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Week 2: Microbiology Foundations

Module 4: Bacteria in the Human Body

Lesson: Your Invisible Teammates: How Bacteria Help and Hurt Your Body

Lesson Overview	
Students build understanding of the human microbiome as a system where bacteria can help or harm the body. They use evidence to evaluate how everyday choices affect the bacteria living in and on their bodies.	
Learning Targets	Vocabulary
Explain how bacteria help the human body. Identify when bacteria cause harm. Use evidence to evaluate health choices that affect bacterial balance.	Microbiome all the bacteria living in and on your body Beneficial bacteria bacteria that help your body Pathogenic bacteria bacteria that cause disease Antibiotics medicine that kills bacteria Balance keeping helpful and harmful bacteria in the right proportion
Materials	Instructional Notes
Module Scenario cards (A–C) Evidence cards (6 statements) Whiteboard or chart paper Paper or notebooks	This lesson shifts student thinking from “all bacteria are harmful” to understanding that many bacteria help the body. Emphasize that beneficial bacteria support digestion, immunity, and protection from disease. Students should understand that health choices can affect the balance between helpful and harmful bacteria.



Learning Experience

8 min	Opening	Display the question: <i>If you could remove ALL bacteria from your body instantly, would you be healthier or sicker?</i> Provide the choices Healthier, Sicker, or Not Sure. Ask students to make a decision first and then explain their reasoning. Students: Choose an answer independently. Write one reason for their choice. Turn and talk with a partner. Decide which explanation is strongest. Share ideas with the class.
15 min	Module	Focus: How do bacteria help your body, and when do they become harmful? Guiding Questions: • How do bacteria help your body? • How do bacteria prevent disease? • When can bacteria cause harm? • What problem can antibiotics create? Quick Checks: • Thumbs up/down: "All bacteria are harmful." • Turn-and-talk: "What is one way bacteria help your body?"
15 min	Application	Introduce the task: <i>You will evaluate how different health choices affect the bacteria living in the body.</i> Distribute evidence statements and provide three scenarios (A–C). Direct students: Decide whether each choice helps or harms helpful bacteria and be ready to explain your reasoning. Students: Step 1: Read the Scenario Identify the person's health choice. Step 2: Use Evidence Match at least two evidence statements to each scenario. Step 3: Make a Decision For each scenario, decide whether it helps helpful bacteria or hurts helpful bacteria. Step 4: Explain Your Reasoning Write your decision, include supporting evidence, and choose one scenario to share. Scenarios: A: Takes antibiotics for a mild sore throat immediately B: Eats balanced meals, sleeps well, and exercises regularly C: Gets poor sleep, eats an unhealthy diet, and experiences high stress Sentence Frames: This choice will help/hurt helpful bacteria because _____. Evidence shows _____.

2 min	Reflection	What is one action you can take to support the helpful bacteria living in your body, and why does it matter? Student Action: Write a 2–3 sentence explanation Include a cause-and-effect relationship
2 min	Career Connections	Doctors and health science professionals must think about how treatments affect both harmful and helpful bacteria. Decisions about antibiotics, nutrition, sleep, and other health habits can influence the microbiome and overall health. Scientists study these bacterial communities to develop treatments that protect helpful bacteria while targeting harmful ones.