



IN THE CLASSROOM Science

Lab Planning

By Eddie Adkins

A well-designed middle school or high school science lab inspires student creativity and innovation. State-of-the-art science labs encourage teachers to maximize both classroom space and classroom time. Yet many science labs consist of outdated equipment and awkward classroom setups. With a variety of inventive and affordable products now available on the market, however, quality science labs are feasible for any school.

Basics of Lab Design

The basics of lab design include laboratory safety, student supervision, student/teacher sight lines, instructor preparation time, ADA requirements, and proper utilization of floor space. Now, more than ever before, the basics of lab design can be met with high-quality lab equipment.

All the sciences are exciting fields of study, where discoveries are made and theories are explored. Science labs should be places, then, where students are motivated to think outside the box and to safely enjoy learning.

Lab equipment on the market today comes in various models, colors, and wood finishes to save space and to ensure quality classroom time for both instructors and students. Such designs allow classroom labs to be both visually aesthetic and functional.

Weaknesses in Poorly Planned Lab Layouts

Traditionally designed labs are too often equipped with dark, bulky pier tables along the sides of the room and not especially conducive to the learning process. This type of setup, though still found in many school labs, does not efficiently or effectively use



Photo courtesy of Sheldon Labs

classroom space or stimulate maximum creative thinking. Such an arrangement leaves unused space at the middle of the room, proving unbeneficial to instructors and students. And, as students work on lab projects, only some are able to observe instructor demonstrations. When desks are centered with lab tables on either side, space for instructor interaction with students is restricted. Counter space is often wasted, as students must reach across the counter to access services. Aisles are obstructed, and students must adjust body positions to work in pairs.

The lecture position of many science classrooms consists of a lectern facing student desks that are lined up by rows. This

arrangement is stiff and formal, not easily fostering enthusiastic participation from students.

Also, safety should be the No. 1 consideration of lab designs. Unfortunately, pure table layouts compromise the students' safety and make well-planned designs mandatory in this day and age.

Strengths of Well-Planned Lab Layouts

Fortunately, some laboratory equipment manufacturers have sought to improve lab design options. Up-to-date science labs and multi-discipline lab stations provide sleekly designed tables that allow students better sight lines and mobility within lab spaces.

Well-planned labs ensure unobstructed aisles, well-defined work areas, larger sinks, convenient access to services, teacher assistance without encroachment, and easy access to storage.

Well-planned labs ensure unobstructed aisles, well-defined work areas, larger sinks, convenient access to services, teacher assistance without encroachment, and easy access to storage.

Modern lab equipment is durable for today's classroom and comes in a variety of handsome wood varieties and finishes and vivid colors that can be customized to meet the specific needs of a classroom. Lab equipment manufacturers have now designed lab equipment ideal for biology, chemistry, physics, and multi-purpose labs.

Biology

Service islands recently designed by manufacturers include spacious, easily accessible sink areas, which come with a handicap rinse away station and safety eyewash.

Service islands for the biology lab are connectable to as many as three work tables. These islands encourage student/teacher sight lines and lab partner interaction. Easily adaptable to a number of classroom needs, these tables and islands may be separated when necessary to rearrange the lab for lectures and projects. Islands for biology labs may include a one-piece molded sink with raised turrets, an integral 34-gallon capacity sink with raised perimeter edge and vandal-resistant fixtures, heavy-duty steel support columns with access panels, formed fiberglass, and understructures that meet ASTM flammability requirements.

Chemistry

Modern setups for chemistry labs include service islands that make for more effective

use of classroom space by providing a path for instructors to supervise all students. With these chemistry service islands, students are naturally angled towards each other to work in pairs. These islands include vandal-resistant fixtures with a powder coat finishes and epoxy resin countertops with molded, raised perimeter edges. Steel pedestals and formed fiberglass offer support, providing convenient access to services. Such designs also include modular storage cubicles, molded-in drain groves, and a 9-inch-wide molded epoxy resin trough and raised turrets sink cover.

Physics

Lab equipment is also available for schools seeking to upgrade physics labs. Service islands specifically designed for these labs come with a three-inch overhang for clamp-on accessories, a service island with cold and hot water, electric, gas, data and variable power, and a butcher block countertop. As with other lab equipment, a variety of top finishes are available.

Sheldon's Axis[®] was the first laboratory teaching station of its kind. Other manufacturers have attempted to copy its innovative design, but none have matched the quality and versatility of Sheldon's original Axis. Now, the Axis[∞], Sheldon's newest groundbreaking design, combines separate lab and lecture areas into a single, dynamic learning center. Sheldon's innovative Axis[∞] maximizes space and streamlines the laboratory learning experience. As a teaching tool, it enables every minute of classroom instruction to be as productive as possible. The first lab station to accommodate the latest in computer technology, the Axis[∞] comes in a variety of models, allowing for the integration of standard desktop computers, flat-screen monitors, and individual laptops. When it comes to ultimate functionality in the classroom, the Axis[∞] is unequalled.



Axis[∞]



For detailed information about the Axis[∞] and other Sheldon products, call 1.800.531.7604 or visit www.sheldonlabs.com for a demo.





Multi-Discipline Lab

Sleek, functional equipment is available for multi-discipline labs as well. Manufacturers now design lab products that will effectively integrate technology into the classroom. A multi-discipline lab supports the latest in computer technology, ADA accessibility, lab/lecture functions, and adaptability. The modern, multi-discipline lab is handicapped accessible from all sides and includes island desks with a projection screen. Multi-discipline labs provide spacious work surfaces, molded epoxy resin countertops and sinks, and entire units that are wheelchair accessible. This multi-discipline lab equipment works well in a combination lab and lecture setting, and it comes with adjustable height work surfaces and optional privacy panels for test administration.

Multimedia Desk

Another fine lab product currently on the market is the multimedia desk. The multimedia desk is computer ready and includes cable management, wheelchair accessibility, a molded epoxy resin countertop, and sink. The multimedia desk is also equipped to support VCRs, DVD players, printers, digital projectors, visual presenter, and a flex camera.

Sink Stations and High Density Shelving

Sink stations are now manufactured to include combination cold water and gas fixtures, hand-held eyewashes, under counter



storage, one-piece molded sinks, countertops, and raised perimeter edges. Designed specifically for labs, high density shelving comes with a chemical resistant finish on the entire unit, a lip on the front edge of shelves, an additional center track, and a surface-mounted low profile track.

Environments conducive to learning encourage each student to reach his or her potential. An organized, accessible, visually appealing classroom space will keep students

focused and alert. With a variety of lab equipment products on the market today, a well-designed science lab is an easily achievable goal. CSP

Eddie Adkins is president of Sheldon Laboratory Systems, www.sheldonlabs.com, a manufacturer and distributor of laboratory furniture and casework for the educational marketplace as well as universities and research facilities.

**As
Seen in**

CHRISTIAN SCHOOL PRODUCTS®

Purchasing Solutions for Religious Education Facilities