

Dissection Safety

Dissection is an important part of many biology and life science courses. Properly planned dissection activities with clear learning goals allow students to observe similarities and differences among organisms and improve student understanding of anatomy and physiology. Dissection safety requires knowledge of preservatives and preserved materials, careful attention to safety precautions, availability of required safety equipment and proper tools, instruction of dissection procedures, and advance planning for cleanup and disposal.

General Guidelines

The rationale for dissection work should be well thought out and should be available in written form to answer any student or community questions that may arise. Careful and clearly written directions are important for safe and meaningful dissection work. Some school districts or states may require that teachers provide alternative learning activities with full credit for students who do not participate in dissection labs.

Preservatives and Preserved Materials

Preserved specimens should only be purchased from reputable suppliers to ensure that organisms have been obtained in a responsible manner and handled in accordance with U.S. Department of Agriculture regulations and guidelines. Most specimens are initially fixed in formaldehyde, which chemically cross-links proteins and prevents cellular enzymes from breaking down tissues and organs. Fixation using formaldehyde results in hardening of the tissues and creates more durable specimens. After the fixing process, excess formaldehyde is generally removed and replaced with a safer preservative that contains alcohol or propylene glycol. Formaldehyde is a known human carcinogen, and formaldehyde vapors are highly irritating to the eyes, skin, and respiratory tract. Flinn Scientific laboratory specimens are packaged to the industry's highest standards and are 99.7% free of residual formaldehyde.

Rinsing procedures are usually specified with specimens. Follow directions carefully, especially if the preserved materials will be used over an extended period of time. With the extremely low levels of preservative in most specimens, odors are minimal but the expected lifetime of a preserved specimen is also shortened. A certain degree of preservative odor is likely to linger—good ventilation of the laboratory is thus critical to protect the health and well-being of teachers and students engaged in dissection activities. Work with the school administration to ensure that laboratory ventilation is adequate to provide fresh air and to confine any lingering odor to the laboratory rather than to the entire school. Store all preserved materials in locked cabinets or in a locked stockroom to restrict student access. Keep the specimens in their original containers and inspect all

preserved materials before use. Discard any decaying or damaged specimens.

Safety Precautions and Dissection Procedures

- Wear chemical-resistant gloves, chemical-resistant aprons, and chemical splash goggles or safety glasses for all dissection activities. Work in a well-ventilated lab only. Open the windows, if possible, and turn on the hood if one is available. There should be absolutely no eating, drinking or gum-chewing during dissection activities.
- Use only quality dissection tools that are sharp and free of rust. Scalpels are the preferred instruments—use single-edge scalpels with rigid, reinforced handles for increased safety. Handle scalpels, razor blades, and other sharp instruments with care and do not use excessive force when working with or cleaning sharp instruments.
- Inspect dissection tools on a routine basis. Dull and dirty scissors, scalpels or blades are much more dangerous than sharp, clean ones. Discard any instruments that are damaged and cannot be repaired.
- Rinse formaldehyde specimens with water before dissecting—keep specimens moist but not drenched. Use wet paper towels or a few milliliters of a formaldehyde substitute such as Formalternate® or water to wet the specimen during dissection. Do not use formaldehyde.
- Instruct students on proper dissection techniques and procedures, as well as how to dispose of sharps. Always cut away from the body and away from other people. Reposition the specimen or move to ensure safety.
- Properly mount specimens to the dissection pan or tray. Do not dissect a specimen while holding it. Cut gently and avoid using excessive force. Deep cuts are more dangerous and may slice through internal

organs. Use scissors to cut bones, including the rib cage. Dissection pins are used to hold the skin back and improve visibility—they do not hold the specimen to the tray. The specimen may slide during dissection if too much pressure is used.

- Wash hands frequently and before leaving the laboratory. Teach students about the potential for inadvertent contamination when they are working with preserved specimens, even while wearing gloves. Once a glove has touched the specimen or instrument, it is contaminated. Avoid unconscious gestures such as scratching the face, adjusting safety glasses, etc. Sanitize safety glasses as needed.

Cleanup and Disposal

- Provide adequate time for proper cleanup and disposal of all dissection materials and the lab. Rinse dissection tools and pans after each use. If dissection pans contain rubber inserts, wash and dry them separately.
- Remove scalpel blades at the end of each dissection unit and carefully dispose of in a sharps container. Clean instruments with Alconox® detergent solution (1 teaspoon Alconox mixed with 1 L water), rinse with water, and dry thoroughly. Wash countertops with dilute Lysol® or bleach solution.
- Rinse specimens thoroughly with water and double-bag, along with gloves and disposable aprons, in opaque garbage bags. Discard in an appropriate, secure container.
- Local conditions (e.g., septic systems) and regulations will determine the proper procedure for disposal of preserved materials. Teachers and administrators have a responsibility to be fully aware of all state and local regulations governing the disposal of laboratory and biological waste.

Dissection Instruments—Classroom Set

Save time and money when you purchase dissection instruments in bulk! This classroom set of high-quality instruments is packaged in a convenient, tough, plastic instrument-sorting tray. The tray makes moving instruments from class to class easier and allows faster inventory at the end of each laboratory.

Designed for 30 students working in pairs, the set consists of:

1 Sorting Tray	500 Dissecting Pins
15 Scalpels	15 Fine-point Forceps
15 Probe and Seeker	15 Scissors
15 Teasing Needles	



Dissection Instruments—
Classroom Set
FB1632