

AP[®] Chemistry

INCORPORATING GREEN CHEMISTRY

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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Incorporating Green Chemistry

Teaching Module



MADE POSSIBLE BY THE GENEROUS SUPPORT OF
Jolene McCaw

Table of Contents

Using This Module	6
Module Sections	7
Teaching Module: Incorporating Green Chemistry	8
Getting to Know the Topic.....	10
Planning Your Instruction	13
Alignment to Course Framework	14
Icon Legend	17
Teaching Modules	
PART 1: Investigate and Learn	18
PART 2: Action Plan	30
PART 3: Take Action.....	44
PART 4: Report and Celebrate	48
Resources.....	56
Acknowledgements.....	57

Using This Module

AP[®] with WE Service provides a collection of resources to support your planning and implementation of the program. This teaching module, Incorporating Green Chemistry, is one of two sample lesson guides for AP[®] Chemistry. 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

Incorporating Green Chemistry

How can you build a better tomorrow?

Climate change is one of the biggest challenges we face today that will affect future generations. Pollution from human activities is one of its major causes, which in turn, affects all aspects of our lives. By taking action today to tackle pollution, we can improve our health, our homes, and our futures.



Getting to Know the Topic

Pollution: Globally

Pollution occurs when harmful materials are introduced into the environment. The top five pollutants are ground-level ozone, particle pollution (or particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. There are also other dangerous contaminants such as soot, cigarette smoke, volatile organic compounds (VOCs), formaldehyde, asbestos, and methane. These pollutants seep into our daily lives, impacting our planet and the humans and animals that live on it.

Poor air quality is one of the biggest global killers, affecting more than 100 million people around the world. It's been connected to higher rates of diseases such as cancer, heart disease, and asthma. Pollution also contributes to climate change and is one factor in the frequency of heat waves and the occurrence of other extreme weather conditions. It contaminates our water supplies, depletes nutrients in the soil for agriculture, and harms forests and crops, among other effects.

Fast Facts

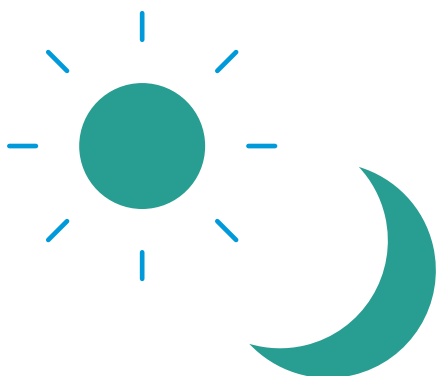
- ▶ Every year, about 8 million tons of plastic waste escapes into the oceans from coastal nations. That's the equivalent of setting five garbage bags full of trash on every foot of coastline around the world.
- ▶ 91% of the world's population lives in places where air quality does not meet World Health Organization guideline limits.
- ▶ Pollution kills more than 1 million seabirds and 100 million mammals every year.

Taking Action Globally

Pollution is an issue that impacts everyone around the world, and there are a number of ways students can support reducing pollution on a global level. Some ideas include:

- ▶ Research global organizations that are taking action against pollution and find one to support by volunteering or fundraising.
- ▶ Spread the word about pollution and climate change by setting up assemblies or speaking events.
- ▶ Attend an event with expert speakers to learn more about the issue.

Another option is to support and fundraise for the WE Villages program. 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 on global water issues.



Humans have pumped enough carbon dioxide into the atmosphere over the past 150 years to raise its levels higher than they have been for hundreds of thousands of years.

Getting to Know the Topic

Pollution: Locally

In the U.S., pollution is a major issue. Despite making up only 5 percent of the world's population, Americans use up 25 percent of the world's resources, contributing to poor air quality. The U.S. burns up nearly 25 percent of the world's coal, 26 percent of its oil and 27 percent of its natural gas. Burning these fuels releases contaminants into the atmosphere, affecting health, water supply, agriculture, and more. Approximately 88 percent of U.S. national parks have high levels of air pollution that are directly impacting the environment, such as suppressing tree growth and altering soil and water chemistry.

Fast Facts

- ▶ Plastic pollution is an environmental issue that has increased exponentially, from 2.3 million tons in 1950 to 448 million tons in 2015. Plastic production is expected to double by 2050.
- ▶ The Mississippi River carries an estimated 1.5 million metric tons of nitrogen pollution into the Gulf of Mexico each year, creating a “dead zone” about the size of New Jersey in the Gulf each summer.
- ▶ Approximately 40% of the lakes in America are too polluted for fishing, aquatic life, or swimming.

