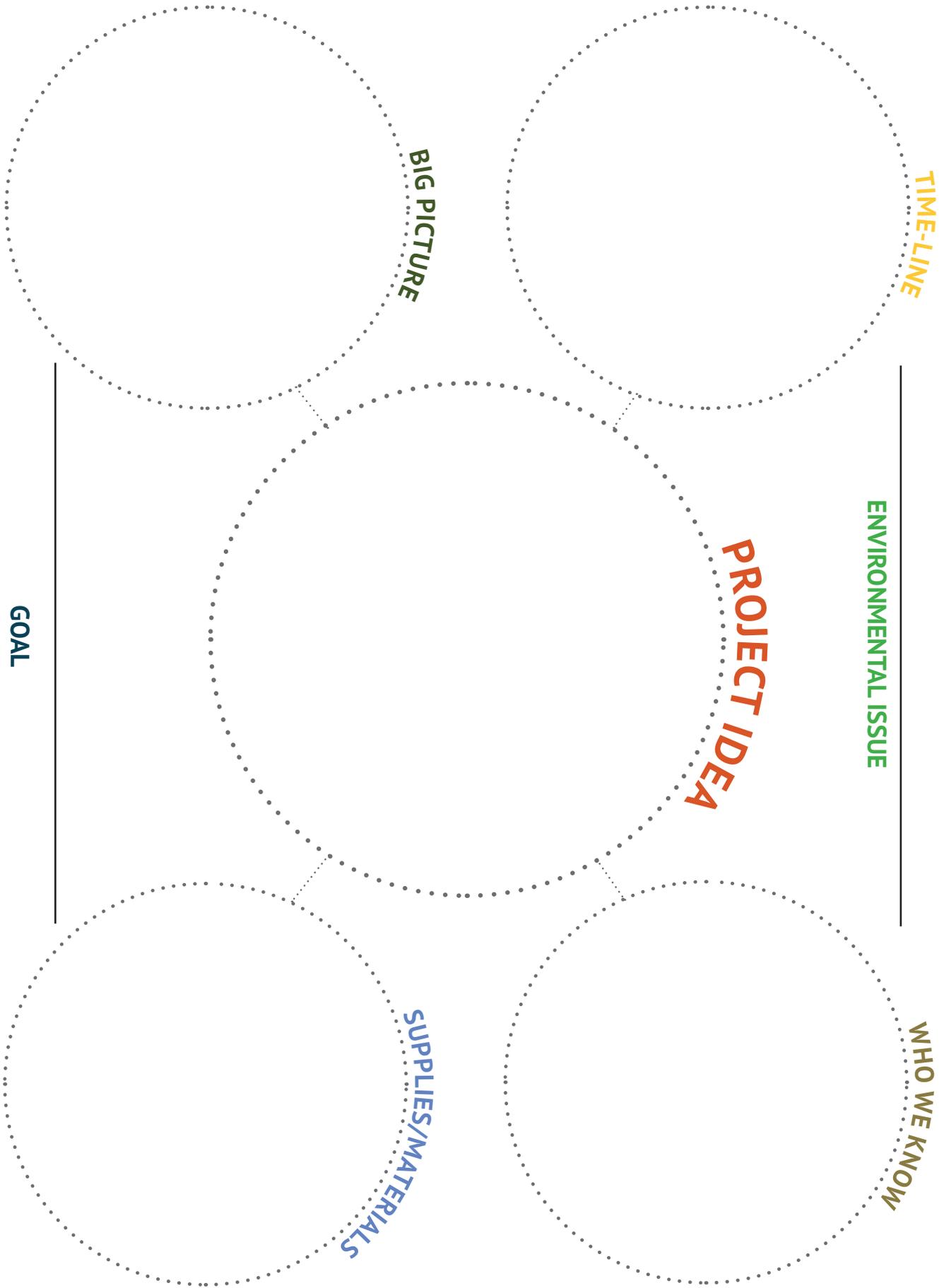
Set a goal date for your project, and work backwards. When do you want a garden to be planted? When does the clean-up occur? What steps take place between now, and that end date?

7

THE BIG PICTURE

Record how this project impacts you, your community, and the environment.

Will it reduce the amount of trash you see on campus? Reduce the amount of waste going to landfills? Make the campus a more comfortable and healthy place to learn and play?



TIME-LINE

ENVIRONMENTAL ISSUE

WHO WE KNOW

PROJECT IDEA

BIG PICTURE

SUPPLIES/MATERIALS

GOAL

STAGE 3

Action

Action is where students execute their plans by actually carrying out the project. Depending on the type of project, the action stage might take as little as an hour, or span several weeks. In this stage, it is not uncommon for students to practice immediate reflection, realizing they might have planned something more effectively, or that there was a skill that might have been helpful to know.



