


# Johnson Controls Student Engagement Program



**A program for student participation and career exploration**





Not only does a STEAM framework teach students how to think critically, solve problems and use creativity, it prepares students to work in a field that is poised for growth.

*Article: STEAM Education:  
A 21st Century Approach to Learning,  
University of San Diego, 2019.*

## Creating smarter, safer, more engaging learning environments?

We are top of the class.

Johnson Controls enhances student achievement by improving the physical environments of K-12 schools. We also inspire students by encouraging them to build a brighter future for themselves and their community. When students are exposed to energy efficiency projects and programs, they learn to protect the environment and discover potential career options. Students are more likely to remain engaged in school if you show them a future full of possibilities.

An added bonus: school districts realize even greater project savings when encouraged to conserve energy.

Our program gives students a variety of options to learn about energy conservation and energy-saving technologies, as well as to explore careers in the energy services field.

## Benefits beyond the classroom

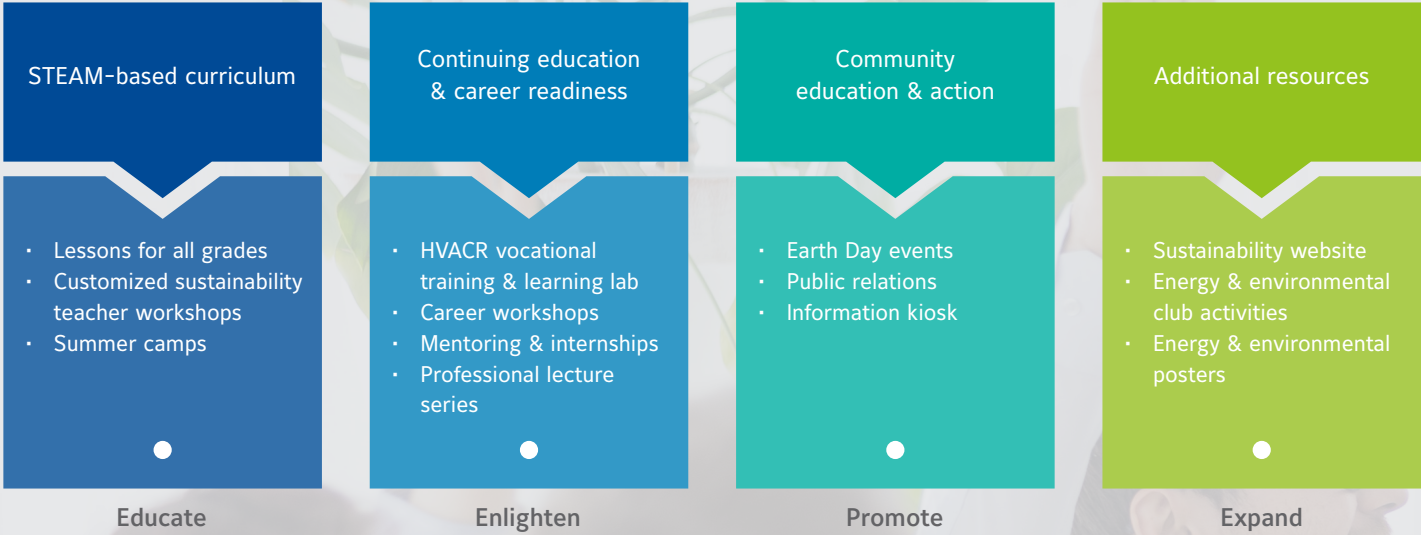
Our program provides a forum for raising energy awareness among your students, teachers, staff, and community. It is based on the STEAM framework, utilizing a combination of Science, Technology, Engineering, Arts, and Mathematics to promote realistic, lifelong learning skills. This approach better prepares students for post-secondary education and gives them the skills and knowledge they will need to be successful innovators in a technology-driven workforce.

