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Cover Image

Tuberculosis bacteria, (illustration).

LIVING EARTH / COMMUNITY EMPOWERMENT—ERADICATING DISEASE

Infectious Diseases

DRIVING QUESTION

How can an effective outreach campaign educate and empower a community to help eradicate an infectious disease?

OVERVIEW

Disease outbreaks have impacted humans around the globe throughout history. Today, you might be more familiar with COVID-19, AIDS, and influenza. But, there once was a time where epidemics of bubonic plague, smallpox, polio, and other infectious diseases were the norm. Where did they all go? Tuberculosis (TB) has killed millions of people and is still a problem in lower- and middle-income countries. In 2019, TB still led to an estimated 1.4 million deaths a year worldwide. What has changed? What problems surrounding infectious diseases still need to be addressed?

In this lesson, students will be introduced to infectious diseases, how they spread, and the way the body fights such illnesses. Students will reflect on the impact of COVID-19, on their communities. This context will introduce students to the content they will learn throughout the unit. Students will also reflect on their experiences with COVID-19 to consider how to create a community outreach campaign in order to educate communities about an infectious disease. This entry event and subsequent reflections around student experiences with COVID-19 will be used as a touchstone through the entirety of this unit.

Continues next page >

ACTIVITY DURATION

Five days

ESSENTIAL QUESTIONS

How has COVID-19 impacted our community?

How can a community outreach campaign be used to combat diseases in a community?

How do different types of infectious diseases impact our bodies and communities?

OBJECTIVES

Students will be able to:

Reflect on their experiences with COVID-19 in their communities to consider why infectious diseases can impact a community.

Connect their experiences with COVID-19 in their communities to consider how community outreach campaigns can help combat infectious diseases that affect a community.

Learn about the different types of infectious diseases and how they impact the body and a community.

Launch a community outreach campaign by identifying a specific type of infectious disease they want to help eradicate from a specific community.

UNIT LAUNCH VIDEO

Genetic Detectives: Investigating Inherited Diseases

OVERVIEW Continued

Through this reflection of shared experience with COVID-19, students will launch their own community outreach campaign. The purpose of their outreach is to help combat a specific infectious disease that impacts a defined community. To do this, students will learn about different types of infectious diseases (viral, bacterial, and parasitic), identify a specific disease they want to focus on for their community outreach program, and identify a community impacted by their disease to focus on for their research.



Image shows bacteria and viruses of various shapes (3D illustration).

STUDENT TASKS

Day 1	Day 2	Day 3	Day 4	Day 5
Explore how COVID-19 impacted their community.	Review project information documents and rubric, and develop Need to Know (N2K) questions. Explore successful social media campaigns, reflecting on how a community outreach campaign could help educate communities about the spread or prevention of disease.	Learn about different infectious diseases. Identify three disease types that affect different communities. Evaluate a variety of infectious diseases, and then select a disease to research and create outreach around.	Define success criteria using a collaboration contract. Unpack the idea of "community" and work as a group to select a community that has been impacted by their disease. This will be the target audience for their community outreach campaign and community outreach project.	Identify the best platform or mode of communication to reach the target audience. Identify roles needed to run a community outreach campaign. Create the profile for their community outreach campaign using a platform selected by students.

MAKE CONNECTIONS!

How does this connect to the larger unit storyline?

Over the past few decades, some major diseases, such as polio, the bubonic plague, and mumps, have been almost completely eradicated in many countries. This is due to understanding what causes infectious diseases and what actions can help eliminate them. Studying pathogens, variables that determine their spread, and ways to destroy them allows scientists to develop vaccines and recommend procedures to prevent diseases to the public. This lesson helps students launch the community outreach project that students will be creating through the whole unit. In this lesson, students identify the specific disease and a community that it impacts to focus on for their community outreach project.

How does this connect to careers?

There are multiple medical professionals that contribute to diagnosing, preventing, treating, and/or managing infectious diseases. Some professionals work directly with the patient, while others work indirectly in research and analysis of blood, urine, and tissue samples, while others manage personal and population records, appointments, and treatment protocols.

Doctors and **Nurse practitioners** are typically seen in the first steps when diagnosing disease. They evaluate the patient and determine if more tests need to be conducted.

Phlebotomists typically draw blood from a patient. This blood is sent to a lab for close analysis and to confirm any disorders or disease.

Pathologists are medical doctors who analyze tissue, cell, and blood samples to diagnose specific diseases.

Epidemiologists use collected information about disease to trace sources and test solutions to health issues in populations. They act as detectives, looking for clues to the source of the illness, and then coordinate preventive measures.

Pharmaceutical research scientists
help to research and develop
specific drugs to help treat
infectious diseases and to develop
vaccinations.

How does this connect to our world?

Scientists work hard to study and find treatments to diseases. To do this, they have to have a firm understanding of how infectious diseases spread through populations and the pathogens that cause the diseases.

Students reflect on their own experiences with COVID-19 and how it impacted their communities. Students use their own experiences with COVID-19 to consider how other infectious diseases impact other communities.





Pedagogical Framing

Instructional materials are designed to meet national education and industry standards to focus on in-demand skills needed across the full product development life cycle—from molecule to medicine—which will also expose students and educators to the breadth of education and career pathways across biotechnology.

Through this collection, educators are equipped with strategies to engage students from diverse racial, ethnic, and cultural groups, providing them with quality, equitable, and liberating educational experiences that validate and affirm student identity.

Units are designed to be problembased and focus on workforce skill development to empower students with the knowledge and tools to be the change in reducing health disparities in communities.

SOCIAL-EMOTIONAL LEARNING

The entry event focuses on both self-awareness and social awareness. Students practice self-awareness by understanding their emotions as they draw on their experiences with COVID-19. They will practice responsible decision making by having to come to a consensus when determining the world's most dangerous disease. They will work together to select a community impacted by a specific disease and choose a social media platform that will reach their target audience. Most students have been impacted by COVID-19, and some students may have personal experiences with the infectious disease or impacted community and will carry that experience with them into sensitive discussions. This requires all discussion participants to demonstrate empathy and practice social awareness.

CULTURALLY AND LINGUISTICALLY RESPONSIVE INSTRUCTION

Students first reflect on their experiences with COVID-19 and then listen to others' experiences, providing students a safe space to share other perspectives. Together, students will make connections to their experiences with COVID-19. Students will go through a process of determining, with their group, the world's deadliest infectious disease. As they move through this activity, students use sentence starters to help them be able to make and explain their claims. The experience of this collaborative activity is then used to develop a group contract in which students reflect on what it takes to work successfully with a diverse group of people.