IN THIS SECTION

- Environmental Service Learning Projects
- Project Toolkits

NOTES

ENVIRONMENTAL SERVICE LEARNING PROJECTS

DIRECT SERVICE

A project that directly impacts, and involves, it's recipients.

Examples include:

- Teach other student's how to recycle during classroom presentations or assemblies.
- Hold workshops for the community about how to compost or conserve water at home.
- Organize an e-waste or textile collection drive at your school, or a community swap.
- Distribute resources to the community on native plants or rain barrels, and teaching them how to plant, install, and care for them.

INDIRECT SERVICE

A project that benefits the community and environment as a whole, not necessarily a specific individual.

Examples include:

- Plant trees or a garden on campus, and/or care for existing ones by weeding, mulching, and picking up trash.
- Improve or create a new recycling program, such as bottles and cans, or paper recycling. Or organize a community swap or e-waste drive.
- Clean up a local beach, river, or park, or work with a local organization to support restoration work.
- Work with school facility managers to remove concrete and put in trees, native plants, or rain gardens to prevent stormwater runoff and pollution.

IMPORTANT!

Depending on the size and scope of the project, it might require getting some permissions.

In the Planning and Preparation stage, be sure to check with administration, district representatives, or other landowners/operators to see if permission is needed, and how to obtain it.

For more information, contact Generation Earth!





ADVOCACY

Creating awareness of an issue, or promoting an action on an issue, that concerns the public.

Examples include:

- Write a letter to the principal, mayor, or city representatives to provide ideas about how to resolve a local environmental issue.
- Make posters on good water quality management tips and post them in classrooms and sites around the community.
- Write a public policy outlining watershed best management practices and present it to the administration, faculty and/or at a student assembly.
- After examining the flow of water on campus, obtain permission to stencil signs next to storm drains warning people not to dump litter into them.

RESEARCH

Students gather, monitor and report on information in the public interest.

Examples include:

- Support a citizen science project that supports an environmental need identified in your community, like partnering with a marine or river organization to test water quality during the school year, or mapping trees to measure the impacts on your community.
- Measure the amount of food waste created by the school for several weeks to create a measurable goal to monitor. Propose ways to reduce that amount each month.
- Survey or map the accumulation of trash on a school campus, and share with other students and teachers.
- Map or create a directory of local organizations that provide environmental services to the community, such as recycling centers and household hazardous waste centers.

IDEAS

What are some ideas you might have for possible environmental service learning projects to do with your students? What type of service are they?

PROJECT TOOLKITS

To support moving projects through to action, consider using a Project Toolkit or guide. These provide step-by-step guidance, and support the seven elements and four stages of environmental service learning. Most include the following sections:

- **Check This Out!**
Students explore an environmental topic by working in teams to read, then share what they have learned through creating an info-graphic.
- **Site Assessment or Audit**
Students map or monitor a site to identify environmental issues.
- **Get More Information**
Continuing the research, students collect more information by conducting interviews.
- **Choose a Project**
Using the results of site assessment, audits and interviews, students determine what action(s) they would like to pursue.
- **Finalize the Plan & Get Permission**
Students build a plan to share with stakeholders, including those that provide final permission for the project.
- **Make it Happen**
Students follow the steps given to make the project happen!
- **Evaluation**
Students answer questions to evaluate the process, and consider next steps.
- **Resources**
Provides suggested and sample resources that might support the project.

EXAMPLE PROJECT TOOLKITS

- **Stormwater Pollution Prevention**
Where does water flow? What does it pick up along the way? Learn more about the campus watershed, and what can be done to prevent pollution, and conserve or capture water.
- **Waste Reduction and Recycling**
What gets thrown away, and how much? Reduce waste on campus through a variety of projects, including curbside recycling of paper, bottles and cans.
- **Ask Generation Earth for more!**
New Generation Earth Project Toolkits and guides are being developed, and those of partner organizations as well. Talk to a Generation Earth staff about other great project toolkits available to you and your students!

NOTES



STAGE 4

Reflection & Demonstration

Reflection is ongoing. It begins when examining findings during investigation, persists when projects are planned, and continues in action when students realize they could have planned more. Finally, students assess the impact their project has made on the community!

Demonstration is the act of taking all the reflection, and having students show what they have learned to others, as well as themselves.



IN THIS SECTION

- **Reflection & Demonstration**
- **Pre-Project and Post-Project Surveys**

REFLECTION & DEMONSTRATION

WHY REFLECT AND DEMONSTRATE?

