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Course Revision

Revisions are required when a school:

- Changes the course title, transcript abbreviation or course code/number
- Changes grade level
- Reduces course length (i.e. from year to semester)
- Eliminates honors status

Revisions are NOT required when a school:

- Updates course materials
- Makes minor shifts in course content

[> Begin revision](#)

Global Health (NAF) (NAF)

CORE Butte Charter School (054171)

Basic Course Information

Abbreviations:

Abbreviation	Course code
a-g Global Health	
Global Health	

Length of course:

Half Year (1 semester; 2 trimesters; 2 quarters)

Subject area:

Subject area	Discipline
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College-Preparatory Elective ("g")

Interdisciplinary

UC honors designation:

None

Grade levels:

9th	10th	11th	12th
✓	✓	✓	✓

Course learning environment:

Classroom	Online
✓	

Is this course an integrated course?

No

Course Description

Overview:

Global Health enables students to understand public health on a global scale applying their academic base of scientific knowledge. Students learn what disease is and investigate its impacts on world populations applying their scientific foundations. Through the study of health in different societies, they learn about the relationship between health and socioeconomic development. Students learn how environmental, nutritional, and behavioral risk factors jeopardize health. They learn how communities, governments, and cooperative global efforts can intervene to improve health. Students first study each concept as it applies to their own community, and then they look at it in a more global context. Students practice deciphering and interpreting the data they find in tables, charts, graphs, and maps using the scientific process. Students are exposed to working with information compiled by the foremost global health agencies, such as the World Health Organization, the Centers for Disease Control and Prevention, the World Bank, and UNICEF.

Students apply this information through a scientific lens, developing hypothesis, applying data to create conclusions and recommend courses of action. Students have a chance to explore the careers that apply scientific knowledge and research what it would be like to have a career in a global health career field.

The Global Health course is one of a sequence of courses in the National Academy Foundations Academy of Health Sciences total program of study. The global health course comprehensive course of study is cross walked with the ELA and Math common core standards and meets many of the Next Generation Science Standards. The global health course is a foundational course for the health sciences career pathway. The global health course is based on the application of scientific knowledge and application skills. The course provides a global perspective on the health issues and creates a foundation for students to problem solve, analyze, and develop potential courses of action using scientific processes and knowledge. This course was piloted in four NAF academy classrooms during the 2012–2013 school year. Based on the pilot experience, significant revisions have been made to improve the quality of the course. The course was developed with a team of teachers and health professionals, piloted, revised and is now being implemented in National Academy Foundation classrooms.

Prerequisites:

None

Co-requisites:

None

Course content:

Project Presentation

Students use the knowledge they have gained in this course to focus on their culminating project. After they choose a health issue to focus on, they analyze a sample culminating project presentation and then research and outline slides for their own presentation.

Students start this last unit in global health with a sticky note activity on what they have learned throughout the global health course. The purpose of this activity is to help students recognize how much they have learned in this course and to provide informal feedback about the course. The instructor posts sheets of chart paper around the room, each one labeled with the title of a unit the students completed and the major topics in that unit. Students answer the following questions on sticky notes and post to the corresponding poster paper. The questions are, something I learned in the unit was..., In this unit, the best activity or assignment was.. I wish

we'd had more time to ... in this Unit., I really had a hard time with... in this unit. Students take time to prepare their final presentations. Students create the narrative, the slides, the documents needed for their culminating presentation. Students complete a "dry" run of the of the culminating project in small groups to ensure they have covered all the details for the live run in front of the expert panel. Students then deliver their final presentation to the review panel and their peers. Students receive feedback from their peers about their presentations. The expert panel provides feedback to each student. Students create a website to showcase their culminating project work using cut-and-paste and drag-and-drop templates on weebly.com, webs.com, or another available site. Explain that they can convert their PowerPoint slide presentation to a video file using Microsoft PowerPoint 2010 or 2013 and then upload it to one of these free sites. Students to organize their thoughts about the course once more. This time, however, ask them to comment specifically on which parts of the course they liked the most, which they thought were the most difficult, which they wished they had more time to complete, and so on. Students to create a list of ideas, recommendations, and improvements they would make if they had to teach the course the following semester, and to organize these suggestions into categories for presentation.

Developing the Case

Students use the knowledge they have gained in this course to focus on their culminating project. After they choose a health issue to focus on, they analyze a sample culminating project presentation and then research and outline slides for their own presentation. Students use this experience and knowledge of prior student performance to improve their culminating project.

Students prepare a professional presentation that will be assessed by local industry professionals and staff.

Students plan out the remainder of their work for their culminating project. The objective is to have students take responsibility for organizing their own work. Students take time to plan out their culminating project for their final assessment for the Global Health course. Students need to review their portfolios and topic to make sure the issue is worthy of being the focus of the international health summit. Students have learned about several health issues that would make good candidates for the focus of their culminating project, and point out that now it is time to make a final decision about which issue they are going to present. Students will analyze a sample culminating project and begin to envision what their own project will look like. The target audience for the presentation is global health experts who will be determining if their health issue is worthy of being a focus of the international summit. Students will then review the sections needed for the culminating project and the assessment rubric. Students will then construct an outline for their culminating project. The purpose of this activity is for students to research and create an outline, in a chart format, that they will use to create their culminating project presentation. Students to meet with your school's media specialist to go over the specifics of creating a self-running slideshow for the culminating project and to discuss technology that will be available to them. They create their slideshow in Lesson 15, but thinking about how to incorporate media early on could be helpful. Students create an educational website about the health issue that they are focusing on for their culminating project. Tell them that the purpose of their site is to raise awareness about the health issue and that teens are their target audience. Encourage them to use

social media to promote their site. Students identify a nonprofit organization that works on the health issue they are focusing on for their culminating project. Have students create a list of questions that they have about the health issue and then correspond with a representative from the organization. Students' questions may be about topics such as professions that focus exclusively on the issue, effective interventions, or raising awareness. Students create an illustrated timeline that shows major events in the history of the health issue that their culminating project group is focusing on. Encourage them to use a variety of images on their timeline, such as illustrations, photographs, charts, and diagrams. You may wish for them to view the following timeline to get ideas: AIDS Retrospective Slideshow: A Pictorial Timeline of the HIV/AIDS Pandemic (<http://www.webmd.com/hiv-aids/ss/slideshow-aids-retrospective> (<http://www.webmd.com/hiv-aids/ss/slideshow-aids-retrospective>))

