

AP[®] Environmental Science

LOSS OF BIODIVERSITY

Teaching Module



AP[®] with WE Service

College Board

College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success—including the SAT® and the Advanced Placement® Program. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools. For further information, visit collegeboard.org.

AP® Equity and Access Policy Statement

College Board strongly encourages educators to make equitable access a guiding principle for their AP programs by giving all willing and academically prepared students the opportunity to participate in AP. We encourage the elimination of barriers that restrict access to AP® for students from ethnic, racial, and socioeconomic groups that have been traditionally underrepresented. Schools should make every effort to ensure their AP classes reflect the diversity of their student population. College Board also believes that all students should have access to academically challenging coursework before they enroll in AP classes, which can prepare them for AP success. It is only through a commitment to equitable preparation and access that true equity and excellence can be achieved.

WE

WE is a movement that empowers people to change the world through a charitable foundation and a social enterprise. Our service learning program, WE Schools, supports teachers' efforts to help students become compassionate leaders and active citizens, empowering them to take action on the issues that matter most to them. Currently partnered with 18,400 schools and groups, and backed by a movement of 5.3 million youth, we are engaging a new generation of service leaders and providing resources for a growing network of educators.

Our free and comprehensive library of lesson plans is designed to be adapted to meet the needs of any partner school, regardless of students' grades, socioeconomic backgrounds, or learning challenges. Skills development through the program also increases academic engagement and improves college and workplace readiness. Third-party impact studies show that alumni of the program are more likely to vote, volunteer, and be socially engaged. Learn more at [WE.org](https://we.org).

About the Partnership

College Board and WE share a passion for enriching students' learning experiences and developing well-rounded citizens. By combining the academic challenge and rigor of AP® with WE's Learning Framework, AP® with WE Service creates an opportunity for students to consider their classroom work and how it applies to real-world issues, while working closely with their peers to address relevant needs in their local and global communities.

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AP[®]

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Using This Module

AP[®] with WE Service provides a collection of resources to support your planning and implementation of the program. This teaching module, Loss of Biodiversity, is one of two sample lesson guides for AP[®] Environmental Science. As you read through this module, refer to the AP[®] with WE Service Program Guide for additional activities that will support your students' learning throughout the program.

Program Guide

The AP[®] with WE Service Program Guide contains a robust collection of service oriented activities and resources that support the WE Learning Framework. Use these case studies, news articles, and student activities to supplement and strengthen your students' understanding and application of core service learning skills.

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>

WE Resources

WE offers a library of resources to support you in delivering content on social topics and issues, as well as the tools and the inspiration for your students to take social action, empower others, and transform lives—including their own. Access our resources at [WE.org/weschoolsresources](https://we.org/weschoolsresources). An AP[®] with WE Service Program Manager will support you in planning your instruction with access to the resources that are the right fit for you. Digital Social Issues Sessions will connect your students with a motivational speaker or facilitator to deliver an online workshop on global and local issues and topics. Speakers and facilitators can also be booked for school-wide speeches and smaller group or class workshops on site. Full-day Youth Summits provide immersive issues education and action planning opportunities for students. Throughout the module, you will also see tables of optional activities and resources you can pull into your instruction.

Digital Portfolio

Report your students' performance through the AP[®] with WE Service digital portfolio. Step-by-step directions for using the digital portfolio are available on the program website: collegeboard.org/apwe-resources.

How-To Videos

Also available on the program website are how-to videos that explain what AP[®] with WE Service is all about, as well as the steps you need to take to get it going in your class: collegeboard.org/apwe-videos.

Module Sections

THE PLAN SECTION contains information to help you decide how and when you will fit this module into your AP[®] curriculum.

PART 1: INVESTIGATE AND LEARN defines and explores the module topic at local and global levels, and within the context of your AP[®] course curriculum. This will be the majority of your required in-class instruction hours and it is where your students will start to make connections between your AP[®] course content and the module topic.

PART 2: ACTION PLAN guides students as they form teams and begin developing their plan for achieving one local and one global action.

PART 3: TAKE ACTION is where students put their plans into action. As they work, they should keep track of what they do and collect artifacts that capture their efforts. During this part, you may need to guide students as they encounter obstacles or help them maintain their motivation.

PART 4: REPORT AND CELEBRATE describes how students can showcase their projects and share their accomplishments. Presentations and celebrations may be in your class or in the community.

PLAN

TEACH: PART 1

TEACH: PART 2

TEACH: PART 3

TEACH: PART 4

Teaching Module

Loss of Biodiversity

“Cultivating and conserving diversity is no luxury in our times. It is a survival imperative.”

—VANDANA SHIVA, INDIAN SCHOLAR, AUTHOR, AND ACTIVIST



Getting to Know the Topic

Loss of Biodiversity: Globally

Research shows that human activity can lead to rising overall global temperatures, causing sea levels to rise, glaciers to melt, and creating frequent and extreme weather events like hurricanes, floods, and tsunamis. Changing climate affects the air we breathe, the safety of drinking water, food production, shelter for the more than half of the world's population that lives within 37 miles of the sea or ocean, and loss of biodiversity. Further human actions, such as deforestation, deep-ocean fishing, overharvesting of plant and animal species, as well as war and conflicts, also contribute to biodiversity loss.

Fast facts

- ▶ By 2025, half of the world's population will be living in water-stressed areas.
- ▶ 17 of the 18 warmest years on record have occurred since 2001.
- ▶ Populations of freshwater species have declined by 81% between 1970 and 2012.

Taking Action Globally

There are a number of ways that students can take action in their own school and community to help developing communities around the world restore their natural resources or become more resilient to climate change. Some ideas include:

- ▶ Volunteer at an organization that works for global issues—many organizations offer ways to get involved on their websites and in their offices
- ▶ Collect supplies (in consultation with the organization) or raise funds for an organization that will share the outcomes of the donations
- ▶ Create a campaign writing letters to the United Nations, government bodies, and other leaders to ask for added resources on the issue

Another option is to support and fundraise for the WE Villages program and help provide communities with the resources to become sustainable. Students can support this program by visiting [WE.org/we-schools/program/campaigns](https://www.we.org/we-schools/program/campaigns) to get ideas and resources for taking action.



8 million tons of plastics leak into the ocean each year. That's the same as one garbage truck every single minute.

Getting to Know the Topic

Loss of Biodiversity: Locally

Our everyday choices can have an environmental impact. The average American residence uses over 100,000 gallons of water a year, and in 2013, 254 million tons of trash was discarded in landfills or through other disposal methods. In addition, species are dying off at a rate 1,000 to 10,000 times higher than the natural extinction rate—mostly due to pollution, overexploitation, and deforestation. Reducing our use of natural resources by recycling, conserving water and energy, and reducing fuel consumption can directly impact our future and the future of our planet.

Fast facts

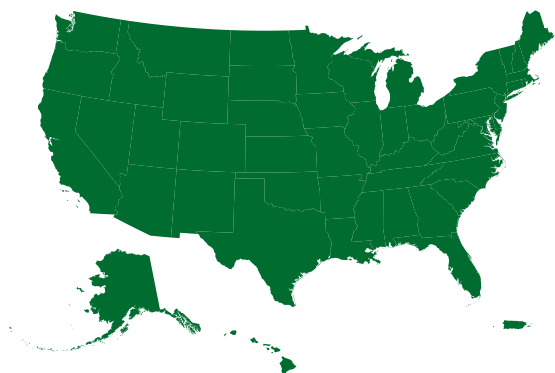
- ▶ Approximately 24 million U.S. homes are powered by wind energy.
- ▶ More than 125 million people in the U.S. live in counties where there are unhealthy levels of air pollution, including ozone and particle pollution.
- ▶ Temperatures in the Southwest have increased by almost two degrees Fahrenheit in the last century.

Taking Action Locally

Within their local or national community, students can:

- ▶ Work with a local organization working on environmental preservation issues
- ▶ Organize a clean-up or restoration project at a local environmental site
- ▶ Create and deliver an educational workshop to raise awareness about the topic and its local impact with a strong call to action that leads to enacting change

With both their global and local actions, encourage students to be creative with the ideas they develop through their action plans.



Americans produce 4.4 pounds of trash every day—that's more than 700,000 tons of garbage daily.

Taking Action

Global and Local Service Projects

WE Villages

For more than two decades, WE Villages has been engineering an international development model to end poverty. It works. It's proven. It's scalable. We partner with developing communities around the world and collaborate on projects and programs that equip families with the tools they need to break the cycle of poverty through our five Pillars of Impact: Education, Water, Health, Food, and Opportunity. These pillars address the five primary causes of poverty with holistic and sustainable solutions that work in tandem to transform communities.

Why Take Action on the Environment?

Developing communities are often the first to be affected by climate change and environmental upheaval. Many are located in arid regions where drought is already a common occurrence and local economies are frequently based on agriculture. When water supplies run out due to unpredictable weather patterns or desertification, families go hungry and livelihoods collapse, and there are few other natural resources to depend on to rebuild.

Global and Local Service Projects

As students develop their service projects with one local and one global action in their plan (some projects can be local and global), they will look to local and global organizations and initiatives for their research and even as potential beneficiaries for their service

actions. When selecting an organization—whether local or global—it is important for students to consider its credibility. Students may choose to partner with:

- ▶ Charitable or non-profit organizations
- ▶ State, national, or governmental departments or organizations (which may not be a traditional charity)
- ▶ Social enterprises

A combination of the above

When students develop service projects to support environmental initiatives, they are not just picking up litter or preserving nature. They are claiming responsibility for the shared impact we have on the environment and setting a precedent for a more sustainable world.

Five Pillars of Impact



Education



Water



Health



Food
Security



Opportunity

Planning Your Instruction

Loss of Biodiversity

Purpose

Students will define biodiversity at various levels (macroscopic to microscopic, local to global) and identify the criteria by which biodiversity loss or gain is measured. Through a series of calculations and estimations, students will connect their understanding of the importance of addressing the issue of biodiversity loss with the larger economic benefits and global value of preserving biodiversity. Students will connect the AP[®] Environmental Science course content and terminology associated with preservation and sustainability measures through a review of global and local issues associated with biodiversity loss and the organizational strategies to preserve biodiversity. Students (in groups) will develop and implement their own solution(s) to this global and local issue after analyzing and evaluating several case studies of organizational efforts to preserve biodiversity.