A culture of sustainability also helps attract and retain quality teachers. We offer fresh, timely, classroom-ready STEAM materials and plans that are aligned with the existing curriculum and state academic standards. Students can participate in energy-saving contests and activities, chat with experts, and exchange ideas with students nationwide.

Students can also receive credit for participating in high school, trade school, and college school-to-work programs, preparing them for STEAM careers.



## Program components



## STEAM-based curriculum

### Lessons for all grades

The program provides energy-based lessons for grades K-12. As early as K3 and up to Grade 3, students are introduced to basic energy concepts through fun interactive lessons and games. Courses for Grades 4-6 are computer-based (on a secure sustainability website) and include activities related to fundamental energy and natural resource concepts that appeal to young students. In Grades 5-7, students have the opportunity to conduct energy audits at their own school. Students and teachers are given guidelines and instructions, energy use reminder notices, stickers, and an instructional video.

High school students are taught more advanced energy concepts and engage in discussions with industry professionals about the application of energy technologies in society. Energy subjects covered include water conservation, renewable energy, electrical generation, solar power, wind technology, and geothermal. Other

areas of instruction include the science of flames, petroleum technology, natural gas, recycling and the reuse of oil, and electro-technology. Energy challenges give students the opportunity to put what they have learned at school into action at home.

As students enter Grades 11 and 12, they are given an opportunity to explore career options and have informational sessions with professionals in various energy services careers. Students can earn academic credit by integrating classroom theory into their part-time work experiences. The focus at this time is on developing new skills and understanding the requirements for entering higher education or the workforce.

Our team will work with you to review your current STEAM offerings and help define and develop ways to enhance them.





## Customized sustainability teacher workshops

With a teacher toolkit and STEAM-based lesson plan, the workshop prepares teachers for classroom instruction on renewable energy, water conservation, and energy efficiency practices. The workshop also provides information on how to motivate students to take action at home and involve their families in smart conservation practices that will save energy, money, and the environment. The workshop allows a variety of teachers from different disciplines to engage their students in energy education.

## Youth summer camps

We host youth STEAM summer camps to introduce future career opportunities. The interactive camp provides students with an opportunity to explore green careers and environmental stewardship. Through a hands-on curriculum, activities and resource materials, students have an opportunity to learn about energy, water, and utility reduction.

## Sustainability website

We offer access to a secure, educational sustainability website that has a downloadable K-12 STEAM curriculum, K-12 and community awareness activities, training resources, blogs, competitions, and educational libraries. The website delivers curriculum-enhancing programs designed to state and national standards. It combines the study of exploratory science, energy and math with real work experience, offering young students the opportunity to have fun while engaging in a wide variety of curriculum-enhancing packages.

## Energy and Environmental Club & posters

We work with your faculty to initiate environmental stewardship clubs at various grade levels. We offer speakers, videos, and learning materials that capture the imagination of students. Teachers will be provided with ready-to-use materials and a professional resource for coaching. Posters are also supplied and can be posted in classrooms to promote environmental stewardship and educate students about the many ways to conserve energy.

## Community education and action

We are personally invested in a community’s success as we live and work in the region and our employees may have children who attend your schools. We often organize and/or attend various community events related to energy and sustainability.

### Earth Day event

Every day is Earth Day at a company that has made sustainable practices a priority for more than 130 years. Our company is proud to host annual Earth Day activities with our customers around the world. We can provide speakers and practical energy-saving tips for your Earth Day celebrations. Together, we can create an inspirational and meaningful event for your students, staff, and community.

### Public Relations

You are doing great things at your schools – we can help you tell that positive story. Your project will be successful if you have the support of the community, residents, and taxpayers. We have experts who can help you educate constituents on how you are taking steps to be fiscally responsible while improving services, saving energy, and positively impacting the environment.

Our goal is to become an extension of your own communications capabilities.







Students earn college credits and technical certifications, making them eligible for apprenticeships, internships, and jobs.

