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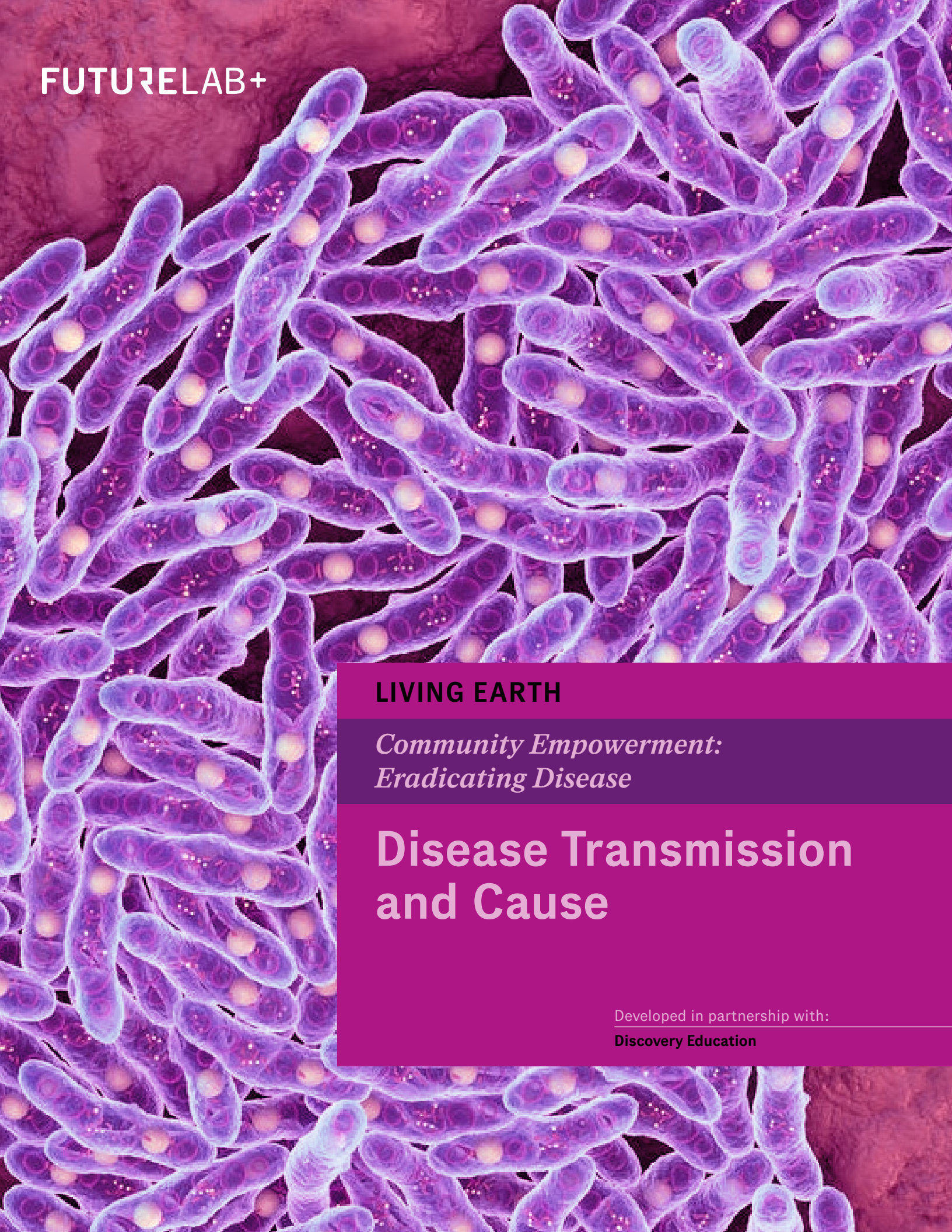

LIVING EARTH

Community Empowerment: Eradicating Disease

Disease Transmission and Cause

Developed in partnership with:

Discovery Education

In this Lesson Plan:

Print the **Teacher Section** →

Print the **Student Section** →

Cover Image
Tuberculosis bacteria, (illustration).

This document is separated into two sections, For Teachers [T] *and* Student Resources [S]*, which can be printed independently.*

Select the appropriate printer icon above to print either section in its entirety.

Follow the tips below in the Range field of your Print panel to print single pages or page ranges:

Single Pages (use a comma): T3, T6

Page Range (use a hyphen): T3–T6

LIVING EARTH / COMMUNITY EMPOWERMENT—ERADICATING DISEASE

Disease Transmission and Cause

ACTIVITY DURATION

Five days

DRIVING QUESTION

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

ESSENTIAL QUESTIONS

How are the different causes of infectious diseases similar and different from one another regarding their transmission and effects on the body?

How is our body organized to make it work properly?

How do the various body systems work?

How do diseases impact the body systems?

OVERVIEW

Infectious diseases can spread throughout the world quickly and relentlessly. This means it is vital that we find ways to identify and treat these diseases. Children under the age of five are especially susceptible to infectious diseases, including pneumonia, diarrhea, and malaria. Along with preterm birth, birth asphyxia and trauma, and inherited abnormalities, infectious diseases are a leading cause of death for children under five.

In 1796, Edward Jenner developed a vaccine for smallpox. Even after this important discovery, the importance of sanitation to prevent disease was not recognized until the late 1800s. At that time, many diseases were linked to drinking impure water and unsanitary living conditions. Diseases sucha as cholera, malaria, diarrhea, hepatitis A, and typhoid are common infectious diseases that result from unclean drinking water. There are still more than a billion people worldwide who lack clean drinking water and more than two billion who lack clean living conditions.