Cooperative Efforts to Improve Global Health

Students learn about cooperative efforts to address natural disasters and complex humanitarian emergencies. They compare and contrast different characteristics of natural disasters and complex humanitarian emergencies. They also view a video on polio eradication in India and analyze the role of innovation in the eradication. They learn about different real-life scenarios that required multinational cooperative efforts and analyze the reasons cooperation is necessary. Students use PowerPoint slides to create posters that focus on a specific emergency and illustrate the need for global cooperation. For their culminating project, they identify types of interventions that could be used to address health issues they are interested in focusing on.

The purpose of this activity is to activate students' prior knowledge about contemporary natural disasters and complex humanitarian emergencies and to generate ideas about why a global effort is required to address these situations. Students visit the following sites Natural Disasters and Extreme Weather: <http://www.guardian.co.uk/world/natural-disasters> (<http://www.guardian.co.uk/world/natural-disasters>), ReliefWeb: <http://reliefweb.int/> (<http://reliefweb.int/>), The UN Refugee Agency: <http://www.unhcr.org/pages/49c3646c23f.html> (<http://www.unhcr.org/pages/49c3646c23f.html>). Students create a three-column chart on the board. Have students share their responses and list the specific disasters and emergencies that they name in the first column. What kind of assistance do you think was needed to alleviate victims' suffering in the third column, and a list of consequences resulting from the disasters and emergencies, recording student responses in the second column? Students read Natural disasters and complex humanitarian emergencies, then complete a defining format activity. Students will view the UNICEF India's YouTube video on polio eradication at http://www.youtube.com/watch?v=V_BxUwFLkMM (http://www.youtube.com/watch?v=V_BxUwFLkMM), to analyze innovation as another important topic related to global health. Students explain what they think is the difference between a natural disaster and a complex humanitarian emergency, based on the discussion from the first activity. Then explain that the reading will help them to clarify their definitions of these terms. Students complete vignettes on the reasons for cooperation in Global Health to expose students to examples of cooperation in global health and for students to assess reasons why cooperation in global health is needed. The following prompts: Based on the scenarios you read about, what is one reason that individuals and organizations might not work together during an emergency or disaster? Why do you think

it's important that the individuals and organizations in emergency and disaster response work together and agree to the most important priorities in each situation? The next assignment is a poster construction assignment on successful cooperative action for global health. for students to research a successful cooperative action in the realm of global health and create a poster that demonstrates the effectiveness of cooperation for improving global health. Student posters will be on display I the classroom. Students will be working on their culminating projects. The purpose of this activity is for students to use what they have learned about intervention strategies to decide what types of strategies may be effective for the health issues that they are considering for their culminating project. Students read the UNHCR booklet "Refugee Teenagers: Escape and Protection from Persecution and War" (<http://www.unhcr.org/4534f1e713.html> (<http://www.unhcr.org/4534f1e713.html>)). Then have them write letters or emails to their local or national elected officials, urging them to support refugees in general or to find solutions for a specific refugee crisis. students use color or graphics to create a map depicting the refugees from and in countries in the Middle East. Encourage students to be creative, yet clear and accurate, with their maps. Facts about refugees in the Middle East can be found at the UN Refugee Agency's Middle East page (<http://www.unhcr.org/pages/49e45ade6.html> (<http://www.unhcr.org/pages/49e45ade6.html>)). Students work in groups to research the science behind the occurrence of natural disasters, such as a hurricane, earthquake, or tsunami. Students should also focus on what effect, if any, experts think climate change is having on the frequency and severity of the disaster. Have students create presentations about their findings.

Community and policy health interventions

Students learn about the different types and levels of health interventions. They learn about the criteria for a community-based intervention, the different levels of prevention, and different ways for evaluating an intervention. They also identify the characteristics of policy health interventions and learn what makes policy health interventions successful and effective. They compare and contrast community and policy health interventions, and they develop an understanding of how community and policy health interventions support each other. Finally, they design and present an intervention that focuses on a health issue in their community.

Students focus Public Health Interventions. Starting with the professional roles in Public Health Intervention, students use what they know about public health to predict which professionals are involved in different types of interventions. Students are assigned a professional role that is involved in public health intervention such as; Doctor, Dentist, Public health nurse, Health educator, Community organizer, Nutritionist, Government official, Researcher, Grant writer, Fundraising manager and Politician. Students research their role and then approach students in class that explain their professional's role in public health interventions. The instructor presents a power point on the types and levels of Global Health Interventions to provide students with an understanding of the different types and levels of global health interventions, including an understanding of population-based interventions and examples of specific interventions. Students complete a reading on community based-interventions to give students a more in-depth understanding about what community-based interventions are, including levels of prevention and ways to evaluate interventions. When students have completed the reading, instruct them to put the reading away. Then ask them to write a one- or two-sentence summary of the reading using

