

AP<sup>®</sup> Computer Science A

# ACCESS TO EDUCATION

Teaching Module



AP<sup>®</sup> 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](https://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.

AP<sup>®</sup> Computer Science A

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# Access to Education

Teaching Module



GENEROUSLY SUPPORTED BY





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# Using This Module

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AP<sup>®</sup> with WE Service provides a collection of resources to support your planning and implementation of the program. This teaching module, Access to Education, is one of two sample lesson guides for AP<sup>®</sup> Computer Science A. As you read through this module, refer to the AP<sup>®</sup> with WE Service Program Guide for additional activities that will support your students' learning throughout the program.

## Program Guide

The AP<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> with WE Service digital portfolio. Step-by-step directions for using the digital portfolio are available on the program website: [collegeboard.org/apwe-resources](https://collegeboard.org/apwe-resources).

## How-To Videos

Also available on the program website are how-to videos that explain what AP<sup>®</sup> 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](https://collegeboard.org/apwe-videos).

# Module Sections

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**THE PLAN SECTION** contains information to help you decide how and when you will fit this module into your AP<sup>®</sup> curriculum.

**PART 1: INVESTIGATE AND LEARN** defines and explores the module topic at local and global levels, and within the context of your AP<sup>®</sup> 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<sup>®</sup> 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**

# **Access to Education**

“Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.”

– UNIVERSAL DECLARATION OF HUMAN RIGHTS (ARTICLE 26)





# Getting to Know the Topic

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## Access to Education: Globally

In 2015, through the Sustainable Development Goals, the United Nations established SDG 4 which aims to “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.” While there has been progress toward achieving this goal, approximately 262 million children and youth were out of school in 2017. Poverty, lack of access to quality health care, geography, gender, child labor, and food insecurity are some factors that prevent children from attending school.

## Fast Facts

- ▶ An estimated 40% of people are taught in a language they don’t speak or fully understand.
- ▶ In 2016, approximately 750 million adults were illiterate—two thirds of them women.
- ▶ Globally, only 85% of primary school teachers are trained to educate students.

## Taking Action Globally

There are a number of ways that students can take action in their own school and community to help developing communities around the world improve their access to education. Some ideas include:

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

Another option is to support and fundraise for WE Villages program. Students can support this program by visiting [WE.org/we-schools/program/campaigns](https://www.weschools.org/we-schools/program/campaigns) to get ideas and resources for taking action on global education issues.



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**In 2015, 617 million students across the world were not achieving minimum proficiency levels in reading and mathematics.**

# Getting to Know the Topic

## Access to Education: Locally

In the United States, despite a doubling of spending since the mid-1970s, average educational attainment has stagnated. Education is also highly correlated with employment and workforce participation. High school dropouts today have 3.5 times the unemployment rate of college graduates. More than 50 percent of high school dropouts are not in the labor force and an additional 19 percent are looking for work. Male high school dropouts are 47 times more likely to be incarcerated than a college graduate.

The issues are highlighted even further when comparing educational statistics and outcomes of other industrialized nations with those of the United States. American 15-year-olds trail nearly all other OECD countries in math and science. The U.S. ranks 27 out of 29 wealthy countries in the proportion of college students with degrees in science or engineering.

## Fast Facts

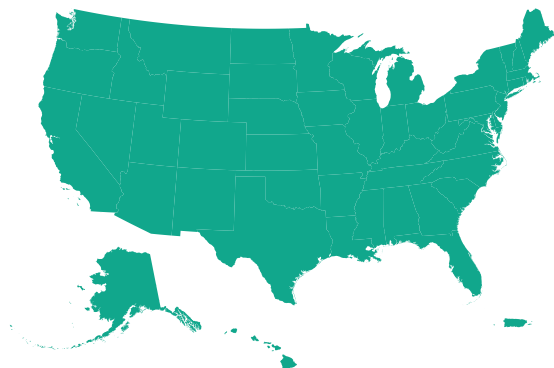
- ▶ According to the National Assessment of Educational Programming (NAEP), only 25% of 12th grade students are “proficient” or “advanced” in math.
- ▶ As of 2019, the United States was experiencing a 307,000 job shortfall in public education, according to the Economic Policy Institute.
- ▶ Only 37% of high school dropouts indicated their school tried to talk them into staying.

## Taking Action Locally

Within their local or national community, students can:

- ▶ Work with a local organization addressing the topic
- ▶ Collect educational resources—like books, notepads, pens, and backpacks—and donate them for distribution to benefit students in need
- ▶ Create and deliver an educational workshop to raise awareness about educational topics and their local impact with a strong call to action that leads to enacting change

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




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**Of high-poverty schools, 45% receive state & local funds below what is typical for other schools in their district.**

# Taking Action

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## Global and Local Service Projects

### WE Villages

For more than two decades, WE Villages has been engineering an international development model to end poverty. It works. It's proven. It's scalable.

We partner with developing communities around the world and collaborate on projects and programs that equip families with the tools they need to break the cycle of poverty through our five Pillars of Impact: Education, Water, Health, Food and Opportunity. These pillars address the five primary causes of poverty with holistic and sustainable solutions that work in tandem to transform communities.

### Why Education?

When children are educated, they are armed with the courage and self-confidence to better themselves and their families, their communities, and ultimately the next generation.