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OBJECTIVES

Students will be able to:

Learn the different causes of infectious diseases.

Investigate the different levels of organization in the body.

Discover the process of protein synthesis.

OVERVIEW *Continued*

Vaccines, gene therapy, modified viruses to cure diseases, and cell therapy are some of the strategies scientists employ to curb the spread of diseases. Vaccinations preceded these other strategies in the United States as early as the end of the 19th century. Strategies such as gene therapy, modified viruses, and cell therapy followed.

In this lesson, students create their first social media post to help eradicate the disease from their focus community or community communication. The groups will create a post that communicates information about the body system the disease impacts. Additionally, students will write the detailed scientific information regarding the body system the disease impacts in their Disease Education Report. In order to do this work, students will learn about the different causes of infectious diseases, the levels of organization in the body, and protein synthesis.

STUDENT TASKS

Day 1	*Day 2*	*Day 3*	*Day 4*	*Day 5*
Learn about the similarities and differences between viruses, bacteria, and parasites that cause people to be infected with infectious diseases. Uncover whether a virus, bacterium, or parasite causes the disease and identify the symptoms, transmission, and effects of the disease.	Learn about levels of organization of body systems, including organs, tissues, and cells. Discover the organization of body systems. Identify the cells, organs, and systems that are affected by their disease.	Begin to develop a Disease Education Report, which they will use to communicate their findings to leaders on how to eradicate the disease for their community.	Begin to develop their first post of their Community Awareness Campaign. Work together in their Community Outreach Campaign role to develop a post to raise awareness around the importance of the body system that is affected by the infectious disease that impacts their community.	Students participate in a Gallery Walk to get and give feedback on posts and communication. Students use feedback from the other students to revise and finalize their posts. Students add their posts to their Disease Education Communication Posts.

MAKE CONNECTIONS!

How does this connect to the larger unit storyline?

In order to eradicate infectious diseases, it is important to understand the intervention strategies for combating different types of diseases, how immunity works in the human body, and the roles that healthcare workers play in eradicating diseases. Understanding the causes of a disease is the first step in understanding treatment and prevention.

In this lesson, students create their first post of their Community Outreach Campaign or other form of community communication to help eliminate the infectious disease in their community.

How does this connect to careers?

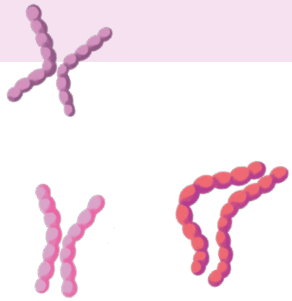
Diagnosticians, such as ***bacteriologists*** and ***clinical lab scientists,*** are important in identifying various diseases and their causes. Additionally, professionals, such as ***pharmaceutical laboratory technicians,*** are important in assisting in the research and development of medications that prevent or treat infectious diseases.

Other healthcare professionals who work in the field of waterborne infectious diseases include:

- ***Epidemiologists***
- ***Public health professionals***
- ***Environmental health***
- ***Specialists***
- ***Hydrologists***
- ***Pathologists***
- ***Public health doctors (DrPH)***
- ***Water quality specialists***
- ***Infectious disease physicians***
- ***Nurse practitioners***
- ***Water testing lab technicians***
- ***Community health nurses***
- ***Teams that clean contaminated areas***

How does this connect to our world?

Eradicating diseases is a task that requires the efforts of researchers, healthcare workers, governments, nonprofit organizations, and individuals. This is especially important in our world today because the ease and frequency of travel can spread disease worldwide, leading to possible pandemics.

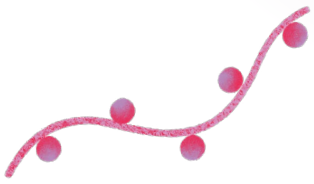


Pedagogical Framing

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 problem-based 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

Students will practice social awareness to successfully understand what others are feeling, while appreciating and interacting positively with their diverse groups during the lesson. They will work together by cooperating, resisting inappropriate social pressure, negotiating solutions to conflict, and seeking help when needed. All students have been impacted by COVID-19, but some students may have personal experiences with the infectious disease or community and will carry those experiences with them into sensitive discussions. This requires all discussion participants to demonstrate empathy and practice social awareness.

CULTURALLY AND LINGUISTICALLY RESPONSIVE INSTRUCTION

Students reflect on their experiences with COVID-19 in their community in order to learn about the different causes of infectious diseases, the organization of the body, and body systems. Students learn this content collaboratively through a variety of student-centered learning activities. Students also participate in their Community Outreach Campaign project to showcase diverse cultural and linguistic skills that encourage historically marginalized communities to participate in the eradication of infectious diseases.

ADVANCING INCLUSIVE RESEARCH

Contagious diseases affect populations around the world at different rates. Some communities who face constant threat from these diseases develop genetic adaptations that help protect them. For instance, Sickle Cell Disease is the result of a genetic mutation that helped prevent people living in equatorial regions from getting malaria. In order to understand how different therapies might affect people with different genetic adaptations, it is important to build a global genetic dataset that is as diverse as possible.