## Continuing education & career readiness HVACR vocational training & learning lab

Real-life experience better prepares students for professional or technical careers. We team up with school districts to develop career-themed curriculums, work-based learning, and community partnerships. Through our experts at the Johnson Controls Institute, we offer comprehensive technical training courses in heating, ventilation, air conditioning, and refrigeration (HVACR). The program provides high school students with the opportunity to learn a skill and obtain certification, enabling them to get a job or give them a head start as they continue their education.

As part of the program, we will assess your current vocational programs and work with you to design a customized curriculum specifically for HVACR. We will collaborate with your faculty to gauge your students' skills and interest to help identify the best-suited participants for the program. We also assess the instructors and assistants to deliver personal "Train the Trainer" programs for job-specific courses and performance support tools. We will help you develop and implement onsite mentoring and/or apprenticeship and certification programs so students can apply their new skills. We will also work with you to assess students who have completed the courses and help them prepare for job searches and interviews.

## Learning lab equipment

Your students will have access to current HVACR equipment. This will include actual HVACR mechanical equipment and digital control systems to help students learn the skills needed to work in typical commercial buildings. Our institute instructors will work with your leaders and instructors to provide additional training materials and expand the curriculum to take full advantage of this new equipment. This support typically includes faculty course manuals, hands-on lab exercises, interactive CDs, DVD

videos, job aids, and mentoring on how to use this equipment. Various Johnson Controls employees will also provide installation, commissioning, and mentoring advice during the construction phase.

## Professional lecture series

We provide a lecture series for both students and staff designed around HVAC equipment and energy analysis. These lectures are based on energy efficiency measures we typically implement for an energy savings project. The speakers hold discussions regarding the different components of HVAC equipment, as well as the physics and calculations used in energy analysis. Additionally, the lectures include presentations and tours of the work in progress that is being done within the schools to show real-world applications of the topics covered.

## Mentoring and internships

We offer high school students mentoring and work programs/internships with our organization or our community partners. Internships provide hands-on training and allow high school students to job-shadow people to gain career insights, determine interest level, and prepare them for future employment.

## Career workshops

We will work with you to develop customized career workshops. The workshops will encourage students to explore various jobs in the energy services field. The educational series would host local industry experts, as well as subject matter experts from Johnson Controls.





### Information kiosk

Your sustainability project has a great story to tell about your forward thinking and commitment to your community and the environment – and we have a tool to do just that. Johnson Controls Enterprise Management includes a kiosk option. The kiosk is a configurable, public-facing communications tool that enables you to share your energy and sustainability efforts in real time to inspire, engage, educate, and inform.

Vibrant visuals share the key sustainability data you wish to highlight anywhere people spend time – in lobbies and cafeterias, for example. Whether it’s from a single building, a collection of buildings in the district or any connected meter, device, or system, sharing your real-time energy and sustainability results is easy using these kiosks.

<div>Inspire</div> <div>Communicate your building’s performance and the unique story of energy efficiency technologies employed by your school building.</div>	<div>Engage</div> <div>Create a dynamic and interactive experience that engages students and teachers and fosters collaboration through real-time energy and water use reduction comparisons.</div>
<div>Educate</div> <div>Provide insight into how electricity is billed, spent, and consumed, as well as provide green tips on how to conserve energy.</div>	<div>Inform</div> <div>Improve information sharing by including convenient, current, and accurate data through announcements, notifications, and at on-site events.</div>





#### About Johnson Controls Building Technologies & Solutions

Johnson Controls Building Technologies & Solutions is making the world safer, smarter and more sustainable – one building at a time. Our technology portfolio integrates every aspect of a building – whether security systems, energy management, fire protection or HVACR – to ensure that we exceed customer expectations at all times. We operate in more than 150 countries through our unmatched network of branches and distribution channels, helping building owners, operators, engineers and contractors enhance the full lifecycle of any facility. Our arsenal of brands includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Ruskin®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell®.

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