POWER BASICS PLUS

Biology

Workbook

WALCH PUBLISHING

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UNIT 2 • ACTIVITY 23
Monera—Archaebacteria and Eubacteria

On the line next to the definition in Column A, write the letter of the word it defines from Column B.

Column A	Column B
_____ **1.** This is a cell without a nucleus.	**a.** archaebacteria
_____ **2.** These are hairlike strands that move simple organisms around.	**b.** antibiotics
_____ **3.** These are spiral cells.	**c.** bacilli
_____ **4.** These are ancient bacteria.	**d.** cocci
_____ **5.** These are round or oval cells.	**e.** eubacteria
_____ **6.** These are true bacteria.	**f.** flagella
_____ **7.** These bacteria can be stained with Gram's stain.	**g.** gram-positive bacteria
_____ **8.** These are rod-shaped cells.	**h.** nucleoid
_____ **9.** This is the area that contains the DNA in a cell that has no nucleus.	**i.** prokaryote
_____ **10.** These are medicines that kill disease-causing bacteria.	**j.** spirilla

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UNIT 2 • ACTIVITY 24
The Bacteria Around Us

Bacteria can be found everywhere. Even when you think you have cleaned an area, some bacteria will remain. In this activity, you will choose four different places to test to see if there are any bacteria present. You will watch the bacteria grow (or not). You will write and draw what you see.

Materials

- petri dish with agar solution
- wax pencil
- four cotton swabs
- distilled water
- magnifying glass
- small metric ruler

Procedure

1. Use the wax pencil to divide the petri dish into four quarters. You will do this by drawing on the bottom of the petri dish and labeling each quarter 1, 2, 3, and 4.
2. Take a cotton swab and dip the end in distilled water. Rub the swab against a surface, such as a chair, a doorknob, or a toilet seat.
3. Open the lid of the petri dish, and rub the cotton swab that you just used on one quarter of the agar solution. Replace the lid as soon as you are done. Be sure to keep track of what surface you swabbed and where you placed the sample on the petri dish.
4. Do this three more times using different surfaces. Use a different swab each time.
5. Keep the lid on the petri dish between rubbings. Keep the petri dish in a warm, dark location.
6. Check the petri dish for the next three days. Use the magnifying glass to see if bacteria are growing. Try to not take the lid off the petri dish to look at the bacteria.
7. On a separate sheet of paper, make a table like the one below for each surface.

Surface: _____

Day 1	Day 2	Day 3
Size: _____	Size: _____	Size: _____
Shape:_____	Shape:_____	Shape:_____
Color: _____	Color: _____	Color: _____
Drawing:	Drawing:	Drawing:

On a separate sheet of paper, answer the following questions.

1. Why did you choose those surfaces?
2. The bacteria that grew the most came from which surface? Why do you think that happened?
3. What are some ways to get rid of bacteria?
4. Why was it important to keep the lid on the petri dish?

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UNIT 2 • ACTIVITY 28
Mushroom Lab

The body of most fungi lives below the surface of an object. This is true for mushrooms. One mushroom organism can cover many, many acres of land, but only a small part may be visible. The part of the mushroom that is visible is the part you eat. This is the sporangium, which is the sexually reproductive part of the mushroom.

In this lab, you will look at an edible mushroom. The cap of the mushroom is the very top. It usually grows out of a ring, which is attached to the stalk. The stalk rises from the cup of the mushroom, which grows up out of the ground. When it is immature, this cup is called a *button.* The gills of the mushroom are found on the underside of the cap. The mycelium is a loose network of hyphae, the threadlike objects that form the body of the mushroom.

Materials

- mushroom
- hand lens
- scalpel or sharp knife

Safety Consideration

Use extra care when handling the scalpel or sharp knife.

Procedure

1. Look at your mushroom, and make a drawing of it. Label the stalk, gills, cup, cap, and ring.
2. Carefully use the scalpel or sharp knife to cut the mushroom in half from top to bottom.
3. Next, cut the cap off at the ring where it meets the stalk.
4. Pull some of the stem apart with your fingertips, and look at the structure of the organism with the hand lens. Can you see the hyphae? Observe how they form a mycelium.
5. Use the hand lens to look at the gills of the mushroom.
6. Use the hand lens to look at the stalk of the mushroom. Make a drawing of what you see.

Comprehension Questions

1. What is the purpose of the gills? _____

   _____

2. Why do mushrooms have spores? _____

   _____

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UNIT 2 • ACTIVITY 29
Mushroom Model

Use the Internet or a reference book to find a picture of a mature mushroom. Remember there are several parts to the visible mushroom:

- stalk
- gills
- cup
- cap
- ring

In addition, remember that the gills of a mature mushroom contain spores. The body of the mushroom is composed of hyphae that tangle together to form a mycelium.

In the three-dimensional medium of your choice (for instance, plasticine, clay, wood, or other medium), create a mushroom model. Be sure to label all the parts of the mushroom clearly. Be creative! In the space below, sketch a plan for your model and jot down ideas.