COMPUTATIONAL THINKING PRACTICES

As they compare and contrast different infectious diseases, students utilize the computational thinking strategies of abstraction and finding patterns. Students develop a triple Venn diagram to identify similarities and differences between diseases. This tool allows students to abstract out just the essential information, making it easier to find patterns. Students also use the computational thinking strategy of decomposition to "build" a body system from component parts. This allows students to isolate the most basic elements of each body system and examine how each layer builds on the next. Finally, as students think about how to present their data (charts, pictures, key terms, etc.), they understand that a key part of the computational thinking strategy of analyzing data is keeping the end user in mind.

CONNECTION TO THE PRODUCT LIFE CYCLE

In this lesson, students explore how different types of organisms can cause infectious diseases. This mirrors the research done in the Discover phase of the product life cycle.

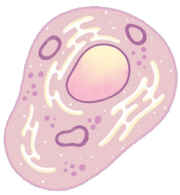
Day 1

Slides 1–7

Slides 1–7

Students learn and apply what an infectious disease is and how infectious diseases typically spread. (12 minutes)

1	Have students discuss what they believe "infectious disease" means. Listen for phrases, such as *infections, spread in community, caught from other organisms,* etc.
2	Once there is a common definition for *infectious disease*, pass out the *Infectious Disease Give One, Get One* capture sheet.
3	Give students 2–3 minutes to write their individual thoughts about the following questions on the sheet. • How does this relate to COVID-19? (Think about our entry event, and your own knowledge of COVID-19) • How do you think this relates to the disease your team is researching? • How do you think infectious diseases typically spread?
4	Then, explain the *Give One, Get One* protocol. Tell the students; In a moment, we will walk around the room to participate in the Give One, Get One protocol. When we begin, you will go to another person and "give one" of your ideas to your partner. Then you will "get one" idea from your partner and record it on your sheet. You will repeat this, going to different partners, until I prompt you to stop.
5	As students are giving and getting information, make observations about which questions have the most thoughts, and which have the fewest. Are there misconceptions that arise?
6	When students return to their groups, have them share their favorite new idea with the group, an idea that pushes their thinking, or an idea that hits upon a key perspective.
7	At the end of this exercise, tell the students: The purpose of this activity is to listen to others' ideas and get new ideas from others. It also helps us to consider how your ideas connect and to help expand our own thinking.



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Day 1

Continued

Slides 8–11

COMPUTATIONAL THINKING IN ACTION

As students develop a Venn diagram to compare and contrast three different diseases, they are employing the computational thinking strategies of finding patterns and abstraction. As they fill out their Venn diagrams, students are isolating, or abstracting out, just the relevant information. Once they have identified this key information, it becomes easier to find patterns (similarities) in the data.

Slides 8–10

Students learn about the types of organisms that cause infectious diseases and identify the cause of their disease. (18 minutes)

1	Begin by asking students if they have ever created a Venn Diagram before. Ask what is the purpose of a Venn Diagram?
2	Show students the *Example Triple Venn Diagram*, and ask students if they have ever compared and contrasted three different things. Have students analyze the example, and share what they notice about the Triple Venn Diagram.
3	Give students the *Information Sheet on Viruses, Bacteria, and Parasites* and the *Triple Venn Diagram*.
4	In their disease groups, have students read the information sheet to find and write similarities and differences among the three types of organisms in their Triple Venn Diagram.
	Walk around and listen to how students are sharing ideas. Notice if there are any misconceptions to be addressed.

Slide 11

Students research the symptoms, transmission, and effects of their diseases. (15 minutes)

1	From their Venn Diagram activity, have students predict which of the three types of organisms they believe causes their disease viruses, bacteria, or parasites and discuss what makes them say that.

Continues next page >

Day 1

Continued

Slide 11

2 Pass out the *Disease Basics Research* capture sheet and the *Research Websites*, or give students links to their respective infectious disease.

WHO	CDC
Rabies	*Rabies*
HIV/AIDS	*HIV/AIDS*
Influenza	*Influenza*
Cholera	*Cholera*
Tuberculosis	*Tuberculosis*
Malaria	*Malaria*
Dengue	*Dengue*
Zika	*Zika*

3 In their disease groups, have students find information about the cause of their disease (virus, bacterium, or parasite), how their disease is transmitted, symptoms and signs of their disease, and possible long-term effects of their disease.

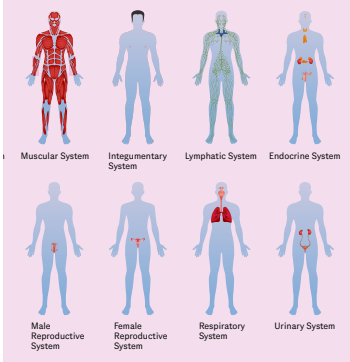
4 As students are researching, ensure that they are discussing their findings with their group members, and take note of collaboration and communication styles.

5 Make sure to tell students that each person needs to have their note catcher filled out because they will be individually writing their Disease Education Report in the next few days.

6 As students are wrapping up, ask each group to share one thing that either surprised them or a question they have about their disease.

Day 2

Slides 12–14



Slides 12–13

Students predict which organ systems their disease impacts the most. (5 minutes)

1 Pass out the **Organ System Diagram** and have students predict which organ systems their disease impacts the most. Ask students to elaborate on their predictions by explaining their thinking.