their key words to guide them. Emphasize that students should not look at the reading while writing the summary. An analysis of the effectiveness of policy interventions is conducted next, to think about what a policy intervention is and the types of effort that go into developing a policy intervention. Students create a list on the board of defining characteristics of policy interventions, making sure that it includes: Change organizations, laws, rules, regulations, ordinances, policies, and power structures, use local, state, and national government agencies to bring about change. Students then complete a series vignettes on evaluating interventions, to apply what they have learned about effective community and policy interventions to analyzing examples of global health interventions. Students read each vignette and then use sticky notes to respond to the questions about the effectiveness and characteristics of the intervention at the bottom of the vignette. Instruct them to spend no more than five minutes at each vignette. To conclude, students share with the class which of the interventions they found most impressive and why. Students then classify in a list, group, and label activity on community interventions, to identify and categorize interventions that could be effective in their communities. Students then compare and contrast community and policy interventions. The purpose of this activity is to compare and contrast the characteristics of community and policy interventions. Students complete a Venn diagram on texting while driving, then students compare their diagrams with classmates. Designing a community presentation on a community intervention is the next key assignment, for students to design a community intervention that addresses an important health issue in their community. Students to do further research about their intervention for homework, by taking to leaders in the community and other citizens who have an interest in the type of intervention they are planning. Students will talk to public health workers, doctors, politicians, teachers, policemen, senior advocates, food bank workers, rehab workers, and so on. Students present their interventions. A reflection on community intervention on a Global Scale, is for students to apply what they've learned about effective interventions to their knowledge of a region outside of their own community. Based on the following prompt: Think about a community in another country or region of the United States that you have learned about in this course. What do you think the outcome would be if the intervention you designed were implemented in that place? What about the intervention would be effective and what wouldn't? Students are provided with a list of health interventions in your community. Then ask students to research and categorize the interventions by their level of prevention: primary, secondary, or tertiary. To give students a real-world sense of what resources are required to implement a successful intervention, work with a local nonprofit health agency to acquire a basic budget for a program. Help students understand how the budget works, and then have them create budgets for their community health intervention using the budget as a model. : Instruct students to choose a health issue affecting people in their state that they think should be addressed by a policy intervention. Then have them write letters to a state senator persuading the senator to consider the issue. Encourage students to research the issue and use facts and figures to support the argument they make in their letters.

Behavioral Risk Factors

Students learn about risky behaviors and associated health outcomes. They learn about health determinants that are linked to risky behaviors. By developing concept maps, they analyze the links between risky behaviors and injury and disease. In preparation for their culminating project,

they write an argument about a pressing health issue related to nutritional, environmental, or behavioral risk factors.

Students consider the correlations of risky behavior and health outcomes. The purpose of this activity is to introduce students to the concept of risky behaviors and to have students activate prior knowledge to identify health outcomes of risky behaviors. Students consider the following; spending too much time being sedentary, not wearing a seat belt, having unprotected sex. All of the items describe risky behaviors. Students consider that risky behaviors potentially threaten the health of the person who manifests the behavior and the health of others. Next the instructor presents on risky behaviors and health outcomes. This activity is to provide students with a more in-depth understanding of diseases and injuries that can be attributed to risky behaviors. Students take notes in their Global Health notebooks and add terms to their taxonomies. To apply the principles of the last lesson students will complete vignettes on health determinants and risky behaviors activate prior knowledge to consider health determinants that are linked to risky behaviors. A concept map will be completed by the students to show how a risky behavior can lead to injury or disease. Students are given a sample concept map, a discussion on concept maps is conducted. They create a concept map that shows how a risky behavior can lead to injury or disease. When students complete their maps, have them post them around the room in preparation for a gallery walk. The purpose of this activity is for students to provide each other with feedback on their concept maps. Students recognize how different parts of a broad concept fit together is an important professional skill that is especially useful for problem solving. Explain that in this gallery walk, they will study their peers' concept maps and look for elements or relationships that might help to solve a problem. Students then produce a written argument about a pressing health issue attributed to an environmental, nutritional, or behavioral risk factor. A reflection on risky behavior and health outcomes is written by the student, to reflect on risky behavior and health outcomes in their own lives based on the following writing prompts; One potentially risky behavior I have is..., Based on what I now know about risky behavior, I might consider changing..... Students assess what risky behaviors are most prevalent in their communities. Students design surveys that they will use to collect data about risky behavior in their communities. Students cover a range of risky behaviors—from texting while driving to unsafe sex—on their surveys. Then work with students to develop a plan to have community members fill out surveys anonymously. Once students have collected data, they use charts and graphs to organize and then draw conclusions from their data. Explain that since the AIDS epidemic began, public awareness about the consequences of risky sexual behavior has risen dramatically in the United States and elsewhere. Students conduct and film interviews with their parents, grandparents, or other older adults whom they are close to about what life was like before AIDS. They may wish to ask them questions about how they first learned about the disease, if the epidemic changed the behavior of people they knew, and the difference they see in the awareness of young people compared with people's awareness in their generation. Students write persuasive essays that argue in support of a certain solution to obesity. Students may choose to write solutions such as restricting the sale of high-fat food, mandatory physical activity during the work day, or increased use of medications that help control weight. Students can choose a solution that they have learned about or a solution that is their own idea. Students examine case studies that illustrate how statistics show or don't show correlation. Help students understand the basic statistical math that establishes correlation.

Nutritional Risk Factors

Students learn about the causes and effects of different types of malnutrition, including under nutrition and obesity. They learn about specific terminology related to malnutrition and about the health determinants linked to malnutrition. They also learn to analyze information about malnutrition and display it in charts and graphs. Students explore the cycle of malnutrition, from infancy to old age. For their culminating project, they take notes on compelling health issues related to nutritional risk factors.