Ensure students are collecting evidence of their work as they go along. The following list includes pieces of work you may want to collect throughout the year:

- ▶ Photos
- ▶ Interviews
- ▶ Scripts
- ▶ Screenshots
- ▶ Posters
- ▶ Maps
- ▶ Reflections
- ▶ Thank you notes

Overview

As presented in the Introduction, this teaching module contains four parts. These are also the four rubric topics you will assess your students on in the digital portfolio:

Part 1: Investigate and Learn: Explore biodiversity levels and investigate the causes and effects of biodiversity loss. These lessons also relate to a variety of service learning concepts, such as the necessity of research to understanding a topic and its effects and the ways that a topic is connected between local and global levels.

Part 2: Action Plan: Guide students as they form teams, develop their action plans, and reflect on their ideas.

Part 3: Take Action: Provide students with suggestions for how to navigate obstacles, overcome conflicts, record actions, and reflect on their work.

Part 4: Report and Celebrate: Support students as they create portfolios, celebrate their actions, and complete a final reflection on their experiences.

Throughout Parts 1–4, activities that are required for the Recognition Rubric are labeled with an icon (see Icon Legend on page 16). Optional activities that will help students design and complete their service projects, but are not required by the program, are listed in tables throughout each part. These optional activities are available in the AP[®] with WE Service Program Guide or on the WE website, as indicated in the tables.

Goals

Based on the 2019–20 AP® Environmental Science Course and Exam Description, these are the curriculum components addressed in these lessons:

AP® ENVIRONMENTAL SCIENCE CONCEPTS	
Science Practices	<ul style="list-style-type: none"> • 1.A: Describe environmental concepts and processes. • 1.B: Explain environmental concepts and processes. • 2.A: Describe characteristics of an environmental concept, process, or model represented visually. • 2.B: Explain relationships between different characteristics of environmental concepts, processes, or models represented visually: (a) In theoretical contexts (b) In applied contexts. • 2.C: Explain how environmental concepts and processes represented visually relate to broader environmental issues. • 3.A: Identify the author’s claim. • 3.B: Describe the author’s perspective and assumptions. • 3.C: Describe the author’s reasoning (use of evidence to support a claim). • 3.D: Evaluate the credibility of a source: (a) Recognize bias (b) Scientific accuracy. • 6.A: Determine an approach or method aligned with the problem to be solved. • 6.B: Apply appropriate mathematical relationships to solve a problem, with work shown. • 6.C: Calculate an accurate numeric answer with appropriate units. • 7.A: Describe environmental problems. • 7.B: Describe potential responses or approaches to environmental problems. • 7.C: Describe disadvantages, advantages, or unintended consequences for potential solutions. • 7.D: Use data and evidence to support a potential solution. • 7.E: Make a claim that proposes a solution to an environmental problem in an applied context. • 7.F: Justify a proposed solution, by explaining potential advantages.
Big Ideas	<ul style="list-style-type: none"> • Big Idea 2: Interactions Between Earth Systems • Big Idea 3: Interactions Between Different Species and the Environment.
Enduring Understandings	<ul style="list-style-type: none"> • ERT-2: Ecosystems have structure and diversity that change over time. • EIN-4: The health of a species is closely tied to its ecosystem, and minor environmental changes can have a large impact.
Learning Objectives	<ul style="list-style-type: none"> • ERT-2.A: Explain levels of biodiversity and their importance to ecosystems. • ERT-2.B: Describe ecosystem services. • ERT-2.C: Describe the results of human disruptions to ecosystem services. • EIN-4.C: Explain how human activities affect biodiversity and strategies to combat the problem.

AP[®] ENVIRONMENTAL SCIENCE CONCEPTS

ESSENTIAL KNOWLEDGE

- ERT-2.A.1: Biodiversity in an ecosystem includes genetic, species, and habitat diversity.
- ERT-2.A.2: The more genetically diverse a population is, the better it can respond to environmental stressors. Additionally, a population bottleneck can lead to a loss of genetic diversity.
- ERT-2.A.3: Ecosystems that have a larger number of species are more likely to recover from disruptions.
- ERT-2.A.4: Loss of habitat leads to a loss of specialist species, followed by a loss of generalist species. It also leads to reduced numbers of species that have large territorial requirements.
- ERT-2.A.5: Species richness refers to the number of different species found in an ecosystem
- ERT-2.B.1: There are four categories of ecosystem services: provisioning, regulating, cultural, and supporting.
- ERT-2.C.1: Anthropogenic activities can disrupt ecosystem services, potentially resulting in economic and ecological consequences.
- EIN-4.C.1: HIPPCO (habitat destruction, invasive species, population growth, pollution, climate change, and over exploitation) describes the main factors leading to a decrease in biodiversity.
- EIN-4.C.2: Habitat fragmentation occurs when large habitats are broken into smaller, isolated areas. Causes of habitat fragmentation include the construction of roads and pipelines, clearing for agriculture or development, and logging.
- EIN-4.C.3: The scale of habitat fragmentation that has an adverse effect on the inhabitants of a given ecosystem will vary from species to species within that ecosystem.
- EIN-4.C.4: Global climate change can cause habitat loss via changes in temperature, precipitation, and sea level rise.
- EIN-4.C.5: Some organisms have been somewhat or completely domesticated and are now managed for economic returns, such as honeybee colonies and domestic livestock. This domestication can have a negative impact on the biodiversity of that organism.
- EIN-4.C.6: Some ways humans can mitigate the impact of loss of biodiversity include creating protected areas, use of habitat corridors, promoting sustainable land use practices, and restoring lost habitats.

Connections to AP[®] Environmental Science Focus Areas

Some content from the AP[®] Environmental Science Course and Exam Description is identified as more challenging for students based on AP[®] Chief Reader commentary from previous AP[®] Environmental Science Exams. This content is referred to as a focus area. Activities that address the following focus areas are highlighted throughout the module.

- ▶ Identify and describe different levels of biodiversity—ecosystem, species, and genetic
- ▶ Relate the cause of biodiversity loss with a practical solution
- ▶ Use discipline-specific language; Words such as “pollution,” “biodiversity,” and “habitat” are insufficient and need further qualification
- ▶ Perform calculations and work with data

WE Service Concepts

Based on the WE Learning Framework, here are the particular WE Service concepts addressed in this module.

STUDENTS WILL UNDERSTAND THAT...	STUDENTS WILL BE SKILLED AT...	STUDENTS WILL KNOW THAT...
<ul style="list-style-type: none"> • Social issues are complex, and, therefore, research is essential to understanding them • Oftentimes, local and global issues can be interconnected • Understanding the role of cultural, social, and economic factors is vital to the development of solutions • People have a civic identity, which provides opportunities for public action • Serving the greater community can be meaningful for the individual and the community • Creating social change happens through a set of skills, including creating action plans • Carrying out an action plan requires personal and group resilience • Individual behavior and decisions toward a social issue impact the larger global context of that issue 	<ul style="list-style-type: none"> • Working collaboratively in teams • Working collaboratively with community partners (where applicable) • Researching an identified social issue on local and global levels • Creating an action plan • Successfully implementing an action plan • Educating others (classmates, community partners, school, etc.) about a social issue • Presenting actions and results to wider audiences • Applying critical thinking • Thinking entrepreneurially • Demonstrating leadership • Reflecting on learning about the social issue • Reflecting on working to create social change 	<ul style="list-style-type: none"> • AP® course content is relevant to addressing social issues and topics, and provides knowledge toward creating working solutions • There are organizations working for social change on the social issue • They have an important role to play as students, employees, volunteers, and as citizens to have a positive impact on their local and global community

See full WE Learning Framework and details at [WE.org/we-schools/program/learning-framework](https://we.org/we-schools/program/learning-framework).

Icon Legend

As described in the AP[®] with WE Service Program Guide, the WE Learning Framework identifies the most relevant core skills students will develop as they progress through this module.



ARGUMENT
FORMATION



INFORMATION
LITERACY



LEADERSHIP
SKILLS



ORGANIZATION



ACTION
PLANNING



RESEARCH AND
WRITING



CRITICAL
THINKING



REFLECTION

Throughout each part of this module, look for these additional icons to identify the following opportunities and notes:



Teacher Tip:

Suggestions for ways to implement or modify the activities with students.



Focus Area Alert:

Opportunities for students to practice content and skills that are pivotal for improving student performance in the AP[®] course and on the AP[®] Exam (see page 15 for a description of the AP[®] Chemistry focus areas addressed in this module).



Check for Understanding:

Recommendations for ways to formatively assess student progress and mastery of the content and skills practiced in the activities.

Pay particular attention to activities labeled with the red checkmark icon:



Recognition Checkmark:

Identifies activities that are required in the Recognition Rubric. We encourage you to use the most effective instructional approaches to meet your students' needs. You may use alternative activities if they achieve the same outcomes as the required activities and align with the Recognition Rubric. Review the rubric here: <https://apcentral.collegeboard.org/pdf/apwe-recognition-rubric.pdf>

Part 1: Investigate and Learn

Investigate and Learn is divided into the following lessons:

- ▶ Lesson 1: Local and Global Biodiversity
- ▶ Lesson 2: Causes and Effects Associated with Biodiversity Loss
- ▶ Lesson 3: Future Concerns and Solutions

Every student in every AP with WE Service course will do the following as part of their learning and investigation:

- ▶ Learn about the issue locally and globally within your course context
- ▶ Explore causes and effects locally and globally
- ▶ Assess impacts for the future on the local community and the world

WE Service Framework

INVESTIGATE AND LEARN ▶ ACTION PLAN ▶ TAKE ACTION ▶ REPORT AND CELEBRATE

RECORD AND REFLECT

Overview for Part 1: Investigate and Learn

In this module, students will make connections between AP[®] Environmental Science course content at local and global levels, and discuss ideas about issues pertaining to biodiversity that they can use to design a service learning project using the remaining parts of this module. Encourage students to retain all of their AP[®] with WE Service work.

Key Takeaways

- ▶ Ecosystems have structure and diversity that change over time.
- ▶ When humans use natural resources, they alter natural systems.
- ▶ The health of a species is closely tied to its ecosystem, and minor environmental changes can have a large impact.
- ▶ Human activities, including the use of resources, have physical, chemical, and biological consequences for ecosystems.

ACTIVITY	PG #
LESSON 1: LOCAL AND GLOBAL BIODIVERSITY	
Activity: Defining Biodiversity	20
Activity: Putting a Price Tag on Nature	22
LESSON 2: CAUSES AND EFFECTS ASSOCIATED WITH BIODIVERSITY LOSS	
Activity: Looking at the Role of Humans	25
Activity: Problem Tree	26
LESSON 3: FUTURE CONCERNS AND SOLUTIONS	
Needs Assessment and Solution Tree	
Activity: Working Toward Solutions	
Activity: Researching Solutions	
REFLECT: INVESTIGATE AND LEARN	
Activity: Reflecting on Investigate and Learn	
Activity: Summarizing the Investigation	
Activity: Working Independently	

Lesson 1: Local and Global Biodiversity

Activity: Defining Biodiversity



Begin the activity by asking students the question “How would you define biodiversity?” Record possible answers on the board. Play the following video segment from the Howard Hughes Medical Institute: “Biodiversity in the Age of Humans,” from time 2:00–6:35: <http://media.hhmi.org/hl/14Lect2.html>.

