



A BLUEPRINT FOR SAP EDUCATION INITIATIVES

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JOBS FOR THE FUTURE





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Jobs for the Future works with our partners to design and drive the adoption of education and career pathways leading from college readiness to career advancement for those struggling to succeed in today's economy. Across the country, we work to improve the pathways leading from high school to college to family-supporting careers. Our work aligns education and training to ensure that employers have access to a skilled workforce.

JFF has worked with SAP for the past three years, providing advice and assistance in school development. Beginning in Spring 2014, JFF has guided and organized the partners developing a pathway in Boston, MA called C-Town Tech. SAP enlisted the support of JFF to write this Blueprint so educational and industry leaders in other major cities could benefit from what SAP has learned in launching four high school pathways across North America.

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ABOUT THE AUTHOR

Sheila Jackson is a program manager at Jobs for the Future, where she provides technical assistance to the Pathways to Prosperity Network around the development and implementation of grades 9-14 regional career pathways. She is currently working with SAP and the C-Town Tech team in Boston to help implement and scale an Information Technology pathway at Charlestown High School and evaluate the student experience. Sheila holds a B.A. from Wesleyan University and an Ed.M. in Higher Education from the Harvard Graduate School of Education.



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A BLUEPRINT FOR SAP EDUCATION INITIATIVES

All young people entering high school today have the potential to work and thrive in a labor economy that is driven by technology and expanding through innovation. As one member from SAP's CSR team says, "the rate at which SAP is innovating, there are many jobs that do not even exist yet," and so, because of this new technology frontier, there is also a new onus on employers to help educators and institutions navigate the necessary skills and competencies that will prepare the next generation of workers to benefit from these future opportunities in the field.

Young people's potential to be successful in the future labor economy, however, can be compromised if students are not given equal access to opportunities to learn about careers and plan for college well before they leave high school. We know that by 2020, 2 in 3 jobs will require some form of postsecondary education, and currently only about 40 percent of the American population has a college degree.¹ With an expected 17 percent growth increase in STEM jobs over the next 10 years,² and currently almost 4 times as many job postings in STEM related fields compared to non-STEM related fields, it is vital for the industry to play a more collaborative and engaged role in launching young people into college and careers, and supporting what happens in classrooms before future employees walk through their doors.³

A VISIT TO BTECH

In late spring 2015, I visited Business Technology Early College High school (BTECH) in Queens, NY—the first SAP education initiative in the United States, which is trying to answer this call to action by mobilizing a new type of college and career preparation for high school students. Walking through the halls of BTECH, however, I did not immediately notice anything that distinguished this school from a typical public high school. In fact, BTECH resides in one wing of a large New York City public high school. However, in taking a closer look and talking to the students, I soon realized the differences are profound.

"They are called Post-its of Positivity," one student, a member of BTECH's inaugural ninth-grade class, tells me when I ask about all the pieces of paper posted along the hallway. The two students giving me a tour of their school explain that, in preparation for the New York State Regents Exams, students and teachers decided to post these encouraging messages around the school in response to everyone seeming stressed about taking the tests. BTECH, which is a partnership between SAP, New York City Department of Education, the City University of New York, and Queensborough Community College, opened its doors in fall 2014 to a cohort of 115 students. These students will have a much different high school experience from most ninth graders across the country. Another hallway has

posters and signs with a list of students who have earned Microsoft Office 2010 Certifications and information about “2015 Learning Journeys,” like the SAP TEDxTeen event, the Queensborough Community College Gala, and SAP’s SAPPHIRE NOW Conference in Orlando, FL. The post-its and posters are just a few indicators that begin to tell the story of how SAP education initiatives are thinking differently about building community and preparing high school students for technology-driven careers. As BTECH students explain, the dynamic in the classroom and with their teachers is quite simply “more real.” The most powerful evidence that this type of high school experience is equipping students with the skills they need to succeed in a 21st-century workplace is, in fact, the students themselves. Demonstrated by my tour guides’ thoughtful responses about their career aspirations—becoming an

engineer and working on the “business side of technology as a CEO”—the collaborative and technology-driven environment of BTECH has given 14- and 15-year-olds a sense of academic purpose and professional direction in just one year—imagine where these students will be in ten years!

Still in early stages, SAP education initiatives are already showing the positive impact that innovating the high school experience can have on young people and their communities. By providing the conditions under which school leaders, teachers, and industry can work together to innovate the high school experience, and reframe the goals and expectations of high school students, SAP is giving students the tools they need to see themselves as technology professionals now and in the future.



THE GOALS AND VISION OF SAP EDUCATION INITIATIVES

As a global leader in enterprise software, SAP sees its reach and responsibility to the industry far beyond its local markets. With a landscape as iterative and innovative as technology, it is essential that employers make those critical bridges between the industry and educational. It is essential these institutions share their insider knowledge and expertise to expose young people to the range of opportunities in the field. The purpose of this Blueprint is to set the stage for other companies, schools and educational institutions to encourage an industry wide movement. It is everyone's responsibility to prepare our future workforce with the essential skills they need to succeed and prosper within the digital economy.

In 2012, SAP Corporate Social Responsibility embarked on a new approach to maximize impact and prepare the next generation of STEM professionals. Historically, SAP's corporate giving involved matching gifts at numerous organizations, promoting STEM education and youth entrepreneurship across the globe, and volunteering, including a company-wide "Month of Service" volunteer program each October. However, in thinking about where and how SAP, as a global leader in enterprise software, could make a larger impact, SAP engaged in an in-depth process to better understand their own strengths and capacity and to re-envision their CSR priorities. The result was the creation of SAP education initiatives—unique partnerships in major cities across North America among high schools, postsecondary institutions, local SAP offices, community-based organizations, and other key municipal stakeholders that work collaboratively to innovate STEM education and prepare students for a range of future careers as STEM professionals and entrepreneurs.

A key role SAP plays in these partnerships is to support schools and school systems as they update their programs and curricula to reflect workforce needs over the next 10 years and beyond. To this end, SAP works collaboratively with educational institutions, instructors, and students to:

- ▶ Share and translate industry knowledge around specific skills and credentials required for occupations in the technology field.
- ▶ Connect young people to a network of companies and professionals in the SAP ecosystem.
- ▶ Empower high school students with the work-readiness skills that will enable them to be successful in future careers.

With this long-term vision at the forefront, SAP education initiatives are intentionally designed to bring together stakeholders from across sectors that do not typically work together. Their collective commitment is what makes these educational changes sustainable. In creating cross-sector partnerships, SAP initiatives promote the belief and possibility that STEM education and entrepreneurship are catalysts for improving both the college and career outcomes of young people and the economic development of regions.

SAP's current education initiatives are partnerships that align with unique local contexts and draw upon the niche strengths of local SAP offices and other regional industry partners. SAP education initiatives can be adapted to support different variations in the model, ranging from pathways within schools to entirely new schools. However, there are several fundamental components and goals

that are shared across each initiative. The purpose of this Blueprint is to:

- > Outline those common key elements and objectives.
- > Give examples of how current sites have approached planning and implementation.
- > Illustrate how a student would experience the curriculum and pathway.
- > Explain what conditions, including leadership, need to be in place in a successful initiative.
- > Provide a clear sense of the cost and commitment in terms of time, resources, and personnel necessary for these initiatives to get off the ground and to ensure long-term success and sustainability.

CURRENT SITES OF SAP EDUCATION INITIATIVES

BTECH (BUSINESS TECHNOLOGY EARLY COLLEGE HIGH SCHOOL)

- > **Date Opened:** September 2014
- > **Location:** Queens, NY
- > **Size/Type:** Separate cohort of 110 students entering at each grade level and currently 110 9th and 10th graders, co-located at a high school
- > **K-12 Partner:** New York City Department of Education
- > **Postsecondary Partner:** Queensborough Community College/City University of New York (CUNY)
- > **Degrees Offered:** A.A.S. in Computer Information Systems (Business Department) & A.A.S in Internet Technology (Engineering Technology Department)

TEMPLETON STEM (TEMPLETON HIGH SCHOOL)

- > **Date Opened:** September 2014
- > **Location:** Vancouver, Canada
- > **Size/Type:** Cohort of 60 8th graders, 25 11th and 12th graders, and 12 graduates
- > **K-12 Partner:** Vancouver School Board
- > **Postsecondary Partner:** British Columbia Institute of Technology
- > **Degrees Offered:** none*



- » * Templeton STEM will continue with a cohort of 60 8th graders each year until capacity is reached.
- » * Canada does not have community colleges similar to the United States' two-year system, and therefore Templeton students will not be dually enrolled at a postsecondary institution. Instead, a pathway to a postsecondary institution has been developed. Scholarships and reserved seating are offered to students who choose to pursue postsecondary education in STEM disciplines at British Columbia University of Technology.

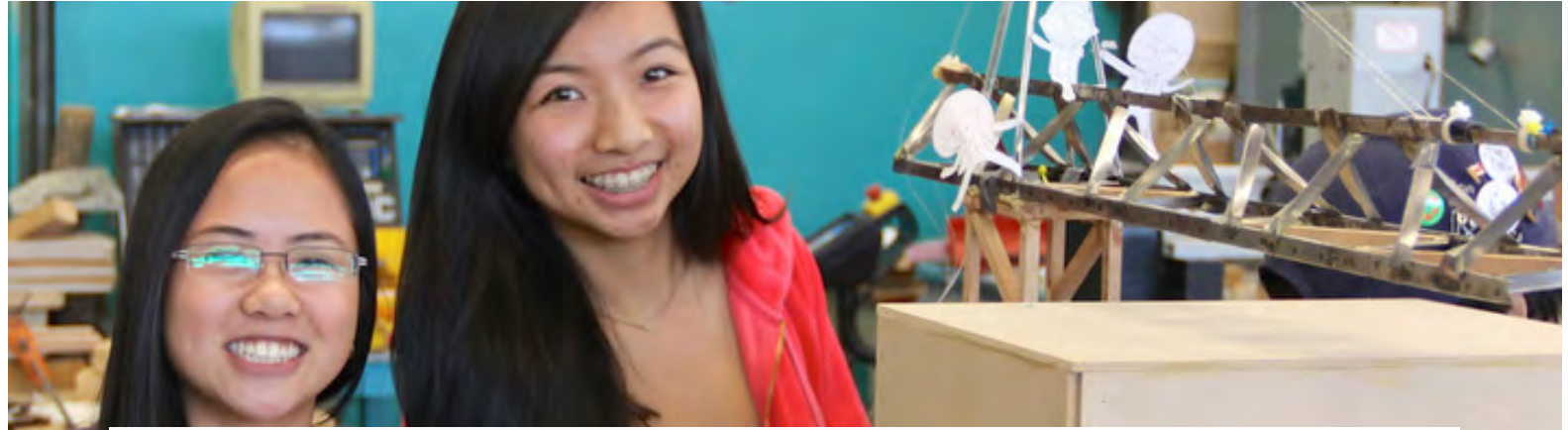
C-TOWN TECH (CHARLESTOWN TECHNOLOGY)

- > **Date Opened:** September 2015
- > **Location:** Boston, MA
- > **Size/Type:** Cohort of 30 9th graders, participating in a pathway within the school
- > **K-12 Partner:** Boston Public Schools
- > **Postsecondary Partner:** Bunker Hill Community college
- > **Degrees Offered:** A.S. in Information Technology (Transfer Option)

SKYLINE HIGH SCHOOL, OAKLAND

- > **Date Opened:** September 2016
- > **Location:** Oakland, CA
- > **Size/Type:** Merging school academy with community college partner
- > **K-12 Partner:** Oakland Unified School District
- > **Postsecondary Partner(s):** Berkeley City College & Peralta Community College
- > **Degrees Offered:** A.A. in Business Systems, Information Technology, related fields

NOTE: The appendix includes more details about each site, including an interview with the C-Town Tech headmaster.



THE MODEL: BRINGING COLLEGE AND CAREERS TO THE HIGH SCHOOL EXPERIENCE

For many young people, high school means four years spent in classrooms without a clear idea of how they will get to college, what they will do when and if they get there, and most importantly, what they will do afterwards. SAP education initiatives make those connections clear so that students feel ownership over their professional futures and have the necessary support to navigate along the way. In fact, high school itself changes when schools enter SAP partnerships. Students' daily experiences in an SAP education initiative are infused with project-based learning and the principles of entrepreneurship. In addition, SAP partnerships build off the success of early college high schools, which allow students to earn several college credits up to an Associate's degree along with their high school diploma. Early college designs reach historically underrepresented populations and can expose all students to a variety of professional experiences and careers in STEM. Ten years of research and data show that early college high schools significantly improve high school and college outcomes, especially among low-income students and students of

color.⁴ Since an overarching goal of SAP's Corporate Social Responsibility initiatives is to increase the number of young people that are prepared for career pathways in tech-driven companies, it is critical to engage students who are entering STEM-related jobs at lower rates than their higher income white and/or male peers. SAP education initiatives make those connections clear so that students feel ownership over their professional futures and have the necessary support to navigate along the way.

Many early college high schools are designed as a six-year experience that seamlessly integrates high school and college so that students can earn up to two full years of credits toward an Associate's degree or a transfer pathway to a four-year institution. Ideally, SAP education initiatives are designed to follow this six-year pathway model with a curricular focus on STEM and Business Technology that aligns with a postsecondary degree program at a partnering college. It is possible, however, for SAP initiatives to support variations to this model as long as students are exposed to college-level material throughout their high school experiences.

In creating cross-sector partnerships, SAP initiatives promote the belief and possibility that STEM education and entrepreneurship are catalysts for improving both the college and career outcomes of young people and the economic development of regions.

All sites are expected to think creatively about integrating opportunities for career development and exploration into multiple aspects of the school day. Because SAP initiatives are designed to help students see the connection between their coursework and a potential career, they require students, families, and instructors to broaden their focus beyond GPA. An important message that students participating in SAP initiatives receive throughout their high school experience is that grades and test scores make up only a couple of many steppingstones on a path to a career.

