EDUCATING A CUTTING-EDGE WORKFORCE

Once a leader in graduating students in the math and sciences, the United States Department of Education is actively promoting programs that will again boost interest in what are called STEM fields. STEM fields encompass four general areas of study — science, technology, engineering, and mathematics — of which available and projected jobs are rapidly outpacing qualified employees. STEM supporters recognize how interdisciplinary these subjects are, and rather than teaching these classes individually, the STEM disciplines are integrated and paired with real-world applications so students grasp connections between everyday life, school, work, and the global economy. This innovative and blended educational approach is not only influencing K–12 math and science curriculums, but also how classroom furniture needs to adapt for maximized learning.

STEM classrooms are not simply the traditional lecture layout — there are additional demands for collaborative space and mobility. Furniture needs to accommodate both individual and team work spaces, provide technology workstations, and allow flexibility as activities change from large to small groups. Careful planning for these dynamic STEM classrooms, including layout and furniture needs, is a critical component for meeting the long-term needs of students and staff.

Drawing from years of experience in designing educational furniture for classrooms and labs, Interior Concepts has firsthand knowledge in making STEM classrooms the best learning environment possible. What follows are some key points to consider when planning how to integrate this multi-disciplinary curriculum with facility needs in order to provide the best STEM classroom environment.

Between 2017 and 2027, the number of STEM jobs will grow 13 percent, compared to 9 percent for non-STEM jobs—with positions in computing, engineering, and advanced manufacturing leading the way.

- Education Commission of the States
BUILDING CONSIDERATIONS

Every building has unique features and challenges to work around; therefore gathering information far enough in advance of the classrooms being remodeled or constructed will make the project proceed faster and smoother. Having CAD drawings in hand when sitting down with your technology and furniture representatives will greatly assist them in designing the space based on both the district’s and instructor’s goals. Questions to consider that will facilitate designing a functional room are:

• How many students will be utilizing the space?
• Is power required for that room’s curriculum? Will power be accessed from the floor, ceiling, walls, or from the furniture itself?
• Are there doors, windows, columns, heater vents, and other items that need to be designed around?
• What are the ideas from the teacher who will be using the classroom? What direction is the teacher intending furniture to face, and will that impact access to power or other utilities?
• Will the STEM classrooms require specialized safety equipment?
• Is dimmable lighting or light-blocking window treatments required for some classrooms or labs?
• What is the project timeline? Is furniture installation scheduled after painting to prevent damage or unnecessary moving?

“…STEM offers students a chance to make sense of the integrated world we live in rather than learning fragmented bits and pieces of knowledge and practices about it.” – Evolution of STEM in the United States
CLASSROOM CONSIDERATIONS

Evaluate the curriculum to determine equipment and both teacher and student work space needs, as well as the average number of students expected to utilize the classroom. Questions to answer that will determine station sizes, shapes, and accessories:

- Will computers or technology equipment be placed on top of work surfaces, or mounted below?

- What technology equipment will be used individually or shared — how many are needed?

- Will students gather at a staging area, or a central location, before breaking into groups for project work?

- How many work zones are needed, and what type? Group, solo, or one-on-one?

- What are the size, shape, and quantities of materials that need to be stored in order to provide adequate storage space?

- What materials need to be locked away either for student safety or security?

- How many storage areas are needed? One central area, or positioned in group areas?

The MediaCurves, lab carts, and tables shown on this page are all on casters which allows teachers and students to quickly rearrange their classrooms to best fit the day’s curriculum. With optional heights, shapes, storage, and sizes to select from — a classroom’s furniture can easily adapt to changing demands.
TEACHING CONSIDERATIONS

Teachers have needs too — so accounting for how a particular educator works, or plans to implement the STEM curriculum, is important. Review with individual instructors their ideas and teaching style. Questions to answer relative to the teacher:

- What type of desk does the instructor need? Locking storage? A desk with student meeting space? Mobile cart with power?

- Will the teacher present lectures, requiring a lectern, or is all instruction collaborative — or is there a blend of the two?

- What type of technology will the instructor employ regularly? Whiteboard, computer, or projection technology?

- Does the instructor station need to have built-in outlets, accessible power, or cable storage?

- Does the teacher plan on reconfiguring the room based on daily, weekly, or monthly topics and activities? Fixed or mobile furniture?

- Do the lessons emphasize students working independently or as part of a group?

- How many student teams, and what size, does the teacher plan on having? Do these numbers change frequently?

Teachers can utilize a height-adjustable podium as an additional workspace, an extension of their desk for student meetings, or as a lectern that can easily be moved around the room.
STUDENT CONSIDERATIONS

The ultimate end-users of the classroom are the students, and for them, the furniture needs to not only be functional but comfortable too. Sizing furniture correctly, and designing the workstations to coordinate with the curriculum and tasks, will create an age-appropriate, sophisticated, and engaging real-world working environment. Several factors for ensuring student needs are accounted for:

• What age are the students? What seat or table heights will work best?
• Will the classroom serve multiple age groups, such as an entire K–8 elementary school? Should work surfaces be height adjustable?
• Are there unique ADA considerations within the student body?
• Do students have backpacks or other materials with them that require classroom storage?
• Can students see everything clearly? From the population’s average height, are their sight lines clear?

Only 1% of STEM jobs are open to people with a high school diploma. 78% of STEM careers require a bachelor’s or graduate degree (13% require an associate’s degree). The national average wage for STEM occupations is also nearly double the national-average for non-STEM occupations. –US Bureau of Labor Statistics
YOUR THOUGHTS AND IDEAS
Have we given you enough food for thought? Use this page to jot down answers to some of the questions we’ve presented (there are no wrong answers, by the way). You can send this form along to us, or simply use as a worksheet for planning your STEM classroom project.
Interior Concepts has nearly 30 years experience delivering quality furniture solutions that are backed by a lifetime warranty and made in the USA. We will tackle your STEM project individually and deliver solutions tailored precisely to your needs. To see product photos and request a quote, visit www.interiorconcepts.com.