Have the entire class revisit the concept of biodiversity and modify their definition. Ask students to respond to questions about content from the video:

- ▶ What is biodiversity and why is it important?
- ▶ What are the four levels of biodiversity?
- ▶ What level of diversity is often neglected?
- ▶ Using the variety of grizzly bears found in the Greater Yellowstone Ecosystem, explain the difference between species and population diversity.
- ▶ Why does Yellowstone National Park make a good model for explaining ecosystem biodiversity?

Now show the video segment “Scientists at Work: Liz Hadley Tracks the Impact of Climate Change in Yellowstone,” from time 0:00–7:25, which introduces the relationship between environmental change and biodiversity: www.hhmi.org/biointeractive/liz-hadly-tracks-impact-climate-change-yellowstone.

Then, ask the students to answer the questions below. Students should start to see how different species in an ecosystem are connected and that a decline in one species can have an impact on other species.

Describe the relationship between mountain pine beetles and grizzly bears.

What “global forces of change” are impacting the relationship you described in the previous question? What inference can you make about the role humans might play in this process?

Next, project a map that shows the decline in white bark pine. Go to the following link: www.nrdc.org/sites/default/files/lan_10072101a.pdf

Show students the 1999 map on page 12 then show them the 1999–2007 map on page 13 of the online pdf. Generate a class discussion about the maps and the relationship between the beetles, bears, and the trees.

Have students practice writing questions that demonstrate their understanding of what biodiversity is and the interrelationship among different species in an ecosystem. Model this for the class and then allow students to work in small groups for 10–15 minutes generating questions/identifying what additional information they would like to know. Circulate around the room giving students feedback and asking them to revise their question. Have each group post their responses and allow other groups to walk around and view other teams’ responses.

Next, have students generate research questions based on the map of change in high elevation white bark pine population over time. In groups or individually, students write questions on pieces of paper that the teacher collects.

The teacher presents several of the questions to the class. Students give constructive feedback, refine questions.

Questions should pertain to the connection between beetles, trees, and bears.

Students should be able to generate a testable hypothesis based on their research question. Students need to be able to write these questions and pose hypotheses as a precursor to generating questions for their service project.

**Focus Area Alert:**

By completing this activity, students will practice identifying and describing different levels of biodiversity.

Activity: Putting a Price Tag on Nature



For homework, assign students to read an article on ecosystem services and fill in Table 1, in the Student Workbook, with information from the article.

- ▶ Article: www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services

You can also assign the following article as homework—it is higher level but a great resource:

- ▶ Costanza, “The Value of the World’s Ecosystem Services and Natural Capital,” *Nature*, May 1997, www.biodiversity.ru/programs/ecoservices/library/common/doc/Costanza_1997.pdf

In class the following day, discuss Table 1 and check for understanding by calling on different students to explain the different types of ecosystem services.

In groups, have students brainstorm examples of local ecosystem services in their community, record their ideas in Table 2 in the Student Workbook and report out to the class. Be prepared to prompt them with examples if they are not coming up with any on their own. This activity presents an opportunity for students to start thinking about a local services project; it will make an excellent reference to get them thinking about areas of biodiversity in their community.

Read the following article about the economic value of ecosystem services:

www.biodiversity.ru/programs/ecoservices/library/common/doc/Costanza_1997.pdf

After students read the second article on the value of ecosystem services, lead a class discussion on the economic value of assessing ecosystem services.

Include the following topics:

- ▶ Externalities
- ▶ Full Cost Pricing

After reading the above article and the following background text on the value of forest ecosystems, perform calculation questions 1–3 on the next page.

Forest ecosystems are valuable for many reasons. They provide raw materials for food, fuel, and shelter. Harvesting of timber from forested land provides products of economic value. Forests also provide ecosystem services, such as climate regulation and nutrient cycling. The market price of forest products is often distorted because it does not take in to account the ecosystem services they provide. Protecting forest habitat ensures biodiversity of species that naturally control pests and provide pollination services on which commercial agriculture depends. If that biodiversity is lost, farmers would have to pay for these services. The decision to log a tract of forest land should balance the monetary gain from sale of forest goods against the loss of valuable ecosystem services.

Have students work in groups on the three math questions.



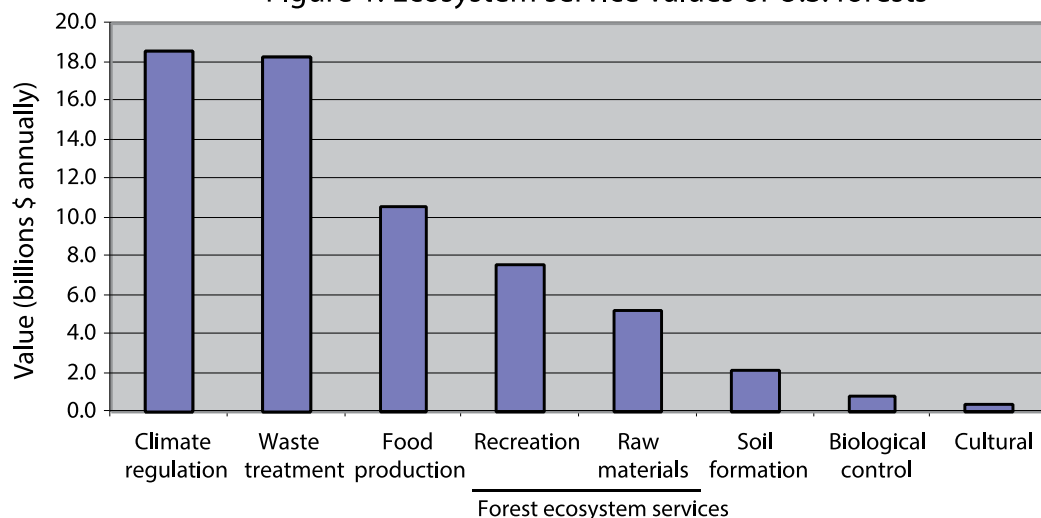
Focus Area Alert:

This activity provides students with practice using discipline-specific language and performing calculations using data. The concepts students apply and the calculations students perform in this activity should help them answer the free response question at the end of Part 1.



Have students use the Ecosystem Services—Putting a Price Tag on Nature worksheet, found in the Student Workbook, to complete this activity.

Figure 1. Ecosystem service values of U.S. forests



Source: <https://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/ForestEconomics/EcosystemServices.pdf>

- ▶ 1. According to the graph, what is the most valuable service provided by forests? What is the dollar value of this service?
- ▶ 2. It is estimated that the dollar value of pest control from natural species is approximately \$50 billion in the United States and total agricultural profit is an estimated \$350 billion. What percent of this profit is free and would need to be paid for if this ecosystem service was lost?
- ▶ 3. In the Southwestern United States, where air conditioning is used extensively, there is an estimated value of \$20/tree for cooling buildings. There are approximately 20 million acres of forested land in New Mexico and Arizona, and an average of 450 trees/acre. What is the value of the cooling provided by trees in the southwest?

Next, show the entire class the TED talk, “Pavan Sukhdev: Put a Value on Nature!” and be prepared to contribute to a class discussion that addresses the two questions. Video: www.youtube.com/watch?v=A-QpKiU-NHo

Discussion Questions:

- ▶ Pavan Sukhdev argues that there are economic benefits to preserving biodiversity. Explain this statement by giving an ecosystem service at the ecosystem, species, and genetic level.
- ▶ What is an economic application to preserving biodiversity?

This discussion will provide the contextual framework that students will use to evaluate solutions to loss of biodiversity on a global scale. You can assign this video as homework and then use the following class period as a flipped class to discuss and clear up misconceptions. The problems and solutions are complex and students must be able to extend their knowledge from a local to a global level, where economic constraints provide complex challenges. Students must be able to grapple with the magnitude of the dollar values on a large scale. After this part, students should be internalizing the idea of global outreach as it pertains to the issue of biodiversity.



Check for Understanding:

Administer the formative quiz, The Value of Biodiversity, on the following page. You can show the questions on PowerPoint slides, if available. Go over the answers and have students self-check.

Formative Quiz: The Value of Biodiversity

1. Which of the following would a biologist in Yellowstone National Park study to access the biodiversity of the park?

- ▶ I. DNA samples from individuals within the reintroduced wolf population.
- ▶ II. The differences between the grasslands, aspen stands, and pine forests.
- ▶ III. The number of different trout species living in Yellowstone River.

- a. I only
- b. II only
- c. I and II only
- d. I, II, and III

2. Which of the following describes a regulating ecosystem service?

- ▶ a. A farmer gets \$4.00 per bushel of corn.
- ▶ b. Ocean water stores carbon as carbonate ions.
- ▶ c. The beauty of the Hudson River Valley has inspired artists and writers.
- ▶ d. The pH of rainwater in the U.S. ranges from 5.6–5.8.

3. It has been estimated that it would cost \$7/acre to replace the pest-control services of birds in forests with chemical fertilizers. If there are 750 million acres of forested land in the United States, what is the value of preserving forest habitat for these species?

- ▶ a. \$107
- ▶ b. $\$1.07 \times 10^8$
- ▶ c. \$5250
- ▶ d. $\$5.25 \times 10^9$

4. Which of the following describes the food web relationship between grizzly bears, red squirrels, and white bark pine trees in Yellowstone National Park?

- ▶ a. Red squirrels bury pine cones that the grizzly bears dig up and eat for their high nutrient content.
- ▶ b. Mountain pine beetles carry a virus that is transmitted to red squirrels and then to grizzly bears.
- ▶ c. Grizzly bears climb the pine trees to eat the pine cones and frighten the red squirrels from their nesting sites.
- ▶ d. Clear cutting of mountain pine in the park has destroyed the habitat for the red squirrel and grizzly bear.

5. What global environmental impact is threatening the complex relationship between grizzly bears, red squirrels, and white bark pine trees?

- ▶ a. acidic forest soils
- ▶ b. climate change
- ▶ c. over-hunting
- ▶ d. fungal infections

Answers: 1. D, 2. B, 3. D, 4. A, 5. B



Have students use The Value of Biodiversity formative quiz in the Student Workbook.