- ▶ With an education, children are more knowledgeable about safe sources of drinking water to keep their bodies feeling their best.
- ▶ Lessons on health can help children and their families take the necessary measures to prevent illness before it occurs, overcome it more quickly when it does, and improve overall health.
- ▶ At school, children can learn about nutrition and farming techniques to ensure their communities are food secure. Students can also get hands-on experience in school gardens.
- ▶ Children who are educated grow up to be adults who understand and advocate for basic rights, with better opportunities in the workforce, higher incomes, and more ways to provide for their families. Ultimately, ending the cycle of poverty begins with schooling.

### Five Pillars of Impact



Education



Water



Health



Food  
Security



Opportunity

# Planning Your Instruction

## Access to Education

### Purpose

In this module, students will discover how computer science can be used as a tool to improve the world. Specifically, this unit will explore the potential that computer science holds to improve access to education for children both locally and globally. In doing so, students will be introduced to computer science topics such as variables, conditional statements, iteration, methods, and object-oriented programming. Opportunities for students to practice traversing `string`, `array`, and `ArrayList` objects have been incorporated for students. Ensure students are collecting evidence of their work as they go along.

This module is comprised of both programming and service learning content. Not all activities will take a full class period to complete and are therefore designed to allow you to pair activities so that both programming and service learning are taught in the same class period. Read through all activities to determine the order you think works best for your class. Some activities are better when taught in smaller segments over several days. The following list includes pieces of work you may want to collect throughout the year:

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

### Overview

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

- ▶ **Part 1: Investigate and Learn:** Practice app development while investigating causes and effects associated with access to education. These lessons also relate to a variety of service learning concepts, such as the necessity of research in understanding a topic and its effects and the ways that a topic is connected on local and global levels.
- ▶ **Part 2: Action Plan:** Guide students as they form teams, develop their action plans, and reflect on their ideas.
- ▶ **Part 3: Take Action:** Provide students with suggestions for how to navigate obstacles, overcome conflicts, record actions, and reflect on their work.
- ▶ **Part 4: Report and Celebrate:** Support students as they create portfolios, celebrate their actions, and complete a final reflection on their experiences.

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

### Implementation Options

Students should be able to:

- ▶ Use an electronic discussion/blog to share summaries, opinions, and/or reflections.
- ▶ Use an online portfolio.
- ▶ Create very basic apps in App Inventor 2. Basic app tutorials may be assigned before this lesson begins or as a summer assignment. (App Inventor tutorials are available here: [appinventor.mit.edu/explore/ai2/beginner-videos.html](http://appinventor.mit.edu/explore/ai2/beginner-videos.html).)

# Goals

Based on the current AP<sup>®</sup> Computer Science A Course and Exam Description, here are the elements of the curriculum framework addressed in this module:

AP <sup>®</sup> COMPUTER SCIENCE A CONCEPTS	
<b>Enduring Understanding</b> Enduring understandings are the long-term generalizations that specify what students will come to understand and take away about the key concepts in the course.	Students will understand that... <ul style="list-style-type: none"><li>• VAR-1: To find specific solutions to generalizable problems, programmers include variables in their code so that the same algorithm runs using different input values.</li><li>• VAR-2: To manage large amounts of data or complex relationships in data, programmers write code that groups the data together into a single data structure without creating individual variables for each value.</li><li>• CON-2: Programmers incorporate iteration and selection into code as a way of providing instructions for the computer to process each of the many possible input values.</li></ul>
<b>Learning Objectives</b> The learning objectives articulate what students need to be able to do.	<ul style="list-style-type: none"><li>• VAR-1.E: For <code>String</code> class:<ul style="list-style-type: none"><li>a. Create <code>String</code> objects.</li><li>b. Call <code>String</code> methods.</li></ul></li><li>• VAR-2.A: Represent collections of related primitive or object reference data using one-dimensional (1D) array objects.</li><li>• VAR-2.B: Traverse the elements in a 1D array.</li><li>• VAR-2.D: Represent collections of related object reference data using <code>ArrayList</code> objects.</li><li>• VAR-2.E: For <code>ArrayList</code> objects:<ul style="list-style-type: none"><li>a. Traverse using a <code>for</code> or <code>while</code> loop.</li><li>b. Traverse using an enhanced <code>for</code> loop.</li></ul></li><li>• CON-2.I: For algorithms in the context of a particular specification that requires the use of array traversals:<ul style="list-style-type: none"><li>a. Identify standard algorithms.</li><li>b. Modify standard algorithms.</li><li>c. Develop an algorithm.</li></ul></li><li>• CON-2.J: For algorithms in the context of a particular specification that requires the use of <code>ArrayList</code> traversals:<ul style="list-style-type: none"><li>a. Identify standard algorithms.</li><li>b. Modify standard algorithms.</li><li>c. Develop an algorithm.</li></ul></li></ul>

## Connections to AP<sup>®</sup> Computer Science A Focus Areas

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

When working with `String`, `Array`, and `ArrayList` objects, students often:

- ▶ Make mistakes when executing traversals of these structures. The most common mistake students make is going out of bounds during the traversal.
- ▶ Do not know when the use of an enhanced `for` loop would be more beneficial to use rather than a standard `for` loop.
- ▶ Have difficulty understanding when these data structures can be used to store and access related data and need more practice to become comfortable and proficient using them.

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

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

# Icon Legend

As described in the AP<sup>®</sup> 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<sup>®</sup> course and on the AP<sup>®</sup> Exam (see page 14 for a description of the AP<sup>®</sup> Computer Science A 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.



Look out for how the lesson aligns to one of the International Society for Technology in Educations (ISTE) standards for innovation in education. Today's students must be prepared to thrive in a constantly evolving technological landscape. The ISTE Standards for Students are designed to empower student voice and ensure that learning is a student-driven process.