RETHINKING TRADITIONAL SCHOOL PRACTICES

The goal of providing students with as many opportunities as possible to see themselves in different professional settings and to develop professional skills is to reflect a more holistic and integrated approach to college and career readiness. This involves reinventing homework, tests, and other traditional school practices. At BTECH, for example, parent-teacher conferences are student-led. Rather than a conversation between the parent and

teacher where the student typically does not have a large role, students spend several weeks assembling a portfolio of their work and preparing a presentation on their strengths and plans for growth. The emphasis on career preparation creates an environment that encourages school leaders and teachers to seek out opportunities for student development that extend far beyond the classroom or computer lab. So far, the redesign of parent-teacher conferences at BTECH has yielded widespread positive results among the entire school community. After the first round of these conferences, some parents told the principal they had never before heard their child speak for that length of time, that articulately, and with that level of engagement and energy about school.

In addition to maximizing in-school time, career exploration and preparation are integral parts of after-school activities and school vacations. As students progress through a pathway, SAP works with schools to develop a sequence of career development and work-based learning experiences that build off one another. Figure 1, on page 7, is a template for a possible course scope and sequence for a student in an SAP education initiative technology pathway.



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(photos top/bottom) BTECH Students in their “network groups.” Network groups at BTECH, which function similarly to homeroom advisories, are single-gender.

Figure 1. Course Scope & Sequence Template

Summer Bridge: STEM Foundations Camp			
9th Grade	Courses <ul style="list-style-type: none"> High school curricula aligned with technology program of study (core academics) 	Career Exploration Activities <ul style="list-style-type: none"> Job Shadows Field trips Guest speakers Basic industry and job description overviews 	
Summer Program			
10th Grade	Courses <ul style="list-style-type: none"> Aligned high school curricula (core academics) College-level technology course (e.g., Python Programming or Ruby on Rails) 	Career Exploration Activities <ul style="list-style-type: none"> Job Shadows Field trips Guest speakers Industry projects & problem-solving Robotics competitions 	
Summer Program			
11th Grade	Courses <ul style="list-style-type: none"> Aligned high school curricula (core academics) OR College-level math & English College-level technology course 	Career Exploration Activities <ul style="list-style-type: none"> Job Shadows Field trips Guest speakers Industry projects & problem-solving Robotics competitions 	
Summer Program			
12th Grade	Courses <ul style="list-style-type: none"> College-level general education requirements for AS degree 	Career Exploration Activities <ul style="list-style-type: none"> Job Shadows Field trips Guest speakers Industry projects & problem-solving Robotics competitions Mentorship relationships 	Potential Credentials & Certifications <ul style="list-style-type: none"> High School diploma A.S. degree (for accelerated students) Microsoft Office Certifications
Summer Internship			
First Year of College	Courses <ul style="list-style-type: none"> College level general education requirements for A.S. degree Major-specific college-level courses 	Career Exploration Activities <ul style="list-style-type: none"> Industry projects & problem-solving Robotics competitions Mentorship relationships Mini-internships over school vacations Informational interviews 	Potential Credentials & Certifications <ul style="list-style-type: none"> A.S. degree Microsoft Office Certifications SAP Certifications
Summer Internship			
Second Year of College	Courses <ul style="list-style-type: none"> Major-specific college-level courses 	Career Exploration Activities <ul style="list-style-type: none"> Part-time job 	Credentials & Certifications <ul style="list-style-type: none"> A.S. degree Microsoft Office Certifications SAP Certifications



“I want to work on the business side of IT as a CEO.” —9th grade student at BTECH

KEY STAKEHOLDERS AND PRINCIPLES OF PARTNERSHIP DEVELOPMENT

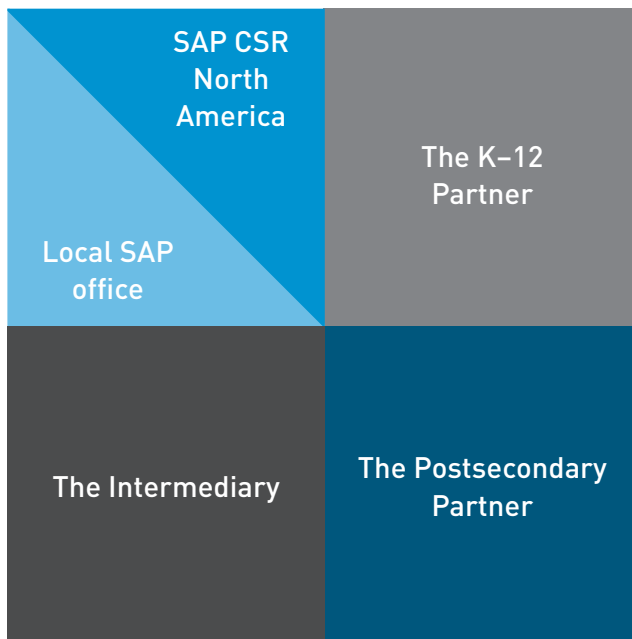
The main partners in an SAP education initiative include a high school, a community college or technical college, the local SAP office, other nonprofits, and possibly government entities. Individuals with decision-making authority and leadership roles from each stakeholder group need to be engaged early on in the process. Once those high-level individuals are identified, they may be convened for several conversations and meetings that familiarize potential partners with the basic vision for the initiative and expectations for all stakeholders.

Initial Meetings

1. Identify decision makers and leaders
2. Convene for initial meeting
3. Develop a core steering committee for more regular meetings

These initial meetings will give individuals the opportunity to ask clarifying questions and to understand the level of commitment and resources that will be required before they formally sign on to the partnership. This high-level group will not necessarily have to meet on a regular basis; rather, a core steering committee or work group will likely meet regularly, engaging the larger group on an as-needed basis and at critical junctures during the planning process. Figure 3, on page 9, gives a snapshot of the types of individuals who comprise the two levels of stakeholder groups, the main purpose of each, and the frequency with which they meet.

Figure 2. Intersection of All Partners



“Committed teachers have been **KEY**—many of them have been wanting to do this for years”
—Aaron Davis, Templeton STEM principal

THE K-12 PARTNER

The sites for SAP education initiatives will look different depending on the context of a particular school. Regardless of the specific characteristics of the school, it is important to have K-12 leadership at the district level who are supportive of the initiative. As indicated in Figure 3, these types of individuals might include the district superintendent, curriculum specialist, grants director, and/or director of special projects.

SCHOOL PRINCIPAL

If sites are planning to select a new principal to launch the initiative, this level of buy-in from the district is essential for identifying the appropriate leader, however, it is not required that SAP education initiatives involve hiring a new principal. An existing school leader who has the interest, experience, and capacity to implement a new initiative while juggling her or his other administrative responsibilities for the general school population can be just as well-suited for the job. While the New York

City Department of Education recruited a new principal with previous experience as a founding principal to open BTECH, both C-Town Tech in Boston and Templeton STEM in Vancouver were initiated by current principals who sought out the opportunity to partner with SAP as a way to raise the rigor and reputation of the entire school.

PATHWAYS COORDINATOR

The K-12 partner also identifies a full-time staff member to carry out the role of “pathways coordinator.” Ideally, this individual is already familiar with the school setting and district policies and also has experience working directly with students. The pathways coordinator plays a pivotal role in liaising between the school principal and other stakeholders, in addition to executing many of the logistical and administrative tasks throughout the planning and implementation process. The individual is also the primary point of contact for the local SAP office and coordinates with SAP employee ambassadors to plan job shadows and other opportunities for students to connect with current employees.

Figure 3. Two Levels of Stakeholder Groups and the Main Purpose of Each



THE POSTSECONDARY PARTNER

Postsecondary institutions play an integral role in the partnership because of their ability to align curriculum, share college faculty, and award dual credit for college-level courses. Acceleration through college-level course work and/or exposure to a college environment are key levers in SAP education initiatives. In fact, students who take courses on the postsecondary institution's campus will often have an official college I.D. card. This signifies that these students are prepared for college-level coursework and held to the same standards as the older students in the class. Beyond the time and cost-saving benefits of taking college classes, getting to experience the college environment and see the range of possibilities after high school can help students stay motivated throughout high school.

In addition to awarding college credits to students, the postsecondary partner may also cover the cost of tuition for these courses. It is possible for the postsecondary partner to share the cost of tuition with the K-12 school district or other stakeholders, but typically the college is instrumental in brokering this arrangement. The postsecondary institution involved in the SAP partnership is also responsible for becoming a member of SAP University Alliances. It is important to note that SAP will not consider a postsecondary institution for the partnership unless the college is already a member of University Alliances, or is in the process of securing funding and applying for membership.

Postsecondary partners are also significant because of their relationship to business and industry and their institutional missions to strengthen regional workforce development. The college should continue to serve as a liaison for regional employers and develop a plan for extending those relationships and professional opportunities to high school students in order to meet STEM workforce needs. It is important for college presidents to be involved because they have the authority to approve things like classroom space, dual enrollment, and instructor costs. College presidents are also visible community leaders who can communicate to the public and other potential partners the long-term, large-scale investment the college is bringing to the partnership.

SAP

CORPORATE SOCIAL RESPONSIBILITY AT SAP

The CSR team from SAP plays a hands-on role throughout the planning and implementation process. At the same time, SAP firmly believes that the partners on the ground must own the work and approach the initiative with plans for long-term sustainability in mind. In addition to providing start-up funding, SAP supports the initiative by leveraging a variety of non-financial assets such as job shadows at local SAP offices, linkages to companies in SAP's ecosystem, professional mentors, and curriculum mapping to in-demand SAP jobs and other technology occupations.

MENTORSHIP

Mentorship is a cornerstone of SAP education initiatives. Access to working professionals in the field is often a key piece missing from the high school experience, yet these individuals can have a profound effect on a student's college and career trajectories. While many aspects of SAP education initiatives respond to local contexts and school-specific circumstances, mentoring is an element of the model that is consistent across partnership sites. SAP's belief in the power of mentorship is a core tenet of the company.

SAP has partnered with a nonprofit organization called iCouldBe that specializes in developing online professional mentoring platforms for youth. Working side-by-side with iCouldBe design experts, educators, and software developers, SAP's CSR team co-created a scalable mentoring program that has the ability to link every

Mentorship

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- SAP's CSR team co-created a scalable mentoring program that has the ability to link every student participating in an SAP education initiative to a global network of SAP employees that are eager to help support students throughout their academic and professional journeys.

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SAP, iCouldBe, and school sites have carefully considered the point at which students begin engaging with mentors during high school. A sequence of career exploration activities and professional skill-building is a cornerstone of the SAP education initiative model. In earlier years, these experiences will likely be broader in focus, with the goal of exposing students to a range of careers and professional environments. As students move through the pathway, however, the expectation is that they will begin to hone in on more specific professional interests. The type of personalized professional mentorship and one-on-one interactions found in the iCouldBe platform are especially designed to support students during these later stages in high school—around eleventh and twelfth grades—when students may have a clearer idea of their career goals, but need help putting the pieces together into actionable steps.

UNIVERSITY ALLIANCES

SAP education initiatives can also access resources available through SAP University Alliances membership. As mentioned earlier, the partnering postsecondary institution is the point of contact for University Alliances, and the high school can work with college personnel to learn more about the vast range of resources associated with the program, which includes more than 2,000 universities in 80 countries.

UNIVERSITY ALLIANCES OFFERINGS

- Licenses to SAP products
- Access to training materials and curricula for courses that lead to SAP certifications

While knowledge of SAP products will be useful for students who aspire to work at SAP, these certifications are marketable to a range of employers who use SAP products. This value-add is especially relevant to SAP partnerships with high schools because students taking college-level courses will be able to gain these skills and certifications and apply them to internship experiences.

In addition, University Alliances can connect students to the broader University Alliances community of students across the globe and give them opportunities

to participate in exciting events like Codejams, Entrepreneurship Bootcamps, and Design Thinking workshops.

THE INTERMEDIARY

The partnerships associated with SAP education initiatives are complex, with multiple moving parts. While different stakeholders may enter the partnership committed to new kinds of collaboration, the day-to-day project management functions for the initiative throughout the planning and implementation process can be challenging to navigate and maintain. Given the staff time required to convene stakeholders, an intermediary organization can increase the partnership's capacity by providing additional human resources to move the initiative forward and support open channels of communication across stakeholder groups.

- At BTECH in **New York**, the CUNY system, through its Early College Initiative, already had the infrastructure needed to take on some of the convening and project management responsibilities as the partnership formalized.
- In **Boston**, SAP enlisted the support of Jobs for the Future—a national workforce and education intermediary with experience helping regions build grades 9-14 career pathways to facilitate much of the initial planning and program development.
- Career Ladders in **Oakland** is working with the high school and community colleges involved with an SAP education initiative in the Bay Area that will also open its doors in fall 2015. In each case, the intermediary organization is structured differently and has a slightly different central core mission; however, what they share is a deep knowledge of the communities in which these schools are located.

Another benefit of working with an organization that can perform these intermediary functions is that it often grants access to additional networks and organizations in the community, including robotics competitions and STEM camps in the summer or other sector-based professional associations. It is important for the partnership to connect with a diverse community of people and places that can enhance students' experiences in the pathway, since the educational institutions and SAP alone may not have the capacity to provide the number of enrichment experiences necessary to reach all students on a regular basis.

These intermediary organizations can also share resources like toolkits and guides that may be used as professional development materials for instructors and administrators around project-based and work-based learning. Finally, partnering with local organizations with mission statements that align with the guiding principles of SAP CSR initiatives can set the stage for mutually beneficial opportunities to receive external grant funding. SAP will support schools in vetting and selecting the appropriate intermediary organization that can act as a neutral convener and signals to all stakeholders that this organization has the ability and experience to understand the needs of students, educational institutions, and employers.