Lesson 2: Causes and Effects Associated with Biodiversity Loss

Students will recognize the role of human impact on biodiversity loss.

Activity: Looking at the Role of Humans



Either as a whole class, in groups, or individually, have students explore the Howard Hughes Medical Institute's Click and Learn resource, "The Anthropocene: Human Impact on the Environment."

<http://media.hhmi.org/biointeractive/click/anthropocene>

Be sure that students focus on the key human impacts on the environment and what effects they have had over time. Through this exercise, students should become familiar with the following terms:

Biodiversity

- ▶ Atmosphere
- ▶ Forest Ecosystems
- ▶ Oceans/Coastal Ecosystems
- ▶ Cities
- ▶ Farms
- ▶ Invasive Species
- ▶ Greenhouse Gases
- ▶ Mining
- ▶ Water Use
- ▶ Soils
- ▶ Nutrient Runoff
- ▶ Dams
- ▶ People

Activity: Problem Tree

Students will learn more about the issue they are tackling as they apply what they have learned, along with their critical thinking skills, to consider the causes and effects of the problem presented through the issue.

Have students look at the Problem Tree graphic organizer, which helps guide students in thinking about and articulating the issue as a problem, and then going further by breaking down the causes and effects of the problem. This is necessary before exploring steps needed to address the problem, as it allows students to consider the depth and even the breadth of an issue. Display a larger version of this graphic organizer, perhaps projected on to a screen, and explain the three sections.

Begin at the center of the tree with the problem.

Problem: The issue that is being examined. Because it is not as apparent as the effects, the core problem itself sometimes takes longer to identify. Then go to the roots, which is the investigation of the causes.

Causes: Issues, situations, factors, or phenomena that have led to the problem. Prompt exploration of causes by asking, “Why does the problem exist?” Encourage students to think about the “causes of causes”—the multiple layers of factors that contribute to a problem. Repeat this exercise and think further about the causes of the next levels of causes.

And finally to the leaves, which explore the effects.

Effects: Results created by the problem. As with causes, encourage students to explore multi-layered effects, or “effects of effects.” At first, this part of the issue may appear to be easy to tackle, but without addressing the root cause, only addressing the effects is like trimming leaves and branches—they grow back quickly. Students should also consider the multilayered effects, or “effects of effects” that can arise when a problem goes unaddressed. Students should always ask: “then what happens?” The more students drill into the effects, the more they will deepen their critical thinking and analysis.

Now have students look at the Problem Tree graphic organizer. Guide students in thinking through the process of cause and effect. Use a simplified, non-issue related example first, such as:

Problem: I am often late getting to school.

Cause: Perhaps I did not hear my alarm or got distracted as I was getting ready.

Effect: I am missing instruction, falling behind, and feeling frustrated, etc.



Have students use the Problem Tree worksheet, found in the Student Workbook.



NAME: _____

TEAM MEMBERS: _____

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Problem Tree

In your Problem Tree graphic organizer, start by writing the problem in the trunk of the tree, and then look at the causes and effects of an issue. Keep digging to go deeper on the issue to find its supporting and root causes.

Leaves/branches: Effects

These are the results created by the problem. At first, this part of the issue appears easy to tackle, but when leaves and branches are trimmed, they grow back quickly. Consider the multi-layered effects, or “effects of effects,” that can arise when a problem goes unaddressed. Always ask: “Then what happens?”

Ex: Declining ecosystem health.

Trunk: Problem

This is the key issue that is being studied. Because it is not as apparent as the leaves, the core problem itself sometimes takes a little longer to identify.

Ex: Loss of biodiversity.

Roots: Causes

These are the situations or factors that have led to the problem. When exploring the root causes of a problem, ask yourself “Why does this problem exist?” Dig deeper to consider the “causes of causes”—the multiple layers of factors that contribute to a problem.

Ex: Invasive species.

Lesson 3: Future Concerns and Solutions

This lesson has students move beyond the causes of biodiversity loss to research solutions that can reduce the effects of humans.

Activity: Researching Solutions



Begin by having students read the article by David Hooper from the University of Western Washington that suggests things everyone can do to help biodiversity. The strategies are broken down into categories that correspond directly with units in the AP[®] Environmental Science course including habitat, waste, food resources, and energy use. Ask students to summarize the strategies, which they can refer to later in this activity as ideas to help them fill in their Solution Tree.

▶ <http://fire.biol.wwu.edu/hooper/10thingsforbiodiversity.pdf>

Ask students to engage in an Internet search to begin developing an understanding of specific solutions related to human impact on biodiversity. This is best done by having students search for organizations that are working to combat this issue. These organizations may be governmental or non-governmental, and you may wish to guide students to search for organizations that are not-for-profit. Students should use the Needs Assessment Worksheet (on page 9 of the Student Workbook) to carry out an analysis.

You may also wish to have students use the Solution Tree graphic organizer (on page 32) to keep track of current solutions that are in use to combat the issue of loss of biodiversity. Model how to go from the center of the proposed solution graphic organizer to the more specific details of the key elements to the solution and the possible outcomes of the solution.

Encourage students to revisit and work in parallel with their Problem Tree cause-and-effect graphic organizer, which can help to ensure that their solutions are addressing actual problems. Students should develop four solutions, and their accompanying key elements and possible outcomes. They should keep track of any sources they used to fill out the graphic organizer.



Check for Understanding:

As students work, check to be sure that they are accurately analyzing each organization and determining ongoing needs to address the issue.

For homework, you may ask students to write a one to two page report that describes their needs assessment findings on one organization. The report should include the following:

- ▶ A description of the social issue at local and global levels
- ▶ What is the mission/vision of the organization?
- ▶ Identify and describe two existing programs of the organization
- ▶ Explore the outcomes of the organization's programs
- ▶ Cite resources

Activity: Needs Assessment and Solution Tree



Have students carry out research to begin developing an understanding of specific issues and topics related to their broader issue. For example, access to clean water is a big umbrella for many sub-issues (that are equally large, but more focused) that ladder up to the issue of access to clean water.

This is best done by having student groups carry out research on organizations that are working to combat this issue. Students should use the Needs Assessment Worksheet to carry out an analysis.

Have students use the solutions graphic organizer to keep track of current solutions that are in use to combat the issue of access to clean water. Model how to go from the center of the proposed solution graphic organizer to the more specific details of the key elements to the solution and the possible outcomes of the solution.

Encourage students to revisit and work in parallel with their Problem Tree cause-and-effect graphic organizer, which can help to ensure that their solutions are addressing actual problems. Students should develop four solutions, and their accompanying key elements and possible outcomes. They should keep track of any sources they used to fill out the graphic organizer.

Walk students through the Solution Tree, starting in the middle. **Goal:** This is the problem from their Problem Tree, but re-framed as a goal. Then go to the roots, which is the investigation of the solutions.

Solutions: These are the actions needed to solve the problem and achieve the goal stated at the center of the solution tree. When exploring solutions, students should ask, “How will this solve the problem?” Have them dig deeper to think holistically, so that they are looking beyond the short-term and addressing not only the symptoms of the problem but the root causes as well.

And finally to the leaves, which explore the outcomes.

Outcomes: These are the results created by the solution. Results may appear as straightforward as having achieved goals, but when students consider the ripple effect and outcomes of sustainable results, the impact is far-reaching and long-lasting. Always ask, “Then what happens?”



Have students use the Needs Assessment and Solution Tree worksheets, found in the Student Workbook, to carry out an analysis.



NAME: _____

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Needs Assessment

The following series of questions helps you to analyze and identify ongoing areas of need within organizations addressing your issue.

1. Identify 3-5 organizations working on issues related to the issue your team is working on.

2. What does each organization do well in response to the issue and/or related issues?

3. What could each organization do better in its response?

4. What areas of need related to access to your issue have you learned about that each organization is NOT addressing?

5. Considering all 3-5 organizations, where are there ongoing needs that are not being adequately addressed?

6. Considering all 3-5 organizations, where are there ongoing needs that are being addressed successfully, and to which you can add further efforts to support the issue?



NAME: _____

TEAM MEMBERS: _____

Solution Tree

(1 of 1)

In your Solution Tree graphic organizer, start by rewriting the problem from your Problem Tree, and reframing it as a goal at the trunk of the tree. Then consider the different solutions (the roots) and possible outcomes of the solutions (the branches).

Leaves/branches: Outcomes

These are the results created by the solution. Results may appear as straightforward as having achieved goals, but when you consider the ripple effects and outcomes of sustainable results, the impact is far-reaching and long-lasting. Always ask: "Then what happens?"

Trunk: Problem

Trunk: Goal

Roots: Solutions

These are the actions needed to solve the problem and achieve the goal stated at the center of the Solution Tree. When exploring solutions, ask yourself "How will this solve the problem?" Dig deeper to think holistically, so that you are looking beyond the short-term and addressing not only the symptoms of the problem but the root causes as well.

Solution Tree Worksheet: Copyright © 2018 WE. All rights reserved.

Activity: Working Toward Solutions



Show the film: *The Guide* and then lead a discussion on student reflections to the story.

Film: www.hhmi.org/biointeractive/guide-biologist-gorongosa

Ask students to reflect on what they have learned. Students should mention some of the following main ideas in their reflections:

- ▶ Gorongosa is a national park in Mozambique, in Eastern Africa.
- ▶ The park was known as a tourist destination for viewing wildlife, but much of that was destroyed by civil war.
- ▶ There are efforts to restore the biodiversity of the park, and these restoration efforts must focus on the needs for food, education, health care, and jobs for local people.
- ▶ Tonga is an ambitious young man who loves his country and wants to use his education to provide a bright future for the people of Mozambique. He understands how the components of the ecosystem work together.
- ▶ Students should connect with Tonga and the real issues facing global biodiversity.

Next, have students complete the Gorongosa Food Web Activity. This activity can be used as a formative assessment/check for understanding. Students will apply their growing knowledge of the ecosystems, plants, animals, and human impacts of constructing various food webs and introduce impacts to predict how those food webs would be impacted. The instructions are included with the activity. The activity works well in groups of four students. (They each have a stack of 3—4 cards, so they quickly see many different interactions and scenarios.) Having students use preprinted arrows to show the direction of energy flow is an excellent addition. Students can take pictures and/or use a document camera so that different groups can share their story. The teacher can walk around and discuss with groups to correct any misunderstanding.

