GENERATION EARTH

Environmental Education Program

Teacher Starter Kit

COUNTY OF LOS ANGELES CALIFORNIA

Clean LA
LOS ANGELES COUNTY

2024

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WHAT IS GENERATION EARTH?

An environmental education program of Los Angeles County Public Works

The Generation Earth program empowers students in grades six through twelve 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.
- Water pollution prevention and drought response workshops.
- Personalized project support from Generation Earth staff.
- Access to a network of community partners and resources.
- Toolkits and Project Guides.
- Complimentary bus for a project-related field trip.

These challenges have a simple solution: teach and empower communities to make their home a cleaner and healthier place to live. Reduce waste by reusing, recycling and properly disposing what's left. Capture and clean stormwater by redirecting it into the ground.

This is what the Generation Earth program strives to accomplish!

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.

Why Generation Earth?

The Generation Earth program helps inform students and teachers about waste and water issues within the County of Los Angeles. This program helps find new ways to reduce the amount of waste generated due to the limited space in landfills. It also focuses on reducing the amount of contaminated water and debris that flows through the stormdrain system each day, while also prioritizing water capture and conservation due to previous historic droughts.

Los Angeles County Public Works

Los Angeles County Public Works is committed to providing public infrastructure and municipal services to protect and enrich the lives of over ten million people in Los Angeles County. It 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 supports our communities towards a healthy, waste-free future. It provides sustainable water supplies and healthy watersheds while reducing flood risk for our communities.

ENVIRONMENTAL SERVICE LEARNING

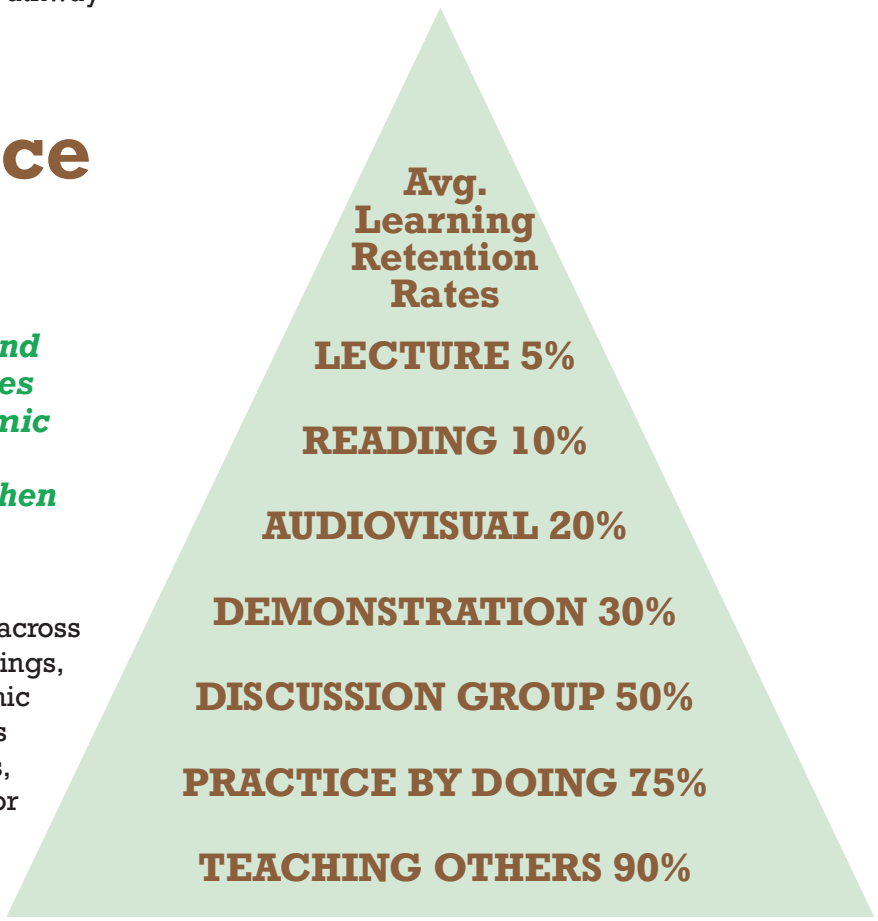
In This Section

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

What is 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 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.



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

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.

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.

Seven Elements of Service Learning

1

INTEGRATED LEARNING AND INSTRUCTION
The project is tied to the curriculum and applies academic content to real-world experiences.

2

SERVICE TO THE COMMUNITY
Place-based action serves and meets the needs of the community that the student is a part of.