For deeper learning and activation visit <https://www.we.org/en-US/our-work/we-schools/ap/> to access the ISTE Standards Guide.

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

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## Investigate and Learn is divided into the following lessons:

- ▶ Lesson 1: Computer Science and Positive Change
- ▶ Lesson 2: Local and Global Access to Education
- ▶ Lesson 3: Future Concerns and Solutions

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

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

## WE Service Framework



# Overview for Part 1: Investigate and Learn

While researching access to education, students will become aware of the need, both globally and locally, for all children to receive an education. Students will learn computer science topics and apply this knowledge to create service projects that address access to education globally and locally. Encourage students to retain all of their AP<sup>®</sup> with WE Service work.

ACTIVITY	PG #
<b>LESSON 1: COMPUTER SCIENCE AND POSITIVE CHANGE</b>	
Activity: Focusing on the topic	20
Activity: Understanding the Importance of Education and Identifying Educational Barriers	22
<b>LESSON 2: LOCAL AND GLOBAL ACCESS TO EDUCATION</b>	
Activity: Problem Tree	23
Activity: Investigating Causes and Effects Related to Global Access to Education	25
Activity: Identifying Causes and Effects Related to Local Access to Education	26
<b>LESSON 3: FUTURE CONCERNS AND SOLUTIONS</b>	
Activity: Needs Assessment and Solution Tree	27
Activity: Making Connections Between Java Apps and Java Code	30
Activity: Question Class, Trivia, Social Issues Game	32
Activity: Reflecting on Investigate and Learn	37
Activity: Summarizing the Investigation	38
Activity: Working Independently	39

# Lesson 1: Computer Science and Positive Change

## Activity: Focusing on the Topic



### Guiding Questions:

Can computer science be used as a tool to create social change? What does it mean to have access to education? What are the consequences of not having access to quality education?

### Real World Application:

Provide students with background pertaining to the goals of the service learning project. Have students look through the website for WE and learn about the founders of the organization:

[WE.org/about-we/about-us](http://WE.org/about-we/about-us).

Introduce students to the guiding questions for the module. Then, show the following video about a software engineer who taught a homeless man how to code: [www.youtube.com/watch?v=IKcZ551Ex4w](http://www.youtube.com/watch?v=IKcZ551Ex4w).

In groups of three or four, invite students to answer and discuss the following questions:

- ▶ Why do you think the software engineer wanted to teach the man to code?
- ▶ What were some of the criticisms expressed by others? Do you agree or disagree with the criticisms, and why?
- ▶ Do you think learning to code might help to change the man's life? Explain your answer and provide examples.
- ▶ Can learning to code help to create social change? If so, how?

After students discuss the questions, the groups should summarize their conclusions with the entire class. Direct your students to consider how their responses to the video relate to the Guiding Questions above.

Ask students to share with one another what they think the benefits might be to completing a service project in their AP<sup>®</sup> Computer Science A course this year.

For homework, introduce students to the website: [www.appsforgood.org](http://www.appsforgood.org).

Explain to students the purpose of Apps for Good and show them the Apps For Good Awards page. The class will be using this site for a jigsaw activity. This activity will help students understand and retain information from Apps for Good and develop their collaboration skills. This strategy asks a group of students to become “experts” on a specific app and then share that material with another group of students.

Divide the students into groups of three or four and assign a different App for Good award winner from the Apps for Good Awards page to each of these expert groups.

Students from each group should complete a homework assignment exploring their assigned app and answering the following questions. Alternatively, students could answer these questions in their blog.

- ▶ What is the name of the app?
- ▶ Explain what this app does.
- ▶ Describe how this app helps to improve life or create social change.
- ▶ Who might this app benefit?
- ▶ In what ways could the function of this app be applied to a different problem?

### Supplemental Resources

Students will be required to document their experiences throughout their service project. The following resources can be helpful when creating an online portfolio:

- ▶ [www.appinventor.org/portfolio](http://www.appinventor.org/portfolio)
- ▶ [www.sites.google.com/site/cs107f14/setup-portfolio](http://www.sites.google.com/site/cs107f14/setup-portfolio)



### Check for Understanding:

In the following class, allow each group to share and collectively summarize their findings.



### ISTE Standard - Global Collaborator:

Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.

# Activity: Understanding the Importance of Education and Identifying Educational Barriers



In groups of three or four, ask students to define the words “access” and “education”. Write their definitions on chart paper using colored markers. Post the chart paper definitions on the classroom wall. Have each group present their definitions to the rest of the class. Discuss the differences and similarities.

After students share their definitions, play the video “Ask the Professor: Education,” <https://youtu.be/i9houK7oiWI>.

Discuss the ideas raised in the video. Some discussion questions to ask include:

- ▶ Why is education the “key to success”?
- ▶ What are the barriers to education?
- ▶ In the decade ending in 2024, 73 percent of STEM job growth will be in computer occupations. How will a shortage of people skilled in computer science impact a nation?
- ▶ At high schools where computer science is offered, schools are finding that the number of females and underrepresented minority students is significantly lower than their school demographic. How does this lack of representation impact their “power” to change the world?
- ▶ Why is it crucial that we recognize and tackle the specific barriers that prevent girls from attending school?
- ▶ If your school struggles with computer science enrollment of female and underrepresented minorities, what do you think prevents girls and other underrepresented minorities from taking computer science education at our school?
- ▶ Where is the problem of access to education the greatest?
- ▶ What are some of the solutions to the problem of access to education? What can you/we do to help?
- ▶ How can computer science education be a powerful tool?
- ▶ What advantages exist for high school students who have access to computer science education?
- ▶ What might computer science and the creation of apps do to help?