Activity links: www.hhmi.org/biointeractive/creating-chains-and-webs-model-ecological-relationships and www.hhmi.org/biointeractive/lesson-4-gorongosas-food-webs

Finally, have students read the article, “Gorongosa: Restoring Mozambique’s National Treasure” and respond to the article prompts. Guide students to make the connection that saving species involves restoring the entire ecosystem and must consider education, medical care, food, and job opportunities for the local people. After students have answered the prompts, discuss their responses as a whole class.

- ▶ Article: www.gorongosa.org/sites/default/files/gorongosa.pdf
- ▶ Optional article: www.hhmi.org/biointeractive/film-guides-guide-biologist-gorongosa



Focus Area Alert:

In this activity students relate the cause of biodiversity loss with a practical solution.

Activity: Summarizing the Investigation



As part of their service project, students should summarize their learning to educate their classmates on the issue they have identified and investigated related to the topic of loss of biodiversity. Select an appropriate format for students to complete their summary. For example, students may make class presentations, design posters to hang in the classroom, write blog posts to share with the class, etc. Summaries may be supported by multimedia or print materials that synthesize and analyze the topic and issue on local and global levels.

When summarizing their investigation, students should keep in mind the following:

- ▶ What are the key takeaways from your investigation on the issue of biodiversity loss?
- ▶ How are the problems you investigated similar at local and global levels? How are they different?
- ▶ How are the solutions you investigated similar at local and global levels? How are they different?
- ▶ Why may your investigation be important to other AP[®] Environmental Science students?



Have students use the Summarizing Your Investigation worksheet, found in the Student Workbook, to complete this activity.

Activity: Working Independently



Now have students independently complete this adaptation of the 2013 AP Environmental Science exam, which addresses the content in this module. The question, shown below, is available as a student handout in the appendix of this module. Use the scoring guidelines, found on pages 45-46, to assess students' performance and provide feedback on any misconceptions or missing understandings.

Independent Practice

Check individual student understanding of the content and skills from the lesson.

AP Environmental Science Free-Response Question

Biodiversity can be described as the variety of different types of life found on earth. Many biologists believe that human activities are threatening this variety of life and that we are losing the benefits that these species provide for us.

- a. **Identify** and **describe** TWO levels of biodiversity. (2 pts.)
- b. The benefits that humans get from biodiversity are known as ecosystem services.
 - ▶ **Identify** TWO categories of ecosystem services. (2 pts.)
 - ▶ **Identify** and **describe** ONE ecosystem service of forests. (1 pt.)
 - ▶ Many ecosystem services can be assigned a monetary value. It has been estimated that wetland ecosystems provide as much as \$10,000 per acre by filtering water, preventing flooding, and providing nurseries for wildlife. Calculate the amount of money a community could save if they preserved 400 acres of wetlands. (2 pts.: 1 pt. set up; 1 pt. answer)
 - ▶ c. **Identify** ONE specific human activity and **explain** how it has lowered biodiversity. (2 pts.)
 - ▶ d. **Describe** ONE specific strategy humans can take to reduce their impact on local or global biodiversity. (1 pt.)



Have students use the Working Independently worksheet in Student Workbook to complete this Free Response Question.

Scoring Guidelines

Biodiversity can be described as the variety of different types of life found on earth. Many biologists believe that human activities are threatening this variety of life and that we are losing the benefits that these species provide for us.

Ecosystem	Variation in types of communities such as grasslands, forest, alpine, coastal
Species	Variation in the number of different species with in the community for example black bears and grizzly bears
Population	Variability in the number of different groups of a species. This may be threatened by habitat fragmentation.
Genetic	The total variability within the gene pool of a population. It is important because it will provide for the ability of the population to survive environmental change.

a. **Identify and describe** TWO levels of biodiversity. (2 pts.)

b. the benefits that human get from biodiversity are called ecosystem services.

- ▶ **Identify** TWO categories of ecosystem services (2 pts.)
 - Provisioning
 - Regulating
 - Cultural
 - Supportive
- ▶ **Identify and describe** ONE ecosystem of forests. (1 pt.)
 - Water absorption
 - Carbon storage
 - Soil retention
 - Soil formation
 - Nesting sites for birds and animals that are hunted for food
- ▶ Many ecosystem services can be assigned a monetary value. It has been estimated that wetland ecosystems provide as much as \$10,000 per acre by filtering water, preventing flooding, and providing nurseries for wildlife. **Calculate** the amount of money a community could save if they preserved 400 acres of wetlands.
(2 pts. 1 pt. set up 1 pt. answer)
 $400 \text{ acres} \times \$10,000 / 1 \text{ acre} = \$4,000,000$

c. **Identify** ONE specific human activity and **explain** how it has lowered biodiversity. (2 pts.)

- ▶ Mining, logging, overfishing, agriculture, burning fossil fuels

d. **Describe** ONE specific strategy humans can take to reduce their impact on local or global biodiversity. (1 pt.)

- ▶ Reduce the use of pesticide and fertilizer, reduce/reuse/recycle, compost, buy local food, use energy efficient appliances, take shorter showers



Part 2: Action Plan

The Action Plan section is divided into four parts:

- ▶ Connect Learning
- ▶ Form Teams
- ▶ Develop Action Plan
 - Goal Setting
 - Understanding Approaches to Taking Action
 - Determining Clarity and Relevance of Goals
 - Measuring Success
 - Setting S.M.A.R.T. Goals
 - Identifying Resources and Creating a Network
 - Developing a Timeline
- ▶ Reflect

WE Service Framework



Overview for Part 2: Action Plan

Students apply the knowledge they acquired through the Investigate and Learn lessons to develop a plan through which they will address one local and one global service action.

Key Takeaways

- ▶ Completing a service action requires a set of skills, including working as a team and creating action plans.
- ▶ Action plans involve setting goals, identifying measurements of success, creating a timeline for each task, assigning specific responsibilities to each team member, and preparing to network with others to complete tasks.
- ▶ Three approaches to completing a service action are direct service, indirect service, and advocacy.

This Section Contains:

- ▶ Optional activities that you may choose to use with your class to deepen student understanding of particular elements of action planning.
- ▶ Templates that all students should complete to help them successfully meet the recognition criteria.

Connect Learning

Activity: Determining Interests

As a class, discuss the following:

- ▶ What issues related to your topic do you hear about on the news or read in newspapers and online articles? Why do you think these stories are covered by the media?
- ▶ What issues related to your topic do you think the general public is not aware of? Why do you think they are unaware?
- ▶ What issues related to your topic really bother you, even if you do not know a lot about them? Why are you bothered by these issues?
- ▶ If you were a world leader, what kinds of problems related to your topic would you tackle?



Teacher Tip:

Support students in determining their personal interests by incorporating an activity in which they think back to the problems and solutions they identified in Part 1: Investigate and Learn. Have students brainstorm the global and local issues they feel are most important and personally interesting to them.

Form Teams



It is recommended that students work in teams of four to six to plan and carry out their AP with WE Service projects. However, students may work individually or in any size group as approved by their teacher. Each team will decide on one local and one global action, and then create a plan that details how the actions will be achieved. Since each team will focus on a particular action, encourage students to form teams based on their interest in working on similar local and global issues. The more inspired and passionate students are about the issue they identify around the topic of access to clean water, the more creative they will be with the actions they develop. In order for students to pick teams, have students present the local and global issues they are interested in, then join forces with other students who are addressing similar issues.



Teacher Tips:

- ▶ When students first meet with their team, encourage them to create a contract so all members have a clear understanding of their own role and responsibilities, as well as those of the other members of the team. This will help to identify and establish group norms, including a plan and process for conflict resolution.
- ▶ Create a spreadsheet that the teacher can fill in with group members, including module (of choice), columns for check-ins, numbers, and agencies worked with. Teacher can also add a column to grade as each piece is completed.
- ▶ Instead of emphasizing skills and talents, ensure students are grouped based on the issue that is most important to them.
- ▶ If a big group forms around one issue, have students break into two groups and ensure they design different action plans on the same topic.

Resources to Support Forming and Working in Teams

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p>Gift + Issue = Change This activity helps students discover how they can use their talents and interests to carry out a service action.</p>	Use this activity to help students think about how they might individually contribute to an action that they feel passionate about.
<p>Finding Passion with the Issue Compass This activity helps students to brainstorm a list of local and global issues and to share their thoughts, opinions, and analyses about the topics. Students then choose one issue about which they are most excited to learn more and take action.</p>	This interactive activity can be used to align students into action teams according to their interests and talents.
<p>Exploring the Four Leadership Styles Every student can be a leader within their action team. This activity helps students to understand and value different kinds of leadership styles, and to discover their own strengths and challenges as a leader.</p>	Use this activity to help students better understand their individual strengths and the strengths of their teammates. By giving each person the power to be a leader, no one person will feel the burden of being responsible for the entire project.

Resources to Support Collaborating as a Team

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p>Creating a Safe Space It is important for each team to create a space in which everyone feels comfortable voicing their opinions. This activity asks team members to think individually and then as a group about what they will need in order to thrive within their team.</p>	Use this activity to help teams create guidelines around the way they interact and make decisions as a team.
<p>Drafting a Team Contract This activity walks students through how to create a contract so all members have a clear understanding of their own role and responsibilities, as well as those of the other members of the team.</p>	Use the contract to help students identify and establish group norms, including a plan and process for conflict resolution. This is both a key skill that students will learn and a proactive approach to problem-solving within a team environment. Use the results from the Exploring the Four Leadership Styles activity to help determine roles and responsibilities of each student in the group.
<p>Establishing Roles and Responsibilities Teamwork is a success when project tasks are divided equally and based on individual strengths.</p>	Use this activity to share with students how they can divide and conquer major areas of responsibility, and the roles they can each assume to make their service project both personally fulfilling and an overall success.

Develop Action Plan



After students have formed their teams, the next step is for teams to build out an action plan that:

- ▶ Identifies team goal(s)
- ▶ Establishes their metrics of success
- ▶ Identifies their network and required resources
- ▶ Creates a timeline for completing their actions by sequencing necessary tasks and identifying individual roles and responsibilities



Teacher Tip:

Be sure teams create goals that are specific and measurable. In addition to meeting the Recognition Rubric requirements, this will allow students to report on the impact of their project in Part 4: Report and Celebrate.

Activity: Goal Setting

Each team must create a goal for the team's action. This goal will need to:

- ▶ Be clear, measurable, and informed by the team member's needs assessment
- ▶ Incorporate one global and one local action
- ▶ Achieve direct service, indirect service, or advocacy.