Taking Action Locally

Within the local community, there are many ways for students to take action, such as:

- ▶ Working with a local organization that is taking action against pollution and climate change through volunteering, fundraising, or raising awareness.
- ▶ Create a proposal or petition to change a local law or decision around pollution.
- ▶ Take part in the WE Go Green campaign and encourage behavioral changes that will positively impact the environment.

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



An estimated 82 million people nationwide live in counties with air pollution above U.S. standards.

Planning Your Instruction

Incorporating Green Chemistry

Purpose

Students will investigate topics related to Green Chemistry across the globe. Students will examine physiological, economical, and educational impacts of pollution on communities. Students will learn a different way of thinking about doing chemistry that incorporates safe and effective environmental protection practices. Students will develop and implement their own solutions to local and global issues related to Green Chemistry after analyzing and evaluating current efforts to curb pollution.

Ensure students are collecting evidence of their work as they go along. Throughout the year, you may want to collect:

- ▶ 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: Students will learn a different way of thinking about doing chemistry that incorporates safe and effective environmental protection practices. These lessons are designed to introduce students to the principles of Green Chemistry and ways in which Green Chemistry can be incorporated in their daily lives as well as in laboratory and business practices.

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 17). 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.

Alignment to Course Framework

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

AP [®] CHEMISTRY CONCEPTS	
Science Practices	<ul style="list-style-type: none"> • 1B: Describe the components of and quantitative information from models and representations that illustrate both particulate and macroscopic-level properties. • 2C: Identify experimental procedures that are aligned to a scientific question (which may include a sketch of a lab setup). • 5A: Identify quantities needed to solve a problem from given information (e.g., text, mathematical expressions, graphs, or tables). • 5B: Identify an appropriate theory, definition, or mathematical relationship to solve a problem. • 5C: Explain the relationship between variables within an equation when one variable changes. • 5F: Calculate, estimate, or predict an unknown quantity from known quantities by selecting and following a logical computational pathway and attending to precision (e.g., performing dimensional analysis and attending to significant figures). • 6A: Make a scientific claim. • 6D: Provide reasoning to justify a claim using chemical principles or laws, or using mathematical justification. • 6G: Explain how potential sources of experimental error may affect the experimental results.
Big Ideas	<ul style="list-style-type: none"> • Big Idea 1 (Scale, Proportion, and Quantity), Big Idea 2 (Structure and Properties), and Big Idea 3 (Transformations).
Enduring Understandings	<ul style="list-style-type: none"> • SPQ-1: The mole allows different units to be compared. • SAP-5: Intermolecular forces can explain the physical properties of materials. • SPQ-3: Interactions between intermolecular forces influence the solubility and separation of mixtures. • TRA-1: A substance that changes its properties, or that changes into different substances, can be represented by chemical equations. • SPQ-4: When a substance changes into a new substance, or when its properties change, no mass is lost or gained. • TRA-2: A substance can change into another substance through different processes, and the processes that produced it can classify the change itself.
Learning Objectives	<ul style="list-style-type: none"> • SPQ-1.A: Calculate quantities of a substance or its relative number of particles using dimensional analysis and the mole concept. • SAP-5.A: Explain the relationship between the chemical structures of molecules and the relative strength of their intermolecular forces when (a) the molecules are of the same chemical species, and (b) the molecules are of two different chemical species. • TRA-1.A: Identify evidence of chemical and physical changes in matter. • SPQ-4.A: Explain changes in the amounts of reactants and products based on the balanced reaction equation for a chemical process. • TRA-2.A: Identify a reaction as acid-base, oxidation-reduction, or precipitation.