Now that students have considered the importance of education and attempted to define it, they will explore in greater depth the obstacles that prevent people from accessing education. They will consider the reasons why millions of children do not receive an education, as well as what impact a lack of education has on both individuals and communities. Students can choose education in general or focus specifically on computer science education.



## Check for Understanding:

For homework, have students reflect on their learning: What did you learn?

Have them also complete a short reflection on the following questions:

- ▶ What surprised you, or stood out most to you, about the issue of access to education?
- ▶ Describe your response to the statistics mentioned in the “Ask the Prof” video.
- ▶ What ideas do you have for improving access to education or computer science education based on what you have learned so far?

# Lesson 2: Local and Global Access to Education

## Activity: Problem Tree

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

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

**Begin at the center of the tree with the problem.**

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

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

**And finally to the leaves, which explore the effects.**

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

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

**Problem:** I am often late getting to school.

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

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

## Supplemental Resources

To create your own graphic organizer, consider one of the sites:

- ▶ [www.lucidchart.com](http://www.lucidchart.com)
- ▶ [www.bubbl.us](http://www.bubbl.us)
- ▶ [www.spiderscribe.net](http://www.spiderscribe.net)
- ▶ [www.popplet.com](http://www.popplet.com)



### Teacher Tip:

It is often easier for students to begin by exploring the effects first, and then to consider the causes second.



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. The spread of contagious diseases.

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### 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. The basic problem is access to health care but you may wish to have students break down the problem more specifically (e.g., vaccines).

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### 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. Poverty and health education.

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



## Activity: Investigating Causes and Effects Related to Global Access to Education



Read the article “Unleashing Africa’s Beautiful Minds” as a class, inviting different students to take turns reading out loud: [www.huffingtonpost.ca/craig-and-marc-kielburger/africa-education\\_b\\_3901832.html](http://www.huffingtonpost.ca/craig-and-marc-kielburger/africa-education_b_3901832.html).

On a map, have students locate the different locations in Africa mentioned in the article to gain an understanding of the global scope of this problem:

- ▶ Rwanda
- ▶ The Democratic Republic of the Congo
- ▶ Cape Town, South Africa
- ▶ Senegal
- ▶ Ghana
- ▶ Cameroon

**Engage in a class discussion. Ask the following questions:**

- ▶ The article states that in order for a developing country to become developed, it “requires unleashing its native genius.” What does this mean? Do you agree?
- ▶ How are universities around the world working together to address the issue of higher education across the continent of Africa?
- ▶ What is “brain drain”? Where is brain drain an issue? Why is brain drain a problem for the countries that are losing their great minds?
- ▶ What challenges did Clarisse Uwizeye face in trying to get an education? Do you think her story provides insight into the larger context of access to education in developing countries?
- ▶ Is there an issue of brain drain in any communities in the U.S.? Or is this just a problem in developing nations?



### Teacher Tip:

To save time, you could have students read the article at home and come prepared for discussion in class.



### ISTE Standard - Knowledge Constructor:

Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

# Activity: Identifying Causes and Effects Related to Local Access to Education



For homework, have students individually complete the following 3-2-1 Challenge:

Assign one of the following four articles to each student. Every student should have their own copy or access to their article online. Ask students to read their article and respond to the following prompts on a separate piece of paper or in a blog post:

- ▶ Record THREE of the most important ideas from the article.
- ▶ Record TWO supporting details for each of those ideas.
- ▶ Write down ONE question you still have about the ideas raised in the article.

Article Choices:

- ▶ “For Poor, Leap to College Often Ends in a Hard Fall”:  
[www.nytimes.com/2012/12/23/education/poor-students-struggle-as-class-plays-a-greater-role-in-success.html?\\_r=0](http://www.nytimes.com/2012/12/23/education/poor-students-struggle-as-class-plays-a-greater-role-in-success.html?_r=0)
- ▶ “The Harlem Children’s Zone: How One Man’s Vision to Revitalize Harlem Starts with Children”:  
[www.cbsnews.com/news/the-harlem-childrens-zone](http://www.cbsnews.com/news/the-harlem-childrens-zone)
- ▶ “Homeless High Schoolers Face Barriers to Education”:  
[www.usnews.com/education/blogs/high-school-notes/2014/09/29/homeless-high-schoolers-face-barriers-to-education](http://www.usnews.com/education/blogs/high-school-notes/2014/09/29/homeless-high-schoolers-face-barriers-to-education)
- ▶ “Cyberbullying and Academic Impact”: [www.educationviews.org/cyberbullying-academic-impact](http://www.educationviews.org/cyberbullying-academic-impact)

Below are some suggested activities for programming assignments that can be used to enhance the access to education topic:

- ▶ Sildeshow app
- ▶ Flyer using JavaScript
- ▶ Understanding GUIs (optional)

For more information and resources about app building please visit <https://drive.google.com/drive/folders/1cxm-xHxcboUYIczAOgHdSpinkX2KmhJ?usp=sharing>.



