



APPROVED MICROORGANISMS FOR SCIENCE PROJECTS

The following organisms (bacteria and fungi) are recommended for use by students doing science projects. These organisms are not pathogenic to plants or humans. Likewise, archaeobacteria, cyanobacteria, lichens and slime molds in pure culture that are available from biological supply houses to elementary and high schools do not pose a danger to plants or humans. Most protozoans and all green algae except Protothera and Pfiesteria are also safe to use and do not require an endorsement. They are readily available in pure culture from most biological supply houses. Most supply houses will provide culture information about the bacteria as well as their type and gram stain. Be sure to use only **Biosafety Level 1** organisms. Projects involving viruses should be done in a professional research facility under the direct supervision of a professional researcher.

Acetobacter aceti	Flavobacterium capsulatum
Aquaspirillum intersonii	Lactobacillus acidophilus
Aquaspirillum serpens	Lactobacillus casei
Aquaspirillum sinuosum	Micrococcus luteus
Arthrobacter globiformis	Micrococcus roseus
Aspergillus niger	Penicillium notatum
Azobacter chroococcum	Rhizobium leguminosarum
Azobacter vinelandii	Rhizopus stolonifer
Bacillus brevis	Rhodospirillum rubrum
Bacillus cereus mycoides	Saccharomyces cerevisiae
Bacillus coagulans	Saprolegnia
Bacillus megaterium	Sordaria fimicola
Bacillus sphaericus	Spirillum volutans
Bacillus stearothermophilus	Streptococcus lactis
Bacillus subtilis	Streptococcus salivarius
Brevibacterium linens	Streptomyces albus
Caulobacter vibrioides	Streptomyces griseus
Clostridium butyricum	Streptomyces venezuelae
Corynebacterium xerosis	Streptomyces violaceus
Enterobacter aerogenes	Thiobacillus thioparus
Enterobacter cloacae	Vibrio fischeri
Escherichia coli (only Biosafety Level 1 strains)	

The student and the sponsor have the ultimate responsibility for the safety of the student while conducting experiments. All project development and experimentation should only be conducted under proper supervision and with safe methods of handling and disposal of biological cultures.

It is the sole responsibility of all teachers/sponsors to teach students proper safety methods and sterile techniques when working with bacteria. **Cultures taken from humans, other vertebrate animals or from sources that may indirectly harbor these bacteria (eating utensils, doorknobs, toilet seats, countertops, etc) MAY NOT be used.** Students are not allowed to isolate known bacteria from wild cultures above room temperature. Cultures may not be displayed at any exhibition.

All cultures should be destroyed by methods such as autoclaving or sanitizing with suitable NaClO (bleach) solution, 70% ethyl or isopropyl alcohol before disposal. Dispose of cultures and exposed materials by autoclaving at 121°C for 20 minutes. Dispose of sealed vials of freeze-dried material by dry heat sterilization at 170°C for four hours.

Contact the Scientific Review Committee member listed on the microorganisms endorsement request if you are unsure about whether your organism and/or procedure falls within the rules of acceptable research.

A website for more information about microorganisms is <http://science-projects.com/safemicrobes.htm>.