Students complete a terminology matching activity on malnutrition to introduce students to terms related to malnutrition. Students work in pairs to match up the terms. The instructor presents a power point on how nutrition impacts health status, students take notes and add terms to their taxonomies. This is to provide students with a more in-depth understanding of what causes malnutrition, what the effects of malnutrition are, and how global health workers are fighting malnutrition. A reading assignment on health determinants and malnutrition so the students learn about the health determinants that are major factors in malnutrition. After reading students look for correlations between health determinants and malnutrition. The next activity are online stations to calculate body mass index (BMI) and learn about obesity trends. The three stations are, Section 1, BMI Station: <http://apps.nccd.cdc.gov/dnpabmi/> (<http://apps.nccd.cdc.gov/dnpabmi/>), Section 2, Obesity Trends Station: <http://www.cdc.gov/obesity/data/trends.html#> (<http://www.cdc.gov/obesity/data/trends.html>) , Section 3, Obesity Around the Globe Station: http://tiny.cc/Global_WHO_Obesity (http://tiny.cc/Global_WHO_Obesity) . Students have 12 minutes at each station, and then they will need to move on to the next station. The next assignment is for students to analyze information about malnutrition and display it in a meaningful way in bar graphs and pie charts. They will be creating graphs that paint a picture of malnutrition in different areas of the world, and they will be expected to draw on what they already know about creating graphs in Excel. Students then write an explanatory essay on the Malnutrition cycle to develop an in-depth understanding of the cycle of malnutrition and write an explanatory essay on the topic. Students view a short video about the cycle of malnutrition. Explain that the video focuses on girls and women in South Asia. Students listen for the major stages of the human life cycle and write them down in their notebook. Then have students view the video: <http://www.youtube.com/watch?v=6f0AMQQszQU> (<http://www.youtube.com/watch?v=6f0AMQQszQU>). After the video students name major stages of human life. Students read the article “The Life Cycle of Malnutrition”, using this information, they write an explanatory essay that describes the life course of an undernourished person, explaining the toll that malnourishment can take on each life stage in a person’s life. Once the essays are completed a peer review of the essays is conducted. After receiving peer input on the essays, students revise for submission to the instructor. The next activity is for students to work on the culminating projects, incorporating information on the Malnutrition cycle and Nutritional Risk Factors, into their projects. Students research and create a classroom map that depicts areas that are experiencing severe food shortages, such as Sahel. Students to use Google News keyword searches for terms like *food shortage* or *food crisis* to start compiling the list. Students to read articles about obesity, such as those listed below. Then have students use the information in the articles to write down possible solutions to the obesity epidemic. Engage students in a discussion about which solutions they believe to be the most effective; “A Simpler Way to Slow the Obesity Crisis,” http://tiny.cc/Global_TIME_Simpler

(http://tiny.cc/Global_TIME_Simpler), “Pharmageddon: Can a New Weight Loss Drug Really Save Us?” [huffingtonpost.com/dr-mark-hyman/qnexa_b_1303050.html](http://www.huffingtonpost.com/dr-mark-hyman/qnexa_b_1303050.html)
(http://www.huffingtonpost.com/dr-mark-hyman/qnexa_b_1303050.html), “Solutions: Dealing with America’s Obesity Problem,” http://tiny.cc/Global_WT_Solutions
(http://tiny.cc/Global_WT_Solutions). Students research the origins of the formula used to calculate BMI and explain why this formula works. What is the effect of squaring the person’s height? And why is the factor 703 used? Have students share their findings with the class.

Environmental Risk Factors

Students learn about the main environmental risk factors and diseases related to sanitation, water, hygiene, indoor air pollution, and outdoor air pollution. They draw diagrams to illustrate how health determinants are linked to environmental risk factors and analyze charts and diagrams to retrieve risk factor information. They read case studies about environmental risk factors that affect health and report their findings in presentations. During a guest speaker visit, they interact with a professional who specializes in environmental global health. Students are assigned groups for their culminating project and are introduced to the goals of the project. For their culminating project, they focus on environmental health issues that they think may need immediate attention.

Starting with what they already know, students become familiar with important environmental risk factors and disease that are associated with them. Students analyze a situation presented by the instructor. A woman in a rural area of Nigeria builds a fire inside her home to cook dinner. She uses dry wood that she has collected. The low fire lets off smoke. Because there is little ventilation, the smoke stays inside her home. While the woman cooks, two children sleep nearby on a simple cot. This discussion leads to the learning of the five most important environmental risk factors. The instructor presents on environmental risk factors related to sanitation, water and hygiene. This provides students with a more in-depth understanding of the risk factors related to sanitation, water, and hygiene. It provides students with an understanding of the diseases and other repercussions associated with the risk factors as well as information about who is most at risk. Students take notes and add terms to their taxonomies as they instructor provides the lecture. A reading assignment on risk factors related to air pollution, with the students listing in their notebooks, the different sources of air pollution and the health outcomes that result from air pollution. The next assignment is the introduction of the culminating project to get students to consider the environmental health issues they want to feature in their culminating project. Students will read an overview of the Global Health Summit Proposal, when finished they generate questions about the project and consider comparisons to their culminating project. Diagraming health determinants and environmental risk factors is next, students will be examining the health determinants that are at the root of the health issue they feature in their project and diagraming scenarios to identify the health determinants in the scenario. Students create a chart on linking disease to environmental factors, they create a chart about the disease assigned to them, and the class will use the charts as reference materials as they continue their work on global health. Students divide their chart paper into four sections and address one topic in each section of their chart paper: A brief description of the disease, the environmental factors linked to the disease, the groups of people who are most at risk for the disease, Steps that can be taken to reduce the environmental risk. Next, students interpret the charts and graphs, using

them to find environmental risk factors. Students complete a scavenger hunt activity online reviewing graphs and charts, used by global health organizations, governments, and researchers to communicate information about environmental risk factors and other information related to global health. Students are assigned to groups to create a presentation about a disease related to an environmental risk factor. Their main source for the presentation will be a WHO fact sheet about a disease. In addition to the fact sheet, they will need to do some additional research to learn about a place where the environmental risk factor and the resulting disease are prevalent. They will present this additional information as a brief case study on one or two slides. Their case study should explain why the population they studied is at risk for the disease. Students will present their group presentations to the class, students will take notes on other's presentations for possible use and facts for their culminating project. A guest speaker that is an Environmental Health professional is then invited to the class, students write questions for the speaker in their notebooks as they listen. Each year the WHO hosts World Water Day to raise awareness about water issues across the globe. Have students participate in an event taking place in an area near them, or have them download campaign materials to use to launch a public awareness campaign at their school. Information can be found at: www.unwater.org/ (<http://www.unwater.org/>). Have students use this site to calculate their water footprint: <http://www.h2oconserve.org/home.php?pd=index> (<http://www.h2oconserve.org/home.php?pd=index>). Then have students work in groups to come up with detailed plans for reducing water usage at home, at school, and in their communities. students conduct an experiment in which they calculate the volume of air in their classroom and examine the importance of indoor air quality. Instruct students to follow experiment instructions for the section called Breathing Room at this site: <http://www.epa.gov/students/teachers.html> (<http://www.epa.gov/students/teachers.html>). The major components of particulate matter are sulfate, nitrates, ammonia, sodium chloride, carbon, mineral dust, and water. Students investigate the properties of these chemicals and report back on why they might be harmful when they are in the air we breathe.