## Teacher Tips:

You may choose to follow up on the individual homework assignment by completing the following group activities:

- ▶ (Optional) 3-2-1 Challenge (in groups)  
In the next class, ask students to share their responses to other students who read the same article. In their groups, have students come to a consensus about the three most important ideas in the article, the two most compelling details, and the question the group most wants answered.
- ▶ (Optional) Groups Share and Class Discussion  
Conclude the class by having a volunteer from each of the three groups present their consensus 3-2-1 to the entire class and discuss the final questions raised by each group. Ask students to consider how an app might help to overcome the barriers to education presented in these articles.

# Lesson 3: Future Concerns and Solutions

## Activity: Needs Assessment and Solution Tree



Have students carry out research to begin developing an understanding of specific issues and topics related to their broader issue. For example, access to education 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 education.

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

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

**Walk students through the Solution Tree, starting in the middle.**

**Goal:** This is the problem from their Problem Tree, but re-framed as a goal.

**Then go to the roots, which is the investigation of the solutions.**

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

**And finally to the leaves, which explore the outcomes.**

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



Have students use the Solution Tree and Needs Assessment worksheets, found in the Student Workbook.

# 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.

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

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

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

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

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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?

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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?”

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### Trunk: Problem

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### Trunk: Goal

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### 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.

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

# Activity: Making Connections Between Apps and Java Code



Work with students to make connections between the activities in this module and other computer science concepts. Hand out the Programming Concepts worksheet and ask students to complete it using the prompts below.

- ▶ Identify five programming concepts (e.g., if statements).
- ▶ Include example code segments that demonstrate each concept and that were used in your app development.
- ▶ Reproduce an equivalent code segment in Java.
- ▶ Briefly explain the purpose of the program code.

Students will apply their knowledge of object oriented programming in Java to complete the methods in the `Question.java` and `Trivia.java` classes. The `Question` class represents a pairing of a question and an answer. The class contains methods to access the question and answer, and methods to modify the question and the answer. The `Trivia` class simulates the playing of a trivia game. A list of questions used in the games is stored in an `ArrayList`. The `play` method simulates playing the game. For each question in the list, an answer is obtained and checked with the `Question` object's answer. If the answer is correct, the `totalCorrect` responses is updated. After all the questions are asked, the trivia score is displayed.

Students can modify the `SocialIssuesGame.java` file to include questions based on the blocks that were used in the Social Issues App they created previously or develop new questions and answers for trivia about the social issue. This program could also be used to introduce object oriented programming in Java.



## Focus Area Alert:

This activity will have students using `String` and `ArrayLists` objects. Students will have an opportunity to traverse their `ArrayList` using either a “for” loop or an enhanced “for” loop. Some questions are solved more easily using the enhanced “for” loop. Have a discussion with students about their solution and the benefits of using the enhanced “for” loop.



## Teacher Tip:

Often the AP® CSA free-response assessment includes questions that require students to write a class based on a program description. In these cases, students will be required to write class headers and declare instance variables, as well as constructors and methods. This activity provides a model for writing a class. Depending on when you use this activity and how much Java you have covered, you may want students to add a method or modify the `checkAnswer` method to take into account “close” answers. This might include words misspelled by only one or two letters or if the question is multiple choice the “next best answer.”

If you prefer, you may continue app development in Java using the Android Studio and Java Bridge. Information on Java Bridge can be found here: <https://sites.google.com/site/mobileprogrammingusf/java-bridge>.



## ISTE Standard - Computational Thinker:

Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.



Have students use the Programming Concepts worksheet found in the Student Workbook to record their learnings.



NAME: \_\_\_\_\_

TEAM MEMBERS: \_\_\_\_\_

## Programming Concepts

Complete the chart below by addressing the following:

- ▶ Identify five programming concepts (e.g., if statements).
- ▶ Include example program code that demonstrate each concept, and that were used in your app development.
- ▶ Reproduce an equivalent code segment in Java.
- ▶ Briefly explain the purpose of the program code.

APP INVENTOR CONCEPT	CODE SYNTAX	JAVA CODE EQUIVALENT	PURPOSE OF CODE?

## Activity: Question Class

You will apply your knowledge of object-oriented programming in Java to complete the methods in the following two classes. Develop questions and answers for trivia about access to education.

```
1 public class Question
2 {
3     private String question;
4     private String answer;
5     public Question ()
6     {
7
8     }
9
10    public Question(String q, String a)
11    {
12
13    }
14
15    public String getQuestion()
16    {
17
18    }
19
20    public String getAnswer()
21    {
22
23    }
24
25    public void setQuestion(String q)
26    {
27
28    }
29
30    public void setAnswer(String a)
31    {
32
33    }
34 }
```



## Question Class Answer Key

Below is an example solution for Question.java.

```
1 public class Question
2 {
3     private String question;
4     private String answer;
5     public Question ()
6     {
7         question = new String("Is the sky is blue");
8         answer = new String ("yes");
9     }
10
11    public Question(String q, String a)
12    {
13        question = new String (q);
14        answer = new String (a);
15    }
16
17    public String getQuestion()
18    {
19        return question;
20    }
21
22    public String getAnswer()
23    {
24        return answer;
25    }
26
27    public void setQuestion(String q)
28    {
29        question = q;
30    }
31
32    public void setAnswer(String a)
33    {
34        answer = a;
35    }
36 }
```

## Activity: Trivia

```
1  import java.util.*;
2
3  public class Trivia
4  {
5      public ArrayList<Question>listOfQuestions;
6      public int totalCorrect;
7
8      public Trivia(ArrayList <Question> qs)
9      {
10
11      }
12
13     public void play()
14     {
15
16     }
17
18     public String getAnswer(Question q)
19     {
20
21     }
22
23     public boolean checkAnswer(Question q, String ans)
24     {
25
26     }
27
28     public void upDateScore()
29     {
30
31     }
32
33     public int getScore()
34     {
35
36     }
37 }
```