Essential Knowledge

- SPQ-1.A.1 One cannot count particles directly while performing laboratory work. Thus, there must be a connection between the masses of substances reacting and the actual number of particles undergoing chemical changes.
- SAP-5.A.1: London dispersion forces are a result of the Coulombic interactions between temporary, fluctuating dipoles. London dispersion forces are often the strongest net intermolecular forces between large molecules. a) Dispersion forces increase with increasing contact area between molecules and with increasing polarizability of the molecules. b) The polarizability of a molecule increases with an increasing number of electrons in the molecule; and the size of the electron cloud. It is enhanced by the presence of pi bonding. c) The term "London dispersion forces" should not be used synonymously with the term "van der Waals forces."
- TRA-1.A.2: A chemical change occurs when substances are transformed into new substances, typically with different compositions. Production of heat or light, formation of a gas, formation of a precipitate, and/or color change provide possible evidence that a chemical change has occurred.
- SPQ-4.A.1: Because atoms must be conserved during a chemical process, it is possible to calculate product amounts by using known reactant amounts, or to calculate reactant amounts given known product amounts.
- TRA-2.A.5: Precipitation reactions frequently involve mixing ions in aqueous solution to produce an insoluble or sparingly soluble ionic compound. All sodium, potassium, ammonium, and nitrate salts are soluble in water.
- SAP-5.A.2: The dipole moment of a polar molecule leads to additional interactions with other chemical species. a) Dipole-induced dipole interactions are present between a polar and nonpolar molecule. These forces are always attractive. The strength of these forces increases with the magnitude of the dipole of the polar molecule and with the polarizability of the nonpolar molecule. b) Dipole-dipole interactions are present between polar molecules. The interaction strength depends on the magnitudes of the dipoles and their relative orientation. Interactions between polar molecules are typically greater than those between nonpolar molecules of comparable size because these interactions act in addition to London dispersion forces. c) Ion-dipole forces of attraction are present between ions and polar molecules. These tend to be stronger than dipole-dipole forces.
- SAP-5.A.4: Hydrogen bonding is a strong type of intermolecular interaction that exists when hydrogen atoms covalently bonded to the highly electronegative atoms (N, O, and F) are attracted to the negative end of a dipole formed by the electronegative atom (N, O, and F) in a different molecule, or a different part of the same molecule.
- SAP-5.B.5: Molecular solids are composed of distinct, individual units of covalently-bonded molecules attracted to each other through relatively weak intermolecular forces. Molecular solids generally have a low melting point because of the relatively weak intermolecular forces present between the molecules. They do not conduct electricity because their valence electrons are tightly held within the covalent bonds and the lone pairs of each constituent molecule. Molecular solids are sometimes composed of very large molecules or polymers.

Connections to AP[®] Chemistry Focus Areas

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

- ▶ Students often make mistakes with calculations because of simple errors with algebra, unit conversions, and ratios. When students are required to show their work (in calculations) throughout the year, many of these simple errors can be reviewed and corrected. Teachers should do drills on algebra skills and require students to show their work in all calculations.
- ▶ Students should understand that we do not live in a vacuum and be able to both describe things but also explain what happens to those things as a function of living in a complex, dynamic world. They should understand that Chemistry is not separate from Biology, Physics, or Environmental Science. Teachers need to employ effective strategies to get students to develop explanations (claims and evidence) about what will happen to X if Y occurs. With each practical context used to teach a skill or concept, teachers should require students to create or refine multiple models, and provide explanations for what is happening on a biological, chemical, or physical level. They should also provide students with multiple opportunities to work on problems that require the same content knowledge and formulae/heuristics used in class but that is presented in a novel way.
- ▶ Students should know how to manipulate known formulae to fit the data that is provided for such in the problem and to reason in a multi-step problem by manipulating or combining multiple formulae. Teachers should develop strategies to strengthen students' mathematical reasoning skills with multi-step problems and multivariate formulae.

Implementation Options

- ▶ This module can be implemented throughout the year. Begin the year with the Principles of Green Chemistry (Lesson 1) and reinforce these principles with every topic. While covering Unit 4, Chemical Reactions, include the Redesign Challenge (Lesson 2) in place of a traditional gravimetric analysis activity. In covering intermolecular forces in Unit 2, Molecular and Ionic Compound Structure and Properties, include the Sticky Situation (Lesson 2) activity to enhance the application of intermolecular forces. Where to Go from Here (Lesson 3) can be implemented after the AP Exam as a wrap-up of the year's work.