Teacher Note > *Ask students to elaborate on their predictions by explaining their thinking.*

Slide 14

Students learn about the organization of body systems. (15 minutes)

1 **Prepare in advance:** Make sure the card sort for the *Levels of Organization Sort, page 1* is cut out and copies are made of the *Levels of Organization Sort, page 2*, one set for each group. Suggestion: Place the cut-outs in envelopes or plastic baggies for easy distribution and collection.

2 Hand out the *Levels of Organization Sort* to each group, as well as the cut-out pieces. Tell students that they have 10 minutes to try to place the correct level with the definition and examples, as well as placing them from simplest to most complex level of organization.

3 As students are working, walk around and see where misconceptions may be, and look for collaboration and communication styles.

4 Once the 10 minutes are up, have students walk around to see the other groups' organization sort. When they get back to their seats, ask:

- What did you notice?
- What seemed to be the easiest to figure out? What makes you think this?
- What seemed to have the greatest difference from group to group? Why do you think this?
- Why do you think this hierarchy is important for your disease eradication?

5 Have students clean up their card sorts and return the pieces.

COMPUTATIONAL THINKING IN ACTION

Here, students are using the computational thinking strategy of decomposition to explore the component parts of body systems. This strategy allows them to examine how each element builds on the next to create a functioning system.

Continues next page >

Day 2

Continued

Slide 15

Slide 15

Students learn about the organization of body systems. (15 minutes)

1 Pass out to the students the *Levels of Organization* capture sheet and the Research Websites, or give students links to their respective infectious disease.

WHO	CDC
Rabies	*Rabies*
HIV/AIDS	*HIV/AIDS*
Influenza	*Influenza*
Cholera	*Cholera*
Tuberculosis	*Tuberculosis*
Malaria	*Malaria*
Dengue	*Dengue*
Zika	*Zika*

2 In their disease groups, have students find information about the main organ system and the organs affected by their disease.

3 Students will also look into what cells and tissues may be affected within those organs.

4 As students are researching, ensure that they are discussing their findings with their group members, and take note of collaboration and communication styles.

5 Make sure to tell students that each person needs to have their note catcher filled out because they will be individually writing their Disease Education Report in the next few days.

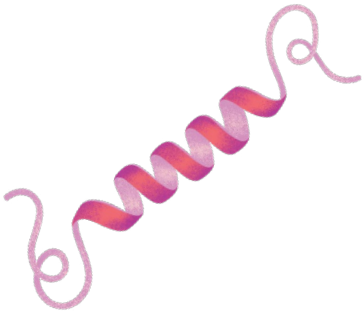
Slide 16

Students reflect on their learning from today. (5 minutes)

As an Exit Ticket, have students reflect, with a *Turn and Talk*, on this prompt: Why is it important to look at all levels of organization when trying to eradicate a disease?

Day 3

Slides 17–18



Slide 17–18

Introduce the Disease Education Report to students. (15 minutes)

1. Share with students the *Disease Education Report* template that they need to complete by the end of the unit. Tell students this is one of the final products they will need to produce for this unit.

2. Tell them this report will contain information that will help eliminate the disease from the community.

3. Ask students to notice how the information is organized and share what information they will need to collect about their community and their disease.

4. In a *Turn and Talk* discussion, ask students to discuss the following prompt:
   - What is the difference between eradicating something and eliminating something?

5. Have students share their ideas after they discuss with their partner.

6. Remind students that they have collected enough information about their disease to fill out the following sections

   a. Report Author
   - Name

   b. Focus Community
   - Name
   - Location
   - Population

   c. Disease Investigated
   - Name
   - Type

   d. Disease Background

   e. Disease Impact on the Body—About the Impacted Body System

   f. Disease Causes
   - Disease Specific Cause

Continues next page >

Day 3

Continued

Slides 17–19

7 To write the **Disease Background** and the "Disease Causes—Disease Specific Cause" sections, tell students to use their notes to include the following information:

a. **Disease Background** section:

- What is the infectious disease that impacts the community?
- What is the purpose of this Disease Education Report?
- Describe the community for which the report is intended.
- How is the disease impacting the community?
- What are the symptoms of the disease?

b. **Disease Impact on the Body**—About the Impacted Body System

- What body system is most impacted by the disease and why it is important to the body for this system to function properly?

c. **Disease Causes**—Disease Specific Cause section

- What is the cause of the infectious disease?
- How does someone get infected by the cause of the disease?

Slide 19

Have students develop the disease impact section of their report using their notes and assignments from Day 1–3. (30 minutes)

1 Tell students that they need to communicate the information in their report in a way that any lay person can understand.

2 Ask students in their groups to brainstorm a list of ideas of what they can do in their report to help people better understand the information. When ready, have students share out examples and make a list on the board to which students can refer. Ideas include:

- Charts and graphs
- Infographics
- Pictures and diagrams
- Glossary of terms

3 Tell students to select two of these ideas to include in their reports.

4 When ready, let students use the rest of class to finish the sections detailed above.

COMPUTATIONAL THINKING IN ACTION

Thinking in Action: As they develop their ideas of how to help people understand information, students learn that individuals use the computational thinking strategy of analyzing data in different ways. Some people find it easier to interpret data that is presented in a chart, while others prefer pictures and diagrams. This diversity of styles means that students must be mindful of different learning approaches as they present their data.

Day 4

Slides 20–23

CULTURALLY & LINGUISTICALLY RESPONSIVE INSTRUCTION:

Students participate in the Community Outreach Campaign project to showcase diverse cultural and linguistic skills that encourage historically marginalized communities to participate in the eradication of infectious diseases.