ADVANCING INCLUSIVE RESEARCH

Health literacy is vital and building trust within communities in helping to prevent and treat infectious diseases. Social media and other forms of community outreach are important components in educating communities. Community members and leaders often partner with scientists and health care workers to help build trust and educate their communities about prevention and treatment of disease. Health literacy is one step needed to ensure access to populations in order to help address health disparities.

COMPUTATIONAL THINKING PRACTICES

The computational thinking strategy of decomposing a problem involves students taking a complex problem and breaking it down into manageable pieces so it is easier to understand. In this lesson, students are introduced to the phenomena of infectious diseases and as the lesson progresses, students begin to break down infectious disease to better understand it and how to communicate with their audience through social media or other means of communication.

CONNECTION TO THE PRODUCT LIFE CYCLE

In this lesson, students explore how social media can be a helpful tool for preventing the spread of disease. In the Commercialize phase of the product life cycle, therapies are advertised through social media. Social media also provides a valuable platform for customer care operations.



CULTURALLY & LINGUISTICALLY RESPONSIVE INSTRUCTION:

While using this strategy students are able to make connections to classmates and complete a web of interconnections. This allows students to discuss and explain intersections between key ideas.

Slides 1-12

Slides 1-12

As an entry event, using a common experience of COVID-19, students participate in a *Gallery Walk* and a *Hexagonal Thinking* activity in which they explore a series of images and data that represent how infectious diseases affect a community and why disease persists. (15 minutes)

Prepare in Advance: Post Anchor Phenomena Images around the room. Have several computers or laptops available and the Data Station Guide. Prepare Hexagon Cut-outs (about 5–10 per student). Copy the Hexagonal Thinking Prompt, one per group.

Teacher Note > Remind students to practice self and social awareness skills, to be empathetic, and display sensitivity to any students who might have been adversely affected by the COVID-19 pandemic.

2 During Class:

- **a.** Students will independently participate in a silent *Gallery Walk* around the classroom looking at images and exploring data. Students will fill out the *Observation Capture Sheet* that utilizes the *See, Think, Wonder* thinking routine.
- **b.** Students do not need to view all images; the next activity, will allow for students to discuss in small groups.
- **c.** Students return to the whole group.
- **d.** Introduce the Hexagonal Thinking activity. For this activity organize students into small groups (three-four students).

Teacher Note > Hexagonal thinking provides opportunities for students to organize their thinking and make connections in logical and sometimes creative ways. It also makes their thinking visible. Each hexagon has the potential to be connected to up to six others, but sometimes may just be connected to one or two. Students will share and provide evidence as they discuss where to place their hexagons and how they are connected. Depending on your classroom environment, students may complete the activity at desks or on the floor.

- **e.** Pass out the cut-out hexagons to each student and the *Hexagon Thinking Prompt* to each group.
 - Tell students they will use the *Observation Capture Sheet* as a guide as they respond to the following prompt: How did COVID-19 affect our community? Using the hexagons, students write one idea per hexagon (words, phrases, and/or images). Give students three-five minutes to write as many ideas as they can.

Continued

COMPUTATIONAL THINKING IN ACTION

By making connections among their ideas, students are employing the computational thinking strategy of finding patterns.



Slides 1-12

- In their groups, have students make connections among their ideas.
- Give groups 8 minutes.
 - Student responses can include both the images or data that they looked at during the Gallery Walk and can also bring in their own experiences with COVID-19.
- f. Walk around the room to listen in on conversations. You may want to take a picture of each hexagonal map and post the pictures in the room or bring them back throughout the unit when you loop back to the phenomena.
- **g.** Tell students, your group will now do a *Gallery Walk* of the other hexagonal maps and have a collaborative conversation about what you see and what you notice.
 - Give students 5 minutes.
 - Prior to the Gallery Walk, let students know each group will share it's hexagonal map with the other groups. Providing this information to groups will help them think about what they see and what they might want to share.
- h. Have individual groups come back together. Remind students that each group will have one minute to share it's hexagonal map and that they may want to simply acknowledge highlights of the map and their group's discussions.
- i. Use a *3-2-1 Bridge* thinking strategy to close. Have students respond to the printed prompt.
- i. Review your observation chart.
 - Identify three key things you observed about COVID-19 in our community.
 - 2 questions you still have.
 - One thing you want to know more about.
- **k.** Tell students that their experience in the *Gallery Walk* and Hexagonal Thinking activity will guide their learning in the unit to help them explain the phenomena of infectious disease and why they exist around the world.

CULTURALLY & LINGUISTICALLY RESPONSIVE INSTRUCTION:

Linguistically Responsive Instruction: Using this strategy will engage students and provide the opportunity for equitable participation.

Slides 13-18

Slides 13-15

Guide a class conversation around the entry event activity from Day 1 and begin to develop student Need to Know Questions (N2K). (10 minutes)

- Prepare in Advance: In the front of the room, hang two pieces of chart paper next to each other. Label one "N2K: Our Project."
- When ready, use a *Pick a Stick* discussion protocol to ask students what they observed during the entry event activity, questions they have, and other things they want to know more about.
- As students share, add students' N2K questions and what they want to learn more about to the "N2K: Our Project" Anchor Chart.
- 4 Have students review their *Observation Capture Sheet* to identify any additional questions that need to be added to the N2K list.

Slides 16-18

Share project information documents and add to students' N2K Questions. (10 minutes)

- Pass out and review the *Project Information Sheet* with the Driving Question, and the *Unit Rubric: Eradicating Disease*.
- 2 Go over the final products students will be creating.
- 3 Use *Unit Rubric: Eradicating Disease* and have students actively review the documents with a partner by putting a question mark next to pieces that need further explanation. Have them share where they put question marks, discuss, and write down questions they have about creating the products.
- 4 Have each pair share aloud their questions and add them to the "N2K: Our Project" Anchor Chart.