Introduction to Health Determinants

Students learn about the determinants that influence the health of individuals and communities. They learn about the meanings and uses of the terms *correlation* and *causation*. Students learn about the role culture plays in determining health, and they examine how their own culture is a health determinant. Students conclude this lesson by writing an analysis of health determinants in their lives, their families, and their community.

Students draw on prior knowledge to make predictions about the relationship between a country's health and its socioeconomic status. Students have already learned something about the relationship between the health of a country and its socioeconomic development. Students write the name of each country on their worksheet, and ask them what they know about those countries. Help students to recognize that two of the countries, Finland and Qatar, are considered developed countries, whereas the other two, Uganda and India, are considered developing. Encourage students to add information about the countries to their regional reference maps. The instructor then presents a power point slide show on health and socioeconomic development. This is to provide students with a more in-depth understanding of the considerations that link health and socioeconomic development. Students complete a poster assignment on the

correlating health and socioeconomic development. Students explore how a country's socioeconomic development impacts its health by creating a poster. The poster includes recommendations for improving the country's health and socioeconomic status. They create a poster about health and development in their country. Their poster will be displayed at an important WHO convention, where the recommendations they make will be taken under consideration for funding. Students conduct research for accuracy of information to include on their poster. A student review meeting of the completed posters is conducted to demonstrate their understanding of the correlation between socioeconomic status and health status by explaining their hypothesis and recommendation at a review meeting. Students read an article on equity and social justice in the United States, students learn about the concepts of health equity and social justice. To begin this activity, write the WHO definition of *equity* on the board: *Equity* is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. Circle the words *avoidable* and *remediable*, and ask students to work in pairs to come up with at least one difference between groups of people that could be avoided or remedied. Students complete information stations on organizations that promote global health. Students learn basic information about several important organizations that promote global health, by visiting stations around the room that provide photographs and details about each organization's work. Students are given approximately 10 minutes to complete the resource, and then review the answers as a class. Students recognize that all of these organizations are working to address global health and/or socioeconomic inequality. Some, like the World Bank, are focused more on socioeconomics, while others, like the Centers for Disease Control and Prevention (CDC), are focused more on health—but as students should be starting to realize, both types of work are essential to creating a healthier world. Students complete a quiz on equity, social justice and health organizations. Students track the relationship between obesity and socioeconomic development in a population. When does obesity appear most prevalent in low-, middle-, and high-income sectors of a population? Draw connections between this information and what they have learned about equity and social justice. Students research and create a presentation on one of the following modern social justice movements. Have them explain why it is a social justice movement and what the movement's position is on health-related issues: The Occupy Wall Street movement, The Slow Food movement, The DREAM Act movement and The Fair Trade movement. Students give a speech to a group of foreign global health workers visiting the United States. The purpose of the speech is to inform the workers about major health inequities among American populations. Explain that the speech should provide information about three major issues related to health inequities.

Health and Socioeconomic Development

Students consider the impact that socioeconomic development has on health. Students begin by using socioeconomic data to make predictions about a country's health and using health data to make predictions about the country's socioeconomic level. Students look more closely at the relationship between health and development and design a poster about the socioeconomic

levels and health problems of a country. They also learn about the concepts of health equity and social justice. Students also explore the most important NGOs and governmental agencies working in the field of global health today.

students begin to develop an understanding of what human rights are by considering examples of human rights violations across the globe. They compare these violations with the Universal Declaration of Human Rights and discuss why human rights are important, particularly in the field of global health. Students write and reflect on the following questions; what are rights? What rights do you have? What kinds of rights should every human have? Students read scenarios on human rights violation, these are short descriptions of real-world situations or events. Students work in small groups, and assign each group one scenario. (There are five scenarios total, so more than one pair or group will be assigned each scenario.) Ask students to read their scenario and discuss in their group what the scenario has to do with human rights. Students then focus their attention on Article 25, which is the primary article concerning people's right to health and medical care. Then viewing the video "North Korean Children Bear Brunt of Food Crisis" (<http://www.youtube.com/watch?v=RYYKvpr1uTw> (<http://www.youtube.com/watch?v=RYYKvpr1uTw>)). Students develop a more in-depth understanding of Article 25 by answering the following questions: What are the key points of Article 25?, How did the video show that North Korea is in violation of these points?, Using North Korea as an example, why do you think that motherhood and childhood are emphasized in Article 25? Students then complete a K-W-L chart on ethics and human rights, viewing a presentation on ethics and human rights, students consider what they already know about these topics and what they would like to know more about. The instructor provide students with a more in-depth understanding of ethics and human rights and how the two are related. It also gets them thinking about ethical and human rights issues in global health through a power point slide show on health ethics and human rights. Students take notes and add terms to their taxonomies. Then complete an analysis on Ethical Guidelines in Refugee Camps, Students think about how the ethical guidelines they just learned about are (or are not) applied in real life by analyzing photographs of the world's largest refugee camp, located in Kenya. Students to imagine themselves as members of the UN High Commission for Refugees. Their job is to find evidence indicating whether or not the Dadaab camp is being run in an ethical way, focusing on their specific guideline. Students then read Ethical Health Issues to learn about how ethics are important in the practice of medicine. A vote with your feet debate on ethical health issues where students apply what they have learned about medical ethics to a real-life medical controversy by holding a debate. This activity also provides them with a chance to practice persuasive argument and impromptu speaking. Students write, pair, share on poverty and human rights, students consider the challenge of ensuring human rights, particularly health care, for impoverished people. They think about whose responsibility it is to make sure that poor people get health care and why that is such a difficult proposition. Students create a report on current initiatives to promote human rights related to health, students explore programs currently in place to promote human rights and improve global health. Students focus on the fact there are many people working in governments or nongovernmental organizations (NGOs) to address human rights and health issues in countries all over the world, and explain that students are going to look at one specific initiative and report back to the class on it. A class discussion on health initiatives is conducted, students share what they learned during their research on global health initiatives and discuss how global health priorities are established. The instructor then presents on the distribution of scarce resources, this activity is to provide students with a more in-depth