Slides 20–21

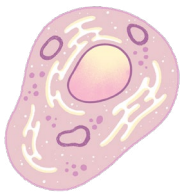
Students learn about the different types of media they can create for their Community Outreach Campaign project. (5 minutes)

1. Students begin to message their community to raise awareness around the body system their disease disrupts.
2. Provide time for students to revisit the group copy of the **Community Communication Toolkit** from Lesson 1 Day 5 and look at the job they selected and their responsibilities.
3. Remind students, they should reference **Group Collaborative Contract** as they work in their teams.
4. Since this is the first team post, you may want to facilitate students through this process.

Slides 22–23

Students have a role and work as a team to create their post or communication. (40 minutes)

1. Now that students have reviewed their job roles, groups will work on their first posts. The Social Media Manager facilitates this section. Teacher walks around the room to provide support to teams.
2. Social Media Manager says:
   - **a.** The focus for this post is to raise awareness around the body system our disease disrupts.
   - **b.** Let's review the different social media posts in the **Community Communication Templates**.
   - **c.** As a team, we will determine the format for our post and review job duties.
   - **d.** We will use the information from our **Disease Education Report** to help us create our social media post or community communication.



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Day 4

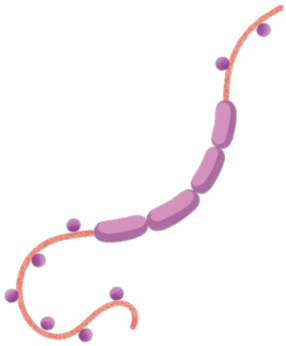
Continued

Slides 22–23

e. We will have (insert amount of minutes) to work on our sections of the posts. Our posts should go on the slide (insert slide number) of the class copy of the **Disease Education Communication Posts**.

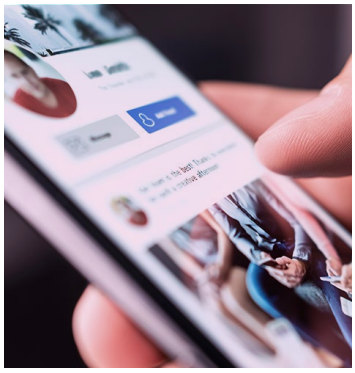
- Team members work on their sections of the social media post on the class copy of the **Disease Education Communication Posts**.

3 Students' first post or communication should be completed on the class copy of the **Disease Education Communication Posts** for the *Gallery Walk* in the next lesson.



Day 5

Slides 24–26



Slides 24–26

Students conduct a *Gallery Walk* to obtain feedback on the class copy of the **Disease Education Communication Posts**.

Teacher Note > *Prepare in advance if you are displaying posts on the wall: copies of posts, chart paper (3 sections labeled: Reactions, Feedback, Likes), markers.*

A Gallery Walk is a critique protocol during which students give feedback and get feedback from their peers in order to improve their work. Prior to the Gallery Walk, students should understand how to give and receive feedback. You may want to model this process by facilitating role-plays, providing sentence starters, or building in additional learning experiences to reinforce a positive culture.

1. Students display the content they created. Posts or communication can be taped to the wall or displayed on a computer screen.

2. Students will be participating in a Gallery Walk to view social media posts or other forms of community communication. Let students know they will be posting and giving feedback as if they were commenting on social media. Remind students of classroom norms.

   Tell students, there are three posts you can make:

   a. Give feedback to help a group revise and improve a post.
   - There are three rules when giving feedback: Be kind, be specific, and be helpful.

   b. Provide reactions to posts for the information presented.

   c. Students can indicate a “like” on a group’s post.

3. For posts or communication displayed or taped to the walls:

   a. Students review the content created by the other groups.

   b. On the chart paper, they can write feedback, provide reactions, and/or “like” a group’s post by drawing a heart.

4. For posts or communication displayed on a computer screen:

   a. Groups access the class copy of the **Disease Education Communication Posts**.

   b. Students can give feedback in the notes section of the slide.

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Day 5

Continued

Slides 24–26

c. Using the infinite heart, drag and drop a heart on the slide to "like" a post.

d. Students can provide reactions to a group's post.

5 In their group's, students review and discuss the feedback from their peers.

6 Students choose how to take and use the feedback provided. Groups then revise their post or communication using the feedback they received.

7 Exit Ticket: Cheer, Challenge, Change

a. On a sticky note, students write answers to the following:

- Cheer: What is something they liked about the Gallery Walk?
- Challenge: What is something challenging about the Gallery Walk?
- Change: What is something they would change about the Gallery Walk?

b. Teachers are able to use the feedback as a formative check from students as well as make adjustments to the *Gallery Walk* for the next lesson.

National Standards

Next Generation Science Standards

Science and Engineering Practices (SEP)

Practice 2
Developing and Using Models

Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.

Practice 8
Obtaining, Evaluating, and Communicating Information

Communicate scientific and/or technical information or ideas (e.g. about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (i.e., orally, graphically, textually, mathematically).

Disciplinary Core Ideas (DCI)

LS1.A
Structure and Function

Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level.