3

STUDENT VOICE
Participation is driven by students. They are stakeholders and partners in the entire process — from identifying a community need to selecting, planning, executing and reflecting on a project.

4

COLLABORATION
Involvement includes other stakeholders in planning and implementation; bringing communities together to benefit from the project.

5

CIVIC RESPONSIBILITY
The project demonstrates that the students impact their community.

6

REFLECTION AND EVALUATION
Reflection allows students to reconstruct understanding 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)

Break the project into four stages. These stages structure the learning and guide facilitators in choosing which activities to provide for students.

The Four Stages of Service Learning

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

Each stage works together and is 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.

For additional support, follow the Ten Step Service Learning Pathway guidelines on the next page and the visual representation with example activities on page 7.

Generation Earth Ten Step Service Learning Pathway

EDUCATION PREPARATION

1 **Join a Generation Earth Workshop**
Learn about using environmental service learning with students.

2 **Connect with Generation Earth Staff**
Generation Earth staff is assigned to each project to offer personal guidance and support.

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 the project.

5 **Explore the Community**
Use Media, Interviews, Surveys and Observations (MISO) to frame research activities to explore the community.

STAGE 2: PREPARATION AND PLANNING

6 **Dive Deeper**
Revisit research tools to focus on learning more about a particular issue students found interesting.

7 **Learn from Others**
Take a field trip, invite a classroom speaker or attend a workshop to learn more and gain skills.

8 **Plan**
Identify roles and responsibilities, next-steps, necessary supplies, permissions and any other needs you have to make the project happen.

STAGE 3: ACTION

9 **Do the Project!**
Use the Generation Earth Pre-Project Survey to see what students are already doing and how much they learned after the project.

STAGE 4: REFLECTION AND DEMONSTRATION

10 **Post-Project Survey**
Take a second survey to see how much students have learned. Completed post-surveys will help Generation Earth see how much your students 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"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

STAGE 1: INVESTIGATION

Students will conduct a close-study of the community to identify a larger issue that will be explored deeply in the next stage and lead to a project.

If an issue has already been identified, move on to stage 2.

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

State-wide Support of Environmental Education

The state of California supports environmental education through the Education and the Environment Initiative (EEI), Next Generation Science Standards (NGSS) and the new Assembly Bill 285 (AB 285). All of these are provided through Generation Earth's program and materials.

EEI

In October 2003, EEI was signed into law, providing a framework for bringing environment-based education to students across California. EEI uses Environmental Principles to examine the interactions and interdependence of human societies and natural systems through the lens of California's environment.

AB 285

AB 285 is a measure to support climate change education in California public schools. The bill requires grades 1-12 to emphasize the causes and effects of climate change and methods to mitigate and adapt to its effects.

NGSS

NGSS was developed to create a set of research-based, up-to-date science standards that give educators the flexibility to design classroom learning experiences that stimulate students' interests in science.

EEI Environmental Principles

1. People depend on natural systems
2. People influence natural systems
3. Natural systems change in ways that people benefit from and can influence
4. There are no permanent or impermeable boundaries that prevent matter from flowing between systems
5. Decisions affecting resources and natural systems are complex and involve many factors

Investigate with MISO

Media, Interview, Survey, Observation (MISO) 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.

Media

Media includes 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.

Interview

Interview others in the community, including other students, teachers, family members, or representatives from local non-profits and governments. Students might develop their own questions to guide the conversation or use questions from a Toolkit (example on page 10). Have students call or e-mail ahead to arrange a time.

Surveys

Have students create a survey and ask others to complete it or use a Generation Earth audit from a Toolkit (example on page 11).

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.

MISO Resources

- **The Complete Guide to Service Learning** by Catheryn Berger Kay, Free Spirit Publishing
- **iSPeaks On Research. With Catheryn Berger Kay** (Pod Cast) podcasters.spotify.com/pod/show/isp-comms/episodes/iSPEaks-V---On-Research--With-Cathryn-Berger-Kaye-edmadd?fbclid=IwAR3k3WK6xN8hVZhILyqUQO0prOd8KpTn_5eaXonDQ56U9CX1Z7-A5UvRZ3g
- **MISO, What is it?** Corning Painted Post Area School District cpphspersonalproject.weebly.com/research.html

Generation Earth Interview Question Sample

From Generation Earth's
Waste Reduction and Recycling Project Toolkit

Sample Questions

PRINCIPAL

- Has there previously been a recycling program on campus? If so, what were the successes and failures?
- Which company or companies currently haul campus waste?
- Do they offer recycling services?
- If no, are there community partners who can help establish a recycling program?
- What recycling program would you like to see on campus?
- Would you consider launching or improving a campus recycling program?