Slides 19-21

Slides 19-21

Introduce examples of how to create a successful Community Outreach Campaign. (10 minutes)

- 1 **Prepare in Advance:** Make an anchor chart titled: How to Run a Successful Community Outreach Campaign.
- Have students read the following article: How to Create a Community
 Health Awareness Campaign. Explain to students that they will be using
 this resource to research how to run a successful Community Outreach
 Campaign that helps to eradicate an infectious disease from
 a community.
- Divide students into groups of four to six and have them determine which students will read which article. Half of the group should read about social media campaigns, while the other half reads about community health awareness campaigns. For the community health awareness campaigns, students can focus on their state or surrounding states. Students should find a few examples of what makes a social media campaign or community health awareness campaigns.
- 4 Have students identify elements of successful social media and community health awareness campaigns:
 - Type of social media platform(s) or outreach
 - The Purpose of the campaign or outreach
 - Strategies the campaign or outreach used that helped make it successful

Have students share their examples in their small groups.

- 5 Have groups collectively:
 - write one sentence that describes what a community outreach campaign is.
 - create a list of what you need to do to run a successful community outreach campaign.
- 6 Have all groups share their sentences with the class and then develop another one as a whole class.
- Have each group share aloud their list of what to do to run a successful community outreach campaign. Then add these to the anchor chart.

Slides 22-23

Slide 22-23

Have students consider how community outreach was used to educate communities about how COVID-19 can spread and be prevented, and what vaccines are availabl. (10 minutes)

- 1 Now, have students consider the entry event experience from the last class. Tell students:
 - Now that you have seen how social media campaigns and public health campaigns have been used successfully, consider how a community outreach campaign can be used to help a community prevent and stop the spread of disease. Specifically, how could a community outreach campaign be used to help eradicate a disease from a community? Consider the fact that not all communities or community members have access to the internet or social media. What are other ways you can communicate with community members? Think about how COVID-19 impacted our community and how information was shared with our community. Think about ways community outreach campaigns were used to help educate people throughout the world. What were ways that local state, and global leaders communicated with the public?
- 2 Have students develop a list of ideas.
- When ready, have groups share their ideas. Record this list on the board.

Teacher note > Churches, community centers, television advertisements, newspaper articles, and more were used to reach populations that are not connected to social media. Have students consider how to educate people in remote regions, without access to these resources, or demographics that do not use social media. Ask students to consider who should be involved in education campaigns. Is it local leaders, celebrities, or other trusted community members? If time permits, allow students to learn more about education campaigns surrounding COVID-19:

- COVID-19 Public Education Campaign
- The Ad Council and COVID Collaborative Reveal 'It's Up To You' Campaigns
- NM outreach campaign to address COVID-19 in tribal communities
- UH Manoa students tackle COVID-19 through peer-to-peer messaging



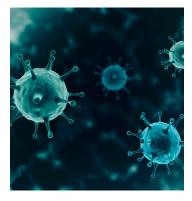
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Slides 24

Slides 24

Students reflect on the context of the project and develop their N2K Questions further. (5 minutes)

- Have students review the list and develop new questions they need to know about creating a community outreach campaign. A community outreach campaign that helps to eradicate a disease that impacts a specific community could play a large role in educating local communities. If students are targeting a community that has little to no access to the internet, have them consider other modes of communication (billboards, radio, newspaper ads).
- Tell students: For your project, you will be placed in a group that will run a social media campaign as part of your community outreach campaign that helps eliminate a specific disease that impacts a specific community of people. Based on what you know now about social media campaigns and your ideas on how they can be used to stop a disease in a community, what questions do you have about the social media campaigns you will run in your group for your project?
- 3 Have students write their questions. When ready, have students share and add their questions to the N2K anchor chart.
- 4 Review the Lesson 1 objectives and Essential Questions that will be addressed in this lesson.



Slides 25-27

Slides 25-27

Have students participate in a infectious disease jigsaw. (12 minutes)

- Prepare in Advance: Place students in equal numbers to create eight groups (1 for each of the diseases listed). If desired, you may have students number off one through eight.
- Once students are in their groups, give students the resource fact sheet from the World Health Organization (WHO) on their disease.
 - Rabies
 - HIV/AIDS
 - Influenza
 - Cholera
 - Tuberculosis
 - Malaria
 - Dengue
 - Zika
- 3 Have students skim the fact sheet, and then discuss and take notes on the *World's Most Dangerous Disease* capture sheet. Students should focus on information that would validate the use of the title, World's Most Dangerous Disease. Tell them that they have limited time, so they should look for important issues, such as:
 - How many deaths occur per year from your disease?
 - Is your disease caused by a virus, bacterium, or parasite?
 - Who does your disease impact the most?
 - What are the signs and symptoms of your disease?
 - How is the disease diagnosed and treated?
 - Is there a cure or vaccine for your disease? Why or why not?
 - Are there potential long term effects of your disease?
 - Is there any other information to help gain the title of most dangerous disease?
- 4 Make sure each students understand that they should take notes as they will be trying to persuade their peers that they have the most dangerous disease. Encourage students to build a case, as each of the diseases has the potential to be considered the most dangerous.

Continued



Slides 28-29

Slides 28-29

- Prepare in Advance: *Bracketology Posters* or each of the groups on poster paper (e.g. if there are 32 students in your class, there will need to be 4 brackets created, 1 for each group of 4). Fill in the first 4 brackets of the **bracketology poster**. Place the **bracketology posters** around the room where the groups will be seated.
- Have one student from each of the 8 disease groups come together to form their new bracketology groups. (For example, if you have 3-4 students per disease group, then there will be 3 total groups for the bracketology, making sure that each disease is represented in the bracketology group.)
- 3 Ask students to share if they have ever filled out an NCAA bracket for March Madness. This will help to engage background knowledge for some students on how bracketology works.
- 4 Explain to the students how bracketology works. Tell the students:
 - The definition for bracketology is the practice or study of predicting the outcome of an elimination competition. In just a moment, you will be engaging in a discussion with your bracket groups to determine which is more dangerous to the world population. Once the two opposing diseases in the bracket have stated their case for 1 minute, the group will discuss and come to a consensus as to which one moves up in the ranking. This continues until you have one disease that is touted as the "World's Most Dangerous Disease."
 - Show them the example bracket that is filled out for reference.
- 5 Briefly discuss the difference between coming to a consensus and voting. Tell the students:
 - If the group cannot reach a consensus where everyone agrees within 2 minutes, it will go to majority rule by voting.
- 6 Some sentence frames to help students while in the bracketology:
 - **a.** Agree:
 - I agree that ___ because___.
 - I also think that ____.
 - **b.** Challenge:
 - Another idea is ____ .
 - From my perspective____.
 - I disagree that ____ because ____.