understanding of the four principles of distributing scarce resources. Students take notes and add terms in their taxonomies. A research project is then conducted on the Malaria Vaccine Recommendation. Students research and prepare persuasive ethical arguments that they present to the class about which populations should be the first to receive a new malaria vaccine. They read the Malaria Fact Sheet before getting started on their research and creating their presentation. Student's present persuasive ethical arguments about the population they feel should be among the first to receive a malaria vaccine, and the class votes for three populations. Students research the specific codes governing scientific research, such as the Nuremberg Code and the Declaration of Helsinki. Students compare/contrast these codes with the ethical principles they learned in this lesson. How much do the codes overlap? What additional ethical principles apply to research (for example, having review boards monitor research, and avoiding plagiarism)? Students read "The Immortal Life of Henrietta Lacks" by Rebecca Skloot. As students read, ask them to keep a list of ethical questions that the book raises. After they have completed reading, have them choose one of the questions to explore further in an essay.

Human Rights, ethics and global health

Students learn about the ethical principles that guide health care workers. Students consider the concept of health as a human right, as expressed in the Universal Declaration of Human Rights. Students explore the connections between human rights and ethics and study the ethical principles of health care. They research, write, and present reports on real health initiatives, focusing on ethical principles. Students consider how ethical guidelines are implemented in the real world, specifically in the distribution of limited resources. Students finish up the lesson by advocating for a position on the most ethical way to distribute a new malaria vaccine.

World Populations and Disease

Students consider how different populations are affected by disease. They explore both demographic and epidemiological transition theories, and they learn how fertility, mortality, and disease change as a country's economy improves. Students also learn about vulnerable populations that may be especially likely to suffer from disease and health issues. They finish the lesson by writing a health report on a specific country, evaluating its demographic and epidemiological transition as well as its vulnerable populations.

- students complete an anticipation guide to get students thinking about how the socioeconomic status of a country impacts the types of disease and injury that are most common, how this impacts fertility and mortality rates, and how demographic transition works. Explaining what they think *socioeconomic* means, and then explain that socioeconomic status is related to or concerned with the interaction of social and economic factors. Students then view a video "As Bangladesh's Population Grows, Slum Dwellers Struggle" and conduct an analysis on the causes of death and disease in low-income countries. In this activity, students consider how economic issues in Bangladesh

affect causes of death and disease. After the video, students answer the questions; think about your response about why the death rate for communicable disease is so high in Bangladesh. Was your prediction correct? What makes the slum dwellers in Dhaka so vulnerable to diarrheal and other communicable disease? Do you think the poor people of Dhaka should have to pay for clean water? Why or why not? If Dhaka's economy improves, do you think the health status of the population will also improve? Why or why not? Students reflect on their personal reaction to the video in their notebook. Ask them to respond to the following question: Access to clean water is something we often take for granted. What is your personal response to people who face daily challenges of having access to life essentials such as clean water? Next students conduct an analysis on the relationship between socioeconomic development and causes of disease and death. Students study a data table to consider how causes of death differ between countries of different socioeconomic status. Students will explain the information that is in the given in the table. Students consider the following points: The table gives information about four countries in each of four economic levels, Cause of death is categorized by communicable disease, non-communicable disease, and injuries, The table provides the percentage of years of life lost by cause of death for each country, Then ask students to study the data and discuss their response to the following question with a partner: What pattern do you see about the cause of death in low- or lower-middle income countries? How is that different from the cause of death in higher-income countries? Next the instructor presents a power point on demographic transition, to provide students with a more in-depth understanding of how a country's health problems change as the country's economy changes. It will also introduce them to the concept of the population pyramid. Students then develop and analyze graphs on demographic transition, In this activity, students practice creating and reading population pyramids by doing research on their home state. Creating population pyramids for their state in 2000 and in 2010. They draw conclusions about changes in their state's population based on the pyramids they create. Students then read about Epidemiological Transition, students learn about epidemiological transition and the shift from an era of out-of-control infectious disease to an era of degenerative, non-communicable disease. Students consider following stages of epidemiological transition on the board in this order: Age of Pestilence and Famine, Age of Delayed Degenerative Disease, Age of Obesity Epidemic, Age of Receding Pandemics, Age of Degenerative and Man-Made Diseases. The instructor then presents Vulnerable Populations to provide students with a more in-depth understanding of what a vulnerable population is. It also gets them thinking about how important it is to develop global health initiatives that are designed specifically to help vulnerable populations. Students the complete a defining format on demographic transition, epidemiological transition, and vulnerable populations. Students solidify their understanding of several complex terms by completing Defining Format charts in small groups and then comparing their work with their classmates. This allows them to create detailed and accurate definitions of the terminology. Students conduct an analysis of the health of a country's population. They research where the country is in terms of demographic and epidemiological transition and identify the country's vulnerable populations. To begin by doing research, primarily using two sites that they will use frequently for research in the class: The CIA Factbook site (<https://www.cia.gov/library/publications/the-world-factbook/>) and the WHO site ([who.int](https://www.who.int))

(<http://www.who.int>). Students then review a written sample report in preparation of writing their own report. Students then write a Health of a Population Report, students use the research they completed during the last class period and for homework to write a report profiling the health of a specific country. Students conduct a peer review of their peer's research papers, before the final paper is turned into the instructor, for a critical set of eyes on review of format and content, to improve their peer's final submissions. Students bring closure to the vocabulary taxonomy students adding any new terms that they have not yet included. Next, have students do a gallery walk to collect more terms from their classmates. Conduct a brief class review and discussion on the additions they made. Conclude by reminding students that they now have a resource for future assignments that will help them to remember and use new terminology. Students select a vulnerable population and research its status around the world. In which countries is the population vulnerable? Are there countries in which this population is thriving? Have students report back to the class on what they learned. Use this information to discuss whether or not there are truly universal vulnerable populations, populations that are in danger throughout the world, or whether the distinction of vulnerability is really tied to the specifics of the society in which the population exists. Using the data available at <http://www.census.gov> (<http://www.census.gov>) students solve math problems based in the real world. Using the data from 2000 and 2010, students can do math problems to determine the growth rate of the country, the rate of growth or shrinking of specific populations/ethnic groups, the percentage of people in their state who have a certain level of income, and so on.