LOCAL/CITY RECYCLING COORDINATOR

- Are there currently any programs in place or local partners to support or increase school recycling?
- Are there any available resources like incentives, speakers, partners, free bins or signs to help schools increase recycling?

WASTE HAULER CONTRACT MANAGER

- Are the waste and recycling materials you collect separated at your facility?
- Do recyclables need to be in a separate dumpster/bin for collection?
- What materials can be recycled?
  - Beverage cartons
  - Styrofoam
  - Paper trays with food residue
  - Plastic bags
  - Plastic forks
  - Napkins
  - Juice boxes
  - Plastic bags
  - Ziplocs
- What percentage contamination rate of non-recyclable materials in the recycling bin is too high to accept for recycling?

Get More Information!
Students get more information by interviewing key site stakeholders. Stakeholders are people who may affect or be affected by a recycling program.

Generation Earth Campus Water Audit Sample

From Generation Earth's
Water Pollution Prevention Project Toolkit

WATER AUDIT

Once students have explored the subject of water pollution prevention and conservation, it is time to assess what is happening on their campus. Conducting a water audit of their site will help determine the most appropriate water related project.

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 identify any areas of concern.

Procedure

1. Plan to work in groups when mapping and auditing the site.
2. Create a map using one of the following:
   - An existing map and remove any unnecessary information.
   - Online map of the site
   - Hand-made map using a large sheet of paper.
3. Make sure each group has a map, Water Audit Guidelines, 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 identify any areas of concern.
5. Familiarize students with the areas they are observing and demonstrate how to gather the data.
6. In the classroom, instruct groups to report findings.
7. Create a combined map of all findings representing the site as a whole.

Materials

- Water Audit Guidelines (page 10)
- Colored Pencils/Markers (red, blue, green, purple, black) - one per group
- Maps of the site

Helpful Hints

Break the site maps into different parts of the campus for each group.

If possible, plan to conduct the audit during a rainy day, to see where water travels or suggest using buckets of water to see and understand the flow of water across the site.

Where is the Water?

The Water Audit has students identify where the water comes from and where the water goes on campus!

Generation Earth Campus Waste Audit Sample

From Generation Earth's
Waste Reduction and Recycling Project Toolkit

Track the Trash!
The Waste Audit has students identify what kind of waste is being generated on campus, how much and where it's going.

Waste Audit Tally Sheet

Name(s) **Date**

Location

1. Put on gloves before checking trash cans.
2. Under each column, keep a tally of each item that is found. Place additional items under "other."
   - Items marked with * indicate that these items may or may not be recycled with your waste hauler.
3. Take note:
   - Are garbage cans contaminated with recyclables?
   - Are recycling bins/dumpsters contaminated with garbage?
   - Is any paper contaminated with liquid or food?

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		

STAGE 2: PREPARATION AND PLANNING

This stage will help students practice their execution plan by collecting data and materials.

In This Section

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

Generation Earth Check This Out Sample

The two Generation Earth 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 infographics are created 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.

Here is a sample Check This Out from the Waste Reduction and Recycling Toolkit and a sample topic sheet on the following page.

Check this Out

To get started, 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 that they share with the class.

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 larger group.
5. As a class, discuss the need for waste reduction, at home and in the community.

Materials

- Topic Sheets (pages 4 - 9)
- Poster paper or dry erase board —one per group
- Markers—one set per group

High School Option

Guiding questions are provided for each Topic Sheet. These can be optional for use in creating the infographic.

Invite teams to explore their subject further by answering questions they may still have or that came up while sharing the infographics.

Sample topic sheet from Generation Earth's Waste Reduction and Recycling Project Toolkit's Check This Out activity

Piles of Paper

START HERE!

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 to be processed into lumber. The wood waste is sent on to paper mills where it is manufactured into lunch bags, notebooks, paper, magazines, napkins, towels, etc.
- Making paper from raw materials (trees) requires large amounts of water and energy. Paper manufacturing uses more water per ton than any other product in the world and is the third largest industrial consumer of energy.[7]
- The average American uses seven trees and 680 pounds of paper per year.[8] Paper and paperboard make up 23.05 percent of waste generated.[9]
- 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 74% less air pollution and 75% less energy is used.[10]
- To reduce the amount of paper going to landfills, find sustainable alternatives such as using a reusable canvas bag, cloth napkins, purchasing post-consumer products, buying items in bulk to reduce packaging waste or collect paper products for recycling.