Slides 29-31

- c. Coming to a consensus:
 - Are you okay with the decision, even though it was not your first choice?
 - · What may help you to understand a different point of view?
 - Is there anything we are not seeing that would help us to understand your point of view?
- 7 Show students the bracketology chart and tell them to go in the numerical order. Tell students:
 - As you fill in the brackets, make sure to note which disease has
 prevailed on the chart. If your disease has made it to the next round,
 you will state your case again until there is one disease known as the
 most dangerous.
- As students are discussing their ideas, walk around the room and check for understanding. Check whether students were able to come to a consensus or had to vote, and see what criteria students were using to consider which disease is the most dangerous. You also may want to take note of who is contributing or not, as this may help in forming groups for the next lesson.

Slides 30-31

Students reflect on the bracketology activity and choose the disease they would like to study. (5 minutes)

- Have students look around the room at the posted *Bracketology Posters* and take notice of what disease was ranked the most dangerous for each group.
- 2 Ask the students to reflect, answering these questions:
 - Were all of the top diseases the same? Why do you think this is?
 - What criteria did your group use to determine what is dangerous?
 - In your opinion, what makes a disease dangerous? Was it the same as your group's definition?
- 3 Exit Ticket: Have students decide and write the top 3 diseases that they would like to study for this project based on what they have learned about each of the diseases.

Teacher Note > You will be placing students in groups of 3–4 from the lists that they write, ensuring that all eight diseases are represented and using knowledge of your students.

Slides 32-36

Slides 32-36

Group students and reflect on the bracketology activity to develop characteristics that lead to successful collaboration (5 minutes)

- Prepare in Advance: Create an anchor chart titled: Characteristics of a Successful Group.
- 2 Using student top three disease choices and your knowledge of students, prepare student groups of three to four (ideally four) in advance.
- When students enter the room, have the groups listed on the board and tables for groups to sit at.
 - Important: Since this is a project during which students will be working closely with their groupmates, arrange seats so that students are sitting in groups. Having seats arranged in rows will have a detrimental effect on creating an environment of collaboration and limit the opportunities students have to develop and practice the skills associated with collaborating in a group environment.
- 4 Once students are sitting in their groups, have students do quick introductions.
- Now, have each group reflect on the bracketology activity from the previous class.
- 6 Have student groups brainstorm a list of words that describe what it takes to collaborate successfully in a group. Use the following prompt:
 - Now that you have completed that activity in which you had to work together to come to a consensus for each round, now we will use that experience to think about what it takes to successfully collaborate in a group. Write down one or two words that come to mind that help a group successfully collaborate on a project.
- Have each group lift up a word from their list. As students share their words, add them to the **Characteristics of a Successful Group** Anchor Chart. Continue to have groups share out until 10–15 words have been identified.

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Slide 37-41

Slide 37

Have groups develop their group collaboration agreements. (10 minutes)

- Pass out *Our Group Collaboration Contract* to students. Ask students what they notice in the document. Use these observations to review the different sections.
- Tell students: With your group, use *Our Group Collaboration Contract* to identify what is specifically important for your group when collaborating together.
- Have each group identify three words on the **Characteristics of a**Successful Group Anchor Chart that are important as they work together.
- Once groups identify their words and complete Part 1 together, move around the room and check in one-on-one with groups asking students to explain why they selected their particular words to agree to.
- When all students have signed their Collaboration Contract in Part 1 of the document, review the scenarios in Part 2.
- Have the groups work through the collaboration scenarios in Part 2, identifying what to do and what not to do for each scenario.
- When complete, discuss each scenario with the class by inviting groups to share their responses for each scenario.

Slides 38-41

Students identify the communities to which they belong to and organize communities into different categories. (5 minutes)

- In groups, have students participate in the activity "Rip, Slap, Pass!". Students identify the different communities to which they are connected or of which they are a part.
 - In this activity, each group gets one pad of sticky notes and each person needs a pen or pencil to write with.

Slide 38-41

- One person starts by holding the pad of sticky notes. The teacher gives a prompt, and the student writes down one response to the prompt on one sticky note. The student will RIP the sticky note off the pad, SLAP it on the table, and PASS the sticky note pad to the person to their left.
- Then the next person writes one response to the same prompt on the sticky note, rips it off, slaps it on the table, and passes the pad to their left.
- This repeats as the pad goes around the group for two minutes. The
 whole time students are writing their responses to the same prompt,
 and they cannot write down a response that has already been slapped
 down on the table.
- When students understand the rules of the activity and have the materials they need begin, share the prompt that students will respond to. The prompt is: What are different communities that you identify with or belong to?
- As groups are participating in the activity, remind them they cannot repeat any responses that have already been written and slapped on the table.
- After two minutes is up, review the sticky notes with the different communities listed. Have groups organize the sticky notes into different categories.
- 5 Have groups share out the names of the categories and the types of communities within those categories.
- 6 Now tell students to organize their list into the following categories:
 - Cultural
 - Geographic
 - Social
- 7 If groups are missing examples in some of the categories, have them identify examples.
- 8 Have groups share their examples. As students share, record the example on an anchor chart.
- 9 Ask students:
 - Why is it important to be able to identify the diverse communities that make up our classroom?
 - Why is identity important when creating education or community campaigns?

Slide 41-44

- Should members of a community be involved in the creation of an education or community campaign?
- Why is it important to know which communities are impacted the most by an infectious disease?

Slides 42-44

Move students through a process of identifying the community that is impacted by their disease so they can determine the focus for their Community Outreach Campaign. (25 minutes)

- Using the Outreach Campaign Community Identification capture sheet, move student groups through a modified What Makes You Say That? discussion routine to select their community that will be the focus of their community outreach campaign.
- 2 Before students begin, tell groups:
 - You are about to select the community your group will focus on for your Community Outreach Campaign throughout the rest of this unit. The aim for your campaign will be to help educate the community and eradicate a disease from the community that you select. You are going to have to choose which community you will focus on very carefully. We will review how your group is going to select your community.
- Pass out the *Outreach Campaign Community Identification* capture sheet to students and review Step 1. Say:
 - First, as a group you need to identify which communities from our anchor chart are impacted by the disease. As a group, review the communities in our Anchor chart and use the resources to make your list together.
- 4 Give groups 5-10 minutes to complete Step 1 and generate their lists.
- 5 Then have students do Step 2. First, review Step 2 in the document. Say:
 - Now you are going to individually select which community you think
 would be best to work with. When you are trying to decide which
 community would be best to focus on for your Community Outreach
 Campaign, what are different factors about the community that can
 help you decide?