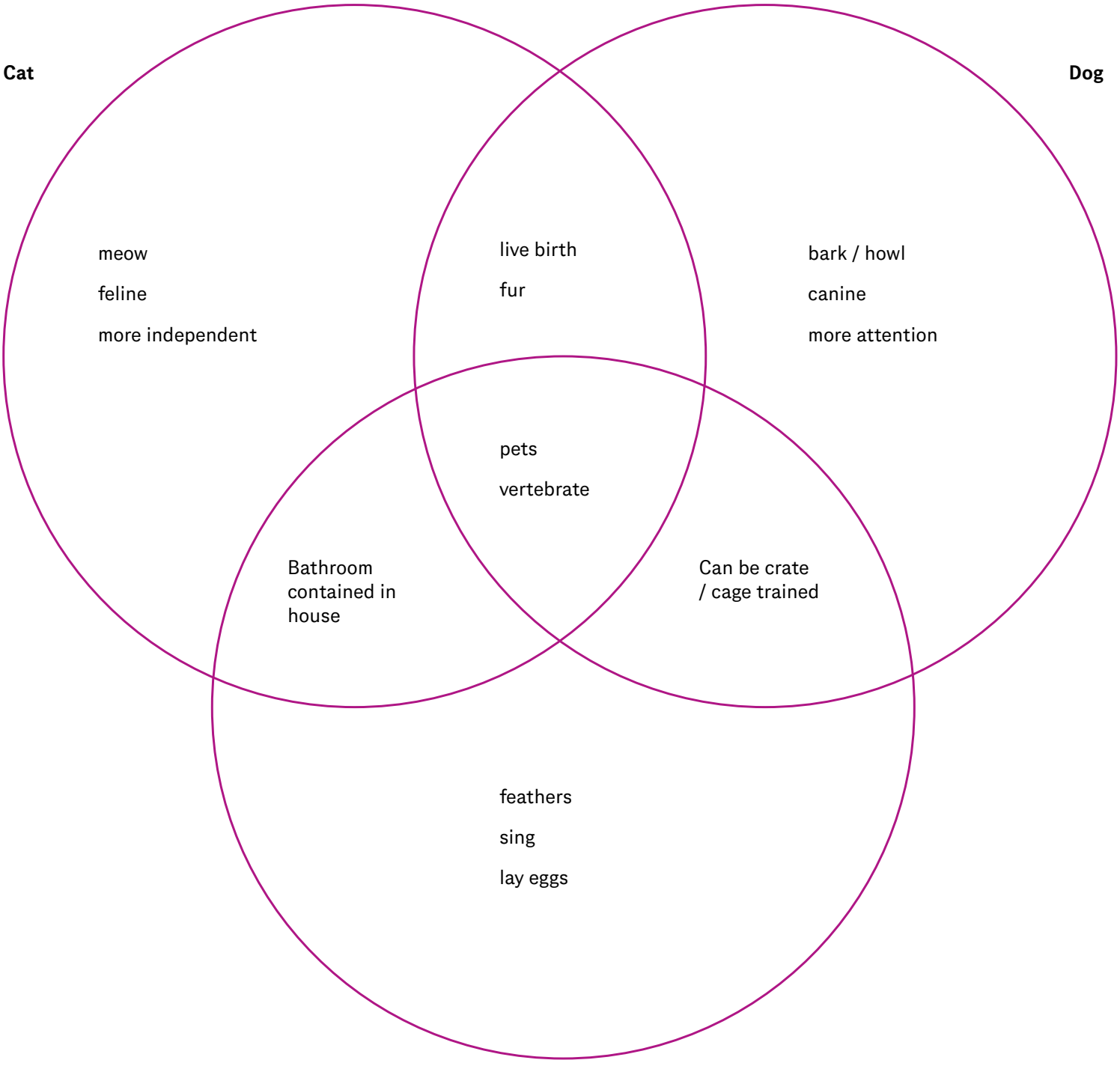
Crosscutting Concepts (CC)

Systems and System Models

Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.

Educator Resources

Example Triple Venn Diagram



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Infectious Diseases Capture Sheet

Give One, Get One

Directions

Write your thoughts about the following questions in the Your Thoughts box below. When your teacher indicates, go to a partner, and give one of your thoughts to your partner. Then, get one idea from your partner and write it in the Others' Ideas box. Repeat until your teacher says to stop.

	Your Thoughts	Others' Ideas
1 How does the term ***infectious diseases*** relate to COVID-19? *Think about our entry event, and your own knowledge of COVID-19.*		
2 How does the term ***infectious diseases*** relate to your disease?		
3 How do you think infectious diseases spread?		