Field Trips and Speakers

Field trips and classroom speakers are ways for students to learn more about an issue or skill they might need for the project. Generation Earth offers a complimentary 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. 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. Feel free to ask Generation Earth staff for ideas!

Get a free bus!

- Submit your students' pre-project surveys to Generation Earth.
- Complete a Generation Earth Transportation Request Form.
- Submit your students' 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?*

  Five 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 one month before your field trip.
- *What is your cancellation policy?*

  Contact us no later than 1 week 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 step outlined on the next page. Students will add their answers and ideas onto the poster paper.
   - Environmental Issue
   - Project Idea
   - Project Goal
   - Human Resources
   - Supplies and Materials
   - Time-line
   - The Bigger Picture
4. Have groups present their ideas to the class.

Materials

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

Wrap Up

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

Idea Mapping Steps

1

IDENTIFY THE ENVIRONMENTAL ISSUE

Record the environmental issue you will address on your campus or in your community.
Think about parks, rivers or beaches near your school. Do you notice a lot of trash on the ground? Does your school recycle? Does the area flood when it rains?

2

PROJECT IDEA

Record what actions you could take to address the issue.
What types of actions will help make the problem better?

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 ten trees, or mulch sixteen 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

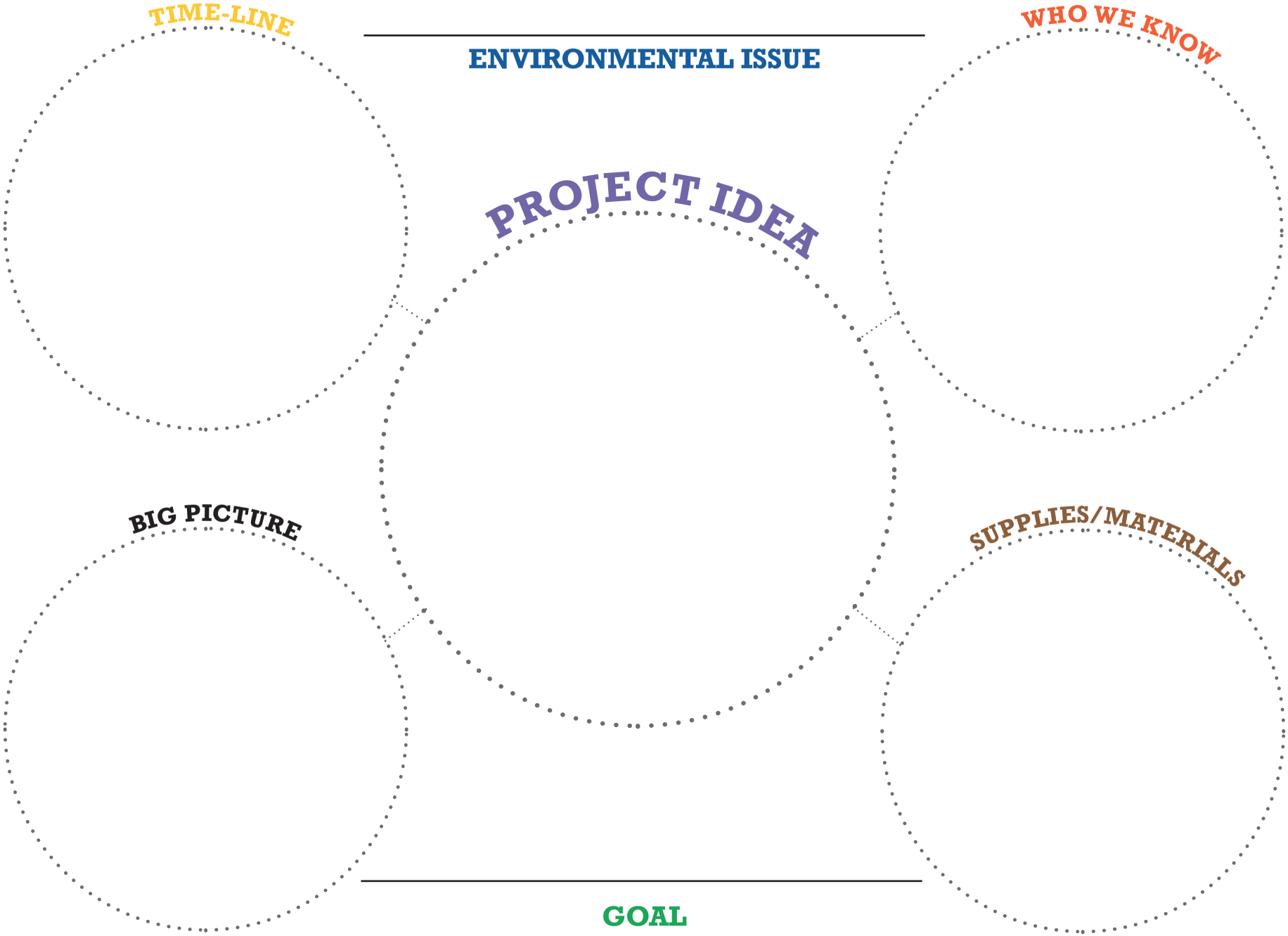
TIMELINE

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

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. 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

Environmental Service Learning Projects

Direct Service

A project that directly impacts and involves its recipients.

Examples include:

- Teach other students how to recycle during classroom presentations or assemblies.