Types of Disease and Injury

Students learn about the major types of disease and injury that concern global health professionals. Students learn about the chain of infection and methods of breaking the chain through proper hygiene and other preventive means. Leading students to an exploration of communicable disease, and students learn about major types of communicable disease that are a global threat today. Students study noncommunicable disease and compare and contrast it with communicable disease. They learn about the most common types of injury and violence that are a public health problem. Students finish this lesson by studying the primary causes of death for a specific nation in the WHO's African region, and they create a brief PSA video designed to educate that country's population about ways to reduce the prevalence of one specific disease or type of injury.

Students complete a deductive investigation on breaking the chain of infection. Students read a story, *The Chain of Infection*, When students have finished reading the story, ask them to look at the chain of infection illustration with a partner. Explain that the chain has six links, and each link enables the infection to spread. Instruct students to read the explanation about each link and fill in the third column with examples from the story. When they are finished, ask pairs to share their examples for each link in the chain with the class. Then write the following questions on the board to introduce the idea of breaking the chain: Can you think of ways to break this chain of infection at different points? How many times would you have to break it to prevent Tony from being infected? The next assignment is for students to apply what they have just learned about the chain of infection to real-world scenarios. Students need to read each scenario and determine

which link (or links) in the chain of infection are being broken. Point out that more than one answer may be correct for some scenarios. The instructor then presents a power point on communicable disease, to provide a more in-depth understanding of the characteristics of communicable diseases. It also gets them thinking about the vital role of global cooperation in overcoming communicable diseases. Students take notes in their Global Health notebooks and write down terms in their taxonomies. Next students focus on non-communicable disease by completing various stations throughout the classroom. Students will visit each of these stations to gather information about non-communicable diseases. Divide the class into five groups and assign each group to start at one of the stations, answering the questions while they are visiting the station, but they can go back and revise their answers if they learn new information at another station. Tell students they have five minutes at each station. When students have visited all of the stations, assign each station to one group. Ask each group of students to share with the class what they learned at the station assigned to them (based on their answers to the questions on the resource). Allow other students to add information or ask questions. Clear up any questions that may arise. Student next complete a Venn diagram on communicable and non-communicable diseases, to get students thinking about the similarities and differences between communicable and non-communicable disease. The Venn diagram is a comparison and contrast tool. Each circle is labeled; in this case, the circles represent communicable disease and non-communicable disease. Inside the circle, students write characteristics of the type of disease. The section in the middle where the two circles overlap should be filled with statements that are true of both such as, “kills millions of people each year.” In the next assignment student’s focus on injuries, completing a list-group-label-activity, defining injuries, focusing on the types of injuries, unintentional and intentional. Students complete a reading assignment on injuries, to learn more about the global health problem posed by injuries, both intentional and unintentional. Next students conduct a demographic exploration of injuries, creating a visual image of the prevalence of injuries as a cause of death throughout the world. Students to use that data to create two color-coded maps: one that shows the prevalence of unintentional injury as a cause of death, and one that shows the prevalence of intentional injury or violence as a cause of death. Point out the two provided maps, which are already marked with the WHO regions. Students next create a PSA video on combating disease and injury in a specific country. In this activity, students research and create video public service announcements using their personal mobile devices. If cell phones are not allowed in your classroom, you may wish to modify the activity to have them present the PSAs “live” in front of the class. They are going to use mobile devices to create a public service announcement to inform the public about a pressing health issue. Point out that PSAs that provide the public with health information are common, and watching a few of the PSAs available online will give them some ideas about the type of work they will be doing. Students then complete a media walk viewing all the student work on the PSAs, students share their completed PSAs with the class and consider the range of public health problems facing African countries today. Students recall American laws that are intended to prevent injury to citizens. Students reflect in their notebook on ways that countries try to protect citizens from injury. Have students view the movie *Contagion*, which came out in 2011. After they view the movie, lead a discussion on one or more of the following topics: How is the chain of infection demonstrated in this movie? Is it accurate? How does this movie demonstrate the need for global cooperation in the face of a pandemic? Does this change your perspective about global health? Students read *The Zombie Autopsies: Secret Notebooks from the Apocalypse*, a medically accurate zombie novel by Steven Schlozman, MD. The novel chronicles the WHO’s efforts to find a cure for a new pandemic that

sweeps the globe: ataxic neurodegenerative satiety deficiency syndrome, otherwise known as zombiism. After students finish the book, have them evaluate it based on what they currently know about the WHO's efforts to combat communicable disease and pandemics. How accurate is it? How does that affect the overall experience of reading the book?

What is Health?

In this lesson students define *health*. They begin by learning about one of the greatest public health achievements in history: the eradication of smallpox. They consider the World Health Organization (WHO) definition of *health* and the 10 essential public health services. They begin to use maps they were introduced to in Lesson 1 to record data about the countries they learn about. They think about how to measure health status and learn about the health status indicators that humanitarian organizations such as the WHO use. Finally, students practice interpreting, creating, and summarizing graphs that present health status data.