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 are 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 change on many social issues• They have an important role to play as students, employees, volunteers, and citizens making a positive impact on their local and global community

See full WE Learning Framework and details at [WE.org/learning-framework](https://www.collegeboard.org/we-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 16 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: Principles of Green Chemistry
- ▶ Lesson 2: Application of Green Chemistry
- ▶ Lesson 3: Where to Go from Here

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 learn a different way of thinking about doing chemistry, which incorporates safe and effective environmental protection practices. These lessons are designed to introduce the students to the principles of Green Chemistry and ways in which it can be incorporated in their daily lives as well as in laboratory and business practices.

Key Takeaways

- ▶ By altering human practices, greener, more environmentally friendly practices can be used with the same intended results of the original process.
- ▶ Technology and innovation can lead to alternative materials and practices that limit human impact on the environment.

ACTIVITY	PG #
LESSON 1: PRINCIPLES OF GREEN CHEMISTRY	
Activity: It's Easy Being Green	20
Activity: Green Chemistry Awards: A Step Toward Solutions	21
LESSON 2: APPLICATION OF GREEN CHEMISTRY	
Activity: Problem Tree	22
Activity: Redesign Challenge	23
Activity: Sticky Situations	24
Activity: Greener Clean	25
LESSON 3: WHERE TO GO FROM HERE	
Activity: Developing Solutions	26
Activity: Making Connections with Students' Lives	26
Activity: Needs Assessment and Solution Tree	27
Activity: Summarizing the Investigation	28
Activity: Working Independently	28

Lesson 1: Principles of Green Chemistry

Activity: It's Easy Being Green



Guiding Question:

Is it possible to improve the health of the environment through chemistry?

Real World Application:

Have students watch the video concerning plastic pollution (<https://www.youtube.com/watch?v=bYUnXVW4y0M>). Lead a discussion with the class about plastic use in their lives and the amount of waste that is generated. Discuss the positive outcomes of the cleaning efforts in the Galapagos Islands. Discuss the limitations of the efforts and what could make a bigger impact on the health of the islands. Also be sure to discuss the full life cycle of plastic and make connections to all forms of pollution (water, waste, air, etc.).

Begin by watching a short video that provides a description of Green Chemistry, “What is Green Chemistry?” (<https://youtu.be/B45LMANkcKI>). Divide students into groups of 2–3 and have them develop a definition of Green Chemistry based on the video. Have each group share their definition with the class and combine each group’s ideas into a consensus definition.

Continue by introducing the 12 principles of Green Chemistry. Make copies of the chart below and cut down the middle, separating the principles from the description of the principle. Have students work together to match as many as possible. As they work, they should complete the chart in their student workbook listing the principles and descriptions.

PRINCIPLES	DESCRIPTIONS
Prevent Waste	It is better to prevent waste than to treat or clean up waste after it is formed.
Atom Economy	Synthetic methods should be designed to maximize the incorporation of all materials used in the process into the final product.
Less Hazardous Synthesis	Whenever practicable, synthetic methodologies should be designed to use and generate substances that possess little or no toxicity to human health and the environment.
Design Benign Chemicals	Chemical products should be designed to preserve efficacy of the function while reducing toxicity.
Benign Solvents & Auxiliaries	The use of auxiliary substances (solvents, separation agents, etc.) should be made unnecessary whenever possible, and, when used, innocuous.
Use Renewable Feedstock	A raw material or feedstock should be renewable rather than depleting whenever technically and economically practical.
Reduce Derivative	Unnecessary derivatization (blocking group, protection/deprotection, temporary modification of physical/chemical processes) should be avoided whenever possible.
Catalysis	Catalytic reagents (as selective as possible) are superior to stoichiometric reagents.
Design for Degradation	Chemical products should be designed so that at the end of their function, they do not persist in the environment and instead break down into innocuous degradation products.
Real-time Analysis for Pollution Prevention	Analytical methodologies need to be further developed to allow for real-time in-process monitoring and control prior to the formation of hazardous substances.
Accident Prevention	Substance and the form of a substance used in a chemical process should be chosen so as to minimize the potential for chemical accidents, including releases, explosions, and fires.
Design for Energy Efficiency	Energy requirements should be recognized for their environmental and economic impacts and should be minimized. Synthetic methods should be conducted at ambient temperature and pressure.



**Teacher Tip:**

Explain or encourage students to look up definitions of words that may be unfamiliar.

Lead a class discussion concerning the 12 principles of Green Chemistry.