Reflection is where the learning happens! Without taking the time to reflect, the experience doesn't 'sink in' and results in the same level of understanding. Demonstration helps students synthesize their learning, by sharing it with others. These practices also give meaning to the project, and allow students to practice critical thinking, and show other stakeholders the impact of the project.

REFLECTION IDEAS

- **Keep a project notebook**
Use it to record questions, ideas and information about the project. Revisit entries for further research, analysis and revision, including comparing and contrasting what they have learned along the way.
- **Evaluate and assess the project outcome**
Identify information to track throughout the project, and record it periodically for comparison and analysis. Consider revisiting the site-assessment or audit, mapping, or surveys and interviews to provide this type of information.
- **Generation Earth Pre- and Post-Project Surveys**
This tool tracks learning, assessing how student knowledge has increased over the course of a project. It's a great way to show student's how much they have learned! See page 35 for more!
- **Revisit the Idea Map**
After the initial planning session, revisit the Idea Map to revise and build on ideas. Review it at the beginning and at the end of each classroom or group session, and at the end of a project to prompt a discussion about what student's learned.

DEMONSTRATION IDEAS

- **Student Showcase**
Have students present projects to other students, teachers, and parents, and community partners.
- **Ask Generation Earth!**
We often know of opportunities for students to present their projects. Some examples include events like the Generation Earth Summer Institute, the Los Angeles Environmental Education Fair, and other Fairs.

PRE- & POST-PROJECT SURVEYS

Pre-project and post-project surveys are a great way for students to see their own progress, as well as facilitators to see the outcome of their teaching. As a bonus, by turning in your pre- and post-project surveys, you qualify for a Generation Earth bus, and support from the Generation Earth program! Talk to Generation Earth staff to be sure you use the latest version.

Students, please take care to fill this out accurately.

GENERATION EARTH, 2014-15 PRE-Survey (12 MINUTES)

SCHOOL NAME: _____ TEACHER: _____ CLASS PERIOD _____
 Name _____ Grade _____ Date _____

PLEASE RESPOND BRIEFLY TO THESE QUESTIONS:

1. List the actions you take to help the environment (list up to 5 actions) and note about how long ago you did each of these:

	YOUR RECENT ENVIRONMENTAL ACTIONS	HOW RECENTLY?		
		WITHIN THE WEEK	WITHIN A MONTH?	LONGER THAN A MONTH AGO
A				
B				
C				
D				
E				

2. When you think about the Los Angeles area environment, what issue seems most urgent to you and why?

3. If this issue is something you feel you can help work on, what step or two might you take?

End of Survey. THANK YOU!

Students, please take care to fill this out accurately.

GENERATION EARTH, 2014-15 POST-Survey (12 MINUTES)

SCHOOL NAME: _____ TEACHER: _____ CLASS PERIOD _____
 Name _____ Grade _____ Date _____

PLEASE RESPOND BRIEFLY TO THESE QUESTIONS:

1. List the actions you take to help the environment (list up to 5 actions) and note about how long ago you did each of these:

	YOUR RECENT ENVIRONMENTAL ACTIONS	HOW RECENTLY?		
		WITHIN THE WEEK	WITHIN A MONTH?	LONGER THAN A MONTH AGO
A				
B				
C				
D				
E				

2. Briefly identify the most important project your class worked on this year:

3. Name two things you learned from a Generation Earth project this year:

4. What was most inspiring to you about the environmental information involved in Generation Earth?

End of Survey. THANK YOU!

HOW TO TURN IN SURVEYS

Digitally

Scan student surveys into a single PDF, and e-mail them to the Generation Earth staff assigned to your project, or to generationearth@treepeople.org.

USPS

Generation Earth
 c/o TreePeople
 12601 Mulholland Drive
 Beverly Hills, CA 90210

Fax

(818) 753-4645

NOTES

Glossary of Terms



GLOSSARY OF TERMS

Aqueduct - Pipes and channels designed to bring water from a remote source, usually by gravity.

Bacteria - The microscopic single-celled organisms that derive nourishment from dead or decaying matter.

Berm - A raised area.

Bioaccumulation - An increase in concentration of a pollutant from the environment to the first organism in a food chain

Catch Basin - The opening in a curb or gutter that catches water and directs it to storm drains.

Community - The different organisms that live and interact with each other in an area.

Condensation - The conversion of vapor (gas) into water (liquid).

Contamination - The introduction into water, air, soil of microorganisms, chemicals, toxic substances, wastes or wastewater in a concentration that make the medium unfit for its intended use.

Composting - The controlled decomposition of organic material such as leaves, twigs, grass clippings and vegetable food waste that result in a soil amendment product.