LOCAL GOVERNMENT (OPTIONAL)

It is often beneficial to have the support of the Mayor's office for the partnership and to have local government represented in the stakeholder group, though it is not a "must-have" to implement a successful SAP education initiative. The main benefit of having the Mayor's office involved is that it brings credibility to the initiative and signals to the public that the city is backing a "high-stakes" investment in education. Partners and people may be more likely to join meetings and offer support knowing that high-level city officials are engaged. In addition to reinforcing the long-term vision for these initiatives, local government can also be a source of additional funding if building career pathways for young people aligns with the Mayor's broader goals around education and/or economic and workforce development. In some cases, support from local government has been built into the initiative's long-term sustainability plan.

THE PARTNERSHIP MEMORANDUM OF UNDERSTANDING

The Boston Mayor's Office and C-Town Tech

In September 2014, Boston Mayor Martin J. Walsh appointed Rahn Dorsey as the City's first chief of education. The timing of this newly created role in the Mayor's office proved to be fortuitous for C-Town Tech, since the objectives of SAP education initiatives directly align with the Mayor's goal of creating more pathways for young people to the city's middle-skills jobs in technology. The creation of a chief of education has provided a clear channel of communication between stakeholders on the ground and the Mayor's office. Since his appointment, Dorsey has played an active role in meetings and in building public awareness for C-Town Tech during its planning year. In January 2015, the press release announcing C-Town Tech and the partnership with SAP came from the Mayor's office.⁵

The memorandum of understanding is a key document that provides the "glue" to solidify the partnership among the core stakeholders described in this section. The MOU serves both practical and symbolic purposes in that it outlines baseline commitments and responsibilities for each partner involved. It also makes these commitments of the agencies and organizations to the education initiative visible to the community. Samples of MOU guidelines are in the appendix.



TIMELINE: MILESTONES AND DELIVERABLES THROUGHOUT THE PLANNING PROCESS

Before any site interested in partnering to develop an SAP education initiative begins to seriously consider planning and implementation, it is recommended that a team of individuals conduct an initial self-assessment exercise to gain a general sense of the undertaking ahead. “Key Questions to Ask Upon Beginning an Initiative” are a set of questions to facilitate this self-assessment. Answers to these questions, and the first one in particular, are essential pieces of information that will inform the creation of the partnership and the long-term impact of the initiative.

KEY QUESTIONS TO ASK UPON BEGINNING AN INITIATIVE

- ▶ How will this program work into the master schedule?
 - ▶ When will students begin taking college-level courses?
 - ▶ What are the requirements for adjunct faculty? Will we utilize our own teachers to teach or ask a faculty member at the community college to teach at the high school? How will union contracts affect these arrangements?
 - ▶ What student supports in terms of advising and academic resources do we already have and what new ones will we need to introduce?
 - ▶ Do we have the space and technology to introduce the model?
 - ▶ What external partnerships and relationships exist that could support aspects of the model, including recruitment and support?
 - ▶ What data are we already collecting and how could we use this to measure success? What new data should we be collecting?
 - ▶ What can we do in the summer to build a foundation for the work in the fall in terms of career exploration and professional development?
 - ▶ How do we leverage the resources we have? How can we use pass-through funds and other resources?
- ▶ What do we hope to be different as a result of this work?
 - ▶ What type of model will work best for our school?
 - » A school within a school
 - » A pathway within a school
 - » A separate school
 - » A cohort model beginning in the ninth grade or other later grades
 - ▶ What degrees and programs of study at the postsecondary institution best align with the goals of the partnership?

THE 18-MONTH PLANNING PERIOD

In general, new sites should expect at least an 18-month planning period prior to the launch of an SAP education initiative. The initial planning months may focus on broad conversations about the goals and purpose of the partnership, what it means to partner with an employer, and identifying key stakeholders. Once a core steering committee or workgroup is identified, these meetings and action plans will begin to shift focus to the detailed logistics of what is needed to launch the initiative.

The following is a timeline based on the planning process at C-Town Tech in Boston. The listed tasks and activities are meant to be a rough guide to give a sense of what is involved and to help backwards map from when the initiative is launched. This is not a prescriptive timeline, as different sites will have unique challenges and circumstances based on their local context. A detailed timeline can be found in the appendix.



(photo) Job Shadow Day at SAP offices in Cambridge, MA

If students want to be here, and they feel safe, they will take that intellectual risk.”

—Hoa Tu, BTECH Principal



STRATEGIES FOR IMPLEMENTATION

EARLY ADOPTERS AND CHAMPIONS FOR CHANGE

Assembling a group of self-selecting early adopters comprised of the school principal, engaged instructors, and other likely partners is often a productive starting point to begin talking about the existing internal capacity available to support an SAP education initiative. In the case of some sites, the SAP education initiative has been introduced at district-wide school board meetings where a school leader self-selects to bring the partnership to her or his school. In other cases, SAP has worked directly with a school system to initiate the partnership and identify a school leader to implement the model at a new school site. Regardless the point of entry for the school leader or the school context, each site shares the same belief that having both the principal and key district-level and community college personnel brought into the conversation from the beginning is critical before any other components can begin to take shape.

There are numerous teaching styles and philosophies about learning and school culture that complement SAP's education initiatives. First, a central goal of the entire initiative is to help young people to understand how their educational experiences in high school will connect to a career, not simply what college they will attend. In doing so, the hope is that students, educators, and employers will see high school and college graduation, and eventually jobs, not as discrete milestones, but as fully integrated and interconnected experiences. Students are empowered to see real-world relevance in the classroom and more importantly, see themselves in well-paying, technologically advanced careers.

School personnel who hold similar beliefs about a student's educational journey may already be implementing some key elements of SAP education initiatives and are well positioned to serve as "early champions." Similarly, project-based learning, as well as collaborative group work and emphasizing the power of failure, are all cornerstones of the instructional design found in SAP education initiatives. Identifying the people who are already practicing some of these approaches can provide an effective springboard from which to enlist the support of other stakeholders.

LEADERSHIP

The high school principal at an SAP education initiative site must embody certain leadership characteristics that are conducive to the success and sustainability of the model. An appetite for innovation and taking risks are both qualities that each of the school leaders at current SAP education initiative sites possesses. Alongside this comfort with taking risks, school leaders must have the capacity to build trust and buy-in from within and around the school community. In addition to the instructors and staff who may be affected by changes in the master schedule, parents and families of students make up a key stakeholder group for which the school leader needs to develop a targeted outreach plan that ensures their voices are heard.

Principals must also think about how this partnership will fit into the goals of the school as a whole. For instance, in both Boston and Vancouver, school leaders have been transparent about their intention for this partnership to increase student enrollment. Consequently, as these school leaders invest time and resources in building out

the program for a subset of the school's population, they have also needed to think of the whole-school context. Mapping out how the entire school community will be integrated involves identifying creative ways for this partnership to raise the rigor and expectations for all students and ensuring that all students have access to the new resources and technology at the school as a result of the SAP partnership.

- In **Boston**, the headmaster is also thinking of access and equity within his school in terms of scaling the technology pathway to meet the anticipated demand from families and students after the first cohort of students enter C-Town Tech.
- At BTECH in **New York**, on the other hand, a set cohort of 110 students opted into this school's program, and will continue to move through the pathway as a new cohort of the same size enters each year until the school reaches capacity.
- At Templeton STEM in **Vancouver**, the school leader made the choice to begin with a relatively small number of eleventh and twelfth graders who spend half of their day in a STEM-focused pathway. Rather than expanding the pathway to include ninth and tenth grade students next year, the district responded to interest coming from middle school families, and will introduce a new cohort of students that will begin a STEM-focused course sequence in the eighth grade and continue throughout high school.



(photo) Students at the SAP SAPPHIRE NOW conference in Orlando, FL

In each case, the principals all agree that SAP initiatives add a substantial additional work, planning, and leadership responsibilities to existing workloads. These initiatives require a school leader who has the individual capacity, endurance, and commitment to manage competing

obligations and continuously build trust and buy-in as he or she leads the school community through the rollout of a new educational model.

CHANGES TO BUSINESS AS USUAL

While initially engaging a group of early adopters and champions is helpful to build a foundation, bringing on key personnel—like curriculum specialists, department heads, and instructors who will be teaching core subjects like math and English for dual credit—is often where potential obstacles like financial constraints and scheduling are revealed. Consequently, initiating conversations around curriculum and skills mapping to technology jobs during the first few months of the planning year will help partners be proactive about addressing these challenges. Typically these conversations will also reveal the type of auxiliary academic support that students may need and what alterations to the master schedule will need to occur in order to accommodate the pathway's scope and sequence. Additionally, this process will also prompt stakeholders to work out issues like whether students will have time and space in their schedules to take electives or to participate in after-school sports and other activities.

PROFESSIONAL DEVELOPMENT

After a core group of stakeholders have met and begun the planning process, SAP offers professional development opportunities that current partnerships have found instrumental in honing in on the goals of their programs and pathways. SAPPHIRE—SAP's annual conference that brings together thousands of SAP executives, customers, partners, students, and schools—is an event that allows individuals from existing SAP education initiatives to network, learn from each other, and share best practices, as well as learn about the different SAP products, understand SAP's larger ecosystem of customers, and connect with SAP's CSR team.

At BTECH, the New York Department of Education allocated funding for new school leaders across the district to participate in a one-year, paid fellowship to plan and prepare for their new positions. During this time, BTECH's principal had the opportunity to research different models for instructional design, work with SAP staff around "design thinking" workshops, and participate in an externship at the SAP office to better understand the types of skills and competencies required for jobs in the technology field. Moreover, this experience allowed the new school principal to better understand the specific type of workplace culture in companies like SAP.

Both SAPPHERE and the New York City Department of Education Fellowship are examples of intensive professional development that require substantial time and resources to execute. In addition, SAP education initiatives are expected to integrate ongoing, less intensive professional development opportunities to ensure continuous improvement. For example, giving instructors common planning time to coordinate lesson plans in a collaborative environment and organizing one-day externships are examples of professional development that could be offered on a more frequent basis. Regardless of the type of professional development, it is important for schools to consider the cost of substitute teachers and transportation to offsite events and to have dedicated line items for such activities when drafting a budget.

Principals and other district-level employees involved in the partnership should familiarize themselves with any flexible funding sources that might lend themselves to professional development. At Templeton STEM in Vancouver, for example, the principal was able to use funds from a line item reserved for “inquiry-based activities” to offer additional collaborative and interdisciplinary lesson-planning time for teachers. Another cost that should be considered is how instructors’ time may be used differently, and as a result, what type of new contracts will need to be drafted. For instance, if postsecondary instructors will be asked to teach courses on the high school’s campus, or if teachers or current technology specialists are asked to be involved in a summer bridge program, each institution will need to agree on how to cover the cost of instruction beyond instructors’ existing terms of employment.

MARKETING AND COMMUNICATIONS

As the steering committee and other partners solidify key elements of the curriculum’s scope and sequence, it will also be important to develop a marketing plan to reach a range of different audiences. As the timeline in the previous section indicated, disseminating a press release early on that captures quotes from high-level city officials like the Mayor, as well as the school principal and other partners, is an essential first step to build publicity for the initiative. Prior to the opening of BTECH, the partners held a press conference to raise public awareness and deliver a unified message about the partnership and the vision for the school. These formal and public demonstrations serve a dual purpose: First, they are pragmatic as they reach audiences that may not otherwise intersect with the education sector. Second, they signal the importance of

FAQs About BTECH

Q: What is the net budget devoted to QCC’s involvement with the school? Where will this money come from?

A: The funding for this initiative is coming from an SAP grant for planning purposes, from a DOE/SED grant, and from a standing agreement that CUNY has with the DOE to establish all early college schools. Although allocation of funding for the DOE and QCC is still being determined, all college tuition and associated expenses will be supported by the funding. Additional grants are being written for future funding as well.

Q: Where will the QCC Courses be taught—on campus or the high school? Will QCC faculty be teaching them? Will the faculty be observed by QCC faculty? Will they be members of the PSC and CUNY or DOE?

A: The majority of courses will be taught at QCC. We hope to bus students to QCC. However, some courses may be taught at the high school. All QCC courses will be taught by QCC faculty and faculty will be observed as with any other accredited course of the college.

Source: Business Technology Early College High School, Early College Initiative, Frequently Asked Questions, <http://www.qcc.cuny.edu/b-tech/index.html>

these initiatives, what major players are involved, and what these young people and the community have to gain.

The secondary and postsecondary institutions involved in the partnership may also create messaging about the initiative to house on their respective websites. The postsecondary partner at BTECH, Queensborough Community College (QCC), for instance, has a thorough chronological history of how the initiative has evolved. QCC also decided to publish responses to a list of Frequently Asked Questions that came from questions posed by the college’s Faculty Executive Committee during one of the planning meetings.

Identifying and utilizing other media outlets like op-eds, blogs, and social media channels are also important actions associated with the active external communications strategy entailed in SAP initiatives. Perhaps more important, however, are the messages delivered to the school community, and in particular, families and parents. Currently, each SAP education

initiative site has developed its own branding for their initiative and has created pamphlets and brochures highlighting the unique aspects of the pathway. There is not a prescribed amount of funding that is needed for the development of these promotional materials. C-Town Tech in Boston enlisted the help of community college students enrolled in a marketing course to propose a marketing

plan, and the communications team at Jobs for the Future performed the design work. Consequently, there are several different ways to fund and brand these initiatives, but a clear marketing and communications strategy needs to be built into the work plan during the planning year. Refer to the appendix for full marketing samples.