- ▶ Which of these are directly applicable to our classroom? In what ways?
- ▶ Which of these could be implemented in your homes? In what ways?
- ▶ Which principles would be the most difficult to obtain or implement?
- ▶ Give an example of where/how each principle can be seen in practice.

Inform students that as the school year continues, these 12 principles will be implemented whenever possible in the classroom. Ask them to make suggestions as to how these 12 principles could be implemented.

**Teacher Tip:**

As you use any of the 12 principles throughout the year, be sure to draw the connection to service learning.

**Check for Understanding:**

As students are sorting cards, circulate the room and check that students are matching the principle and description correctly.

Activity: Green Chemistry Awards: A Step Toward Solutions



Inform students that awards are given annually to recognize efforts that incorporate the principles of Green Chemistry into a new product or an industrial process. Today, they will investigate some of these innovations and the impact they may have on the environment. Have students work in groups of 2–3 to explore the website: <https://www.epa.gov/greenchemistry/green-chemistry-challenge-winners>. Then have each group share a winner that made an impact on them. Have the other groups write this information in their chart for future reference.

**Teacher Tip:**

As each group is presenting, be sure to ask about why they chose that particular winner. What problem is the winner addressing, and what principles are being applied?

Lesson 2: Application of Green Chemistry

Activity: Redesign Challenge



Have students write the balanced chemical equation and the net ionic equation for the reaction between silver nitrate and iron (III) chloride. Be sure that all states of matter are correct and that the correct precipitate is predicted.

Explain to students that this is a common precipitation reaction that is often analyzed in Chemistry classrooms, but not one that will be used in your “Green” Chemistry room. Provide access to the MSDS for silver nitrate, iron (III) chloride, silver chloride, and iron (III) nitrate. All MSDS can be found online at <https://www.flinnsci.com/sds/> or similar websites. You may also print these pages for students. Looking at the MSDS information, have students suggest reasons why this particular reaction is not a good representation of Green Chemistry principles.

Explain to students that they are going to redesign the traditional lab into one that is more “green.” Be sure to highlight the materials that they are limited to using in the procedure. They should use MSDS information to decide which chemical would be best to use and what steps are necessary in order to determine the percent yield in a reaction. Allow time for students to revise the procedure that was given to them. Once their revisions and reasonings are complete, students must get approval before actually performing the reaction and calculations. Stress that each revision to the procedure must be accompanied by a reason, including a green chemistry principle. Ensure that students are using the reaction between sodium carbonate and zinc acetate as the best choice for a greener option.



Teacher Tip:

If students are not familiar with MSDS pages, you will need to explain the organization and provide a quick lesson on what they should be looking for while developing their reasoning for why they’re not using this reaction.

Be sure to circulate as students are designing the procedure to point out helpful parts to the MSDS. Guide students as they think about necessary and unnecessary procedural steps as well as quantities that are needed or each reactant. Remind students to think about limiting reactants.



Focus Area Alert:

Teachers need to develop effective strategies to get students to develop explanations (claims and evidence) about what will happen to X if Y. With each practical context used to teach a skill or concept, teachers should require students to create or refine multiple models and provide explanations for what is happening on a biological, chemical, or physical level.

Teachers should provide students with multiple opportunities to work problems that require the same content knowledge and formulae/heuristics used in class, but that are presented in a novel way.

Develop strategies to strengthen students’ mathematical reasoning skills with multi-step problems and multivariate formulae.



Check for Understanding:

Before allowing students to perform the reaction, approve their revised procedures and ensure that green principles were used.

Activity: Problem Tree



Have students brainstorm to create a list of environmental concerns they see in the news that might be addressed using Green Chemistry. Record all of the suggestions on the board. Pass out the Problem Tree handout and ask students to complete the graphic organizer using the information that has been discussed in past lessons. Emphasize to students to try to focus on just one environmental concern pertaining to pollution that they are most interested in during this activity. Students may need to do some individual research into the causes of the concern they have chosen.

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: _____

Problem Tree

(1 of 1)

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. Contaminated waterways

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. Harmful chemicals in fertilizers.

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. Growing need for increased agricultural production

Activity: Sticky Situations



Provide some background information concerning adhesives. *Chem Matters* has two articles that discuss adhesives and biomimicry that may be useful (Dec 2006, “[Sticky Situation: The Wonders of Glue](#)” and Feb 2016, “[Stuck on You](#)”). Lead a discussion about how using biomimicry supports the principles of Green Chemistry. This is an opportunity to also introduce/review intermolecular forces and the ideas of cohesion and adhesion.