Slide 42-44

- Develop a list of factors that students can use to help them select their community. Factors can include:
 - · Personal connection to community
 - · Age of community
 - Best mode of communication with the community
 - The severity of the disease impact on the community
- 7 Once a list has been generated on the board for students to see, have them take 10 minutes to complete Step 2.
- 8 Before students begin Step 3, explain how they will share and decide:
 - Each student in the group shares the community he or she thinks is best to focus on for the Community Outreach Campaign, with an explanation using the factors the class identified.
 - Then students will have to come to a consensus on one to focus on as a group. Use the bracketology activity to have students reflect on how they were able to come to a consensus during each round.
 - While students share out how they came to a consensus, create a list
 of ways and approaches on the board for students to reference later.
 - · Ask for any clarifying questions.
- 9 Give students 10–15 minutes to come to a consensus.
- Have groups share out the community they identified and why they made their decisions.
- 11 Continue to work through Steps 4–6 for the time remaining.

Teacher Note > There will be time to continue Steps 4–6 of the Outreach Campaign Community Identification in Lesson 3. Please have students continue to work on this document as time allows, so that in Lesson 3, they will have the information they need to continue working on their campaigns.

- As an Exit Ticket or final class discussion, have students respond to the following prompts:
 - How did your group decide which community to focus on?
 - What factors were important when deciding which community to focus on?

Slide 45-47

Slides 45-47

Students identify the best social media platform to reach their target audience. (15 minutes)

Now that groups have identified their infectious disease and their community, introduce the *Community Communication Toolkit*.

Teacher Note > The Community Communication Toolkit is a scaffold for students to help support them with the social media components of the unit. This is a collaborative working document that students will revisit throughout the unit. Some students may choose to use other communication options, especially if their targeted community or demographic does not have access to the internet. These students should focus on which modes of communication they want to use and why. See Community Outreach Campaign Overview for further explanation.

- 2 Remind students to refer to the *Outreach Campaign Community Identification* capture sheet as they complete the *Community Communication Toolkit*.
- 3 Students review *Social Media Platform Examples* to learn more about the different platforms and select which platform will reach their target audience.
- In their groups, students use *Dotmocracy* to make a decision on their chosen social media platform.
 - Students independently review Social Media Platform Examples.
 - Students have a discussion on any clarifying questions they have.
 - The group assigns a recorder to record responses on the *Group Dotmocracy* capture sheet.
 - In a round-robin style, ensuring equity of all voices, students share their likes and dislikes of the social media platforms. There is no discussion.
 - After students share their likes and dislikes, the group will do their dot
 vote on the *Class Dotmocracy*. Each student can place one dot for the
 social media platform they feel will best reach their target audience.
 If there is a tie, have students use their experience from the previous
 lessons on how to come to a consensus to make a decision.



Slides 48-49

Slide 48

Have students identify their social media roles. (15 minutes)

- Project the *Community Communication Toolkit*. Let students know they will be determining their social media role for their first post. Students review the roles and responsibilities in the *Community Communication Toolkit*.
- Then, in their groups, students decide which role they would like to take. Let students know they will rotate and experience all roles during the unit.
- Now that students have determined their social media roles, have students refer back to the article *How to Create a Successful Social Media Campaign* and the anchor chart **How to Run a Successful Community Outreach Campaign** to help them understand each role in the community awareness campaign.
- 4 If students need additional resources, have them explore *Social Media* at *CDC website*.
- 5 Have students add any additional responsibilities to their *Community Communication Toolkit*.

Slide 49

Students launch their Community Awareness Campaign. (15 minutes)

- Once students have completed the *Community Communication Toolkit*, Section 1, they can create their social media profiles using the *Campaign Profile Templates*.
- The group will copy the selected template from the Campaign Profile Templates and add it to the appropriate section of the Disease Education Communication Posts.
- The group will make their social media profile on the Disease Education Communication Posts.

Teacher Note > Some students may choose to create billboards or other media to communicate with their target audience. Have students create their profile on a business card if they are planning to not use digital media. In addition, rather than making social media posts, they will create their community communication in the form of billboards, flyers, newspaper articles, etc. Students can post these items in the class Disease Education Communication Posts Google slides.

National Standards

Next Generation Science Standards

Science and Engineering Practices (SEP)

Practice 8

Obtaining, Evaluating, and Communicating Information

Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions and/or to obtain scientific and/or technical information to summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

Disciplinary Core Ideas (DCI)

ETS1.C

Optimizing the Design Solution

Criteria may need to be broken down into simpler ones that can be approached systematically, and decisions about the priority of certain criteria over others (tradeoffs) may be needed.

Crosscutting Concepts (CC)

Cause and Effect

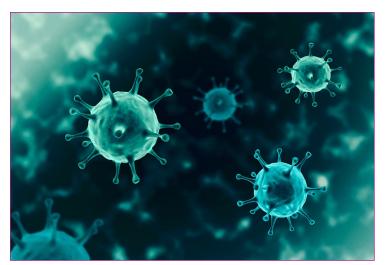
Empirical evidence is required to differentiate between caause and correlation and make claims about specific causes and effects.



Anchor Phenomena Gallery Walk

Print out the following images from the COVID-19 pandemic. You can choose to use all of them, group images together, or use some of the images. There is no particular order of the images. Students do not need to view all of the images as they participate in the silent Gallery Walk.

The last slide is for the Data Station where students will explore the John Hopkins University of Medicine Coronavirus Resource Center.