Cost

Typical costs have been broken down into two categories, personnel and programmatic, which current sites have estimated during the planning year prior to a school opening:

Personnel Costs

- Pathways coordinator
- Community college pathway counseling services
- Stipends for faculty to develop and align curriculum
 - » High school faculty: 10 hours/week for 20 weeks
 - » Community college faculty: 10 hours/week for 20 weeks

Programmatic Costs

- Monthly working group/steering committee meetings: 4 meetings/month for 12 months

- » 2 high school faculty
- » 6 community college faculty
- Data analysis & reporting
- Summer bridge program/community college faculty stipend
- Marketing and promotional materials
- Staff time during recruiting events and info sessions outside of school time
- Computer lab modernization

RECRUITMENT

A targeted recruiting strategy will also need to be developed that takes into account how the school plans to attract and retain students and what district policies governing school choice are in place. Many strategies have proven to be effective at spreading the word about new education initiatives.

Sample Recruitment Strategies:

- Mailing promotional materials
- Delivering presentations at school board meetings
- Special events on weekends for parents
- Customized presentations and activities to engage middle school students
- Outreach to community-based organizations that work with middle school students, and bringing them to the high school or community college for an info session

Directly recruiting parents and students may often not be enough to reach a broad audience of potential students, so sites utilize the community-based organizations that may

already have relationships with students' families and can function as a recruitment liaison. SAP employees local to a region may participate in these recruiting events and fairs.

FUNDING AND SUSTAINABILITY

The funding of these initiatives will be different depending on the number of students, district policies, and what types of resources and personnel are already in place. While SAP's initial funding covers a significant portion of the start-up costs, each site enters the partnership with the full understanding that stakeholders will need to collectively raise and allocate additional funding each year to ensure long-term sustainability of the model.

Given the infrastructure that develops from the partnership, sites have also been well positioned to receive additional grant funding, or special line items in district budgets that have flexible uses. The partnership with SAP has also provided leverage for schools to partner with other software and technology companies to receive equipment grants and computer lab updates.



CONCLUSION

SAP education initiatives have laid the groundwork for the essential elements and conditions that need to be in place to foster collaborative partnerships between school systems and employers in the SAP ecosystem. There is still a significant amount of work that needs to be done by all stakeholders to sustain current initiatives and scale future ones. With this foundation set and many

lessons already learned, there are also opportunities for more companies, local and global, to join in this broader sea change effort to ensure all of our young people leave high school, with the professional experiences and exposure to careers and college programs that will help them un-tap their limitless potential as future STEM professionals and entrepreneurs.



The hope is that students, educators, and employers will see high school and college graduation, and eventually jobs, not as discrete milestones, but as fully integrated and interconnected experiences.

ENDNOTES

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² See: [http://changetheequation.org/sites/default/files/CTEq_VitalSigns_Supply%20\(2\).pdf](http://changetheequation.org/sites/default/files/CTEq_VitalSigns_Supply%20(2).pdf)

³ *Solving the Diversity Dilemma: Changing the Face of the STEM Workforce*. Change the Equation. 2015. <http://changetheequation.org/sites/default/files/2015%20Solving%20the%20Diversity%20Dilemma%20FINAL%206.2015.pdf>

⁴ Dr. Michael Webb, with Carol Gerwin. 2014. *Early College Expansion*. Boston, MA: Jobs for the Future. Available at: <http://www.jff.org/publications/early-college-expansion-propelling-students-postsecondary-success-school-near-you>

⁵ See: <http://www.cityofboston.gov/news/Default.aspx?id=18954>



School leaders must have the capacity to build trust and buy-in from within and around the school community.

APPENDIX

INTERVIEW WITH WILLIAM THOMAS,
HEADMASTER, C-TOWN TECH AT
CHARLESTOWN HIGH SCHOOL

TIMELINE

BROCHURES

TEMPLATES

PLANNING DOCUMENTS



An important message that students participating in SAP initiatives receive throughout their high school experience is that grades and test scores make up only a couple of many steppingstones on a path to a career.

INTERVIEW WITH WILLIAM THOMAS, HEADMASTER, C-TOWN TECH AT CHARLESTOWN HIGH SCHOOL

William Thomas, Headmaster, Charlestown High School

It's 1:30 p.m. in late July, summer school has just let out at Charlestown High School and the school's Headmaster, William Thomas, is in his office, surrounded by boxes and stacks of paper. "I'm trying to organize everything before the school year starts, since there won't be any time come fall." This coming year, Thomas will have an even fuller plate than he's had the past 7 years as an administrator at Charlestown High, with the launch of C-Town Tech—the school's first ever technology themed pathway. I am meeting Headmaster Thomas to talk about his experience planning and preparing for the high school's inaugural cohort of 9th graders participating in C-Town Tech.

As headmaster, Thomas explains that he has to simultaneously think about what C-Town Tech will look like and how it will operate both 5 weeks from now when school starts and 5 years from now once the pathway is fully established. This type of forward thinking is required for Thomas to rationalize the high per-pupil investment that his school is allocating to a relatively small subset of his entire school population. Thomas explains that dedicating staff to the C-Town Tech pathway, like a technology instructor who will only teach C-Town Tech students, is a substantial start-up cost that will pay off in the future as more students enter the pathway, but for now, it presents a strain on the budget. Similarly, from his perspective as a school leader, a huge part of visioning what the pathway will look like and how it will expand beyond the 30 slots currently reserved for a cohort of students entails making a well-informed estimate—or gamble—with the budget. For instance, Thomas will have to draft his budget for the 2016-2017 school year without knowing the enrollment demand for C-Town Tech—"it could be 60 or as many as 90 students depending on how popular the pathway becomes." It's a juggling act that Thomas says often feels like "building a ship as you're trying to sail it."

At the same time, Thomas is the first to admit he is one of many people both building and sailing this ship; and in fact, there are several people that he believes have been indispensable to C-Town Tech. SAP has provided numerous resources to support the planning process among different stakeholders, and given grants for new technology and summer programming for students preparing to enter the technology pathway. Additionally, SAP's physical presence at meetings and close contact with the people on the ground set the tone for the level of engagement

SAP brings to the partnership. Thomas recognizes that as a principal, he has a lot of the knowledge and foresight about how this pathway could evolve within his school, but understands that SAP's connection to the industry and market trends, will link his students to a world that extends far beyond the walls of Charlestown High school.

In spring of 2014, when Boston Public School's Assistant Superintendent and the President of Bunker Hill Community College approached Thomas, he knew this was a big deal. Having this level of senior leadership involved on both the K-12 and Postsecondary sides of the partnership Thomas says, is key to driving the work forward. Similarly, the Mayor's endorsement of C-Town Tech in his "State of the City" address, provided a substantial amount of political pressure on the initiative, sending the message that "this needs to happen, and it's important for it to be successful." But Thomas stresses, the support for the initiative cannot be entirely political or forced, especially coming from the district—"these have to be willing partners" who whole-heartedly believe in the partnership and "see it as something good" for the community.

Given Thomas' competing priorities as a headmaster, having a C-Town Tech "pathways coordinator" on his staff who is familiar with the school and can represent him at planning meetings has also been instrumental in allowing him to stay engaged in the process. Thomas also recognizes the impact the intermediary has on facilitating conversations and brokering important relationships across stakeholder groups. As a national nonprofit, with its headquarters based in Boston, Jobs for the Future, was able to play a particularly versatile role as an intermediary organization because of its strong relationship with Boston Public Schools and the Mayor's office, and the organization's previous experience brokering relationships between school systems and global companies in other major cities like New York and Chicago. Ideally, the intermediary is seen as a neutral convener with the expertise and credibility in the field to translate needs and priorities across different sectors. Thomas explains that JFF has been helpful because they are also seen as a collaborative stakeholder that brings all the right people together, but also has the authority and experience to "run with things" and "push back" when it's needed. Thomas' believes the intermediary has been effective because they did not come into the partnership saying, "we know how to

do this and we are going to tell you what do.” Rather, their approach can be characterized as, “we’re here, we’re going have some structure and some conversations to figure out how this will come together, and we’re going to do all of that together.”

Alongside the logistics and mechanics of planning for C-Town Tech, Thomas and other partners are expected to articulate what success means for the pathway and be able to trace all actions back to whether or not they are helping to achieve those goals for success. Thomas’ idea of success for C-Town Tech students is rooted in pragmatism. He understands that C-Town Tech has numerous features from which students will benefit—from the project-based learning and real-world problem-solving, to the direct exposure to careers in the technology field. The free college credit, linked to a program of study at the community college, however, is what Thomas sees as the cornerstone of the model. Thomas feels passionately that the opportunity to take college-level courses in high school has great symbolic significance for students and their families, but the courses also translate into concrete value in terms of the time and money students will save. The combination of college and high school also adds to the pathway’s ability to support a range of students’ plans after high school. Thomas explains that,

“If a student graduates from C-Town Tech and receives a full-ride to MIT or BU, then of course, that makes sense for them to pursue that option. However, if a student is accepted to another 4-year institution without the necessary financial aid, then it may be better for that student to finish up at Bunker Hill and transfer to a place like UMass Boston or UMass Amherst and complete their bachelor’s degree at a lower cost and in a shorter amount of time.”

As Thomas sees it, all possible outcomes for students are good options—they can either go straight to college, work and go to school, or focus on working and earning money before returning to school. In either case, upon graduation C-Town Tech students will have completed many of the general education courses that are thought of as the gatekeepers to college success. For Thomas, the main purpose of C-Town Tech is less about preparing all students to become engineers and programmers, and more about ensuring all students have made progress toward postsecondary education and their careers. Looking at the bigger picture and understanding that the city of Boston has numerous global companies in a range of sectors located in his students’ backyards, Thomas is energized by the thought of C-Town Tech students tapping into those

opportunities right after high school because of the skills and work experience they will gain by participating in the pathway.

Comfort with the unknown is a recurring common theme that surfaces as Thomas reflects on the past year preparing for C-Town Tech. Thomas tells me he began the process fully aware that SAP, the district, or any of the other partners could not promise funding for the pathway year-to-year at the onset. However, he knew the establishment of the partnership presented a strong network of support. Waiting is another theme that threads through Thomas’ experience. Many of the “unknowns” Thomas talks about with respect to the number of students his school will have the capacity to enroll, and the source of funding for scaling the pathway, will only be answered in time, once students and parents get a better sense of what C-Town Tech has to offer. Until then, Thomas and others must wait to see what level of demand for the Pathway results after the first year.

One of the largest unknowns, which will be more challenging to answer in the short-term, has to do with the success and popularity of C-Town Tech. Thomas says that he has explained the new Pathway to his entire staff, all of whom are on-board with it conceptually, but because it is not “real” yet, he believes that the teachers whose teaching loads will not be directly affected by the new pathway will need to see it first-hand before they have any strong opinions about their future involvement. If demand for C-Town Tech does increase at a rapid pace, Thomas says he will then have to initiate conversations with staff who teach in core content areas like English and Math about aligning that curriculum to the technology pathway in order to accommodate more students.

In spite of this need to be comfortable with both the unknown and the waiting game, Thomas stresses that equal amounts of faith and flexibility are essential to supporting the process. To Thomas, being flexible means that you have to make space for trial and error, and more importantly, learn how to bounce back quickly if you are not successful with one approach the first time. “It’s about having a vision of where you want to be at the end and seeing all the different ways to get there.” It is clear that where and how all the resources for C-Town Tech will flow into the school is one of the more concerning “unknowns” with which Thomas struggles, but ultimately he firmly believes that “you have to have faith it’s going to work out, and be comfortable with things being murky at times, but know you have a lot of smart people around you working together to make sure it does work.”

18 MONTH PLANNING PERIOD TIMELINE

18-Month Planning Period Timeline

Season	Spring		Summer		Fall			Winter			Spring		Summer			Fall/Launch		
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

SPRING: 18 MONTHS PRIOR TO LAUNCH

Months 1–2 (May, June)

- 1st monthly workgroup meeting
 - » What will this partnership look like & MOU discussion
- Action Steps for developing a 9-14 Pathway—six-month plan
- 2nd monthly workgroup meeting
 - » Roles & responsibilities of partners; SAP in attendance
- Draft description of initiative—initial technology pathways & partners involved

SUMMER: 14 MONTHS PRIOR TO LAUNCH

Months 3–4 (July, August)

- 3rd monthly workgroup meeting
 - » Pathways identification, planning for SAP Month of Service, MOU progress and marketing plan
- Description of responsibilities of all parties
- Draft pathways coordinator job description
- Join University Alliances and review membership website and resources.
- Review SAP job descriptions
- Draft work plan
- Draft pathway course scope and sequence

FALL: 12 MONTHS PRIOR TO LAUNCH

Months 5–7 (September, October, November)

- 4th monthly workgroup meeting agenda
 - » Course scope & sequence, Work-Based Learning, SAP Month of Service
- Draft MOU
- Marketing materials development
- 5th monthly workgroup meeting
 - » Course scope & sequence, recruitment, program name
- Draft scope and sequence (integrated with master schedule)
- Review college course syllabi and curriculum
 - » College algebra syllabus
 - » College writing syllabus
 - » Exit exam scoring rubrics
 - » Summary of exit exam process for English courses
 - » College-level course in program of study (e.g., Technology Problem Solving: An Implementation of Computational Thinking in Information Technology)
 - » Map out additional pathways and majors students could follow
- Larger Stakeholder Meeting
 - » Progress updates with larger stakeholder group (college president, Mayor’s office, SAP, etc.)
- Final project summary

WINTER: 10 MONTHS TO LAUNCH

Months 8–10 (December, January, February)

- Publish press release formally announcing initiative and partnership
- Create promotional brochures and marketing materials
- Plan “Recruitment Day” for families and students
- Finalize agenda for family/student info session
- Finalize MOU
- Compile any press and news related to initiative

SPRING: 8 MONTHS TO LAUNCH

Months 11–12 (March, April, May)

- Summer Bridge program planning
- Student recruitment and parent outreach
- Plan for teacher professional development
- Plan for SAP work experience program (ex: SAPPHIRE)
- Map out plan for work-based learning experiences in 9th grade

SUMMER: 4 MONTHS TO LAUNCH

Months 13–15 (June, July, August)

- Summer bridge program launch
- Teacher professional development
- Finalize work-based learning for first year

FALL-LAUNCH

Months 16–18 (September, October)

- Inaugural group of students start school

PARTNERSHIP MEMORANDUM OF UNDERSTANDING

It is common for the MOU to undergo several rounds of revisions before it is finalized. While it is ideal for the document to be signed several months before the launch of a school pathway, it is more important that all partners wholeheartedly agree to the division of responsibilities, since the MOU will be the primary mechanism for holding stakeholders accountable over an extended period of time. Regardless of how roles and responsibilities are distributed, there several key items that should be addressed in the MOU:

- Convening responsibilities
- Project management
- Pathways coordinator role (salary requirements, job description, who will hire this individual)
- Scope and sequence development
- Instructional design/Common Core alignment
- Funding for dual enrollment
- Recruitment
- Data analysis and sharing
- Employer engagement
- Scale and expansion
- Alignment to workplace skills and competencies
- Alignment to jobs
- Coordination of work-based learning
- Professional development
- SAP University Alliances membership guidance
- Marketing and communications
- Technology enhancements
- Faculty exchanges
- Summer programming and enrichment activities
- Academic and counseling support services
- Plans for sustainability

C-TOWNTECH

Charlestown High School

INFORMATION TECHNOLOGY

Aligned curricula allows for dual enrollment opportunities where students can earn a significant amount of college credit, at no cost to them, toward an AS degree in Information Technology from Bunker Hill Community College.