Help students generate and decide on a team action goal using the following activities

Activity: Understanding Approaches to Taking Action

Every great plan begins with establishing clear goals. But first, help students understand the types of actions their team might take through their action project. There are three approaches, generally speaking, to taking action:

- ▶ **Direct service:** Personally engaging with and providing hands-on services to those in need (usually in conjunction with an organization).
- ▶ **Indirect service:** Channeling resources to the needs of a community—locally, nationally, or internationally.
- ▶ **Advocacy:** Educating others about an issue to increase visibility and follow up with an action that focuses on enacting change.

Resources and Ideas to Support Selecting a Type of Service

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p>Tips on Developing Direct Service Action Ideas Get ideas and resources on how to personally engage with and provide hands-on services to those in need (usually in conjunction with an organization).</p>	<p>Use the following resources to show students how to create their own ideas or connect with existing ones that they can expand on:</p> <ul style="list-style-type: none"> • Tips on Developing Direct Service Action Ideas • WE Volunteer Now Campaign
<p>Tips on Developing Indirect Service Action Ideas Get ideas and support on how to channel resources to the needs of a community—locally, nationally, or internationally.</p>	<p>Use the following resources to show students how to create their own ideas or connect with existing ones that they can expand on:</p> <ul style="list-style-type: none"> • Tips on Developing Indirect Service Action Ideas • WE Go Green campaign • WE Scare Hunger campaign • WE Are Rafikis campaign • WE Create Change campaign
<p>Tips on Developing Advocacy Action Ideas Get ideas and resources on how to educate others about an issue to increase visibility and how to follow up with an action that focuses on enacting change.</p>	<p>Use the following resources to show students how to create their own ideas or connect with existing ones that they can expand on:</p> <ul style="list-style-type: none"> • Tips on Developing Advocacy Action Ideas • Developing a Deep Understanding of Your Issue, and Messaging Your Message • Ensuring Message Credibility • Spreading the Word (Communications Strategies and Communications Plan Worksheets and Templates) • Practice, Practice, Practice • WE Are Silent campaign



Approaches to Taking Action Information Sheet

(1 of 1)

DIRECT SERVICE		
WHAT IS IT?	Personally engaging with and providing hands-on service to those in need (usually in conjunction with an organization).	
EXAMPLE GOAL	By the end of the semester, we will support a local food bank and shelter by packing and serving food to people in the community. We will also visit our neighboring elementary school and teach a lesson on food insecurity in our community.	
ACTIONS	<ul style="list-style-type: none"> Reach out to local shelters and food banks to arrange a day for the class to visit and provide hands-on support Once a date has been decided, make sure students all have permission to travel to the food bank (if during school hours) 	<ul style="list-style-type: none"> Connect with teachers/administration at local elementary school and arrange to visit a classroom to teach a lesson to young students on food insecurity Create and print worksheets to use with younger students
INDIRECT SERVICE		
WHAT IS IT?	Channeling resources to the needs of a community—locally, nationally, or internationally.	
EXAMPLE GOAL	By the end of the year, we will create a storage and donation system for local families in need, where they can access furniture and other household items. We will develop a system for donations, pick-ups, and inventory.	
ACTIONS	<ul style="list-style-type: none"> Conduct research into which items are most needed by community members (e.g., bed frames, dining tables, household goods, etc.) Reach out to local businesses to try to get a storage space donated Connect with school social workers/administration to gain their support Put up flyers around school and in the community, asking for donations (list specific items needed), including instructions on how/where to donate 	<ul style="list-style-type: none"> Develop an online database for tracking donations and pick-ups, and maintaining inventory Share pick-up information with local shelters, churches, community centers, etc. Share the donation system with school social workers, so that they can maintain the project in future years
ADVOCACY		
WHAT IS IT?	Educating others about an issue to increase visibility and following up with an action that focuses on enacting change. Actions around advocacy often look like raising awareness, but without a strong call to action within the initiative as a whole. Educating others is not considered service in and of itself.	
EXAMPLE GOAL	Through an informative art piece, we will educate our school community about the waste created by single-use plastic water bottles, and the impact they have on the environment. Then, we will sell reusable water bottles at school, and the proceeds from the sale will go toward clean water projects in developing countries.	
ACTIONS	<ul style="list-style-type: none"> Research the impact of single-use plastic water bottles around the school and in the local community Plan out and create a 3D sculpture that incorporates informative text on the issue of single-use plastics Seek permission from school administration to display the piece in a common area of the school 	<ul style="list-style-type: none"> Design and order water bottles to sell at school Research and select an international organization that focuses on clean water projects Organize a selling schedule for the water bottles, donate profits

Activity: Determining Clarity and Relevance of Goals

In their teams, students should now begin to develop their goal(s) for their action plan. Setting effective goals is a more difficult skill than most people imagine, but once students learn to employ one or more techniques for developing clear goals, it will serve them in all endeavors. Have students split up into their action teams and instruct them to brainstorm actions they would like to take, sharing from their personal reflections from the previous section, and drawing from their previous investigation and research, along with the needs assessment and reflections. Encourage students to use the 5Ws (what, where, when, why, who, and how) to express their overarching goal(s) and to be as clear and specific as they can.

As they write drafts of their goal(s), they should ask themselves the following questions to assess the clarity and effectiveness of their goal:

- ▶ Is this goal specific enough so that we know exactly what our team will accomplish?
- ▶ Can we measure whether or not this goal was fully accomplished?
- ▶ Is it achievable within our project period?
- ▶ Is it relevant to the social issue we are aiming to address?
- ▶ Do we know the deadline by which it will be accomplished?

Activity: Measuring Success

As part of goal setting, establishing Measurements for Success is an important way of knowing if the goal has been achieved. Take time to discuss measurement in a bit more detail. Measurement is an aspect of the goal-setting exercise that students should understand before they begin executing an action plan. Students will need to understand how they will measure positive outcomes so that they understand what success looks like and how they will know they have achieved their goal. Is it based on the number of people they have reached through their actions? This will require teams to keep track of numbers. Or are they also looking at how the individuals reached have been affected? A survey with written answers (or multiple choice options) could do the trick. Share with students that measuring success can take two forms:

- ▶ Qualitative data is usually descriptive data that provides insights into what/how people think or feel. Qualitative data is harder to analyze than quantitative data.
- ▶ Quantitative data usually provides a numbers-based measurement (with associated units) such as quantity, amount, or range.



Teacher Tip:

Have teams define quantitative and qualitative data sets for their action plan; then brainstorm a list of each that applies to their action project. Remind students that establishing their criteria for success and the corresponding metrics is an ongoing process. As they dive deeper into their action planning and execution, it will become clearer for students what kind of data they will need and how they will obtain it. The information may be collected by multiple team members. However, it is good to designate at least one person to any (and each) of the methods on their list.

Activity: Setting S.M.A.R.T. Goals

A S.M.A.R.T. goal is Specific, Measurable, Attainable, Relevant, and Time-bound.

Before your group starts their campaigns or actions, you're going to need a good plan. By having a plan, you will have the means to establish a defined goal and a reliable way to reach that goal. Brainstorming ideas will allow you to determine clarity and relevance for your service project. Your criteria will serve as a guideline to ensure that you have a way to evaluate your outcome and see whether or not you've achieved what you set out to do. So whether your group is trying to hit a particular fundraising total, organize a huge event with a certain number of attendees, or reach a target audience with awareness-raising speeches, you'll want to start with a goal and a plan. The surest way to do this? Build a S.M.A.R.T. goal.

Resources on Goal Setting

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
Determining Clarity and Relevance of Goals This is a brainstorming activity that guides students through big picture ideas and critical thinking as they begin to plan their service project goal.	Use this activity to help students sort through all the ideas they will come up with before they decide on the goal around which they will develop their action plan.
Establishing S.M.A.R.T. Goals This activity guides students through key steps of S.M.A.R.T. (Specific, Measurable, Attainable, Relevant, Time-bound) goals.	S.M.A.R.T. goals help students ensure that their team sets a "right-sized" and relevant goal to guide their action planning throughout this experience. This skill set, once learned, is one that students can apply to a myriad of other challenges and settings.

Resources and Ideas to Support Measurements of Success

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
Creating Measurements of Success Reporting success comes down to students' ability to collect the right data and information. This activity helps students think about the outcomes of their project as part of their goal-setting and action-planning work.	Help students understand the difference between qualitative and quantitative data, and how to go about creating and establishing the right measures of success for each team's project.
Collecting Evidence and Artifacts This activity supports students with gathering the information they will need to help report on the outcomes of their service projects.	Use this resource to help students determine the type of data they need to collect, and then how they can go about gathering the info they need. The data and information students gather will feed into their team executive summary at the end of the overall module.
Creating Surveys and Feedback Forms Creating a survey and/or a feedback form means identifying the criteria on which you want to collect data and report the outcomes.	Use this resource to show students how they can create their own surveys and feedback forms by considering all the relevant data and information they will need. Sample surveys and forms will provide further guidance.

Excerpted from Determining Clarity and Relevance of Goals and Creating Measurements of Success: Copyright © 2018 WE. All rights reserved.

Activity: Identifying Resources and Creating a Network

As students develop their goals and measures of success, they will start to identify what they need to execute their action plans. This will include creating connections with people, such as within (but not limited to) the school, your community, different organizations and businesses, topic experts and speakers, media outlets, the blogging/social media community, etc. These people will serve as supporters and amplifiers, as well as providers of information and resources.

For this latter part, students will need to identify the resources they need to accomplish their goals. This can include (but is not limited to):

- ▶ Facts and statistics (found through research or materials from other organizations)
- ▶ Tools and supplies (this list can be endless, but may include things like card stock, paint, tables, chairs, microphones, water buckets and sponges, labeled boxes to collect items, collection jars, etc.)
- ▶ Stories of individuals who benefit from the services of the organization
- ▶ Access to space and/or venues
- ▶ Methods and resources for producing necessary materials or media

Activity: Developing a Timeline

A key to success in action planning is developing a careful timeline. Not only will it help students allot the appropriate time to each task and keep them on track, but breaking up a large task or action into smaller, more manageable tasks will help them address all the necessary details in a timely fashion.

Resources to Support Identifying Resources and Creating a Timeline

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.