Instruct students that they will be making a “green” adhesive from common materials and comparing their adhesive to other widely used materials (white glue, rubber cement). Follow the procedure for making milk glue in the student workbook and lead a discussion:

- ▶ What are some common uses for these adhesives?
- ▶ What would be some important criteria to consider in determining the effectiveness of the adhesives?
- ▶ How could these criteria be tested?
- ▶ What do you think are the environmental impacts of adhesives as they are developed, used, and eventually decompose?
- ▶ How would creating adhesives through Green Chemistry impact the environment any differently than the adhesives we use today?



Teacher Tip:

You could use the prewritten lab procedure, or you could allow students to develop their own testing method. Your approval would be needed before any testing begins.

Any list of adhesives could be used to compare against the adhesive that the students created through Green Chemistry. Students may suggest Gorilla Glue, Super Glue, hot glue.



Focus Area Alert:

Teachers need to develop effective strategies to get students to develop explanations (claims and evidence) about what will happen to X if Y. With each practical context used to teach a skill or concept, teachers should require students to create or refine multiple models and provide explanations for what is happening on a biological, chemical, or physical level.



Check for Understanding:

Students will write a Claims-Evidence-Reasoning (CER) statement concerning the effectiveness of the adhesives. Be sure to check for proper use of intermolecular forces, cohesion, and adhesion in the reasoning portion of the statement. Students should connect this process back to pollution and Green Chemistry. For example, why make a “green” adhesive? Make a case for how a green adhesive would be just as effective as the ones we use today and would also be more environmentally safe.



Activity Extension:

Have students research recent Green Challenge Awards concerning adhesives.

Activity: Greener Clean



Assign students to read this article by the EPA concerning household cleaning products, or a similar article: (www.epa.gov/greenerproducts/greening-your-purchase-cleaning-products-guide-federal-purchasers).

Lead a class discussion:

- ▶ Name some of the negative impacts that some cleaning products have on the environment.
- ▶ What are some of the recommendations from the EPA concerning household cleaning products?
- ▶ Why do you think people do not purchase or use “greener” products?

For this activity, students will need Internet access. Instruct students that they are going to formulate a “green” cleaning product through a computer simulation that minimizes biological and environmental impacts. Have students go to <https://greenchemistry.yale.edu/education/undergraduate-graduate>. They should complete the Safer Chemical Design Game in pairs. Ask each group to complete the simulation and share their results, responding to the following questions:

- ▶ What factors did you need to consider that they never thought of?
- ▶ Were you successful?
- ▶ Did success happen the first time?
- ▶ What principles of Green Chemistry were illustrated in this formulation activity?



Focus Area Alert:

Teachers need to develop effective strategies to get students to develop explanations (claims and evidence) about what will happen to X if Y. With each practical context used to teach a skill or concept, teachers should require students to create or refine multiple models and provide explanations for what is happening on a biological, chemical, or physical level.



Check for Understanding:

Through class discussion, be sure each group expresses successes and failures and the reason for each. Ensure that students discuss green principles.

Lesson 3: Where to Go from Here

Activity: Developing Solutions



Show students the following video or similar video concerning plastics in the ocean: (<https://youtu.be/en4XzfR0FE8>) or (<https://youtu.be/6HBtl4sHTqU>). Students will have strong reactions to videos; have them share their responses and discuss what needs to be done to combat the problem. Ensure students consider the full life cycle of plastic, including the design, manufacture, use, and disposal. Discuss the impact this has on all the facets of the environment including water, soil, and air. Then show a video illustrating how Green Chemistry is working on the problem: (<https://youtu.be/JjFmBExKtiw>) or (<https://youtu.be/qnvuOfGMBNM>). There are many examples that could be used. Choose one appropriate for your class.

After watching the videos, have students take out the Problem Tree that they completed earlier in the year. Have students consider the topic they discussed on the Problem Tree or a new topic they have discovered since then, and complete the Solution Tree. This should be done individually.

Activity: Making Connections with Students' Lives



Discuss with students the important role that industry plays in the Green Chemistry movement. Ask students to suggest ways that industry is important. Guide them to include product production, waste stream, innovation, etc.