Contact Boston Public Schools

Charlestown High School
240 Medford Street
Charlestown, MA 02129

TEL: 617.635.9914 x138

FAX: 617.635.9928

EMAIL: ctowntech2015@gmail.com

WEB: www.charlestowntech.com



PATHWAYS



Connecting Career & College at Charlestown High School

In Boston, C-TownTech, is a six-year, career program for students from grades 9-14 that takes them through high school and two years at a community college.

C-TOWNTECH

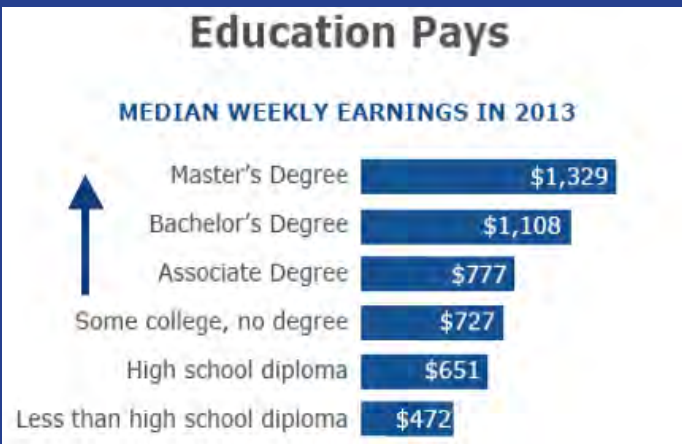
Charlestown High School

Dual Enrollment Advantages

- » FREE Dual Enrollment courses offered at Bunker Hill Community College
- » Mentoring, advising, and tutoring
- » Collaboration and employer activities
- » Arranged internships
- » Hands-on simulations and prototype building
- » Significant financial savings
- » Seamless college admission

Information Technology

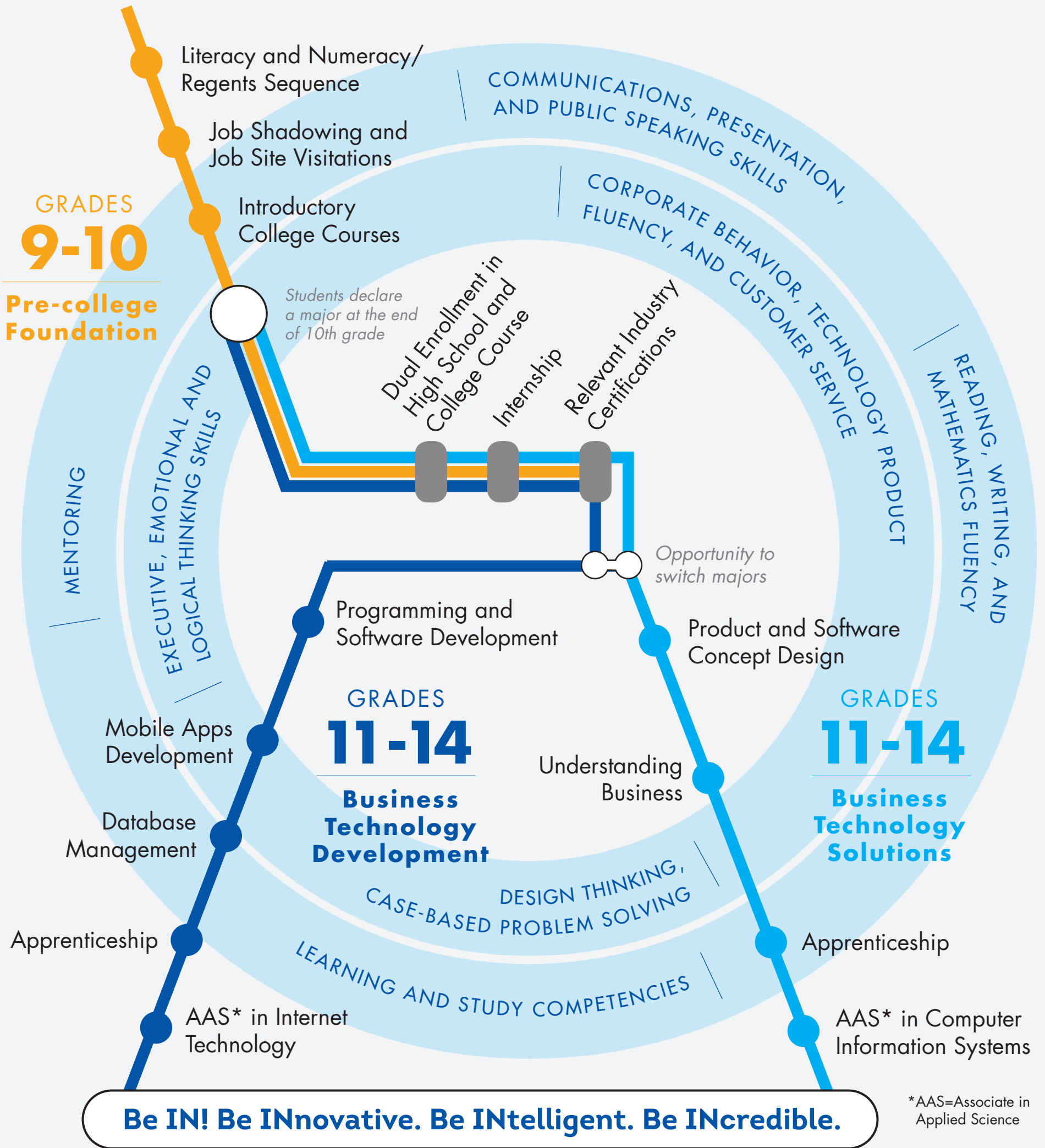
Once students choose Charlestown High School as their high school and sign up for the IT program, C-TownTech, they will immediately take a series of courses to build skills and knowledge in Information Technology and 21st century skills, such as collaboration and problem solving.



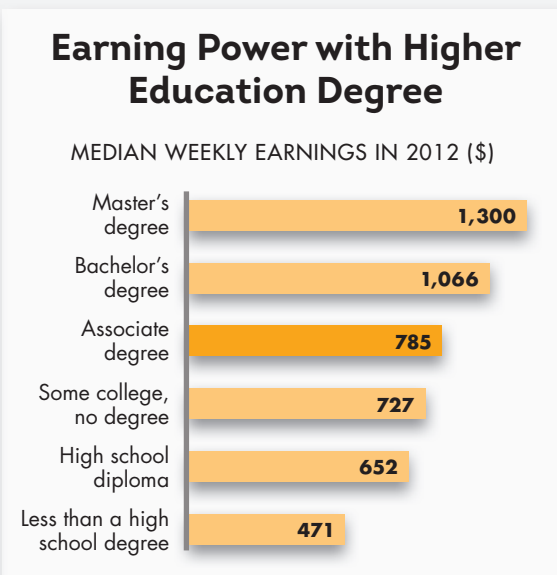
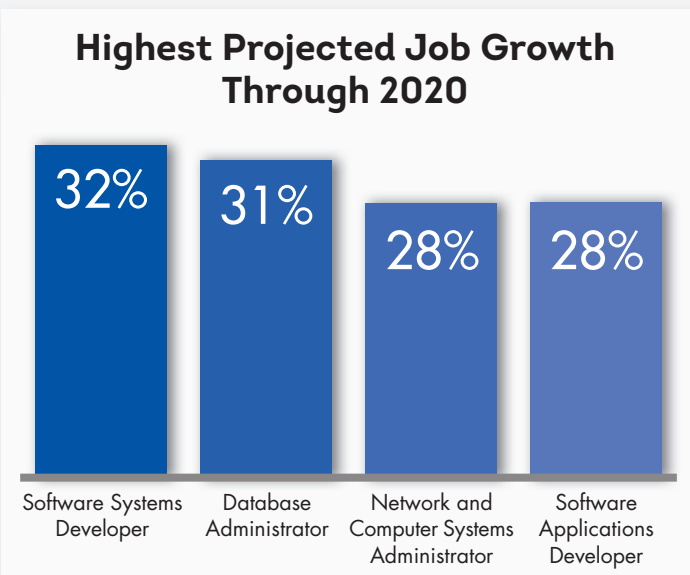


BUSINESS TECHNOLOGY EARLY COLLEGE HIGH SCHOOL

In Partnership with **SAP** and **Queensborough Community College**



*AAS=Associate in Applied Science



Cost-Free Associate Degree

The 9-14 Program with BTECH	vs.	Typical path for a high school diploma and an AA degree
NYC high school diploma + CUNY AA degree + SAP internships = 6 years + \$0 (Significant financial savings, seamless college admission, and arranged internships)		NYC high school diploma = 44 credits in 4 years CUNY AA degree = 60 credits in 2 years + \$18,899.00** Industry internships = Secured on your own time

**For more information, visit www.cuny.edu/admissions/tuition-fees.html#undergradfees



Science Technology Engineering Mathematics

STEM

Tech-Engineering and Design



STEM stands for **S**cience, **T**echnology, **E**ngineering, and **M**athematics.

The STEM program combines all of these subjects and applies them toward learning how to solve hands-on engineering problems in Technology, Mechanics, and the Environment. It is a four-course project based program.

Should I apply?

If you are passionate about science, technology, and/or hands-on problem solving, this is for you! It provides great experiences and preparation for anyone considering a career in engineering or design.

All grade 11 students are eligible to apply to STEM 11. All grade 12 students are eligible to apply to positions that open in STEM 12. Selections will not be based solely on grades.

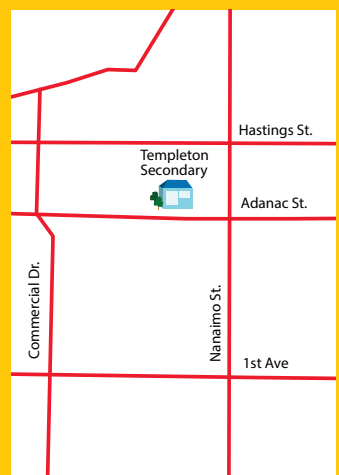
Templeton Secondary School

Address:
727 Templeton Dr.,
Vancouver,
British Columbia,
Canada V5L 4N8

Tel: (604) 713-8984

Fax: (604) 713-8983

Website: <http://templeton.vsb.bc.ca>



Questions?

Please contact the school **Principal, Vice-Principal** and **any STEM teacher/administrator** for specific inquiries or questions.

Tel: (604) 713-8984

Learn more about The District
www.vsb.bc.ca



What will my schedule look like?

	Grade 11	Grade 12
S = Science	Physics 11	Physics 12
T = Technology	Computer Science 11	Robotics 12
E = Engineering	Engineering 11	Engineering 12
M = Math	Math 11	Math 12
	English 11	English 12
	Social Studies 11	*Elective
	*Elective	*Elective
	*Elective	*Elective

Day 1	Day 2
Math/Science	2 - 1 (Electives) 2 - 2 (Electives)
Lunch	Lunch
1 - 3 (Electives)	Engineering/Technology
1 - 4 (Electives)	

*Electives: If you plan to go into engineering, you must also take Chemistry 12. Although it is not a requirement, either Calculus 12 or AP Calculus AB is strongly recommended for the engineering option.

What is project-based learning?