## Trivia Answer Key

```
1  import java.util.*;
2
3  public class Trivia
4  {
5      public ArrayList<Question>listOfQuestions;
6      public int totalCorrect;
7
8      public Trivia(ArrayList <Question> qs)
9      {
10         listOfQuestions = new ArrayList<Question> (qs);
11     }
12
13     public void play()
14     {
15         String ans;
16
17         for (Question q: listOfQuestions)
18         {
19             ans = getAnswer(q);
20             if (checkAnswer(q, ans))
21             {
22                 System.out.println ("Your answer was correct.");
23                 upDateScore();
24             }
25             else
26             {
27                 System.out.println ("Your answer was incorrect.");
28             }
29             System.out.println ("Your score is " + getScore() + "point(s).");
30         }
31     }
32
33     public String getAnswer(Question q)
34     {
35         System.out.println (q.getQuestion());
36         Scanner keyboard = new Scanner(System.in);
37         String a = keyboard.next();
38         return a;
39     }
}
```

## Trivia Answer Key (Continued)

```
40
41     public boolean checkAnswer(Question q, String ans)
42     {
43         return q.getAnswer().equals(ans);
44     }
45
46     public void upDateScore()
47     {
48         totalCorrect++;
49     }
50
51     public double getScore()
52     {
53         return 1.0 * totalCorrect / listOfQuestions.size();
54     }
55 }
```

## Activity: Social Issues Game

```
1     import java.util.*;
2     public class SocialIssuesGame
3     {
4         public static void main(String[] args)
5         {
6             ArrayList <Question> myQuestions = new ArrayList <Question>();
7             myQuestions.add(new Question("What is your name?", "Veronica"));
8             myQuestions.add(
9                 new Question("Access to education is available for everyone?", "false"));
10
11             Trivia game = new Trivia(myQuestions);
12             game.play();
13         }
14     }
```

## Activity: Reflecting on Investigate and Learn



Provide opportunities for students to think about and record their individual and collective learning as they progress through the activities. Students should answer the following reflection question to prepare for Part 2: Action Plan: How can what you are learning in your AP<sup>®</sup> Computer Science A class support solutions that improve access to education locally and globally?

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

- ▶ What are the impacts of lack of access to education, locally and globally?
- ▶ As you investigated existing programs addressing access to education, what did you feel these programs do well and what did you feel they could do better?
- ▶ Who should be responsible for improving education access, locally and globally? What role do you think you could play in addressing education access, locally and globally?
- ▶ Based on what you learned about access to education, and the actions others are already taking, what are five areas of need that you could address?
- ▶ What attracts you to these areas of need?
- ▶ What are some actions that your team could take to address these areas?
- ▶ What excites you about these actions and the impact you can have?

## Reflect: Investigate and Learn

Now that you have investigated problems and potential solutions associated with access to education, think back over what you've learned: How can what you are learning in your AP<sup>®</sup> Computer Science A class support solutions for access to education locally and globally?

Record your thoughts on the lines below. If you run out of room on this page, use additional paper to write a lengthier response. As you write, think about the questions above to help shape your reflection:

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Have students use the Reflect: Investigate and Learn worksheet, found in the Student Workbook.

## Activity: Summarizing the Investigation



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

Have teams hold a working session to get their ideas in order and to develop their message. When summarizing their investigation, students should keep in mind the following:

- ▶ What are the key takeaways from your investigation?
- ▶ 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<sup>®</sup> Computer Science A students?



Have students use the Summarizing Your Investigation worksheet, found in the Student Workbook.

## Activity: Working Independently



To help students make deeper connections between their AP course content and their projects, have students independently complete this adaptation of Free Response Question #3 from the 2019 AP<sup>®</sup> Computer Science A exam. This question, shown below, is available as a student handout in the Student Workbook of this module. Use the scoring guidelines, found on the AP Central website and in AP Classroom, to assess students' performance and provide feedback on any misconceptions or misunderstandings.

### AP<sup>®</sup> Computer Science A Free-Response Questions

Many encoded strings contain *delimiters*. A delimiter is a non-empty string that acts as a boundary between different parts of a larger string. The delimiters involved in this question occur in pairs that must be *balanced*, with each pair having an open delimiter and a close delimiter. There will be only one type of delimiter for each string. The following are examples of delimiters.

#### Example 1

Expressions in mathematics use open parentheses "(" and close parentheses ")" as delimiters. For each open parenthesis, there must be a matching close parenthesis.

$(x + y) * 5$  is a valid mathematical expression.

$(x + (y)$  is NOT a valid mathematical expression because there are more open delimiters than close delimiters.

#### Example 2

HTML uses `<B>` and `</B>` as delimiters. For each open delimiter `<B>`, there must be a matching close delimiter `</B>`.

`<B> Make this text bold </B>` is valid HTML.

`<B> Make this text bold </UB>` is NOT valid HTML because there is one open delimiter and no matching close delimiter.