Teacher Tip:

Emphasize to students that timelines are meant for them to have a date to work toward. When they begin working with organizations the timelines will need to be flexible.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p>Creating a Timeline Creating careful timelines is a key to success in action planning.</p>	<p>This activity will help students allot the appropriate time to each task and keep them on track. It will also help them break up a large task or action into smaller, more manageable tasks to effectively help them address all the necessary details in a timely fashion.</p>
<p>Identifying and Sequencing Tasks Creating timelines means thinking through the details and plotting the relevant tasks that get students from point A to B and onward on a project.</p>	<p>This activity will help students think about each step of their action project and how to plot each step as an actionable task in a timeline.</p>
<p>Identifying Task Owners This activity shows the difference between roles and responsibilities set out at the beginning of a project with that of an owner of an individual task.</p>	<p>Use this activity to show students how to effectively divide tasks amongst team members. Some tasks will be a part of each individual's overall role and responsibilities, and some will be based on personal interests, skills, and strengths.</p>
<p>Identifying Resources and Creating a Network This activity highlights that through the process of planning and taking action, students will meet and be in touch with many people. This network of people will grow quickly and may be valuable beyond their projects.</p>	<p>Use this activity to help students create a networking map to help them keep track of the people they will be working with through their action plan. They can also document the resources they will need to access, either through their network or as an item they will need to source separately.</p>



Activity: Creating the Action Plan

After working as a team to identify team goals, establish metrics of success, determine their network and required resources, create a timeline for completing their actions, and identify individual roles and responsibilities, students are ready to put all their ideas in writing. By creating an action plan, all team members are committing to support their team in carrying out the proposed project(s).



Teacher Tip:

Have students create the local action plan first, complete the hours, and then have them complete a separate plan for their global hours.

Please keep in mind that there are no hours requirement that you need to meet, but this step will help students understand the time they invested in their projects.



- ▶ Have students use the Avoiding the Five Action Planning Pitfalls Tip Sheet, found in the Student Workbook, to review common mistakes made during action planning and to ensure these have been avoided.
- ▶ Have students use the Creating an Action Plan worksheet, found in the Student Workbook, to help build out their action plan.

Reflect



After completing their action plan, students should individually reflect on their teamwork and action planning thus far. Teams should then share their plan, describe how the project addresses the issue at local and global levels, and make connections to the AP[®] course.

Activity: Reflecting on Action Plan

Provide students with questions to help them reflect on their experiences working as a member of a team and creating an action plan.

- ▶ What is the issue that your team is taking action on? Why is this issue important to you? Why is this issue important to your team?
- ▶ What action is your team planning to take? How does this action fulfill an opportunity identified in your needs assessment?
- ▶ What are you most passionate and excited about in your action plan?
- ▶ Why is goal setting so important, and how can you imagine using goal-setting techniques in your life, future action plans, or other activities? How does your action goal relate to your AP[®] course?
- ▶ What kinds of leadership qualities do you hope to develop as you continue to take action?
- ▶ Why is teamwork so essential to carrying out effective service projects to address local and global issues?
- ▶ Having planned to make a difference on local and global issues, what have you learned about your ability to create social change?



Check for Understanding:

Through this reflection, students should highlight why the issue is important to them, how they can make a contribution, why certain aspects of action planning (such as goal setting) are important life and academic skills, what connections they have made to their AP[®] course, and what they have learned so far.



Teacher Tips:

- ▶ As part of their AP[®] with WE Service project, students will need to track their work. Look ahead to Part 4 to review and share expectations with students so that they are keeping records, taking photos, collecting documents, and tracking data.
- ▶ Educating others about their local and global issue is a great way for students to share their learning. Invite teams to hold an educational event or campaign to raise awareness about the social issue they have studied, which hopefully will have the power to compel their class (or community) to action. Students should consider what format they would like to use, based on their action. It may be a public speech at their school or in their community, a newspaper article, a website, a social media campaign, a short story, an artistic display, etc. It is also a great way to share the ideas they have developed in their action plan and how they will take action on the issue. This is not the action in itself but rather the education on the issue and the action plan.

Resources to Support Deeper Reflection and Educating Others

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
Perfecting the Elevator Pitch This activity helps students understand that what they say about their actions has the potential to do several things, including inform, appeal to emotions, persuade, and compel others to take action themselves.	Use this activity to help students create the proper “elevator pitch” for their project as they think about how to create a compelling message about what they have learned about their issue and what they will do about it.
Developing a Deep Understanding of Your Issue and Messaging Your Message This activity highlights how educating others about an issue means students must be knowledgeable about it.	Use this activity and case study to show students how to think critically about their issue as they learn to ask informed and thoughtful questions, and assess the gaps in their knowledge and the information they need to know.
Ensuring Message Credibility In order to gain support, every team’s message should be able to stand up to the critics they may face. This activity will help students ensure the credibility of their message.	Use this activity to have students run three checks on the credibility of their message: creating an annotated bibliography, fact checking their message, and presenting to the class for a peer-review and question period.
Spreading the Word A message is only powerful if it reaches the right people. This activity, along with accompanying worksheets and templates, guides in developing effective communications strategies and a communications plan.	Use this activity to have students brainstorm various communications methods and assess each one’s effectiveness. Then, they will develop a communications plan around their selected method to detail who their message is intended for, how the message will be communicated, and when it will be delivered.
Practice, Practice, Practice This activity highlights how public speaking is a powerful force that can break the silence and raise awareness of difficult issues.	Use this activity and case study to have students read, listen to, or watch some examples of famous speeches to identify how the speaker uses the three I’s—Influence, Involve, and Inspire—with their audience.



Use the Reflect: Action Plan worksheet in the Student Workbook to reflect on what you have learned.



Part 3: Take Action

The Take Action section is divided into two parts:

- ▶ Connect Learning
- ▶ Re-Inspire and Reflect

WE Service Framework



Overview for Part 3: Take Action

As students take action, they will be equipped with tools to navigate obstacles, mitigate conflicts, collect evidence, and record their actions, while also learning how to maintain their drive and inspiration.

Key Takeaways

- ▶ Effective teamwork is strengthened through abilities to navigate obstacles and overcome conflicts.
- ▶ The impact of an action can be measured by the collection of evidence and recording actions.
- ▶ Re-inspiration is important when caught up in the details.

This Section Contains:

- ▶ Templates that all students should complete to help them successfully meet the recognition criteria.
- ▶ Optional activities that you may choose to use with your class to deepen student understanding of particular elements of taking action, effective teamwork, and recording actions.

Resources on Determining Effective Teamwork, Navigating Obstacles, and Overcoming Conflicts

In Part 3: Take Action, you will use these resources to help students with practicing positive teamwork, navigating obstacles, and planning for contingencies as they begin to take action.

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p>Ezra Frech’s Story Ezra Frech loves to play guitar and a ton of sports. Born with one finger on his left hand and a lower leg that was curved, he had surgery at age two to remove the lower part of his leg and transplant the big toe onto his left hand.</p>	<p>Ezra’s story (available at https://www.youtube.com/watch?v=KUqmJzoQQYQ) highlights perseverance and tenacity. On losing his leg and gaining a transplanted thumb, he says, “And this hasn’t slowed me down at all!” He is his school’s starting quarterback and can shoot hoops for days.</p>
<p>Practicing Positive Teamwork and Conflict Mediation Maintaining a positive and enthusiastic team can be difficult in the midst of long sessions of work and preparation. Conflicts are likely to arise, and understanding techniques for conflict resolution is an important lifelong skill to have.</p>	<p>Use this tip sheet and worksheet to help students understand conflict-mediation techniques and the power of constructive feedback to keep team dynamics positive and ensure their teammates feel supported and appreciated.</p>
<p>Navigating Obstacles No matter how much work and preparation goes into an event, obstacles may arise at any point, acting as a roadblock to success.</p>	<p>Help students gain a better understanding of how others have successfully navigated and overcome obstacles using this case study on Spencer West, a motivational speaker and author of <i>Standing Tall: My Journey</i>, which underscores teamwork and focus on goals.</p>
<p>Planning for Contingencies This means students are thinking ahead by looking at possible issues that might come up, and planning for possible solutions accordingly.</p>	<p>This activity helps students work through the process of proactively identifying potential issues and considering practical solutions so that they can plan ahead.</p>

Connect Learning

Activity: Student Log Sheet

In addition to the information, artifacts, analyses, and reflection pieces that you collect and complete, you will need to keep track of time spent on your action projects, reflect on your experiences, and collect the appropriate verification where needed. As you reflect, some of the things you may think about include:

- ▶ What did you accomplish today?
- ▶ What (if any) were the major successes or big wins?
- ▶ How can you build on these successes?
- ▶ What (if any) were the setbacks, minor or major?
- ▶ What is your plan to mitigate or resolve these issues?
- ▶ What do you plan to accomplish tomorrow/next class/next meeting?
- ▶ How are you feeling about the progress of the action so far?
- ▶ Did you collect the qualitative data you set out in your action plan? What are the testimonials telling you so far (if applicable)? Are there any tweaks or changes you need to make with your action plan?
- ▶ Did you collect the quantitative data you set out in your action plan? What are the numbers telling you so far (if applicable)? Are there any tweaks or changes you need to make with your action plan?
- ▶ What is still missing and how will you get the information you need?
- ▶ How did your team pull together? What were your teamwork successes? What conflicts or obstacles did you resolve or overcome? How can you be stronger as a team?



Have students use the Student Log Sheet, found in the Student Workbook, to help record and keep track of their activities and reflections.

Re-Inspire and Reflect



In the process of carrying out an action, team members will often lose inspiration or momentum. Help students reconnect with their original motivation for taking action to empower them as change-makers.

Individually, ask students to reflect on their own story as someone who is interested in changing the world through action. Provide them with the following questions to reflect on their story as an agent of change.

Activity: Reflecting on Take Action

Provide students with questions to help them reflect on their experiences of taking action as a team.

- ▶ How will you continue the work that you and your team started with this project?
- ▶ Changing the world is hard work, and a lot of fun too! What are the top three lessons you have learned during your service project?
- ▶ What is your story as an agent of change?

Resources on Re-Inspiration

Resources are available in the AP with WE Service Program Guide:

<https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p>Craig Kielburger's Story When Craig first learned about child labor at the age of 12, there was no way for him to get involved and make real change as a kid. So he set out on his own to free children from poverty and exploitation, but freed his peers at home from the idea that they had to wait to change the world.</p>	<p>Use the various resources—including videos, articles, and books Craig has written—to inspire students with the knowledge that passion and determination can truly change the world. Access the resources here: https://www.we.org/en-CA/about-we/about-us.</p>
<p>Ally Del Monte's Story Every year, 3.2 million kids are bullied. Sixteen year-old Ally Del Monte was one of them, but she decided to fight back by motivating others to be proud, be strong, and, most of all, be brave.</p>	<p>Use Ally's story (available at https://www.youtube.com/watch?v=QhHLekYrrp8) to inspire students and spark a conversation. Ally talks about bullying and its terrifying impact, but she also talks about overcoming the bullying and leading by example.</p>
<p>Razia Hutchins and Maurice Young's Story The I Am For Peace movement started as a neighborhood march against violence in the south side of Chicago. Now an annual event, it has gone global, thanks to champion youth Razia Hutchins and her partner in peace, Maurice Young.</p>	<p>Use Razia and Maurice's story (available at https://www.therenewalproject.com/fighting-against-chicagos-gun-violence-with-peace/) to inspire students about how a passion-driven initiative can make a life-altering impact—on those who lead the initiative as well as those who will be inspired to join.</p>

Part 4: Report & Celebrate

The Report and Celebrate section is divided into three parts:

- ▶ Connect Learning
- ▶ Celebrate
- ▶ Complete Final Summary and Reflection

WE Service Framework

INVESTIGATE AND LEARN ▶ ACTION PLAN ▶ TAKE ACTION ▶ REPORT AND CELEBRATE

RECORD AND REFLECT

Overview for Part 4: Report and Celebrate

Students will compile and showcase their work. They will then celebrate their accomplishments and look ahead at ways to continue to sustain their actions.