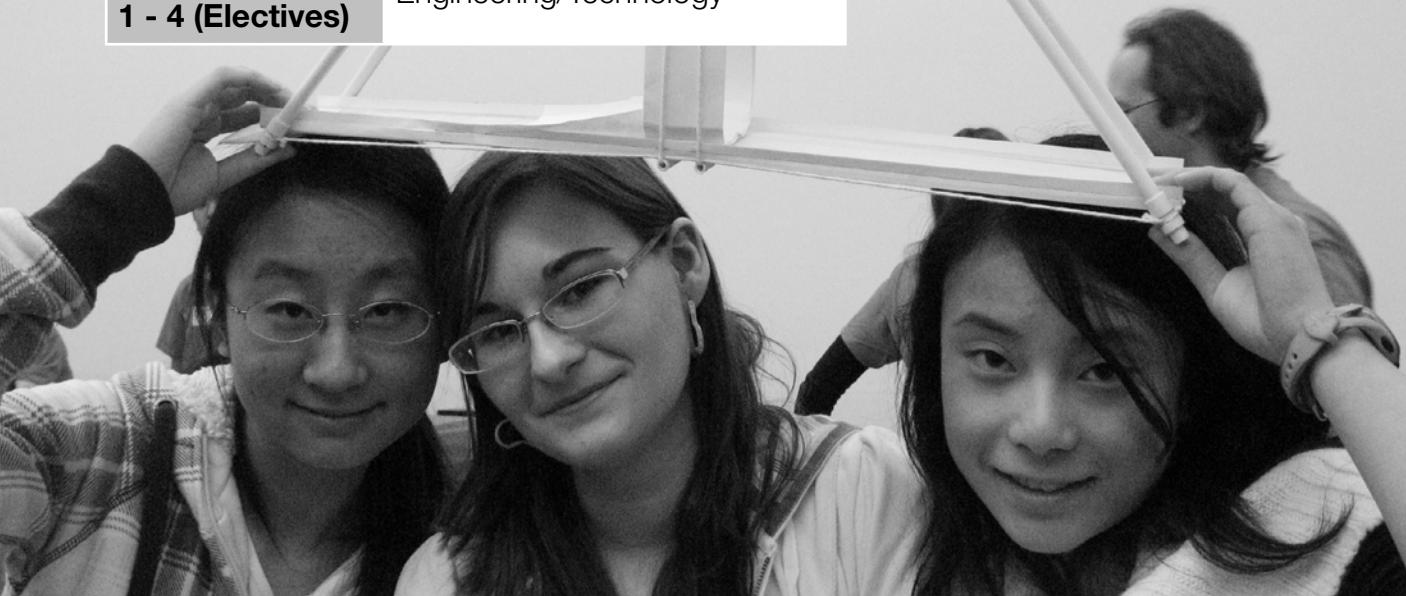
Project-based learning is designed to allow students to explore individually or in groups subject material in a relevant, engaging format that promotes deep understanding. Students learn practical design and fabrication skills to create and explore a concept that integrates related mathematical, technical, and science theory. Areas of exploration include mechanical, aerospace, civil, electrical, environmental, and geotechnical/mining engineering along with computer science and programming.

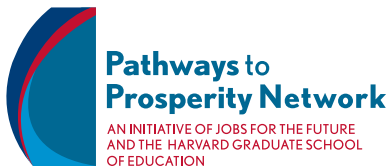
How does STEM improve my options after secondary school?

Many post-secondary institutions now utilize broad based admission criteria that takes into consideration skills and a portfolio of work that are not reflected solely by academic grades. Templeton staff have collaborated with BCIT, UBC, SFU, and industry partners such as SAP, so that our STEM program delivers the skills, knowledge and expertise that are the requisite expectations for future students and employees. Examples include complex problem solving ability, technical expertise, and communication skills. This program has been designed to develop your skills to stand out in any engineering, science, design program or STEM career.

How will I be evaluated?

Your STEM assessment is a variety of project grades and "traditional" forms of assessment. Clear scoring rubrics are provided for all evaluations. If you do well in Mathematics, Science and have a desire to better understand the role of technology and science in society, you will do great in STEM 11/STEM 12!





MEMORANDUM OF UNDERSTANDING

August 2014–August 2016

9-14 IT Pathways Partnership

The 9-14 IT Pathways partnership seeks to ensure that many more youth complete high school and attain a postsecondary credential with currency in information technology industries. To attain this goal, SAP, Jobs for the Future (JFF), Boston Public Schools (BPS), Bunker Hill Community College (BHCC), Boston's Mayor Office, and the Boston Private Industry Council (PIC) (together, "the Parties") are developing a six year, grade 9-14, career pathway for students from high school through community college, and into the IT workforce.

STATEMENTS OF AGREEMENT AND COLLABORATION

Jobs for the Future will:

- Convene and be an active and equal partner on the steering committee. The steering committee is comprised of members from SAP, Jobs for the Future (JFF), Boston Public Schools (BPS), Bunker Hill Community College (BHCC), the Boston Private Industry Council (PIC), and the Boston Mayor's Office (Mayor's Office). The steering committee will contribute to the continuous process of high-level decision-making that will be necessary to create and promote the success of the 9-14 IT pathway at Charlestown High School (CHS) and BHCC as it evolves.
- Lead overall project and timeline including managing schedule, meetings and roles of each of the partners to drive project.
- Partner with BHCC and CHS toward the development of a scope and sequence of courses in a defined 9-14 IT pathway. This scope and sequence will include curriculum mapping between BHCC and CHS. Curriculum should include an instructional approach or framework focused on rigorous instruction that is aligned with the Common Core

Memorandum of Understanding

standards and the college-readiness standards of BHCC, and includes the acquisition of job readiness skills.

- Organize and facilitate the SAP IT career pathways instructional design planning, in partnership with CHS and BHCC staff and faculty.
- Work with CHS, SAP and the Boston PIC to develop a coherent scope & sequence of workplace experiences that will successfully prepare students for internships in the IT industry.
- Work collaboratively with CHS and the Boston PIC to create integrated classroom activities focused on work-based experiences and provide opportunities for students and teachers to visit SAP and other related companies to obtain information and resources on work-based learning that can be embedded into the IT Pathways.
- Support the recruitment plan to promote program to students before launch.
- Conduct data analysis and needs gathering in order to inform our work and identify areas for improvement.
- Design and/or support other key program components and features including student assessments and supports, scheduling, summer programming and other relevant policies and procedures.
- Recommend and design professional development and instructional improvement plans that engage teachers and school leaders in ongoing, embedded professional development tied to IT career pathways.
- Work with SAP and the Boston PIC to establish a comprehensive SAP employee engagement model.
- Identify other funding or professional opportunities that will allow the IT pathways program to implement creative, educationally sound programming and activities that will enrich the IT pathways experience for participating students.
- Working with the Mayor's Office and others, identify other opportunities for expansion of pathways programs in the City of Boston.
- Advise and support external joint communications plans for the initiative.

SAP will:

- Be an active and equal partner on the steering committee.
- Work with BPS, BHCC, JFF, the Mayor's Office, and the Boston PIC to develop goals, scope of work, and activities implementation schedule (to be reviewed and redeveloped over the life of the partnership).
- Assist in the creation of a skills map that aligns technical skills and workplace competencies with college partner offerings and other curricular resources.
- Agree to share data and participate in interviews, surveys and focus groups in order to analyze our work and identify areas for improvement.
- Assist in the coordination of a work-based learning curriculum sequence.

Memorandum of Understanding

- Provide work-based learning experiences, including internships, job shadowing, apprenticeships for students and look for ways to integrate SAP technology into classroom learning (via UA or other)
- Participate in professional development for teachers where appropriate such as providing externships for teachers, networking and other relevant industry event experiences for teachers or brainstorming sessions around project-based learning.
- Guide BHCC through University Alliance membership process to fully integrate the school
- Provide professional mentors for students in the technology tracks at Charlestown high school and teachers that are part of the program.
- Determine level of engagement, together with Charlestown High School, for other volunteer projects the school may need on an ad hoc basis
- Consider CHS and BHCC graduates for employment upon graduation from postsecondary.
- Work within the SAP ecosystem to provide program graduates with direct ties to employment opportunities at SAP partners, customers and ASUG user group companies.
- Partner with additional industry partners to provide a broader array of opportunities, comprehensive industry perspective, and long-term sustainability.
- Develop and drive internal and external joint communications plans for the initiative.

Bunker Hill Community College will:

- Be an active and equal partner on the steering committee.
- Work with BPS, SAP, JFF, the Mayor's Office, and the Boston PIC to develop goals, scope of work, and activities implementation schedule (to be reviewed and redeveloped over the life of the partnership).
- Partner with CHS and JFF toward the development of a scope and sequence of courses in a defined 9-14 IT pathway. This scope and sequence will include curriculum mapping between BHCC and CHS. Curriculum should include an instructional approach or framework focused on rigorous instruction that is aligned with the Common Core standards and the college-readiness standards of BHCC, and includes the acquisition of job readiness skills.
- Take the lead in the development of new courses to meet the needs of the pathway if there are gaps in the defined scope and sequence.
- Agree to share data and participate in interviews, surveys and focus groups in order to analyze our work and identify areas for improvement.
- Work with the BPS to identify a process to implement dual enrollment academic/technical programs.
- Offer identified IT courses for 11th and 12th grade students participating in the partnership for college credit on the BHCC campus.
- Collaborate with BPS to find cost structures, so students will not have to pay for courses.
- Integrate SAP University Alliance materials into the classroom as appropriate.

Memorandum of Understanding

- Support faculty exchanges between BPS and BHCC faculty to ensure effective implementation of pathways curriculum, and as ongoing support for each other and participating students.
- Make IT-related professional development opportunities available to CHS faculty.
- Support the recruitment plan to get students interested in program before launch
- Support communications plan – media, community and government leaders
- Develop a comprehensive student support plan, in collaboration with the BPS that provides tutoring, intensive, sustained advising on college and career, and student centered support structures.
- Attend and participate in team meetings.
- Work with JFF and PIC in identifying internships for students both at CHS and BHCC; offer the in class portion of the internship experience.

Charlestown High School/Boston Public Schools will:

- Be an active and equal partner on the steering committee.
- Work with BHCC, SAP, JFF, the Mayor’s Office, and the Boston PIC to develop goals, scope of work, and activities implementation schedule (to be reviewed and redeveloped over the life of the partnership).
- Agree to share data, with appropriate parental consent and/or specific data sharing agreements in place, and participate in interviews, surveys and focus groups in order to analyze our work and identify areas for improvement. NOTE: Depending on data sharing requests, additional agreements may need to be established as an addendum to this agreement.
- Partner with BHCC and JFF toward the development of a scope and sequence of courses in a defined 9-14 IT pathway. This scope and sequence will include curriculum mapping between BHCC and CHS. Curriculum should include an instructional approach or framework focused on rigorous instruction that is aligned with the Common Core standards and the college-readiness standards of BHCC, and includes the acquisition of job readiness skills.
- Provide appropriate opportunities within the established School Master Schedule to embed appropriate educational activities that support the academic focus of the IT pathway.
- Support faculty exchanges between BPS and BHCC to ensure implementation of pathways curriculum will result in a rigorous, integrated academic pathways program for participating students.
- Work collaboratively with JFF and the Boston PIC to create integrated classroom activities focused on work-based experiences and provide opportunities for students and teachers to visit SAP and other related companies to obtain information and resources on work-based learning that can be embedded into the IT pathways.
- Collaborate with BHCC to find cost structures, so students will not have to pay for courses.

Memorandum of Understanding

- Develop and drive recruitment plan and program to get students interested in the program before launch.
- Develop a comprehensive student support plan that provides tutoring, intensive, sustained advising on college and career, and student centered support structures.
- Create opportunities for teachers to develop curriculum enhancements and participate in professional development that will result in a rigorous, integrated academic program that is embedded in the IT pathways.
- Work with BHCC to identify a process to implement dual enrollment academic/technical programs.
- Involve SAP and others in school sponsored activities and events that encourage and support parental engagement in the education of their children, increase student learning, and improve graduation rates.
- Support communications plan – media, community, and government leaders.
- Support the liaison position after SAP funding ends.
- Manage mentoring program

Boston Private Industry Council will:

- Be an active and equal partner on the steering committee.
- Work with BPS, BHCC, SAP, JFF, and the Mayor's Office to develop goals, scope of work, and activities implementation schedule (to be reviewed and redeveloped over the life of the partnership).
- Agree to share data and participate in interviews, surveys and focus groups in order to analyze our work and identify areas for improvement.
- Work collaboratively with SAP and other organizations to coordinate their engagement in pathways activities and events for participating students.
- Identify employers in the IT industry to partner with the program to ensure a broad array of work-based experiences for participating students.
- Work collaboratively with JFF and faculty at Charlestown High School to create integrated classroom activities focused on work-based experiences and provide opportunities for students and teachers to visit partnering employers.

City of Boston Mayor's Office will:

- Be an active and equal partner on the steering committee.
- Work with BPS, BHCC, SAP, JFF, and the Boston PIC to develop goals, scope of work, and activities implementation schedule (to be reviewed and redeveloped over the life of the partnership).
- Promote and market the initiative to relevant stakeholders.
- Identify other funding or professional opportunities that will allow the IT pathways program to implement creative, educationally sound programming and activities that will enrich the IT pathways experience for participating students.

Memorandum of Understanding

- Identify opportunities for expansion of pathways programs in the City of Boston.
- Support communications plan – media, community, government leaders

The Parties understand that if any procurement of supplies and/or services by the City of Boston or the Boston School Department is undertaken pursuant to this agreement, all such procurement must be in accordance with the procurement laws of the Commonwealth of Massachusetts, including but not limited to Massachusetts General Laws Chapter 30B.

This document covers the period from August 1, 2014 – August 1, 2016.