Anchor Phenomena Gallery Walk











Anchor Phenomena Gallery Walk



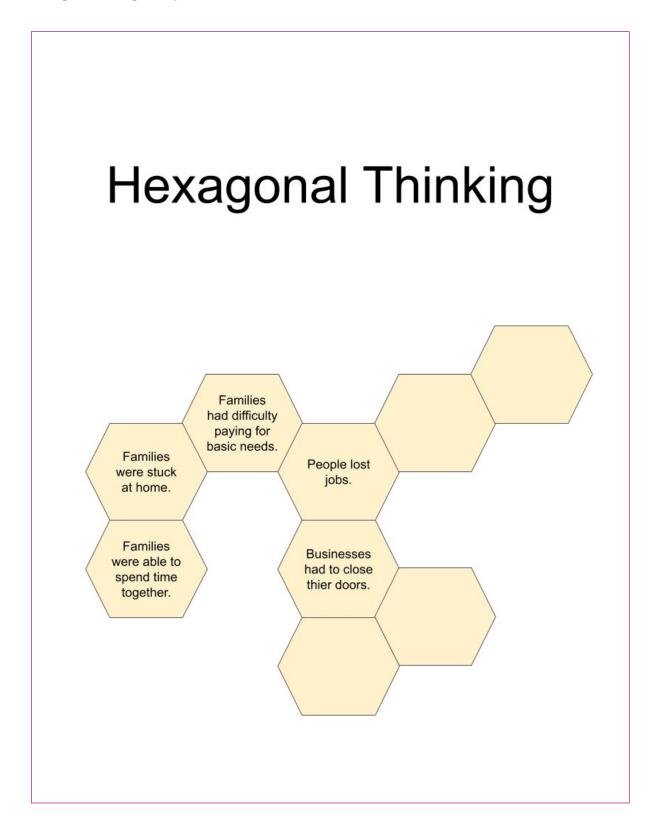




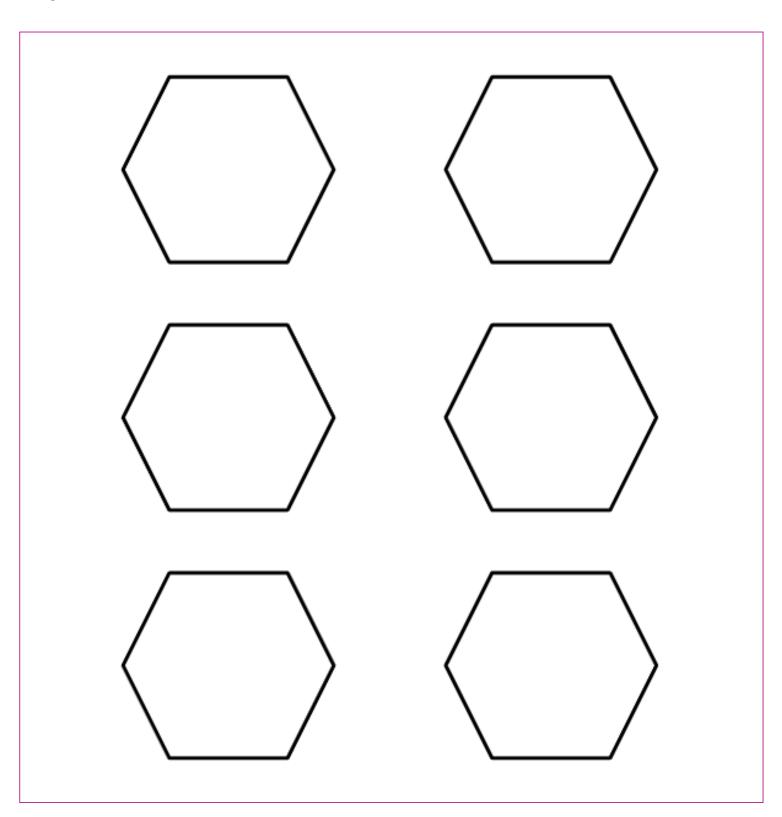
Data Station Guide

John Hopkins University of Medicine Coronavirus Resource Center		
Global Map Scan QR Code Below	U.S. Map Scan QR Code Below	Region Scan QR Code Below
For this section focus on the "dashboard."	For this section focus on the COVID-19 United States Cases by County.	For this section focus on the state you live in and then on the "state overview."

Hexagon Thinking Example



Hexagon Cut-outs

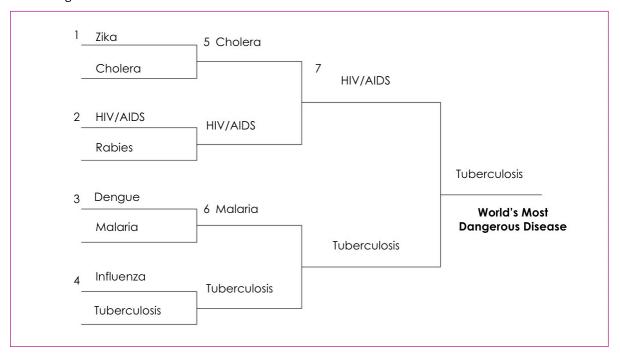


Bracketology Poster

Example: How to set-up the brackets for students.

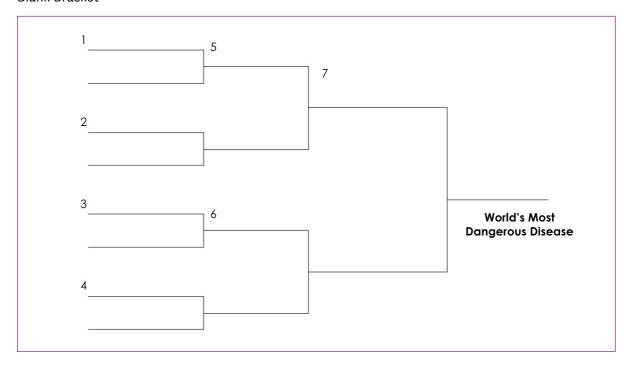


Example: One of several ways students may determine the most dangerous disease.



Bracketology Poster

Blank Bracket



Class Dotmocracy

Facebook	Instagram
Til-Tal	Twitter
TikTok	Twitter
YouTube	Other, not listed
•	•

Community Outreach Campaign Overview

Throughout this unit, groups will aim to raise awareness in a specified community using various forms of communication. This project does not actually have students post directly to social media platforms due to the sensitivity around using social media in the classroom and the potential issues of having students create or use social media accounts. Instead, groups will use templates to create their communication and will post to a class Google Slides presentation. They will be guided through this process using a scaffolded approach with peer feedback opportunites on a regular basis.

Community Outreach Campaign Components:

Disease Education Communication Posts

- Make a copy of this Google Slides presentation for your class. Share with edit access to your students.
- Groups will paste their profile template and weekly posts or other communication onto the slide for their disease. All groups will be collaborating on the same document.
- The class copy of this Google Slides presentation needs to be linked within the Community Communication Toolkit.

Campaign Profile Templates

- Groups will have view-only access to this resource.
- After deciding on their preferred platform, groups copy the appropriate template slide and paste it into the class Disease Education Communication Posts Google Slides presentation.

