

NWSES Super EZ Rules for Middle School Projects

While some projects are not allowed under Super EZ Rules, middle school students still may do research involving some of these situations if they receive pre-approval from their local IRB/SRC, follow Intel ISEF rules and submit all the required Intel ISEF forms. Please read through the ISEF rules before experimentation begins. Some ISEF forms need to be filled out and signed before experimentation begins.

Human Subjects

Acceptable projects include observational studies of legal public behavior of children and/or adults where there is NO interaction between the researcher (or someone acting on behalf of the researcher) and her subjects. For example, it is acceptable for a student to observe how many children play on the monkey bars vs. the slide at the park but it is not allowed if a student observes how many children play on the monkey bars vs. the slide at the park and then asks the children why they prefer one over the other. It is also unacceptable for a teacher to administer a survey or a test to her class on behalf of the researcher. It is acceptable to use data from the internet that is publicly available for analysis.

Not allowed under Super EZ Rules

Eating or drinking anything, including food, candy or water
Exercise studies
Surveys
Consumer products testing involving human subjects
Taking fingerprints

Hazardous Chemicals, Activities and Devices

Projects involving the use of hazardous chemicals and devices and involvement in hazardous activities require direct supervision by a parent or teacher. A risk assessment needs to be included in the project procedures including the following information:

1. List the hazardous chemicals, activities or devices that will be used.
2. Identify the risks involved.
3. Describe the safety precautions used to reduce risk.
4. Describe the disposal methods used for hazardous chemicals.

Hazardous chemicals include acids, bases, and alcohol and tobacco products. This includes household items like bleach, over-the-counter medicines and fertilizers.

Hazardous activities are those that involve a level of risk above and beyond that encountered in the student's everyday life. When in doubt do a risk assessment.

Hazardous devices include laboratory equipment that requires a moderate to high level of expertise to ensure its safe usage.

Not Allowed

Firearms and explosives
Class III and IV lasers
DEA controlled substances
Prescription drugs
Radiation

Microbe Cultures

The following microbes are approved without special precautions, but tasting the products as part of the experiment is not allowed:

- Baker's yeast purchased from a store
- Brewer's yeast purchased from a store
- Studies involving *Lactobacillus*, *Bacillus thurgensis*, nitrogen-fixing, oil-eating bacteria, slime mold and algae-eating bacteria introduced into their natural environment. These are not exempt from special precautions if cultured in a petri dish environment that could potentially be contaminated.

The following microbe projects can only be conducted at school or a research lab:

- **Decomposition** or **mold** growth experiments
- **Unknown specimens** obtained from the environment, not a living creature
- **Bio Safety Level 1 microbes** specifically listed below

Risk Assessments

The following risk assessment questions need to be included in the project procedures for every microbe culture experiment:

1. What types of microbes are involved?
2. What risks are involved?
3. What safety precautions will be used to reduce risk?
4. What disposal methods will be used?
5. Where will the research be conducted?

Regarding Unknown Specimens

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 like soil, household surfaces, skin, etc. Culturing from places where dangerous microbes are expected to exist is a bad idea. Do NOT swab bathrooms or litter boxes.

Research with unknown microorganisms can be treated as a BSL-1 study under the following conditions:

1. The organism **is cultured** in a plastic Petri dish or other standard non-breakable container **and sealed**. Other acceptable containment includes petro film and doubled heavy-duty (2-ply) sealed bags.
2. The experiment involves only procedures in which the Petri dish remains sealed throughout the experiment, for example counting the presence of organisms or colonies.
3. The sealed Petri dish is disposed of in the appropriate manner under the supervision of the teacher or Designated Supervisor.
4. All BSL-1 containment procedures are followed.

Not Allowed: opening a culture for identification, sub-culturing or isolation.

Regarding Bio Safety Level 1 Microbes

Bio Safety Level 1 (BSL-1) microbes specifically listed below may be used as long as all BSL-1 containment precautions are followed.

BSL-1 risk group contains biological agents that pose low risk to personnel and the environment. These agents are highly unlikely to cause disease in healthy laboratory workers, animals or plants. The agents require BioSafety Level 1 containment. Approved BSL-1 organisms are: *Aspergillus niger*, *Escherichia coli strain K12*, *Micrococcus leuteus*, *Neurospora crassa*, *Pseudomonas fluorescens*, *Agrobacterium tumefaciens*, *Bacillus subtilis*, and *Serratia marcescens*.

BSL-1 containment is normally found in water-testing laboratories, in high schools, and in colleges teaching introductory microbiology classes. Work is done on an open bench or in a fume hood. Standard microbiological practices are used when working in the laboratory. Decontamination can be achieved by treating with chemical disinfectants or by steam autoclaving. Lab coats are required and gloves recommended. The laboratory work is supervised by an individual with general training in microbiology or a related science.

Vertebrate Animals

Two types of Vertebrate animal projects are allowed using the MS Super EZ form.

1. Observational studies of behavior of animals in their habitat, including the home for pets and the zoo and nature for wild animals, where there is NO intervention or treatment.
OK: a student observes goldfish behavior during feeding time vs. non-feeding times on a normal feeding schedule. **Not allowed:** a student observes how the goldfish react to living in a dark closet.
2. Behavioral projects for pets involving doing things that pets experience in everyday life such as a new food dish, supplemental treats (following label recommendations), a new toy. **OK:** a student observes which colored dish a dog prefers to drink from. **Not allowed:** adding food coloring to water to see which color the dog prefers.

Pets are defined as animals not acquired specifically for a research project.

Human and Vertebrate Animal Tissue

The following human and animal tissues are allowed using the MS Super EZ form.

- The researcher's OWN nail clippings
- Hair
- Sterilized teeth
- Meat or meat by-products obtained from a food store, with receipt and not consumed
- Fossils
- Prepared fixed tissue slides

OK: a student compares strength and texture of clippings of her own hair after it is soaked in different concentrations of salt solution. **Not allowed:** a student compares shape and size of teeth from a variety of "road-kill" animals or ALL other projects involving human and animal tissue, including those involving organs, non-sterilized teeth, blood and other body fluids.