SIGNATURES:

Bunker Hill Community College

Date

Boston Public Schools

Date

SAP

Date

Boston Mayor's Office

Date

Boston Private Industry Council

Date

Jobs for the Future

Date

Action Steps for Developing a 9-14 Pathway Six Month Plan

Focus Area	Deliverable/Outcome	Action Steps/Question to Consider	Specific Tasks	Who is responsible	Timeline
Work Planning	Broad stakeholder engagement in the initial planning of the SAP/BHCC/Charlestown 9-14 pathway	Identify the planning team. Stakeholders should include: <ul style="list-style-type: none"> • JFF lead • Representatives from Charlestown High School • Appropriate Bunker Hill Community deans, department chairs and faculty • SAP Representatives • Boston Public School curriculum, instruction, and assessment staff • Boston Public Industry Council representative • Do we need a part-time liaison to coordinate amongst key institutions? • Other? 	Identify planning team members Convene first planning meeting	All key stakeholders	May
	A single planning team that regularly divides into focused working groups, specifies division of roles and tasks and connects plans across institutions	Determine the planning team’s working process and meeting schedule: <ul style="list-style-type: none"> • Is each person’s role clearly defined? • How often will the team meet? • What will be the content and format of meetings? • How will team members collect and share feedback from other stakeholders from their sector? 	Develop planning team process and communication protocols	Planning Team	May-June

Six-Month Action Plan

		<ul style="list-style-type: none"> How will team members communicate back to all key stakeholders? Will there be other meetings scheduled with all key stakeholders? 			
Program Design	Determine what a partnership will look like short-term for one or two IT pathways	<p>Determine the design of the program:</p> <ul style="list-style-type: none"> What do we hope to be different as a result of this work? What are some short-term and long-term targets? Would we work with one small learning community at Charlestown High? What would that look like? Would we start with a 9th grade cohort in the fall of 2014, for example? How do we begin the process of curriculum alignment between BHCC and Charlestown? What has already been done? Given what you know of SAP thus far, what would be your priorities for initial collaboration? What are some short-term work-based learning opportunities? What are long-term opportunities? For example, mentoring, job shadowing, etc. What can we do in the summer to build a foundation for the work in the fall? Are internships in place? What about professional development? How do we leverage the resources 	<p>Draft a scope of work</p> <p>Draft short-term and long-term work plans</p>		

Six-Month Action Plan

		we have? How can we use pass through funds and other resources?			
MOUs and Agreements	Agreement on how college and career pathways will be developed, aligned, coordinated and formalized across institutions.	<p>Determine what MOUs are needed, and between which parties (school district, college, employers, intermediary). MOUs should address the following questions:</p> <ul style="list-style-type: none"> • To what extent parties will co-develop the course sequence and content? • Which instructors and staff will be dedicated to this pathway? • What are the financial arrangements concerning tuition, fees, transportation, materials, etc.? • Will students on the pathway have priority access to the college courses in the sequence? • What student supports will each party provide? • Does the MOU define how work-based learning experience will be structured and brokered? • Does the MOU define what agreements need to be in place for data collection and sharing? 	Draft shared agreement addressing the questions posed		
	Potential barriers are identified and addressed.	Address policy and regulatory issues that may support or pose barriers to your pathway. Secured the necessary permissions or waivers from the school district, college, or state (for seat time requirements, off-site learning, etc.).	<p>Identify potential issues</p> <p>Determine solutions</p>		

Six-Month Action Plan

<p>Staffing Strategy</p>	<p>Teachers/instructors are identified and a process for recruitment and selection is formed.</p>	<p>Develop and implement a staff recruitment/selection strategy</p> <ul style="list-style-type: none"> • How will high school and college instructors be chosen for the pathway? What qualifications to they need? • How will we ensure that the career pathways philosophy and expectations are clear to all faculty and staff? • What types of professional development is needed at both the high school and college levels? 	<p>Design a framework for staff selection needs and strategy</p>		
<p>Integrated Program of Study</p>	<p>Establish a vision and plan for the overall selected career pathway with detailed scope and sequence and foundational coursework and curricula for students entering the pathways in year one</p>	<p>Develop a clear scope and sequence of courses that meet the following:</p> <ul style="list-style-type: none"> • Students take academic coursework in high school as part of a seamless 9-14 pathway. • Secondary coursework is aligned with the college-readiness standards of the postsecondary partner. • Secondary coursework is aligned with the Common Core State Standards. • Student eligibility for college courses is determined by multiple measures, such as tests, prior grades, teacher recommendations, and student work portfolios • The pathway enables students to complete at least 12 college credits 			

Six-Month Action Plan

		<p>before high school graduation.</p> <ul style="list-style-type: none"> • Academics and CTE are integrated, not taught separately. • College coursework is transferrable to the state’s four-year public system. 			
	An articulated instructional approach to guide teaching and learning in the career pathways	<p>Develop/identify an instructional approach or framework that includes the following:</p> <ul style="list-style-type: none"> • Rigorous instruction aligned to Common Core standards and competencies and geared toward college readiness for all students, regardless of entering skill level • Focus on real-world applications and problems • Acquisition of workplace readiness skills and behaviors • Integration of work-based learning • Feedback from employers/industry 			
Employer Engagement	A framework for employer engagement in career pathways (through curricula input, work-based learning opportunities, etc.)	<p>Develop a work Based Learning plan detailing:</p> <ul style="list-style-type: none"> • What technology career experiences should students have, and at what points on the pathways • Existing opportunities that can contribute to technology career pathways (e.g., career fairs, job shadowing). • Strategy/tactics for integrating SAP student mentoring into the pathways 			

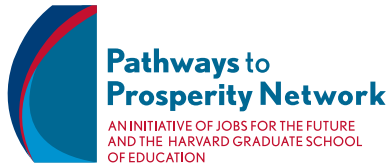
Six-Month Action Plan

		<ul style="list-style-type: none"> In addition to SAP's leadership, identify which other employer partners are engaged in and committed to developing technology career pathways (beyond SAP) 			
Work-Based Learning	A sequential work-based learning continuum with defined times of year, topics, activities, projects, skills to be developed and outcomes	<p>Develop a clear sequence of career exposure and work-based learning experiences.</p> <ul style="list-style-type: none"> What experiences should all students have, and at what points on the pathway? How can you leverage opportunities that already exist, such as career fairs and job shadowing? Who will coordinate work-based learning? Will work-based learning be for credit? 			
Student Support	Comprehensive student supports are in place to ensure their success in the career pathway	<p>Develop a comprehensive student support plan that includes:</p> <ul style="list-style-type: none"> Support structures such as cohorts and learning communities Tutoring and other academic supports Intensive, sustained advising on college and career Strategies to address the needs of students who are not making adequate progress <p>Develop an orientation or summer bridge</p>			

Six-Month Action Plan

		<p>program. Consider addressing:</p> <ul style="list-style-type: none"> • Pathway mission and goals • Course sequence • Instructional approach • College course-taking component • Work-based learning experiences • Transportation • Support services available • College and career planning 			
Student Recruitment		<p>Recruit students to enter the 9-14 career pathway.</p> <ul style="list-style-type: none"> • What is your target student population and how will students be identified? • How will you ensure recruitment efforts target these students? • What recruitment materials will you need that clearly inform students and families about the pathway? • What outreach methods are best used to inform students and families about the pathway? • What career exploration courses or curriculum will students be able to take prior to enrolling in the pathway? 			

C-Town Tech Project Overview



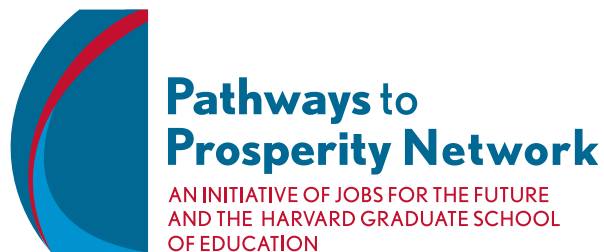
C-TOWN TECH: Connecting College and Career at Charlestown High School

Project Summary

In an effort to increase the number of qualified IT and business IT professionals, multinational software company, SAP, is partnering with high schools and community colleges to create 9-14 pathways in IT where students earn college credit while in high school toward an industry-recognized degree. SAP has partnered with NYC Public School to open B-TECH Early College High School in the fall of 2014 (<http://www.btechnyc.org/>).

In Boston, SAP has partnered with Jobs for the Future, Boston Public Schools, Bunker Hill Community College, the Mayor's Office and the Boston Private Industry Council to develop a coordinated effort to ensure that many more youth complete high school and attain a postsecondary credential with currency in information technology industries. At Charlestown High School, an IT pathway is currently being developed in partnership with Bunker Hill Community College. A recruitment effort is being coordinated now to expose students in 8th grade to IT careers and professions in order for students and parents to make an informed choice about going to Charlestown High School to take advantage of this opportunity. Once a student chooses Charlestown High School as their high school of choice and signs up for the IT pathway, they will immediately take a series of courses to build skills and knowledge in IT and 21st century skills such as collaboration and problem-solving. Curriculum alignment between Charlestown High and Bunker Hill Community College will allow students dual enrollment opportunities where they can earn a significant amount of college credit, at no cost to them, toward an AS degree in Information Technology at Bunker Hill Community College.

Students will also be exposed to IT careers through coordinated SAP and Boston PIC employer engagement activities. Activities include mentoring, job shadows, career academies and career fairs, and short-term and long-term internships. SAP is committed to hiring as many qualified young professionals as they can from Charlestown High School once they finish their program.



**SAP 9-14 Pathway
Meeting Agenda**

September 12 | 3:00–5:00 PM (EST)

Location: Bunker Hill Community College, 250 Rutherford Ave,
Charlestown, MA 02129, Room B206A

Call-in: 617.603.4430 231#

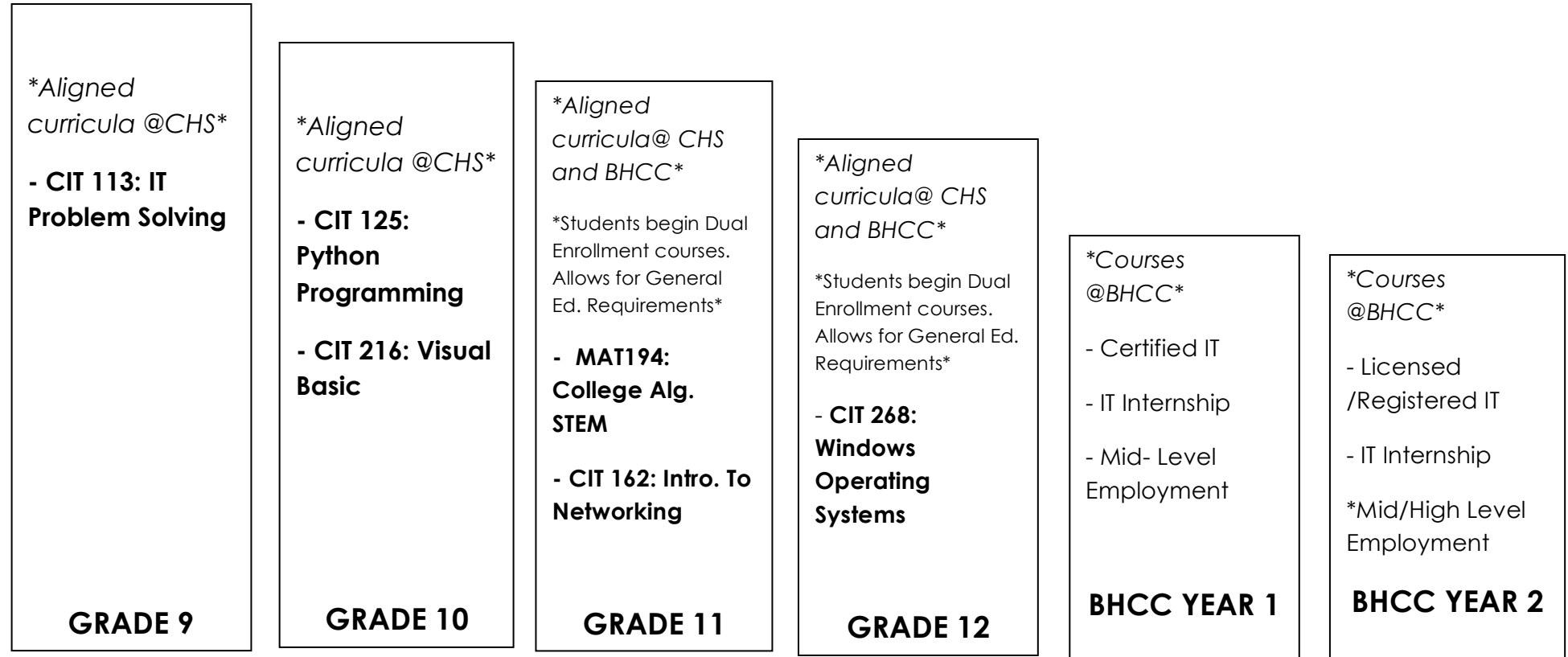
Goals of the meeting:

- Discuss Course Scope and Sequence. Identify next steps.
- Share updates on progress to date (based on work plan).
Deliverables and assignments due this month are:
 - MOU
 - Short-term work-based learning plan
 - Marketing plan
 - SAP Month of Service
- Discuss and plan for involvement in SAP *Impactathon*
- Plan for large group meeting on October 17

3:00–3:10 PM	Review goals of the meeting/Introductions <i>Introduce new members of the committee and guests</i>
3:10–3:45 PM	Course Scope and Sequence
3:45–4:15 PM	Progress Updates
4:15–4:25 PM	SAP <i>Impactathon</i>
4:25–4:45 PM	October 17 large group meeting
4:45–4:55 PM	Wrap-up and Next Steps
4:55–5:00 PM	Adjourn

Sample 9-14 IT Course Scope & Sequence: C-Town Tech

BOSTON IT Pathway: CHS> BHCC



Grade 9 & 10: Students are located at CHS with a BHCC instructor

Grade 11: Dual Enrollment classes to be held at CHS and BHCC

Grade 12: Dual Enrollment classes are primarily held at BHCC: Graduate with appropriate prerequisites for allied internships and BHCC courses (job shadow, internship, etc)

BHCC Year 1: Enroll in appropriate CIT/CMT courses at BHCC (mid-level employment, internship or WBL)

BHCC Year 2: Enroll in IT degree courses (high level employment)