Key Takeaways

- ▶ Devoting time to serving the greater community can positively affect the individual and the community.
- ▶ Service learning enables students to make local and global connections to AP[®] course content.

This Section Contains:

- ▶ Templates that all students should complete to help them successfully meet the recognition criteria.
- ▶ Tables containing optional activities that you may choose to use with your class to deepen student understanding of particular elements of Report and Celebrate.



Connect Learning

Activity: Understanding the Purpose of Showcasing Work

Discuss the following:

- ▶ Why is it important to put together evidence of your service project?
- ▶ What is the value of showcasing your work?
- ▶ What are the different ways in which portfolios can be presented?
Are some ways more effective than others? How and why?
- ▶ How can a portfolio be used to educate, inform, and guide other students in creating their portfolios?

Activity: Collect Artifacts



To showcase their work, instruct students to consider including elements they would find interesting and helpful to have if they were just beginning their action. What would they include to help students who are only beginning their action planning?

Putting Together a Portfolio of Artifacts

A portfolio is a collection of work, material, and achievements that you believe best explain and represent your AP[®] with WE Service work. It can take one or more forms:

- ▶ An online presentation through Prezi or PowerPoint
- ▶ A blog or a website, or any other online tool that you may choose
- ▶ Video presentation
- ▶ Physical portfolio displayed on a presentation board, in a binder or scrapbook, etc.



Focus Area Alert:

Have students describe the steps and actions they took to effect change. They should describe any policies, regulations, or laws that could be implemented and enforced to facilitate continued change in this area.

Celebrate



Optional Activity

Amazing actions, incredible impacts, and outstanding student leadership deserve to be celebrated. It is important to honor the work students have done and recognize the impact they have had on their communities, the nation, and the world. As a class (or perhaps a school, if other AP® with WE Service courses exist in the school), organize a celebration that fits the actions that the students have taken. A few celebration ideas include:

- ▶ WE Day
- ▶ A school-wide assembly
- ▶ A project fair for the whole school to visit
- ▶ An outdoor cinema-style documentary screening
- ▶ Poster exhibition
- ▶ School newsletter, newspaper, or special-edition magazine

Do not forget to share and celebrate over social media:

Post on [facebook.com/WEmovement](https://www.facebook.com/WEmovement) • Tweet [@WEmovement](https://twitter.com/WEmovement), [#WEday](https://twitter.com/WEday), [#APWEServe](https://twitter.com/APWEServe)



Teacher Tip:

Students have seen what they can accomplish as small groups, so put together all of their numbers so they can see the change they affected as a whole group.

Resources on Celebrating...

Resources are available in the AP with WE Service Program Guide: <https://apcentral.collegeboard.org/pdf/program-guide.pdf>.

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
... At WE Day	WE Day is a powerful, life-changing event that combines the energy of a live concert with the inspiration of extraordinary stories of leadership and change. Visit the WE Day website (WE.org/en-CA/our-work/we-day/) to find an event in your city or nearby, and apply for tickets.
... At a School-Wide Assembly	School assemblies are a popular way to showcase and celebrate collective achievements. Use the sample road map in this tip sheet to organize a memorable school assembly.
... Through Social Media	Social media is a great way to celebrate all of the amazing work your class is doing. Join the conversation online and create fun, engaging content to share your big ideas.
... Through a Project Fair	A project fair allows for intimate and meaningful interaction between teams and the rest of the student body, allowing other students to explore and understand the different service actions at their own pace. This tip sheet will provide thoughts and ideas on organizing a project fair.
... With a Documentary Screening	Why not make a final documentary of the different action projects and hold a school-wide screening? This tip sheet will help you get started.
... With a Poster Exhibition	Posters can convey a lot of information and emotion through art and concise copy. It is a great team exercise as part of their portfolios and a terrific way to share and celebrate their successes within the school and even the community.
... With a Special Publication	Put together a class publication that shares the highlights, learning, and successes of the teams through individual and/or team articles, photo essays, and editorials. This tip sheet will get you started.

Celebrate with WE Day

Imagine a stadium-sized celebration of thousands of students who share a passion for making the world a better place. Imagine a global roster of speakers and performers including Nobel Prize-winner Malala Yousafzai, Martin Luther King III, Demi Lovato, and Selena Gomez. Imagine an event where young service leaders are the VIPs! That's WE Day.

WE Day Connect

WE Day Connect is an interactive, online event, hosted by WE Day talent, for students and educators across North America. In this 90-minute program, students celebrate selfless acts of volunteerism and learn how their peers are working to make a difference in their local and global communities. During our first WE Day Connect event, 30,000 people tuned in, making this our largest youth attendance for a WE Day to date! Learn more at [WE.org/en-CA/our-work/we-day/we-day-connect](https://www.weday.org/en-CA/our-work/we-day/we-day-connect)

WE Day Special

We've teamed up with some amazing partners to bring the power of WE to you—wherever you live. The WE Day broadcast will bring families together for an evening of inspiration and empowerment through incredible speeches and performances by people who are making a difference in their communities. Watch the WE Day special online at [WE.org/broadcast](https://www.weday.org/broadcast).

WE DayX

Bring the power of WE Day to your school. Kick off your year of action or celebrate the end of one with your own WE Day-style assembly, and unite your school for a better world. With WE DayX, any group can host their own event in the true spirit of celebrating and inspiring local change-makers. Learn more at [WE.org/wedayx](https://www.weday.org/wedayx).



WE Day Webcast

Can't make it to WE Day? Watch the live webcasts of each WE Day event online at [WE.org/watchweday](https://www.weday.org/watchweday). For a list of event days, check out [WE.org/we-day-events](https://www.weday.org/we-day-events).



Earn Your Way

You can't buy a ticket to WE Day. As an AP® with WE Service class, you earn your way there through your service-projects and are invited to the WE Day closest to you! Visit [WE.org/weday](https://www.weday.org/weday) to learn more.

Celebrate with Social Media

Social media is a great tool to show all the amazing work your students are doing! Join the online conversation and create fun, engaging content to share your big ideas. Whether you will be running your group's accounts or teaching your students how to run social media in a fun, safe, responsible, and effective way, these tips will provide creative ways to amplify your projects in the digital space!

Getting connected. This is the best place to get started. Make it a team effort and tell your school that you'll be posting all about the amazing work they'll be doing. Grow your network by adding group members and students on all of your social media accounts. Stay digitally active and keep up the conversation online! Engage with posts using likes and motivate each other with comments.

Take great photos. Eye-catching visuals are an absolute necessity when it comes to social media! Bright backgrounds, daylight, and big smiles are the best combination for an awesome picture. Mix it up by changing up settings. (One photo can be in a classroom; another can be outside!) This will add variety to your feed and make it much more interesting.

Share in a timely fashion. Want to know a fact about social media? It only thrives if people see it. Post at times that will guarantee views. Sharing during lunch break and right after school will ensure your content gets the most visibility.

Updates! Does your latest project include a goal you're trying to reach? Keep your school updated on how close you are! Provide updates as soon as you get them, to keep your students and teachers in the know. That post might be the extra push you need to achieve your goal.

Use hashtags. Craving inspiration to spice up your campaign? See what others are doing by looking up the hashtag.

Gifs! Take your feed to the next level with these short animations. Download a GIF maker from your preferred app store and fuse your photos together to liven up your newsfeed.

Tag—you're it! Here's a fun way to get your school involved: play a game of digital tag. Once you've posted, have students tag five friends and challenge those friends to tag and share with five others. You'd be surprised how fast word gets around! (PS: This works even better if you all use the same hashtags in your captions.)

Create a challenge on the WE Day app! Amplify your latest project with a challenge on the WE Day app! Not only will your friends be psyched to take it, it'll also be available for all app users so they can contribute to your project! Make it quick and related to your project, and amplify it further by sharing it on your social channels!

Share with us. We love seeing how your projects are going! Tag your posts with [#WEday](#), [#WESchools](#) and [#APWEServe](#). They might just get featured!

Complete Final Summary and Reflection



Activity: Complete Final Executive Summary

Once students have completed their action, submitted their evidence, and celebrated their work, students may complete an executive summary as a team. The executive summaries offer a snapshot of the team's outcomes based on:

- ▶ Summary of the team's work and individual contributions
- ▶ Analysis and highlights of evidence collected
- ▶ Explanation of the project impact and its significance within a larger context
- ▶ Summary of what they learned about their AP[®] course through the service project

Activity: Reflect on the Overall Service Experience

Individually, students complete a final reflection that describes their overall service experience. Students reflect on their thoughts at the start of the project and how they feel they have grown over the course of their service work. What do they now understand about the role of service and active citizenship, especially as an application of their learning?

Activity: Record and Reflect

Using the following questions to guide your writing, reflect on the overall action project, which will inform the development and assembly of your portfolio.

Overall, in this action project:

- ▶ What were your most important successes as a team, and what were the important factors that helped you accomplish those successes?
- ▶ What obstacles did your team overcome and what strategies were important in navigating those challenges?
- ▶ What was your favorite moment in carrying out your action?
- ▶ What are you most proud of?
- ▶ If you could go back to the start, what advice would you give yourself or your team? Is there anything you would do differently?
- ▶ How is your community/the nation/the world a better place because of your action?
- ▶ How have you developed as a global citizen in taking action? What plans do you have to continue your work as a change-maker?



Completed the module? Register to become a WE School!

Congratulations on implementing and completing your service projects. Did you know that if students at your school complete at least one local and one global action, your school is eligible to become a WE School? Spread pride throughout your school and unlock unique opportunities by starting a WE Schools group! Check out [WE.org](https://www.weschools.org) and look for the WE Schools application.

Resources

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