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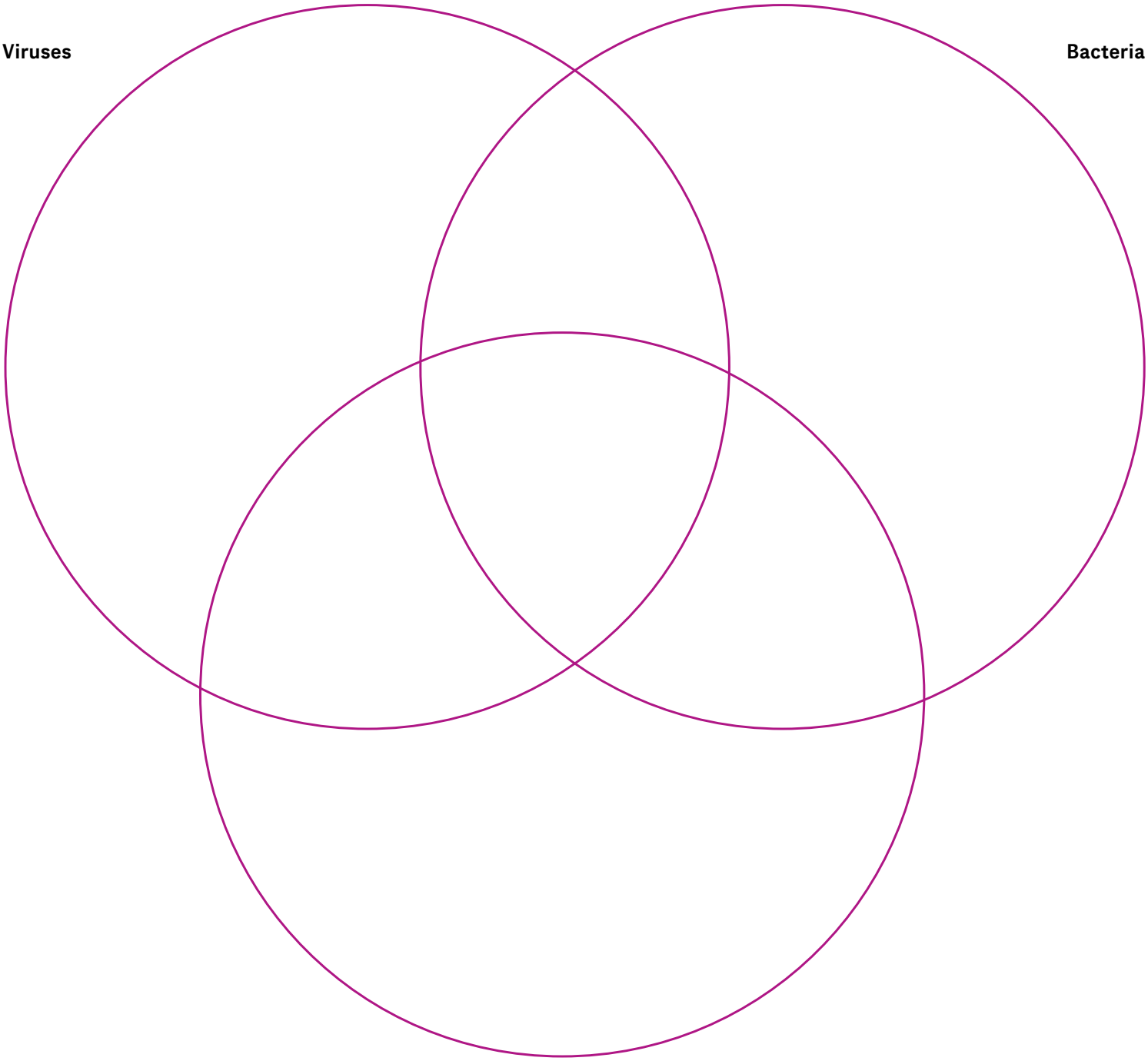
Triple Venn Diagram

Directions
In your disease groups, read the information sheet to find similarities and differences among the three causes of disease. Record your findings in the appropriate space.



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Information Sheet on Viruses, Bacteria, and Parasites

	Viruses	Bacteria	Parasites
Size	20–500 nm	0.5–5 µm *10–30 times bigger than a virus*	Microscopic to 30 meters long
Structure	Do not have organized cell structure No nucleus Have 1 or 2 strands of DNA or RNA	Called prokaryotes: single-celled organisms with a simple structure Lack a nucleus Have DNA that either floats freely or in separate ring-like pieces (plasmids)	Called eukaryotes: uni- or multi-cellular organisms with DNA in the nucleus of the cell Have cell structures that share many features with human cells
Replication	Cannot replicate outside of a host cell Use the host cell's protein synthesis to reproduce	Some multiply freely in the environment Some replicate within human or animal hosts Reproduce asexually, yet can exhange genetic information through conjugation	Some multiply freely in the environment Some only replicate within a host organism Most reproduce asexually, can switch to sexual to remain infectious
Eradication Techniques	Treatments called antivirals only help symptoms until body fights infection Antibiotics do not work Vaccines for some	Most are eradicated by antibiotics Vaccines for some	Most are eradicated by antibiotics No vaccines to prevent infection yet
Characteristics	Inactive outside of cell, but become active once inside the cell Can infect almost every type of organism, even bacteria	Some are necessary for life Others are extremely dangerous Can live inside and outside other organisms	Organism that lives on or in a host and gets its food at the expense of its host

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Research Websites

World Health Organization *WHO* *Rabies*	Centers for Disease Control *CDC* *Rabies*

World Health Organization *WHO* *HIV/AIDS*	Centers for Disease Control *CDC* *HIV/AIDS*

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Research Websites

Continued

World Health Organization *WHO*	Centers for Disease Control *CDC*
Influenza	*Influenza*
	

World Health Organization *WHO*	Centers for Disease Control *CDC*
Cholera	*Cholera*
	

Continues next page >

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Research Websites

Continued

World Health Organization *WHO* *Tuberculosis*	Centers for Disease Control *CDC* *Tuberculosis*

World Health Organization *WHO* *Malaria*	Centers for Disease Control *CDC* *Malaria*

Continues next page >

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Research Websites

Continued

World Health Organization *WHO* *Dengue*	Centers for Disease Control *CDC* *Dengue*

World Health Organization *WHO* *Zika*	Centers for Disease Control *CDC* *Zika*

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Disease Basics Research

Directions
Using the websites provided, research to answer the questions about your disease.

