



INTRODUCTION TO BIOSAFETY

Biosafety Outline for High School Students

One Week Course in Biosafety

Day 1: Exposure & Hazard ID

- a. Demonstrate the ease with which microbial contamination can spread
- b. Demonstrate proper method for donning and doffing PPE
- c. Demonstrate proper methods for pipetting and vortexing
- d. Debrief on LAIs, including some case studies
- e. Show and discuss biohazard symbol as well as Risk Groups
- f. Show and discuss GHS symbols and basic chemical safety

Day 2: Protection

- a. Explain routes of exposure and how to protect them
- b. Demonstrate donning and doffing of PPE
- c. Standard microbiological practices exercise and handout
- d. Practice aseptic technique - with and w/o flame exercise
- e. Biosafety Cabinet demonstration
 1. Function, set up, use, decon, and misuse
- f. Biosafety Levels lecture

Day 3: Plan an Experiment

- a. Setup
 1. Select an agent
 2. Choose a procedure
 3. Identify risks
 4. Develop a mitigation plan
- b. Evaluate risk mitigation plans
- c. "What's wrong with this picture" exercise
- d. Carry out selected procedure
- e. Debrief as a group for any unexpected hazards

Day 4: Clean-up

- a. Make a spill
- b. Have students determine best method for cleaning up spill
- c. Assess student-proposed method
- d. Discuss disinfectant selection
- e. Have students clean up a small spill and previous day's work (?) (or new work mess)
 1. Prepare spill waste or work waste for disposal - chemical or autoclave
 2. Discuss autoclave function and use
- f. Talk about waste streams and proper uses of different ones
- g. Discuss how to report an exposure
- h. Homework: have students come up with one question they want to know the answer to (prefer it be on-topic for class, but isn't necessary)

Day 5: Demonstrated Proficiency and Resources

- a. Rotate students around stations to perform different tasks and capture demonstrated proficiency
- b. Have students fill out “People you should know” handout
- c. Discuss worker’s rights, supervisor’s responsibilities lecture (how and when to ask questions)
- d. Have students share questions from homework assignment
- e. Open up discussion to any other questions they might have
- f. Close class by handing out contact information for safety personnel