Decomposer - An organism that breaks down wastes and organic matter.

Decomposition - The breakdown or decay of organic matter through the digestive processes of microorganisms.

Ecosystem - A dynamic set of living organisms (plants, animals, microorganisms) all interacting among themselves and with the environment in which they live (soil, air, climate, water, light).

Environment - An organism's living (biotic) and non-living (abiotic) surroundings that affect and influence its development and survival.

Evaporation - The conversion of water (liquid) into a vapor (gas).

E-waste - Consumer electronic equipment that is no longer wanted, such as computers, printers, televisions, VCRs, cell phones, fax machines, stereos, and electronic games.

Freshwater - Non salty water.

Fungus - Any of a major group of spore-producing organisms that include molds, mildew and mushrooms.

Groundwater - The freshwater that fills the cracks and pores beneath the earth's surface, which supply wells and springs.

Gutter - A channel for draining off water.

Hazardous Waste - Products that contain chemicals that are harmful to humans and the land. Includes e-waste, such as cell phones and computers.

Hydrologic Cycle - The constant circulation of water between the earth's surface and its atmosphere the water cycle.

Illegal Dumping - The dumping of hazardous chemicals, junk, used furniture, tires, and appliances in alleys, flood control channels, vacant lots, rural roads, railways or other areas not suitable for dumping.

Investigation - The process of using inquiry and examination to gather facts and information in order to solve a problem or answer a question.

Land pollution - The trash dropped on the land, such as food wrappers, cans, paper, plastic bags, pet waste and oil dripped from cars.

MISO - Acronym for media, interview, survey, observation. A method of action research.

Mulch - A material, such as leaves, bark, or compost, spread over the ground to enrich and insulate the soil.

Non-renewable resource - A resource which cannot be replaced once it is used up, for example fossil fuels (oil, natural gas, and coal).

Pesticide - Chemicals used to kill pests. Pests may include ants, termites, mice, and rats.

Polluted Runoff - Sometimes referred to as nonpoint source pollution, is caused by rainfall or snowmelt moving over and through the ground, picking up pollutants along its way to lakes, rivers, wetlands, coastal waters, and underground sources of drinking water. In urban areas, polluted runoff is referred to as stormwater pollution or stormwater urban runoff.

Pollution - A change in the environment that eventually affects living things.

Precipitation - Water deposited on the earth as hail, mist, fog, rain, sleet or snow.

Rain gutter - A channel along the roof that collects and carries away rainwater.

Reduce, Reuse Recycle - used to describe ways to conserve natural resources and landfill space. Reducing is buying less to begin with; reusing is using items more than once; and recycling is breaking down products like newspapers into resources that can be used again.

Renewable Resource - A naturally occurring resource, with the capacity to be replenished through ecological cycles and/or sound management practices.

Reservoir - A natural or artificial lake that stores water for human use.

Runoff - Water that flows over the ground that is not absorbed by soil, evaporated or transpired by plants, but finds its way into streams and rivers as surface flow.

Sanitary Sewer System - An underground system of pipes that carries waste water from homes and businesses to treatment plants where it is cleaned, solids and pollutants are removed, and the water is discharged into the ocean.

Storm drain - Above ground or below ground pipes and channels that transport stormwater to the ocean for flood control purposes.

Stormwater - Created when trash, cigarette butts, animal waste, pesticides, motor oil and other contaminants left on the ground are washed or thrown directly into storm drains. These contaminants mix with millions of gallons of rainwater and flow untreated into local creeks, rivers and the ocean- polluting our waterways. In rural areas, stormwater is referred to as polluted runoff or nonpoint source pollution.

Sustainability - Meeting the needs of the present generation without compromising the ability of future generations to meet their needs.

Task - An assigned piece of work to be finished within a certain time.

Timeline - The amount of time allowed for a project.

Urban Runoff - Refers to water that originates in urbanized areas. Sources of urban runoff include precipitation, industry discharge, leaks, washing, irrigation and natural springs.

Vermicomposting - The practice of using worms to make compost by feeding them food waste.

Wastewater Treatment

Plant - The set of structures where water goes through a purification process.

Water Pollution - The addition of any substance that has a negative effect on water and the living things that depend on water.

Watershed - The land area where water collects and drains onto a lower level property or into a river, ocean or other body of water.

Watershed Management - The integration and coordination of activities that affect the watershed's natural resources and water quality. It brings together services like flood protection, water conservation, preserving and creating open space for recreation and habitat, and reducing pollution of water resources.

Wetland - An area of land that is covered by a shallow layer of water during some or all of the year.



Generation Earth

generationearth@treepeople.org

www.generationearth.org

(818) 623-4856