Community Communication Templates

- · Groups will have view-only access to this resource.
- After outlining their weekly posts or other communication, groups copy the appropriate template slide and paste it into the class Disease Education Communication Posts Google Slides presentation.

Community Communication Toolkit

- Make a copy of this Google Slides Presentation.
- Update the link to the Final Group Product on Slide 2 with the URL for your class copy of the Disease Education Communication Posts.
- Provide a copy of the Community Communication Toolkit document to each group. Share with edit access to each group member.
- Groups will use this working document as a guide throughout their community outreach campaign.

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Observation Capture Sheet

Directions

Complete this table as you look at images and explore data during the silent Gallery Walk. You do not have to visit every image, but do provide thoughtful responses for each image you do look at using the See, Think, Wonder routine.

Note > Focus on the Following: Global Map: Dashboard U.S. Map: COVID-19 United States Cases by Country Region: (Select your State) State Overview

Image # / Data	See What do you see in the data and images?	Think What does it make you think?	Wonder What questions do you have?

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Hexagon Thinking Prompt

Directions

Individually respond to the prompt by writing one idea per hexagon (words, phrases, and/or images). Once your group is ready, work together to make connections between your ideas. Use the space below to connect your hexagons.

Prompt: How did COVID-19 affect our community?		

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World's Most Dangerous Disease Capture Sheet

Directions

Take notes using the questions as your guide. Focus on information that would validate the use of the title, World's Most Dangerous Disease.

Questions to Address		Notes
1.	How many deaths occur per year from your disease?	
2.	Is your disease caused by a virus, bacterium, or parasite?	
3.	Who does your disease impact the most?	
4.	What are the signs and symptoms of your disease?	
5.	How is the disease diagnosed and treated?	
6.	Is there a cure or vaccine for your disease? Why or why not?	
7.	Are there potential long-term effects of your disease?	
	Is there any other information to help gain the title of most dangerous disease?	

Group Collaboration Contract, Part 1

Our Collaboration Agreement

Directions

With your group, identify three words from the list you brainstormed with the class that are the most important to your group. Respond to the reflective questions provided here. Remember, the three words you select represent what you and your groupmates believe you will need to do in order to successfully collaborate together.

Group Signatures We agree to do our best to achieve these three collaboration goals as a group. Signed:		
What We Need To Do To Work Successfully Together		
1.		
2.		
3.		
Continues next page >		

Group Collaboration Contract, Part 1

Our Collaboration Agreement

1	Write the first collaboration word your group identified.	Why is this important to your group?	What are specific actions to help you achieve this when working together?

2	Write the second collaboration word your group identified.	Why is this important to your group?	What are specific actions to help you achieve this when working together?

3	3	Write the third collaboration word your group identified.	Why is this important to your group?	What are specific actions to help you achieve this when working together?

Group Collaboration Contract, Part 2

Common Group Challenges While Working on a Collaborative Project

Directions

Work with your group to think about what to do and what not to do when these common collaboration challenges occur.

Scenario 1 Someone is absent multiple days.		
What should you do?	What should you not do?	

Scenario 3 You disagree about an important decision.		
What should you do?	What should you not do?	

Scenario 2 Someone does not do their work on time.		
What should you do?	What should you not do?	

Scenario 4 Someone tries to take over or do the work alone.	
What should you do?	What should you not do?

Outreach Campaign Community Identification Capture Sheet

Directions

Use this document to identify the different communities impacted by disease your group has selected and then, as a group, designate one to focus on for your Community Outreach Campaign. Remember, your project will focus on helping educate the community about a disease prevalent in the community you select. Choose wisely!

ep		Description	
As a group, identi the different com that are impacted the disease.	munities	Using the list of communities that we made in class, identify all of those communities that are impacted by your disease.	
		Identify Different Communities Impacted by the Disease	
What is your disea	ise?		
Continues next page	9 >		

Outreach Campaign Community Identification Capture Sheet

Continued

Step	Description	
Using the list of communities that we made in class, what are the communities that are	1	
impacted by the disease you have identified?	2	
	3	
	4	
	5	
Individually, identify the community you want to work with.	From your list above, identify the community help. To help you decide, identify the commun Community Outreach Campaign can impact t	ity you think your
	Which community do you think would be best to focus on?	What makes you think this is the best community to focus on?

Continues next page >

Outreach Campaign Community Identification Capture Sheet

St	ер	Description		
3	As a group, decide which community you will focus on for your project.	Now, each person presents the community they think would be best to work with and explains why they think so. After each person shares his or her thoughts, decide on one community to focus on for your project. As a group, you need to come to a consensus on the community to work with.		
		Which community did your group decide would be best to focus on?	Why did your group decide to choose this community?	
4	Message Strategy	What message will you communicate to the of	community and who will be your messengers? e community to share your message.	
	Who will be your messengers? This matters because community members will listen to those who are trusted within their community.			
	How will you ensure that your message is inclusive and accessible? What languages and modes			
	of communication will you use to communicate with your priority audience?			
	How will you proactively address misinformation (make sure that your message			
	includes the debunking of misinformation or confusion that may be a barrier for your target audience)?			
	Continues next page >			

Outreach Campaign Community Identification Capture Sheet

Step		Description
5	Partnerships	Identify and enlist partners that are vital to the success of your campaign. In order for your campaign to be a success, you must partner with trusted community organizations and partners.
	What trusted organizations or community leaders can you partner with?	
	Who are your trusted messengers within the community: healthcare providers, or civic, community, and faith-based groups?	
	What community systems or institutions can you partner with: healthcare organizations, pharmacies, universities, large employers, business associations, non-profits, school districts, or unions?	
6	Community Outreach Campaign Launch	
	How will you have trusted members of the community provide the message to your priority target populations: social media, infographics, community events, etc?	
	What barriers will you need to address in your outreach planning (i.e., transportation, internet access, etc.)? How will you ensure that, despite these barriers, you will be able to reach your priority audience?	

Social Media Platform Examples

Note > Students are welcome to use other forms of communication such as podcasts, blogs, forums, etc.

