

Microorganisms and Potentially Hazardous Biological Agents: **(Requires Form 6A)**

- **BSL Classification:** Find out the **biosafety level (BSL)** of ALL organisms you intend to study, or any that you think or expect might be present. Visit the website for the American Biological Safety Association at www.absa.org or the American Type Culture Collection (ATCC) at www.atcc.org to find the BSL classification of your organism.
- **NOTE: As of 2011-12, PROJECTS INVOLVING BSL-2 ORGANISMS MAY NOT BE PERFORMED BY JUNIOR DIVISION (MIDDLE SCHOOL) RESEARCHERS.**
- **BSL Lab Checklist:** Obtain and complete a BSL-1 checklist for the lab that you intend to use. Document that you have completed this checklist in this section of your Research Plan.
- **Biological Source:** Describe the source of the biological agent or the source of specific cell line, etc. (Where are you getting it from?).
- **Safety Methods:** ***Describe in detail*** the safety precautions you will follow and include them in your “Procedures” section where applicable.
 - **You MUST provide a detailed description of the aseptic techniques you intend to use to protect yourself and others from PHBAs. These procedures must strictly follow the guidelines for BSL-1 facilities.**
 - **Be sure to include a reference in your bibliography that includes standard procedures for handling and working with potentially hazardous biological agents.**
 - It may be beneficial to consult a mentor if you have questions regarding these procedures.
 - For a description of standard microbiological practices and techniques, see http://www.hawaii.edu/ehso/bio/BSM_part02.htm
- **Disposal:** Discuss the method(s) of disposal you will use.
 - The **ONLY** acceptable methods of disposal are those outlined in the 2012 ISEF rules or an approved use of the institutions biohazard disposal procedure with detailed documentation. These procedures must be thoroughly outlined in the Research Plan AND cited in the Bibliography.
 - The following two methods have recently been approved:
 - Use of 10% household bleach concentration in lieu of 10% concentration of sodium hypochlorite.
 - Use of an approved institution’s biohazard disposal procedure with detailed documentation.
- **Unknown Organisms:** Studies involving *unknown* microorganisms present a challenge because the presence, concentration, and pathogenicity of possible agents are

unknown. In science fair projects, these studies typically involve the collection and culturing of microorganisms from the environment (e.g. soil, household surfaces, skin, etc.). Research with unknown microorganisms can be treated as a BSL-1 study under the following conditions:

- Organism is cultured in a plastic Petri dish (or other standard non-breakable container) and sealed. Other acceptable containment include petro film and doubled heavy-duty (2-ply) sealed bags.
- Experiment involves only procedures in which the Petri dish remains sealed throughout the experiment (i.e. counting presence of organisms or colonies).
- The sealed Petri dish is disposed of in the appropriate manner under the supervision of the Designated Supervisor.
- **If a culture is opened for identification, sub-culturing or isolation, it must be treated as a BSL-2 study and involve BSL-2 laboratory procedures. These projects cannot be completed by middle school students.**