	Notes
1 Type of infection virus, bacterium, parasite	
2 Transmission How is disease transmitted to humans?	
3 Signs and Symptoms What are typical symptoms? How long do symptoms typically last? How long before someone is symptomatic?	
4 Possible Long-Term Effects If not treated, what are long term or severe effects of disease?	

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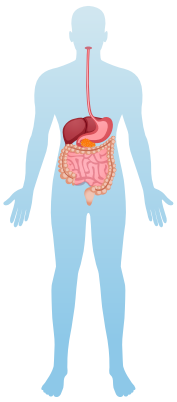
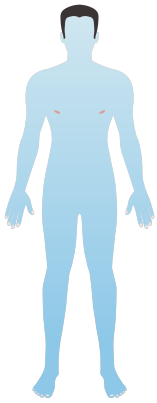
Organ System Diagram

Human Body Organ Systems

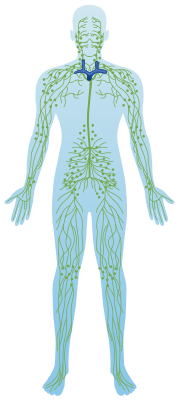


Digestive System

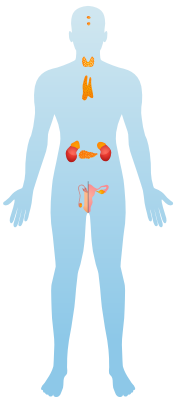
Muscular System



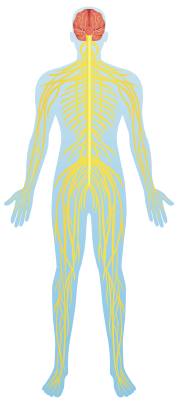
Integumentary System



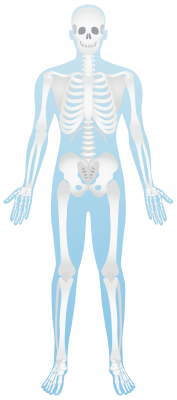
Lymphatic System



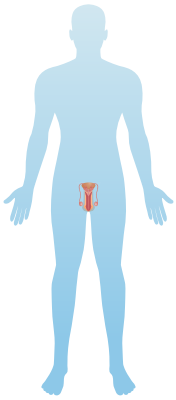
Endocrine System



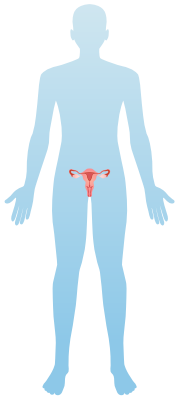
Nervous System



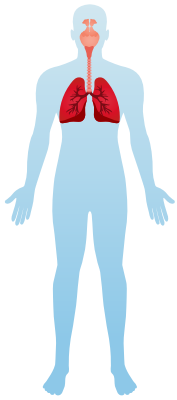
Skeletal System



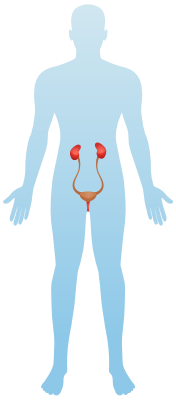
Male Reproductive System



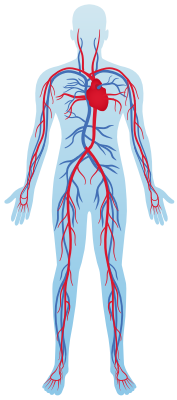
Female Reproductive System



Respiratory System



Urinary System



Circulatory System

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Levels of Organization Sort

1 of 2 pages (answer sheet and cut out)

Preparation

Cut out each of the six words in the first column. Then cut apart the content of the six rows, keeping the description and examples together.

Level of Organization	Description	Example	Example	Example
Proteins	**Organic compounds that consist of one or more amino acids—essential for all living things**	Enzymes	Collagen	Antibodies
Cell	**Smallest functional unit of life, variety of molecules group together**	Neuron	Eukaryote	Prokaryote
Tissue	**Community of similar, specialized cells that work together**	Muscle	Connective	Epithelial
Organ	**Part of an organism that is typically self-contained, has a specific vital function**	Heart	Lungs	Brain
Organ System	**Group of organs working together to perform a certain function in an organism's body**	Digestive	Circulatory	Immune
Organism	**An entity capable of carrying on life functions**	Frog	Fungus	Human

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Levels of Organization Sort

2 of 2 pages

Directions

Match the level of organization and examples.
Arrange from most simple to most complex.

Level of Organization	Description	Example	Example	Example

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Levels of Organization Capture Sheet

Directions
Using the websites provided by your teacher, research to answer the questions about your disease.

	Notes
Main Organ System Impacted Of the organ systems, which ones are affected the most? Choose one or two organ systems.	
Transmission Of the organs impacted, which are affected the most? How are these organs impacted by the disease?	
Specific Cells or Tissues Impacted What are some of the specific cells or tissues that are highly impacted by this disease? How are the cells or tissues impacted? How might this impact the other levels of organization and their functionality?	

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Disease Education Report

Report Author

Name

Date

Focus Community

Name

Location

Population

Disease Investigated

Name	Type

Disease Background

Disease Impact on the Body

About the Impacted Body System

How the Disease Impacts the Body

Disease Causes

Disease Specific Cause:

Community Context Causes:

Disease Treatments