Questions	Instagram	Twitter	Facebook	Tik Tok	YouTube
What is it?	Social network for photo and video sharing	Microblogging and social network where users post messages known as "tweets"	Social network where people can connect and share with others	Social network where users create and upload their own videos	Social network where users watch, create, and upload their own videos
Followers	Approximately 1 billion	Approximately 187 million	Approximately 2.6 billion	Approximately 689 million	Approximately 2.3 billion
Largest Age Group	Between ages 18-29	Under 50 years old	Between ages 25-34	Between ages 10-29	Between ages 15-25
Why do people use it?	Great for engagement and to connect with your followers Visual and simple to use Used for photo sharing	Great way to get people to your website Allows people to share their thoughts with a large audience Tweets are limited to 140 characters Audio and video tweets are limited to 140 seconds	Great way to connect with people Connect and share with family and friends online Few limitations of text length or photo size Great for engaging your audience	Videos are fun and short Able to adapt their content into a short video People use it to express themselves through singing, dancing, etc. Showcases creativity	Great for sharing videos with large audience Able to embed in websites or other social media platforms Large variety of content Optimized for mobile devices

Continues next page >

Social Media Platform Examples

Questions	Instagram	Twitter	Facebook	Tik Tok	YouTube
What are they known for?	Instagram Stories Able to like, repost, comment Direct message (DM) Conduct polls Slides (up to 10 pictures) Sync photo sharing to other social media platforms 15-second Reels allow for video editing and sharing	Messages are known as "tweets" Moments- allows users to curate tweets from other users Able to like, retweet, reply Direct Message (DM) Conduct polls	Largest social network Staying connected with family and friends Share, express, and discover what happening around the world Able to like, comment, share	Up to 15 or 60 seconds long Video editing and customization tools Able to like, comment, share Share videos that can be saved to your phone or posted to other social media	Simple way to store and share videos online with varied privacy settings Huge range of topics Connect with people from around the world Capability to record live Able to like, comment, share, and save videos to playlists
What people post?	User generated content, behind-the scene shots, images, videos, interesting statistics, current events, etc.	Links, quotes, awareness campaigns, etc.	Inspiring blogs, articles, photos, quotes, own content, news, updates, etc.	Social media challenges, videos best on trends, dance videos, dialogue reenactments, song imitations, etc.	Commentaries, how-to tutorials, social media challenges, reviews, interviews, docuseries, music and dance videos

Group Dotmocracy Capture Sheet

Directions

After reviewing the Social Media Platform Examples, take turns sharing your likes and dislikes of each platform. Ensure that every group member has a chance to share, without lengthy discussion. The group recorder should place a dot in the appropriate box as ideas are shared.

	I agree (likes)	l disagree (dislikes)
Facebook		
Instagram		
TikTok		
TIKTOK		
Twitter		

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Project Information Sheet

Summary

With your group, you will create a Community Outreach Campaign aimed at educating community members about an infectious disease that affects a specific community of people. Within your group, you will take on a variety of social media campaigns and community outreach roles in order to successfully collaborate with your groupmates. Additionally, you will individually create a Disease Education Report that details the scientific information that supports the social media posts or community outreach elements that you and your group create. At the end of the project, you will present your recommendations for how to take steps toward eradicating the disease from your target community.

Driving Question

How can an effective outreach campaign educate and empower a community to help eradicate an infectious disease?

Major Products:

- Individual: Disease Education Report
- Group: Community Outreach Campaign Posts/Communication

Key Deliverables and Deadlines

Lesson 1 Community Outreach Campaign Platform Setup—Group Lesson 2 Begin to develop Disease Education Report—Individual ☐ Post/Communication #1 for Community Outreach Campaign—Group Lesson 3 Continue Disease Education Report—Individual ☐ Post/Communication #2 for Community Outreach Campaign—Group Lesson 4 Continue Disease Education Report—Individual ☐ Post/Communication #3 for Community Outreach Campaign—Group Lesson 5 ☐ Finalize Disease Education Report—Individual ☐ Communication #4 Community Outreach Campaign—Group

Lesson 6

☐ Community Outreach Campaign Presentation—Group

Evaluation Criteria

☐ Unit Rubric

Unit Rubric: Eradicating Disease

Directions

Use the center columns to evaluate whether the product meets the standard or is still developing. Provide specific suggestions for improvement in the left column. Note elements that exhibit deeper understanding in the right column.

Emerging How can this product be improved?	Developing This product includes some, but not all required elements.	Proficient This product meets all performance expectations.	Advanced How does this product exceed expectations?
	I can construct an explanation for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.	I can construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells. NGSS-HS-LS1-1	
	I can use a model to explain the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	I can develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. NGSS-HS-LS3-3	
	I can conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	I can plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. NGSS-HS-LS1-3	
	I can explain the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	I can use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. NGSS-HS-LS1-4	

Continues next page >

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Unit Rubric: Eradicating Disease

Continued

Emerging How can this product be improved?	Developing This product includes some, but not all required elements.	Proficient This product meets all performance expectations.	Advanced How does this product exceed expectations?
	I am usually prepared, informed, and ready to work with the group. I use technology tools as agreed upon by my group to communicate and manage project tasks, but not consistently. I complete my tasks on time, but need to be reminded. I sometimes use feedback from others to improve my work.	I am prepared and ready for work. I am well informed on the project topic and I cite evidence to prove and reflect on ideas with my group. I consistently use technology tools as agreed upon by my group to communicate and manage project tasks. I complete my tasks on time. I use feedback from others to improve my work. Collaboration Standard 1: Takes Responsibility for Oneself	
	I cooperate with the group, but may not actively help it solve problems. I sometimes express ideas clearly, ask probing questions, and elaborate in response to questions in discussion.	I help the group solve problems and manage conflicts. I make discussions effective by clearly expressing my ideas, asking probing questions, making sure everyone is heard, and responding thoughtfully to new information and perspectives.	

Continues next page >

Unit Rubric: Eradicating Disease

Emerging How can this product be improved?	Developing This product includes some, but not all required elements.	Proficient This product meets all performance expectations.	Advanced How does this product exceed expectations?
	I give useful feedback to others, but it may not always be useful. I sometimes offer to help others do their work if they need it.	I give useful feedback (specific, feasible, supportive) to others so they can improve their work. I offer to help others do their work if needed.	
		Collaboration Standard 2: Makes and Follows Agreements	
	I can develop ideas for a purpose and task to communicate appropriate findings, arguments and supporting evidence. My audience can follow the line of reasoning.	I can clearly develop ideas appropriate to the purpose and task to communicate appropriate findings, arguments, and supporting evidence clearly, concisely, and logically. My audience can easily follow the line of reasoning. Presentation:	
		Explanation of Ideas and Information	