Instruct students to research what companies play a major role in the issue they identified in their Solution Tree. Use the Needs Assessment to facilitate this research. Have them reach out to a company in that area to learn what efforts they are taking in order to meet the principles of Green Chemistry. Encourage students to think locally when possible and reach out to a company in your local area. Be sure to follow your school's guidelines and policies concerning student communication. Information may also be gathered with an Internet search.

As they research, the following questions can help students shape their reflections:

- ▶ What are the social impacts of Green Chemistry?
- ▶ As you investigated different companies addressing Green Chemistry principles, what did you feel these programs do well, and what did you feel they could do better?
- ▶ Does the company have a Sustainability Policy?
- ▶ Based on what you learned about your local and global issue and the actions others are already taking, what are five areas of need that you could address?
- ▶ What attracts you to these areas?
- ▶ What are some actions that you could take to address this issue?
- ▶ What excites you about these actions and the impact you can have?
- ▶ How can what you are learning in your AP[®] Chemistry class support solutions that improve Green Chemistry implementation?

Lesson 3: Where to Go from Here

Needs Assessment and Solution Tree



Show the short film “Project 22” (www.youtube.com/watch?v=B0ky-VMi9fI) to get students to think about developing solutions to address the issue of reasonable access to clean water.

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?”

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.

Activity: Summarizing the Investigation



As part of their service project, students should share a summary of their learning to educate their classmates on the issue they have identified and investigated related to the topic of **Green Chemistry**. Select an appropriate format for students to complete their summary. For example, students may make class presentations, design posters to hang in the classroom, or write blog posts. 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 of Green Chemistry?
- ▶ 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[®] Chemistry students?

Activity: Working Independently



Now have students independently complete an adaption of Free Response Question #1 from the 2014 AP[®] Chemistry exam, which addresses the content in this module. Use the scoring guidelines found on AP Central to assess student performance and provide feedback on any misconceptions or misunderstandings: <https://apcentral.collegeboard.org/courses/ap-chemistry/exam>

Free Response Question 1

Students may not be able to answer Part G of this problem yet, as this content comes from Unit 7. Once this content has been taught, you may return to this question to draw connections.

Mass of KI tablet	0.425
Mass of thoroughly dried filter paper	1.462 g
Mass of filter paper + precipitate after first drying	1.775 g
Mass of filter paper + precipitate after second drying	1.699 g
Mass of filter paper + precipitate after third drying	1.698 g

A student is given the task of determining the I⁻ content of tablets that contain KI and an inert, water-soluble sugar as a filler. A tablet is dissolved in 50.0 mL of distilled water, and an excess of 0.20 M Pb(NO₃)₂(aq) is added to the solution. A yellow precipitate forms, which is then filtered, washed, and dried. The data from the experiment are shown in the table above.

- For the chemical reaction that occurs when the precipitate forms, write a balanced, net-ionic equation for the reaction, and explain why the reaction is best represented by a net ionic equation.
- Explain the purpose of drying and weighing the filter paper with the precipitate three times.
- In the filtrate solution, is [K⁺] greater than, less than, or equal to [NO₃⁻]? Justify your answer.
- Calculate the number of moles of precipitate that is produced in the experiment.
- Calculate the mass percent of I⁻ in the tablet.
- In another trial, the student dissolves a tablet in 55.0 mL of water instead of 50.0 mL of water. Predict whether the experimentally determined mass percent of I⁻ will be greater than, less than, or equal to the amount calculated in part (e). Justify your answer.
- A student in another lab also wants to determine the I⁻ content of a KI tablet but does not have access to Pb(NO₃)₂. However, the student does have access to 0.20 M AgNO₃, which reacts with I⁻(aq) to produce AgI(s). The value of K_{sp} for AgI is 8.5 × 10⁻¹⁷.
- Will the substitution of AgNO₃ for Pb(NO₃)₂ result in the precipitation of the I⁻ ion from solution? Justify your answer.
- The student only has access to one KI tablet and a balance that can measure to the nearest 0.01 g. Will the student be able to determine the mass of AgI produced to three significant figures? Justify your answer.



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

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

RECORD AND REFLECT

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 Massaging 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

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

RECORD AND REFLECT

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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“Stuck on You”: http://www.acschemmatters-digital.org/acschemmatters/february_2016?pg=8#pg8

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Notes

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