Students have a discussion on the characteristics that represent a healthy population of people. Students list the characteristics of an unhealthy population to put a perspective on the considerations made by health professionals as they assess health in populations. Students watch a video the Eradication of Smallpox, The purpose of this activity is to show students an example of a key global health initiative as an introduction to what global health is and how it works. Students focus on the services that were provided to eradicate smallpox. A focus on D.A. Henderson and his work on smallpox. Students are introduced to reference maps and consider the following scenario, Imagine that you are with D. A. Henderson and his team of smallpox experts looking at a map of the world. Your goal is to send professionals to all parts of the world in an effort to vaccinate everyone who is at risk for contracting smallpox. You have to divide the world into sections in order to organize your on-the-ground work. How would you divide up the world? What would the sections be? Students answer these questions and share their answers with the class. Student consider the above questions through a scientific lens and setting up an experiment, with a hypothesis, procedure, data collection and data analysis. In the next key assignment, students view two presentations that introduce the terminology that health professional's use to measure health status. Explain that before they view each presentation, they will try to predict what some of these terms might mean. Students activate prior knowledge by predicting what they might already know about a topic. In the next assignment students, is to provide students with an in-depth understanding of life expectancy factors that professionals look at to measure health status of global populations. They view a power point presentation on Health Status Indicators: Life Expectancy taking notes and marking new terms in their Global Health notebooks and taxonomies. The next part of the lesson is to read and translate graphs into words using Life Expectancy as the topic. A skill students need to develop in this course is the ability to read a graph and explain what the graph means in words. Then instruct students to examine the example graph and read the example summary. Next, students work in pairs and fill in the table by explaining how the example summary accomplishes the points on the checklist. Pairs share their ideas, and answer any questions students have about what makes a good summary of a graph. Students work individually analyzing the graph "Life Expectancy at Birth, 2007," and writing a one-paragraph summary. This paragraph is written with a scientific lessons including terms from their course taxonomies. In the next assignment is to provide students with

an in-depth understanding of how illness and injury affect health and how incidence and prevalence of illness and injury are used to measure health status. The instructor presents a power point slide show, students take notes in their course notebooks, a class discussion of the presentation is interactive throughout the slides show to provoke student inquiry.

Students conduct a guided practice activity next, creating tables and graphs using spreadsheet software. In this activity, students learn how to use Excel to create a column graph and a line graph that communicate health status measurements. They create a column graph that shows the prevalence of obesity among adolescents in the United States, and a line graph that shows the incidence of whooping cough in California. Next, they create a line graph of the data to connect their scientific procedures and processes. When students have completed their graph, they check with a partner to make sure their graph look the same. Students complete an independent practice activity to students develop skills with tables and graphs and also teach how a professional might graph infant and child mortality measurements. Students create bar graphs about life expectancy, infant mortality, and under-5 mortality, and then create a line graph tracing the change in a country's infant mortality or under-5 mortality rate over the past 60 years, practicing creating graphs in Excel. The next assignment students research, In response to the whooping cough outbreak, California passed a law requiring students entering grades 7–12 to receive a pertussis booster shot before the 2011–2012 school year. Have students research the specifics of this outbreak through the California Department of Public Health (<http://www.cdph.ca.gov/HealthInfo/discond/Pages/Pertussis.aspx> (<http://www.cdph.ca.gov/HealthInfo/discond/Pages/Pertussis.aspx>)). Students discuss the law. Why was it put into place? Is this good public health policy? Why or why not? Specifically, encourage students to consider the illness rates and death rates for various age groups during this outbreak (data available at <http://www.cdph.ca.gov/programs/immunize/Pages/PertussisSummaryReports.aspx> (<http://www.cdph.ca.gov/programs/immunize/Pages/PertussisSummaryReports.aspx>)). Ask students what else could have been done to control this outbreak. A representative from the local public health department is invited to speak to students about the 10 essential public health services. The speaker addresses specific issues that are common in the community to help students personalize their understanding of these important services. Students are provided with the health and wellness section of major newspapers, such as USA Today. Have students find a graph in the newspaper to informally present and explain what it shows to the class. Then, have students practice summarizing the graphs in their notebooks

Course Introduction

In the first class students review previously submitted culminating projects to build the student expectations for the work and study they are about to complete throughout the Global Health unit. Students will also set up their notebooks, taxonomies and learn the classroom procedures for success. Students begin to plan their culminating project as they review others submitted in past courses, planning the stages of work to be completed. Global Health exposes students to the key terms and areas of knowledge that they will be studying throughout this course. They also learn about the skills they will develop that are crucial to the field of global health. Students probe their personal conceptions about global health by judging the accuracy of a variety of statements.

They acquire a sense of the course objectives by looking at examples of culminating projects created by previous students, who developed presentations about a global health issue they considered worthy of being the focus of an international summit.

To set student expectations for the academic content and work that will be completed throughout the course. Students consider their current scientific and health sciences knowledge base. Students pair up to discuss the skill sets and academic knowledge demonstrated and not the skills and knowledge they will need to gain to be successful in the Global Health course. Students set up their course notebooks, science and medical taxonomies for use throughout the course. Students read the article “Commentary: What I Learned Far Away from Public Health School” (<http://commonhealth.wbur.org/2012/03/commentary-what-i-learned-far-away-from-public-health-school> (<http://commonhealth.wbur.org/2012/03/commentary-what-i-learned-far-away-from-public-health-school>)). Students share with a partner what about the author’s experience working in global health appeals to them and what doesn’t. Student’s share their responses with the class.

Students review the collection of dispatches from front-line global health workers at this site: <http://www.pbs.org/wgbh/rxforsurvival/series/dispatches/index.html> (<http://www.pbs.org/wgbh/rxforsurvival/series/dispatches/index.html>). Students choose one that interests them and read it. Students prepare a list of questions that they would ask a professional featured in the article if they had the opportunity. Students view the latest news updates on global health issues at the Centers for Disease Control and Prevention (CDC) website (<http://www.cdc.gov/globalhealth/inthenews.htm> (<http://www.cdc.gov/globalhealth/inthenews.htm>)).

Course Materials

Textbooks

Title	Author	Publisher	Edition	Website	Primary
Understanding Public Health	Fisher, Melanie, Markle, William, and Smego Jr, Raymond	McGraw Hill Medical	2007	[empty]	Yes