

4

Science Standard  
4.3.d.



# Microorganisms and the Human World

## California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

### The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency  
California Natural Resources Agency  
Office of the Secretary of Education  
California State Board of Education  
California Department of Education  
California Integrated Waste Management Board

### Key Leadership for the Education and Environment Initiative:

**Linda Adams**, Secretary, California Environmental Protection Agency  
**Patty Zwarts**, Deputy Secretary for Policy and Legislation, California Environmental Protection Agency  
**Andrea Lewis**, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency  
**Mark Leary**, Executive Director, California Integrated Waste Management Board  
**Mindy Fox**, Director, Office of Education and the Environment, California Integrated Waste Management Board

### Key Partners:

Special thanks to **Heal the Bay**, sponsor of the EEI law, for their partnership and participation in reviewing portions of the EEI curriculum.

Valuable assistance with maps, photos, videos and design was provided by the **National Geographic Society** under a contract with the State of California.

### Office of Education and the Environment

1001 I Street • Sacramento, California 95812 • (916) 341-6769  
<http://www.calepa.ca.gov/Education/EEI/>

© Copyright 2010 by the State of California  
All rights reserved.

This publication, or parts thereof, may not be used or reproduced without permission from the Office of Education and the Environment.

These materials may be reproduced by teachers for educational purposes.



## **Lesson 1 Microorganisms Are Everywhere!**

None required for this lesson.

## **Lesson 2 Bacteria in Our Bodies**

None required for this lesson.

## **Lesson 3 The Battle with Bacteria**

None required for this lesson.

## **Lesson 4 Food from Microorganisms**

None required for this lesson.

## **Lesson 5 Clean Up That Spill!**

None required for this lesson.

## **Lesson 6 Microorganisms in Medicine**

None required for this lesson.

## **Assessments**

Microorganisms and the Human World—

Traditional Unit Assessment Master . . . . . 2

Micro-Hero Poster Instructions—Alternative Unit Assessment Master . . . . . 6

Name: \_\_\_\_\_

**Part 1**

**Instructions:** Use the words in the Word Bank to fill in the blanks in the sentences below. You may only use each word once. (2 points each)

**Word Bank**

decomposition	bacteria	large intestine
digestion	<i>E. coli</i>	antibiotics
penicillin	yeast	molds

1. Examples of fungi are mushrooms, yeasts, and \_\_\_\_\_.
2. The biggest group of microorganisms is \_\_\_\_\_.
3. The breaking down of once living things into simpler parts is also known as \_\_\_\_\_.
4. The breaking down of food in the body is called \_\_\_\_\_.
5. One part of the body where microorganisms live is the \_\_\_\_\_.
6. When it is eaten in foods that are not washed or cooked properly, the \_\_\_\_\_ bacteria can make you sick.
7. \_\_\_\_\_ is a microorganism that is used to make bread rise.
8. \_\_\_\_\_ is made by a mold and was discovered by Sir Alexander Fleming and made into a useful drug by Sir Howard Florey.
9. Medicines that stop bacteria from growing are called \_\_\_\_\_.

Name: \_\_\_\_\_

## Part 2

**Instructions:** Select the best answer and circle the correct letter. (2 points each)

10. Which list of three things are microorganisms?
- a. earthworms, fungi, bacteria
  - b. bacteria, fungi, protists
  - c. bacteria, mold, spiders
  - d. earthworms, protists, yeast
11. Where do microorganisms live?
- a. in our bodies
  - b. in water
  - c. in food
  - d. All of the above.
12. Microorganisms are harmful if they cause \_\_\_\_\_.
- a. bacteria
  - b. fungi
  - c. infection
  - d. All of the above.
13. Microorganisms help us by \_\_\_\_\_.
- a. breaking down food
  - b. killing harmful bacteria
  - c. decomposing waste
  - d. All of the above.
14. Yeast can break down sugar and give off carbon dioxide. What is this called?
- a. fermentation
  - b. waste
  - c. infection
  - d. contamination





## Micro-Hero Poster Instructions

Name: \_\_\_\_\_

**Instructions:** In this unit you learned that not all microorganisms are harmful. Many help humans in many ways. Your job is to name one of the microorganisms as a “micro-hero” and create a poster that announces its greatness. Using words and pictures, the poster should show the following information:

1. What type of microorganism it is, what it looks like, and where you can find it.
2. What the microorganism does in nature and what processes it is part of.
3. What the microorganism does for humans. In other words, what makes it a “micro-hero?”
4. A slogan for your “micro-hero” that describes the micro-hero and what it does.

Your poster should use correct spelling and be neatly and creatively put together.

The “micro-hero” posters are due on \_\_\_\_\_.

Criteria	5 points	3 points	1 point
<b>Describes a microorganism</b>	Fully describes what the micro-hero looks like, what type it is, and where it is found. Uses both words and pictures.	Describes what the micro-hero looks like, what type it is, or where it is found. Uses both words and pictures.	Describes what the micro-hero looks like, what type it is, or where it is found. Uses some words, but mostly pictures.
<b>Describes what the microorganism does in nature</b>	Describes what the micro-hero does in nature and what ecosystem services it provides. Uses words and pictures.	Describes what the micro-hero does in nature or what ecosystem services it provides. Uses words or pictures.	Partly describes what the micro-hero does in nature or what ecosystem services it provides. Uses words or pictures. Gives some incorrect information.

## Micro-Hero Poster Instructions

Name: \_\_\_\_\_

Criteria	5 points	3 points	1 point
<b>Describes how people depend on the microorganism</b>	Describes some ways that people depend on the micro-hero.	Describes one way that people depend on the micro-hero.	Says that people depend on the micro-hero, but does not explain how.
<b>Has a slogan</b>	Has an exciting slogan that describes the micro-hero and that helps others understand the micro-hero.	Has a slogan that describes something about the micro-hero and that helps others understand the micro-hero.	Has a slogan that describes something about the micro-hero or that helps others understand the micro-hero.
<b>Uses Key Vocabulary words, correct spelling, and is creative and neat</b>	All words are spelled correctly. The poster is creative and neat.	All common words are spelled correctly. One or two Key Vocabulary words may be misspelled. The poster is neat.	Most common words are spelled correctly. Some of the Key Vocabulary words are spelled correctly. The poster is not creative or neat.





California STATE BOARD OF  
EDUCATION

---

## California Education and the Environment Initiative