## AP<sup>®</sup> Computer Science A Free-Response Questions

In this question, you will write two methods in the following `Delimiters` class.

```
public class Delimiters
{
    /** The open and close delimiters. */
    private String openDel;
    private String closeDel;

    /** Constructs a Delimiters object where open is the open delimiter and close is the
     * close delimiter.
     * Precondition: open and close are non-empty strings.
     */
    public Delimiters(String open, String close)
    {
        openDel = open;
        closeDel = close;
    }

    /** Returns an ArrayList of delimiters from the array tokens, as described in part (a). */
    public ArrayList<String> getDelimitersList(String[] tokens)
    { /* to be implemented in part (a) */ }

    /** Returns true if the delimiters are balanced and false otherwise, as described in part (b).
     * Precondition: delimiters contains only valid open and closedelimiters.
     */
    public boolean isBalanced(ArrayList<String> delimiters)
    { /* to be implemented in part (b) */ }

    // There may be instance variables, constructors, and methods that are not shown.
}
```



## AP<sup>®</sup> Computer Science A Free-Response Questions

- (a) A string containing text and possibly delimiters has been split into *tokens* and stored in `String[] tokens`. Each token is either an open delimiter, a close delimiter, or a substring that is not a delimiter. You will write the method `getDelimitersList`, which returns an `ArrayList` containing all the open and close delimiters found in `tokens` in their original order.

The following examples show the contents of an `ArrayList` returned by `getDelimitersList` for different open and close delimiters and different `tokens` arrays.

### Example 1

```

openDel: "("
closeDel: ")"

tokens:


|     |         |    |        |
|-----|---------|----|--------|
| "(" | "x + y" | )" | " * 5" |
|-----|---------|----|--------|


ArrayList
of delimiters:


|     |    |
|-----|----|
| "(" | )" |
|-----|----|


```

### Example 2

```

openDel: "<q>"
closeDel: "</q>"

tokens:


|       |      |        |      |        |
|-------|------|--------|------|--------|
| "<q>" | "yy" | "</q>" | "zz" | "</q>" |
|-------|------|--------|------|--------|


ArrayList
of delimiters:


|       |        |        |
|-------|--------|--------|
| "<q>" | "</q>" | "</q>" |
|-------|--------|--------|


```

Class information for this question

```

public class Delimiters
private String openDel
private String closeDel

public Delimiters(String open, String close)
public ArrayList<String> getDelimitersList(String[] tokens)
public boolean isBalanced(ArrayList<String> delimiters)

```

## AP<sup>®</sup> Computer Science A Free-Response Questions

Complete method `getDelimitersList` below.

```
/** Returns an ArrayList of delimiters from the array tokens, as described in part (a). */  
public ArrayList<String> getDelimitersList(String[] tokens)
```

- (b) Write the method `isBalanced`, which returns `true` when the delimiters are balanced and returns `false` otherwise. The delimiters are balanced when both of the following conditions are satisfied; otherwise, they are not balanced.
1. When traversing the `ArrayList` from the first element to the last element, there is no point at which there are more close delimiters than open delimiters at or before that point.
  2. The total number of open delimiters is equal to the total number of close delimiters.

Consider a `Delimiters` object for which `openDel` is "`<sup>`" and `closeDel` is "`</sup>`". The examples below show different `ArrayList` objects that could be returned by calls to `getDelimitersList` and the value that would be returned by a call to `isBalanced`.

### Example 1

The following example shows an `ArrayList` for which `isBalanced` returns `true`. As tokens are examined from first to last, the number of open delimiters is always greater than or equal to the number of close delimiters. After examining all tokens, there are an equal number of open and close delimiters.

"<sup>"	"<sup>"	"</sup>"	"<sup>"	"</sup>"	"</sup>"
---------	---------	----------	---------	----------	----------

### Example 2

The following example shows an `ArrayList` for which `isBalanced` returns `false`.

"<sup>"	"</sup>"	"</sup>"	"<sup>"
---------	----------	----------	---------



When starting from the left, at this point, condition 1 is violated.

### Example 3

The following example shows an `ArrayList` for which `isBalanced` returns `false`.

"</sup>"
----------



At this point, condition 1 is violated.

### Example 4

The following example shows an `ArrayList` for which `isBalanced` returns `false` because the second condition is violated. After examining all tokens, there are not an equal number of open and close delimiters.

"<sup>"	"<sup>"	"</sup>"
---------	---------	----------

Class information for this question

```
public class Delimiters
private String openDel
private String closeDel

public Delimiters(String open, String close)
public ArrayList<String> getDelimitersList(String[] tokens)
public boolean isBalanced(ArrayList<String> delimiters)
```

Complete method `isBalanced` below.

```
/** Returns true if the delimiters are balanced and false otherwise, as described in part (b).
 * Precondition: delimiters contains only valid open and close delimiters.
 */
public boolean isBalanced(ArrayList<String> delimiters)
```

# Part 2: Action Plan

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## The Action Plan section is divided into four parts:

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

## WE Service Framework



# Overview for Part 2: Action Plan

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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

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## 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

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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><b>Gift + Issue = Change</b> 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><b>Finding Passion with the Issue Compass</b> 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><b>Exploring the Four Leadership Styles</b> 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><b>Creating a Safe Space</b> 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><b>Drafting a Team Contract</b> 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><b>Establishing Roles and Responsibilities</b> 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