- Hold workshops for the community.
- 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.

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.
- Clean up a local beach, river, park, or work with a local organization to support restoration work.

Important!

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

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 with sustainability 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.

Action 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.
- 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?

Toolkits and Project Guides

To support moving projects through to action, start with a Toolkit and then select one of the Project Guides. 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 infographic.

Site Assessment or Audit

Students map or monitor a site to identify environmental issues.

Get More Information

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 and 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.

TOOLKITS

- **Water 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.

PROJECT GUIDES

- **Water Pollution and Prevention Education Campaign**
- **Waste Reduction and Recycling Education Campaign**
- **Community Swap**
- **E-Waste Collection**
- **Textile Recycling**
- **Food Rescue**
- **Composting**
- **Campus Community Cleanup**
- **Campus Curbside Recycling**

STAGE 4: REFLECTION AND 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 and Demonstration

Why Reflect and Demonstrate?

Reflection helps the experience to 'sink in' and deepens understanding. Demonstration helps students synthesize their learning by sharing it with others. These practices 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. Compare and contrast entries to show 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.
- **Generation Earth Pre- and Post-Project Surveys** The surveys track learning and is a great way to show how much they have learned during the project. See page 23.
- **Revisit the Idea Map**

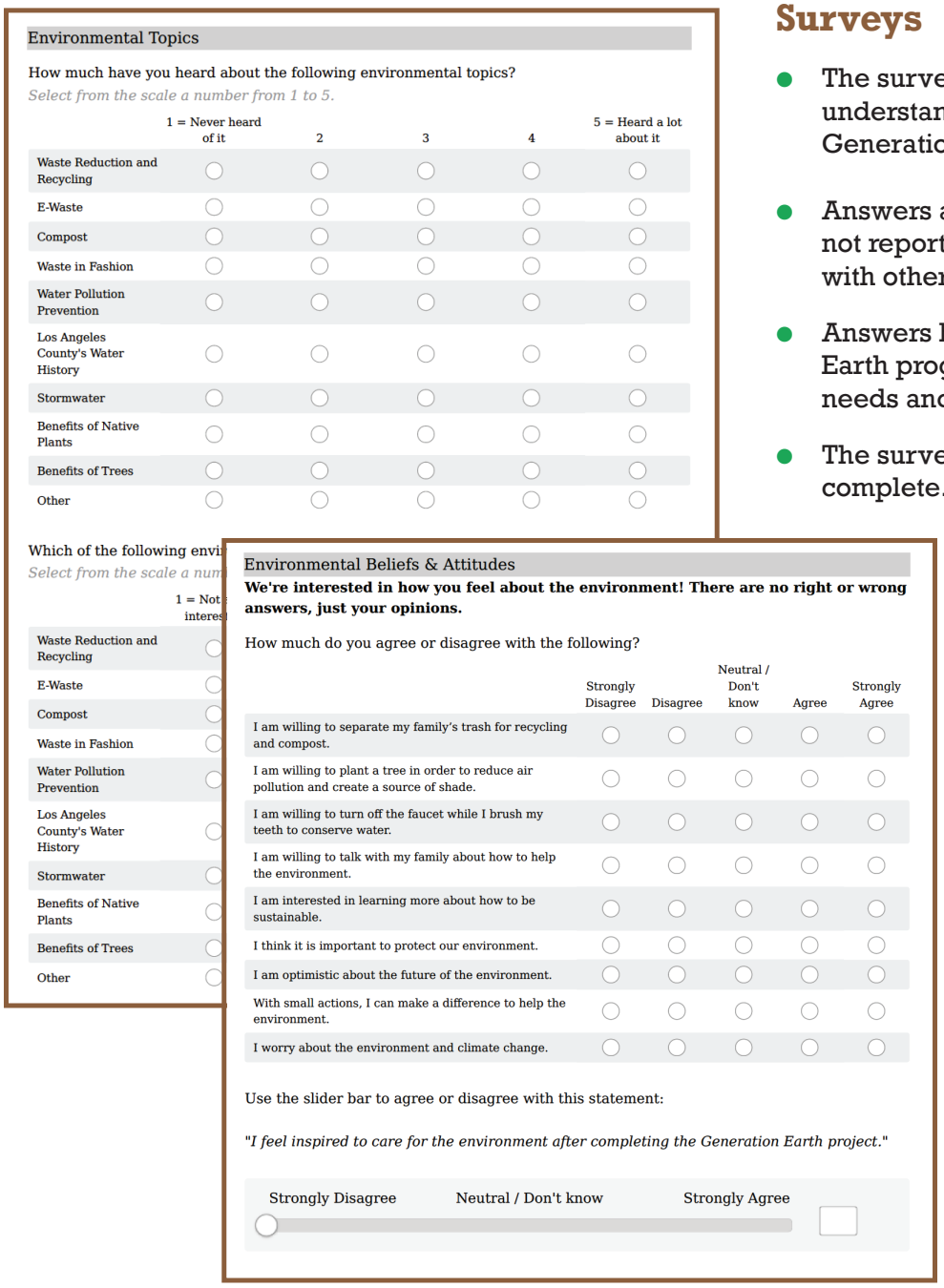
  Review the Idea Map at the beginning and end of each classroom or group session, and at the end of a project to prompt a discussion about what students' learned.

