

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. Most 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 his 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. Also, researcher may not manipulate an environment to observe how people respond to the manipulation. 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, drinking, or tasting anything, including food, candy or water
Exercise studies
Surveys or tests
Consumer products testing involving human subjects
Taking fingerprints
Measuring heart rates

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.

MSEZ Risk Assessment for Hazards

The following MSEZ risk assessment questions need to be included in the project procedures.

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, including location and supervisor.
4. Describe the disposal methods used for hazardous chemicals.

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

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

Hazardous devices include laboratory equipment and power tools that require a moderate to high level of expertise to ensure safe usage. Solid rocket engines when unaltered and used according to manufacturer's directions are allowed as long as risk assessment includes adult supervision.

Not Allowed

Firearms, explosives, fireworks, fire and fire extinguishers
Class III and IV lasers
DEA controlled substances, Prescription drugs and Tobacco
Radiation
Chemicals with a pH of 1 or 14 (very strong acid or base)
Liquid nitrogen
Pressurized gases

Microbe Cultures

MSEZ Risk Assessment for Microbes

The following MSEZ risk assessment questions need to be included in the project procedures for every microbe 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?

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

- Baker's or Brewer's yeast purchased from a store
- Studies involving Lactobacillus, nitrogen-fixing, oil-eating bacteria and algae-eating bacteria introduced into their natural environment. These are not exempt if cultured in a petri dish environment; ISEF rules must then be used.
- Studies of mold growth on food items if the experiment is stopped at the first sign of mold.
- Studies of mushrooms and slime mold

The following microbe projects can only be conducted at school or a research lab following Bio Safety Level 1 protocols as stated for unknown specimens:

- **Decomposition** or **mold** growth experiments either on nonfood items or those that continue beyond the first sign of mold on food
- **Unknown specimens** obtained from the environment, not a living creature
- **Bio Safety Level 1 microbes** specifically listed below

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, water, etc.

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 by autoclaving or bleach solution by the teacher or Designated Supervisor.
4. All BSL-1 containment procedures are followed.

Not Allowed:

Opening a culture for identification, sub-culturing or isolation

Swabbing in an area with a high likelihood of fecal contamination i.e. bathrooms and litter boxes

Swabbing a person

Regarding Bio Safety Level 1 Microbes

The only BSL-1 organisms approved for middle school use under the MSEZ rules are: *Escherichia coli* strain K12 and *Pseudomonas fluorescens*. All BSL-1 containment procedures must be followed.

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

MSEZ Checklist for Vertebrate Animals

If any of the following statements are true, the project is not MSEZ. ISEF forms and rules must be used. Any projects that end in death will not be allowed at the fair.

1. I will buy an animal to experiment on.
2. I will feed the animal food, vitamins or supplements not labeled for it.
3. The animal died during this project.
4. The animal got sick during this project.
5. This activity is not normally performed by this type of animal. (for example: fish swim, cats don't)
6. This activity will cause the animal stress or fear.

MSEZ Risk Assessment for Vertebrate Animals

The following MSEZ risk assessment questions need to be included in the project procedures.

1. What type and how many animals will be used?
2. Who will take care of the animals?
3. What will happen to the animals after the experiment?

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. Using pets owned by other people is allowed, as long as the owner of the animal is present.

Human and Vertebrate Animal Tissue

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

- Hair, hooves, nails and feathers
- Sterilized teeth
- Meat, meat by-products, pasteurized milk, or eggs obtained from a food store and not consumed
- Commercially 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.

When in doubt email Stephanie nwse@pdx.edu