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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><b>Tips on Developing Direct Service Action Ideas</b> 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"> <li>• Tips on Developing Direct Service Action Ideas</li> <li>• WE Volunteer Now Campaign</li> </ul>
<p><b>Tips on Developing Indirect Service Action Ideas</b> 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"> <li>• Tips on Developing Indirect Service Action Ideas</li> <li>• WE Go Green campaign</li> <li>• WE Scare Hunger campaign</li> <li>• WE Are Rafikis campaign</li> <li>• WE Create Change campaign</li> </ul>
<p><b>Tips on Developing Advocacy Action Ideas</b> 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"> <li>• Tips on Developing Advocacy Action Ideas</li> <li>• Developing a Deep Understanding of Your Issue, and Messaging Your Message</li> <li>• Ensuring Message Credibility</li> <li>• Spreading the Word (Communications Strategies and Communications Plan Worksheets and Templates)</li> <li>• Practice, Practice, Practice</li> <li>• WE Are Silent campaign</li> </ul>



# Approaches to Taking Action Information Sheet

(1 of 1)

## DIRECT SERVICE

<b>WHAT IS IT?</b>	Personally engaging with and providing hands-on service to those in need (usually in conjunction with an organization).	
<b>EXAMPLE GOAL</b>	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.	
<b>ACTIONS</b>	<ul style="list-style-type: none"> <li>Reach out to local shelters and food banks to arrange a day for the class to visit and provide hands-on support</li> <li>Once a date has been decided, make sure students all have permission to travel to the food bank (if during school hours)</li> </ul>	<ul style="list-style-type: none"> <li>Connect with teachers/administration at local elementary school and arrange to visit a classroom to teach a lesson to young students on food insecurity</li> <li>Create and print worksheets to use with younger students</li> </ul>

## INDIRECT SERVICE

<b>WHAT IS IT?</b>	Channeling resources to the needs of a community—locally, nationally, or internationally.	
<b>EXAMPLE GOAL</b>	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.	
<b>ACTIONS</b>	<ul style="list-style-type: none"> <li>Conduct research into which items are most needed by community members (e.g., bed frames, dining tables, household goods, etc.)</li> <li>Reach out to local businesses to try to get a storage space donated</li> <li>Connect with school social workers/administration to gain their support</li> <li>Put up flyers around school and in the community, asking for donations (list specific items needed), including instructions on how/where to donate</li> </ul>	<ul style="list-style-type: none"> <li>Develop an online database for tracking donations and pick-ups, and maintaining inventory</li> <li>Share pick-up information with local shelters, churches, community centers, etc.</li> <li>Share the donation system with school social workers, so that they can maintain the project in future years</li> </ul>

## ADVOCACY

<b>WHAT IS IT?</b>	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.	
<b>EXAMPLE GOAL</b>	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.	
<b>ACTIONS</b>	<ul style="list-style-type: none"> <li>Research the impact of single-use plastic water bottles around the school and in the local community</li> <li>Plan out and create a 3D sculpture that incorporates informative text on the issue of single-use plastics</li> <li>Seek permission from school administration to display the piece in a common area of the school</li> </ul>	<ul style="list-style-type: none"> <li>Design and order water bottles to sell at school</li> <li>Research and select an international organization that focuses on clean water projects</li> <li>Organize a selling schedule for the water bottles, donate profits</li> </ul>

## 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
<b>Determining Clarity and Relevance of Goals</b> 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.
<b>Establishing S.M.A.R.T. Goals</b> 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
<b>Creating Measurements of Success</b> 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.
<b>Collecting Evidence and Artifacts</b> 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.
<b>Creating Surveys and Feedback Forms</b> 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><b>Creating a Timeline</b> 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><b>Identifying and Sequencing Tasks</b> 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><b>Identifying Task Owners</b> 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><b>Identifying Resources and Creating a Network</b> 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<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> course, and what they have learned so far.



### Teacher Tips:

- ▶ As part of their AP<sup>®</sup> 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
<b>Perfecting the Elevator Pitch</b> 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.
<b>Developing a Deep Understanding of Your Issue and Massaging Your Message</b> 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.
<b>Ensuring Message Credibility</b> 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.
<b>Spreading the Word</b> 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.
<b>Practice, Practice, Practice</b> 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

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The Take Action section is divided into two parts:

- ▶ Connect Learning
- ▶ Re-Inspire and Reflect

## WE Service Framework



# Overview for Part 3: Take Action

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

## Key Takeaways

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

## This Section Contains:

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

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

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

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

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

RESOURCE AND DESCRIPTION	HOW TO USE THIS RESOURCE
<p><b>Ezra Frech's Story</b> 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 <a href="https://www.youtube.com/watch?v=KUqmJzoQQYQ">https://www.youtube.com/watch?v=KUqmJzoQQYQ</a>) 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><b>Practicing Positive Teamwork and Conflict Mediation</b> 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><b>Navigating Obstacles</b> 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><b>Planning for Contingencies</b> 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><b>Craig Kielburger’s Story</b> 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: <a href="https://www.we.org/en-CA/about-we/about-us">https://www.we.org/en-CA/about-we/about-us</a>.</p>
<p><b>Ally Del Monte’s Story</b> 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 <a href="https://www.youtube.com/watch?v=QhHLekYrrp8">https://www.youtube.com/watch?v=QhHLekYrrp8</a>) 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><b>Razia Hutchins and Maurice Young’s Story</b> 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 <a href="https://www.therenewalproject.com/fighting-against-chicagos-gun-violence-with-peace/">https://www.therenewalproject.com/fighting-against-chicagos-gun-violence-with-peace/</a>) 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

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**The Report and Celebrate section is divided into three parts:**

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

## **WE Service Framework**



# 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<sup>®</sup> 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

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## 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<sup>®</sup> 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 ( <a href="https://www.weday.org/en-CA/our-work/we-day/">WE.org/en-CA/our-work/we-day/</a> ) 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

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## 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<sup>®</sup> 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!

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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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