

Working With Microorganisms

Safety Acknowledgment Form

Note to teachers of science and supervisors/administrators: Safety is the most important part of a science lesson. This includes monitoring student behavior and taking care of lab materials and equipment. The attached safety acknowledgment form is for your use in the microorganism laboratory. It should be given to students at the beginning of the school year—after safety training is completed and before any hands-on work in the lab is initiated—to help them understand their role in ensuring a safer and more productive science experience.

When selecting activities to do in microbiology, only plan those that use materials for which you have appropriate engineering controls (e.g., ventilation, eyewash station, etc.), administrative procedures (standard operating procedures) and personal protective equipment (e.g., safety goggles, aprons, vinyl gloves, etc.). Be sure to have storage and disposal procedures in place as per the Safety Data Sheet (SDS). Teachers should conduct a hazard analysis, risk assessment, and resulting appropriate safety actions to determine if the activity is feasible or should be altered or eliminated. For more information, visit the NSTA website at www.nsta.org/safety to view and download safety resources. Also seek out your state’s safety resources and OSHA regulations.

Resources

[Tips for the Safer Handling of Microorganisms](#)

[Guidelines for Biosafety in Teaching Laboratories. \(2012\). American Society for Microbiology](#)

NSTA would like to thank its Science Safety Advisory Board for developing this resource. Questions or comments about its content should be directed to NSTA at 703-243-7100 or safety@nsta.org.

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Safety Acknowledgment Form for Handling Microorganisms

The laboratory can be a hazardous place. It is therefore critical and an expectation that students adhere to the following specific protocols and standards to help make it a safer place to work and learn. Students who are immune compromised or pregnant are advised to let the teacher know confidentially, should alternative activities be required to ensure health and safety. Culturing and use of live bacteria is not recommended at the elementary/middle schools and introductory level high school science courses.

To students: Safety is the FIRST PRIORITY for students, instructors, and parents. To ensure safer experiences, the following safety operating procedures—based on legal safety standards and better professional safety practices—have been developed for the protection and safety of everyone. Your instructor will provide additional safety procedures for specific situations or settings. The safety operating procedures must be followed at all times.

Review these procedures with your instructor and parents/guardians, then sign and get the signature of a parent/guardian. Your signature indicates that you understand the lab can have hazards, and that you have read the safety procedures and agree to follow them at all times. Signatures are required before you can participate in any activity or investigation.

Safety Standards for Student Conduct in the Microbiology Laboratory

- Eating, drinking, and the application of cosmetics are strictly prohibited in the laboratory. Food must not be stored in a refrigerator with microorganisms.
- If gloves become soiled, change immediately following the proper protocol.
- Always wash hands with soap and water after removing gloves using the proper procedure as demonstrated by your teacher.
- DO NOT put pencils, pens, or other objects in the mouth while working with microorganisms.
- Locate all fire extinguishers in the microbiology laboratory and know how to use them, if allowed.
- Know the location of the eyewash station and how to operate it.
- Disinfect the work space before and after each investigation. First apply a green cleaner and then use 70% alcohol or 10% bleach solution to disinfect. Leave on the surface for contact time of approximately 10-15 minutes (check recommended manufacturer's contact time.)
- Handle all bacterial cultures with CAUTION!!
- Use a pipetting device; never pipet by mouth.
- Notify the instructor immediately if a culture has been spilled.

- Immediately cover spilled cultures or broken culture tubes with paper towels and saturate with disinfectant solutions for appropriately 15 minutes. Dispose of soiled materials as directed by your teacher.
- Place all materials in the appropriately labeled disposal containers upon completion of the laboratory investigation.
- Cultures, media or equipment must never leave the laboratory workspace.
- If there is an evacuation, turn off all flames and electrical equipment, if possible, and exit in an orderly fashion. Upon exiting, leave PPE behind in the lab or deposit in a plastic bag provided by your teacher once outside of the facility at the staging area.

Personal Safety

- Wear only closed-toed footwear. Open-toed shoes (e.g. sandals or flip-flops) are not permitted;
- All personal belongings (books, purses, backpacks) must be removed from the work surface.
- Personal electronic devices should never be brought into the lab (e.g. iPods, cell phones, tablets, etc.).
- Tie back long hair and keep hands away from the face at all times.
- Cover all cuts, broken skin, or wounds with a water-proof dressing to reduce or prevent exposure to infectious agents or harmful chemicals.
- Gloves and sanitized indirectly vented chemical splash goggles (meeting ANSI/ISEA Z 87+ D3) must be worn whenever students are working with microorganisms.
- Laboratory coats or aprons must be worn.

Agreement:

I have read and understand this form. I was present when these safety guidelines were discussed in class or I discussed them directly with my teacher. I am aware that the laboratory may have hazards that could make it unsafe. I acknowledge that it is important that I follow the above safety procedures to help make it a safer learning environment.

(Student Signature) (Date)

I have read and reviewed the lab safety rules with my child.

(Parent/Guardian Signature) (Date)