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-Project and Post-Project Surveys

Pre-project and post-project surveys are a great way for students to see their own progress. 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.



Environmental Topics

How much have you heard about the following environmental topics?

Select from the scale a number from 1 to 5.

	1 = Never heard of it	2	3	4	5 = Heard a lot about it
Waste Reduction and Recycling	○	○	○	○	○
E-Waste	○	○	○	○	○
Compost	○	○	○	○	○
Waste in Fashion	○	○	○	○	○
Water Pollution Prevention	○	○	○	○	○
Los Angeles County's Water History	○	○	○	○	○
Stormwater	○	○	○	○	○
Benefits of Native Plants	○	○	○	○	○
Benefits of Trees	○	○	○	○	○
Other	○	○	○	○	○

Which of the following envi

Select from the scale a num

	1 = Not interes
Waste Reduction and Recycling	○
E-Waste	○
Compost	○
Waste in Fashion	○
Water Pollution Prevention	○
Los Angeles County's Water History	○
Stormwater	○
Benefits of Native Plants	○
Benefits of Trees	○
Other	○

Environmental Beliefs & Attitudes

We're interested in how you feel about the environment! There are no right or wrong answers, just your opinions.

How much do you agree or disagree with the following?

	Strongly Disagree	Disagree	Neutral / Don't know	Agree	Strongly Agree
I am willing to separate my family's trash for recycling and compost.	○	○	○	○	○
I am willing to plant a tree in order to reduce air pollution and create a source of shade.	○	○	○	○	○
I am willing to turn off the faucet while I brush my teeth to conserve water.	○	○	○	○	○
I am willing to talk with my family about how to help the environment.	○	○	○	○	○
I am interested in learning more about how to be sustainable.	○	○	○	○	○
I think it is important to protect our environment.	○	○	○	○	○
I am optimistic about the future of the environment.	○	○	○	○	○
With small actions, I can make a difference to help the environment.	○	○	○	○	○
I worry about the environment and climate change.	○	○	○	○	○

Use the slider bar to agree or disagree with this statement:

"I feel inspired to care for the environment after completing the Generation Earth project."

Strongly Disagree — Neutral / Don't know — Strongly Agree

Surveys

- The survey is used to help us better understand a student's experience with Generation Earth.
- Answers are confidential. Names are not reported and answers are grouped with other students.
- Answers help improve the Generation Earth program to better meet teacher needs and improve student outcomes.
- The survey takes about 5 minutes to complete.

Sample Questions

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

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COUNTY OF LOS ANGELES CALIFORNIA

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