

# WILD BACTERIA LAB

## STUDENT LEARNING OBJECTIVES

Students will hypothesize about which environments are most likely to contain bacteria, obtain bacterial samples, and write a lab report.

## MATERIALS

**PPT:** Where's the Bacteria

**Worksheet:** Wild Bacteria (Pre-Lab, Lab, Post-Lab, Lab Report)

Q-tips

Test tube

Water

Petri film

Incubator

## PROCEDURES

**Pre-Lab:** (20 min)

**Hook** (5-10 min) Students are instructed to take out a sheet of paper and number it 1-10. The teacher shows pictures of ten places bacteria may or may not be able to survive. For each location, students write "yes" or "no" for whether they think Bacteria could survive in that place. Then the last ten slides show each location and indicate whether bacteria could survive there or not. Discussions might evolve out of this, such as, what type of Bacteria would survive in that condition? Aerobic or Anaerobic.

**Body** (10 min)

Students form pairs and work together to come up with five locations ranked in order from most likely to least likely to contain bacteria. Then, using the worksheet provided each pair formulates a **hypothesis** as to where they would expect to find the greatest concentration of bacteria. The hypothesis should be an explanation of an observation that is testable.

**Demonstration** (5 min) Teacher demonstrates how to properly collect a bacterial sample and transfer that sample to the Petri film. Essentially, students should follow the procedures outlined on the worksheet for collecting and labeling their samples.

**Lab:** (30 min)

Before students can leave the classroom in search for their bacterial samples, they must have a hypothesis that specifically states where they will collect their sample. For example, a student might write, “I expect to find a large amount of bacteria on the door handle leading into the boy’s bathroom.” A non-example would be “hallway.”

**Sample collection** (10 min) Students collect their samples and return to the classroom.

**Preparing Bacteria Culture** (10 min) Students place their samples on the Petri film and place the Petri film in the incubator as directed by the teacher.

**Class Data** (5 min) Teacher gathers information about the locations where samples were collected. Students also document those locations for use in their class data table.

**Wrap-up** (5 min) Students cleanup and dispose of their used materials properly.

**Post-Lab:** (35 min)

**Introduction** (10 min) For the post-lab, students will answer several questions about their bacterial sample, pool their data with the class, and write a lab report. Students may work together with their partner or alone, but each student must turn in his/her own lab report.

**Data Collection** (10-15 min) Student count the number of bacterial colonies on their Petri film, and describe and sketch what they see. Teacher displays class data table on the board for students to add their data. All students must reproduce this table for their lab report.

**The Lab Report** (25 min) Teacher presents students with an outline of the main components of a lab report.

**Title:** Should be unique and informative. **Ex.** Buchholz Bacteria

**Purpose:** “To find the spot with the most bacteria”

**Hypothesis:** Also known as the “educated guess”

**Materials:** What did you need to complete the lab?

**Procedure:** What did you do to complete the lab?

**Results:**

Includes class data table (# of bacterial colonies/location)

Answers to questions on worksheet

Description and sketch of bacterial sample

**Conclusion:** What do I think about all this

**ASSESSMENT**

Each student will write a lab report.

**REFERENCES**

BIOLOGY: The Dynamics of Life

Glencoe Science, Florida SSS Edition

# LAB REPORT

**Title:** Should be unique and informative.

**Purpose:** “To find the spot with the most bacteria”

**Hypothesis:** Also known as the “educated guess”

**Materials:** What did you need to complete the lab?

**Procedure:** What did you do to complete the lab?

**Results:**

Includes class data table

Answers to questions on worksheet

Description and sketch of bacterial sample

**Conclusion:** What do I think about all this

# CLASS DATA TABLE

## 2<sup>nd</sup> Period Class Bacterial Data

<u>Location</u>	<u># Colonies</u>
1 Dumpster behind locker	
2 Dumpster behind art room	
3 Porta-potty behind baseball field	
4 Weight room (bar)	
5 Clinic sink	
6 Ladies locker room light switch	
7 Locker room door knob	
8 Men's locker room door knob	
9 Fish tank in classroom	
10 Girl's bathroom (inside toilet bowl)	
11 Boy's bathroom (inside urinal)	

## 3<sup>rd</sup> Period Class Bacterial Data

<u>Location</u>	<u># Colonies</u>
1 Girl's locker room toilet seat	
2 Water fountain by soda machine	
3 Water fountain outside classroom	
4 9th grade boy's bathroom (urinal)	
5 Buttons on soda machine	
6 Cafeteria door handle	
7 Staircase handrail in building 8	
8 Dean's office door handle	
9 Janitor's broom handle	

#### 4<sup>th</sup> Period Class Bacterial Data

<u>Location</u>	<u># Colonies</u>
1 Boy's locker room door handle	
2 Mall area floor	
3 Library computer mouse	
4 Handrail in stairway	
5 Gym floor	
6 Water fountain by library	
7 Drink machine buttons	
8 Boy's bathroom floor (near toilet)	
9 Boy's bathroom door handle	
10 Bottom of person's shoe	
11 Science hallway door handle	
12 Boy's locker room floor	

#### 5<sup>th</sup> Period Class Bacterial Data

<u>Location</u>	<u># Colonies</u>
1 9th grade cafeteria table	
2 Mall area trash can	
3 Mall area concrete sitting area	
4 Boy's bathroom urinal	
5 Stair rail in building 9	
6 Pond outside classroom	
7 Book in media center	
8 Side of vegetable patch	
9 Chalk board in Mrs. Vincents class	
10 Door knob in this building	
11 Building 8 hallway	