



# PLANNING A STEM CLASSROOM



PRESENTED BY:



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STEM education combines science, technology, engineering, and mathematics in real-world lessons that allow students to make connections between school, work, and the global economy. This unique approach to learning allows students to increase their skills in these desirable fields to keep the United States in the forefront of innovation and technology. The goal is to increase America's talent pool by vastly improving K-12 mathematics and science education.

Furniture and room design will help to facilitate STEM curriculum and programs to maximize learning. We have designed this article to generate discussion about the room layout and furniture design during the planning phase of the project to ensure that the environment complements the curriculum and the long-term needs of the students and staff.

Interior Concepts has been designing labs long before the term STEM became popular, so we have a lot of experience to draw from to make your lab the best learning environment possible. Below are some key points to think about to provide the best room design to facilitate STEM education.

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## Curriculum

First, determine the number of students who will use the classroom and how many students will work together in a group. Verify if computers and technology equipment will need to be placed on top of the worksurfaces and whether these items will be used individually or shared. This information will help to determine the station shape and size.

Then determine if you will need a staging area, which is a place where students will gather into a central location before they break into groups to work on their projects. If a staging area is required, tables in the center of the room create a flexible meeting space that can be moved as needed. Either round or typical classroom style tables will work, depending on the room size and program requirements.

Determine the size, shape, and quantities of the materials that need to be stored. Measure the materials to allow for clean and functional storage areas. Designing the storage area to fit the curriculum material will avoid insufficient storage space. Also, think about whether a central storage area will be needed, whether it would be more convenient to provide storage in each group area, or both.



## Teamwork & Technology

The room above is a new science lab at Eglin Elementary School located in Florida. Younger students learn about mass and gravity with Lego building projects, while older students work in small groups modeled after NASA, learning teamwork along with technology. The classroom was designed with a central meeting area, storage at each group work area, and additional large storage areas at the front of the classroom.

## Teaching Style

To foster a collaborative environment, consider the teaching style. Think about what type of instructor desk will work best in the room. This can include a desk with a meeting space, a lectern, or a combination of the two.

Decide whether mobility in the instructor desk is important and what technology the instructor workstation needs to house. A storage area can be built into the instructor desk to store equipment and provide access to wall outlets. This will keep the area neat by storing equipment, cords, and cables out of the way.

For teachers who need to consult with groups that are working on projects, plan a meeting place at each group. Possible solutions are a half-round table at the end of each workstation grouping, or a single table that can be moved around the room. Also, orient the classroom so students can see whiteboards and other technology.



## The Students

Design a comfortable working environment for students by knowing the age of the students that the room needs to serve. If the room needs to serve multiple age groups, consider using height-adjustable chairs to accommodate various students. The age of the students in the room will also determine the worksurface height and average amount of space that each student needs. Your furniture representative will recommend the best solution for your students.

Sizing the furniture correctly, and designing the workstations to coordinate with the curriculum and tasks, will create a sophisticated and engaging real-world working environment for your students.



### General Chair and Worksurface Height Guidelines:

Chair manufacturers recommend a 12"-16" seat height for elementary students and 18" seat heights for intermediate ages and adults. For worksurface heights, we typically recommend 25" high for elementary age students, 27" high for intermediate ages, and 29" high for high school students and adults. Consult local guidelines for ADA accommodation. Interior Concepts can easily modify ADA workstation height, width, and depth as needed to meet the guidelines.

## The Classroom

Before you work with your technology and furniture representative, try to get a CAD drawing of the space and set a goal of how many students you need the room to accommodate. Your representative is there to help. They will work with you to design the space based on your goals.

The representative will note the location of doors, windows, columns, heater vents, and other items on the CAD drawing. They will also need to know whether power will be accessed from the floor, ceiling, and/or the walls. Access to power might determine the layout of student workstations in the room and whether or not the furniture will need to have electrical outlets built into the design.

If painting is needed, plan to have this completed before the furniture installation to prevent damage to the furniture. Completing the room design in a functional order will make the room remodel or build proceed faster and smoother.



18525 Trimble Court, Spring Lake, MI 49456  
800.678.5550 | [interiorconcepts.com](http://interiorconcepts.com)



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