<u>8th/Summer</u>	<u>9th</u> <u>CASE</u>	<u>Summer</u>	<u>10th</u> <u>SKILL</u>	<u>Summer</u>
<p>*Secure instructor for Summer >Fall 'bridge' program</p> <p>*Instructor will continue into Fall academic SY : Co-teacher BHCC:CHS staff</p>	<p>ELA 9 (double block)*</p>	<p><i>WBL (Work Based Learning within the City of Boston IT dept. Job Shadow)</i></p> <p>* Ford Project</p>	<p>ELA 10(double block)*</p>	<p>*Consideration to summer school schedule.</p>
<div style="border: 2px solid red; padding: 5px;"> <p>MATH & COMPUTER CODING</p> <ul style="list-style-type: none"> -Girls Who Code -MIT Media Lab - Agile MInd <p><i>*Look to hire Summer and SY 15/16 instructor for from BHCC, to continue to co-teach within CHS or BHCC</i></p> </div>	<p>ALG 1 (double block)*</p> <p>* ALG1 instructor will co-teach with BHCC instructor at CHS.</p>	<p><i>Residency Week: students rotate around different companies to explore professional opportunities within IT</i></p>	<p>ALG2(doublblock)*</p>	<p>PF</p>
	<p>E WRITING1> ELA (db)*</p> <p>_____</p> <p>ALGa> ALG1(db)*</p>	<p><i>IT Squared:</i> <i>Student pairs interest with job shadow in the IT dept. of their interest. (I.e. student interest is fashion- expose students to software that major dept. stores use to track inventory; basketball: Celtics IT department)</i></p>	<p>MATHENRICHMENT>ALG2 (db)*</p> <div style="border: 2px solid red; padding: 5px; margin: 10px auto; width: fit-content;"> <p>GEOMETRY</p> <p><i>*For BHCC, if CHS student passes ALG1+ ALG2, what would students proceed with? Math course?</i></p> </div> <p>_____</p> <p>WRITING2>ELA (db)*</p>	

	<p style="text-align: center;">& LAB</p> <p style="text-align: center;"><i>@CHS with BHCC instructor who co-teachers with CHS ALG 1 teacher</i></p> <p style="text-align: center;"><i>*Provided the student's academic success- they will continue with PRBLM SOLVING. *LAB can be developed as a 1x week academic support or implemented as part of the class.</i></p>		<p style="text-align: center;">-OR Equivalent:</p> <p style="text-align: center;"><i>*This course should reinforce and support CODING</i></p>		
<p>Field Trips* Career Fairs*SAP Guest Speakers* Portfolio*Mentoring:</p> <p>ONGOING</p>	<p style="text-align: center;"><i>MCAS Science</i> 7 credits</p> <p>Field Trips* Career Fairs*SAP Guest Speakers* Portfolio*Mentoring:</p> <p style="text-align: center;">ONGOING</p>	<p>Field Trips* Career Fairs*SAP Guest Speakers* Portfolio*Mentoring:</p> <p style="text-align: center;">ONGOING</p>	<p style="text-align: center;"><i>MCAS English</i> <i>MCAS Math</i> 7 credits</p> <p>Field Trips* Career Fairs*SAP Guest Speakers* Portfolio*Mentoring:</p> <p style="text-align: center;">ONGOING</p>	<p>Field Trips* Career Fairs*SAP Guest Speakers* Portfolio*Mentoring:</p> <p style="text-align: center;">ONGOING</p>	<p>Fi !</p>

Sample Pathways Coordinator Job Description: C-Town Tech

Pathways Coordinator Roles and Responsibilities

The Pathways Coordinator is responsible for cultivating and fostering positive and working relationships between higher education partners, work partners and other intermediaries so as to build programs and activities that will result in college and career readiness for students. Working collaboratively with school staff, college staff and coordinating with the business community, the Pathways Coordinator will facilitate student transition into college and the workplace during their time at Charlestown High School.

Core Duties:

- Plan, implement and coordinate a comprehensive dual enrollment program.
- Coordinate schedules, along with the development of four-year plans of study, that combine secondary, postsecondary and work-based learning experiences.
- Synchronize the planning for dual enrollment so that high school calendars are developed to fit into college cycles, and work out details to ensure that the lines of communication are open and that operations run smoothly.
- Advise students in a course of study that will include dual enrollment with transferable college credit toward completion of an associate's or bachelor's degree after high school graduation.
- Identify where students need additional support in order to be successful in the pathways of their choosing.
- Setting up and maintaining student files that demonstrate that student's ability, document advisement sessions and other pertinent information relating to the success of the student.
- Develop and remain responsible for an effective tracking system that is designed to ensure student participation in college courses and work-based learning and designed to monitor student progress.
- Develop and implement programs and activities that enhance student instruction and teacher professional development, such as mentoring and externships, as well as initiating connections to existing programs and opportunities.
- Partner with Boston PIC to implement worksite placements and mentoring systems for all pathways students that foster the development of professional personae and portfolios.
- Manage mentoring program at CHS coordinating with professionals at SAP and adding other companies as program grows.
- Facilitate cooperative planning to align secondary and postsecondary expectations
- Connect CHS students to student life on campus through age-appropriate special

Sample Pathways Coordinator Job Description: C-Town Tech

events, activities, and student-led organizations.

- Assists in marketing and recruitment efforts to enroll students into pathways at CHS.
- Coordinate professional development sessions for the entire school staff as it relates to pathways development

Minimum Education and Experience:

- Bachelor's degree required. Master's degree preferred
- Experience with secondary schools and postsecondary institutions
- Proven ability to effectively, cooperatively and tactfully collaborate with high school and postsecondary faculty
- Proven ability in advising students
- Effective oral, written and presentation skills

Examples of 9-14 Pathway Cost Models: NYC Department of Education New School Leaders Fellowship, BTECH

	Program Structure	Planning and Coordinating	Acceleration	Financing
College in the High School (New School)	<p>Relevant for high-need students with literacy skills up to five grades behind their ages. Fits communities without postsecondary institution or college with adequate capacity to meet demand. Program allows students to receive high school diploma and associate's degree concurrently within five years (90 quarter hours). Program assumes an addition of grade thirteen with two summer sessions commitments in thirteenth year. School supports students up to both degrees' completions (i.e. including thirteenth year). Courses breakdown: 24 high school courses for grade nine, 24 high school courses for grade ten, 4 college and 16 high school courses for grade eleven, 8 college and 8 high school courses for grade twelve, and 6-10 college courses for grade thirteen. During program, students join cohorts with clear academic goals.</p>	<p>Requires involvements from students, families, communities, school district leaders, and college administrators because rural communities may not be familiar with college degree programs. Coordination involves a half-time director, part-time administrative assistant and fiscal service, part-time ECHS liaison, planning committees honored at \$1,000 per person committed to monthly meetings, college and high school faculty, as well as curriculum, coordination, and program development consultants. Full time principal is necessary at full operation stage; no ECHS liaison after four years of operation.</p>	<p>College faculty is expected to teach college credit classes, in some cases in collaboration with high school faculty. Students are assigned to mentors (1:20 mentor to student ratio).</p>	<p>Implementation budget includes estimated facility rental cost, college visits, mentor honorariums, and college faculty's salary. FTE of college faculty is projected at 3.5. The budget assumes nine full-time high school faculty (1:25 faculty to student ratio), sixty-five substitute days at \$175 per day, and counselors (1:300 counselor to student ratio). Budget also assumes \$3,000 per course charge (e.g. \$138,000 for 180 students taking college courses). Funding sources include school district per-pupil funding and other funding based on Title I, Title V, Title VII, and special education, providing students with \$200 annual support per student and \$500 scholarship per student to pursue an associate's degree.</p>

	Program Structure	Planning and Coordinating	Acceleration	Financing
Middle College National Consortium Model (New School)	<p>The mission is to develop a five-year accelerated opportunity for “at-risk” youth to complete a High School degree as well as Associate’s degree. The budget funds a school located on a college campus. Students take only high school classes in 9th and 10th grade, and starting 11th and 12th grade their program consists of half high school and half college dual credit courses. Lastly, in the 13th year, students take all college courses. Students have the options to obtain their high school diploma after 12th grade, and the school helps them to obtain financial aid to complete the college courses and continue to provide academic and personal support.</p>	<p>Planning team includes: project director/high school principle, a union representative, a representative of the college president’s office, the academic dean, and the college admissions office. Additionally, high school and college faculty supports the planning process by assisting in the development of a five-year academic plan, sequence of courses, and determination of dual credit courses. A part-time liaison facilitates communication and coordination between the college and school once school starts. The school administration includes a principle and two assistant principles, and based on the targeted populations needs, the school staffing includes a parent liaison and two family workers</p> <p>Budget includes supplies for outreach and student recruitment, brochures, meetings, and travel expenses.</p>	<p>Budget includes 26 full-time teachers for 258 days including teacher absences, trips, and attendance at professional development activities (4 per year). Part-time college faculty members teach or team-teach at the high school. Teachers are paid hourly. Funds include after-school and summer school activities. The school employs two full-time guidance counselors, one social worker, and one part-time college counselor.</p>	<p>Tuition cost of \$125 per credit begins in the 11th grade as students start to take college courses. Students take 60 credits. The budget does not project the use of grant funds to cover costs associated with student tuition. The use of grant funds is finite and a permanent solution needs to be found to ensure sustainability. The school receives various types of local, state, and federal funding. College textbooks are included at about \$60,000 per year.</p>

	Program Structure	Planning and Coordinating	Acceleration	Financing
Middle College National Consortium Model (Conversion)	<p>This model has a program structure consistent with that of Middle College Early Colleges.</p> <p>The budget reflects planning and implementation work required for conversion. Students complete core high school academic classes taught by district teachers working and teaching at the college. Students take college credit courses aligned with a five-year education plan. Students earn both high school and college credit for college courses upon completion. A full-time principle and administrative secretary provides school support. The college provides a part-time work-study student to assist the secretary.</p>	<p>Planning team includes: college dean, the school principal, and fourteen additional school and college stakeholders. The planning process is proposed three years before the conversion is complete. Each college and high school teacher serving on the planning team receives an annual stipend of \$600.</p>	<p>Budget includes hiring of 4 high school teachers to teach 6 classes, 3 teachers to teach 5 classes, costs for substitute teachers, and 5 day of school year for professional development and curriculum planning. AVID program supports student acceleration. Offered high school courses include Student Leadership and Academic Decathlon. College faculty salaries reflect students' college course fees. High school instructors supervise 9th and 10th graders extended days of four days per week, two hours per day. The instructor is compensated on an hourly basis. Budge also includes one full-time counselor (1:290 counselor to student ratio). High school employs about 8 college students as tutors that work up to six hours per week.</p>	<p>Revenues are derived from: pupil funding, community college grants, state lottery funds, Title V, and state middle college grants. The college finances personnel costs for the part-time college liaison, business services, facilities, maintenance, information systems, student support services, and security. The total college cost is about \$414,000, \$364,000 project for faculty cost and \$50,000 for other costs. Student book costs are estimated at about \$300 per semester during 11th and 12th grade and \$800 per semester in the 13th year. Paying for college textbooks are a significant challenge faced by the school.</p>

	Program Structure	Planning and Coordinating	Acceleration	Financing
Early College High School on the Campus of a Public Two-Year College (New)	<p>Located on a two-year public community college following contractual agreements between the college and affiliated school districts. Focuses on grade nine to twelve. Program requires students to pass state graduation examination and completion of associate's degree. Students are eligible for college courses beginning the ninth grade; students officially enroll as full-time college students in the eleventh grade. Program includes a full-time co-op or work-based learning.</p>	<p>Program's implementation involves participating school districts' and community college's representatives who regularly meet during this initial phase. Other executive leaders of the organizations and external consultants are involved with curriculum planning and faculty recruitment processes; planning team members receive undisclosed honorarium. Prior to full implementation phase, a project director provides leadership to all teams.</p>	<p>Budget includes eight full- and part-time teachers; no additional substitute coverage is provided (i.e. hired teachers provide substitute coverage for each other). Program includes faculty developments scheduled around teaching times to eliminate the need for substitutes. Teachers are granted additional payments for involvement in summer activities, tutoring, and remediation associated with state graduation examination. Budget also includes two student counselors (1:350 counselor to student ratio).</p>	<p>Budget includes half-time commitments of a college's and school districts' liaisons that are responsible for logistics of enrollment and addressing of issues associated with program implementation. Budget also includes marketing costs (i.e. preparations and executions of orientations or presentations, open houses, student recruitments, and continuous community awareness initiatives). Sources of funding include per pupil allocations, foundation grants, and private contributions. Tuitions covered by funding assumes students take at least five credit hours in ninth grade, take eleven credit hours in tenth grade, and transition to full-time status in eleventh grade while at the same time paying <i>full-time, in-country</i> tuitions.</p>

	Program Structure	Planning and Coordinating	Acceleration	Financing
Early College High School on the Campus of a Public Four-Year College or University	<p>Located on the university campus that includes space for administration and high school-only classes. School year follows university class schedule. High school classes are state standard based including supplemental instruction periods. In 10th grade students take placement exams as pre-requisites to college courses. Beginning 11th and 12th grade student enroll in college credit courses, but students are eligible for college courses beginning the ninth grade if ready. After four-year program, students will earn a high school diploma and two years of college credit or Associates degree.</p>	<p>Planning team is comprised of district and college representatives from administration and instruction.</p> <p>ECHS dean is the lead administrator, which is hired by district superintendent with input from the ECHS executive committee. The executive committee include: dean of the university college of arts and sciences, the dean of the college of education, one university faculty member, one school district faculty member, the superintendent of schools, the administrative specialist for high school and middle school reform, and the ECHS dean.</p>	<p>Budget includes: 15 teachers, 1 guidance counselor, and the dean. University professors' team-teach and serve as guest lectures and teach most 11th and 12th grade classes. Soft skills, technical and academic language are integrated in the curriculum beginning 9th grade. Support is budgeted to \$678,300 by 12th grade full enrollment. Students receive academic and social support from university faculty, volunteer university employees, and community organization beginning summer of 7th and 8th grade. Students enrolled in college credit courses are allowed to join workshops by the Study Skills Center, Counseling Center, and Center for Student Progress. Service learning is a crucial part of student program. Student support group also includes bi-weekly small group meetings for peer support culture and study group.</p>	<p>Tuition per credit hour is projected at \$292. School districts receives core funding per pupil basis from the state that pays university for full-time student tuition and fees. State includes ECHS students in the FTE date to calculate the university subsidy.</p> <p>University budget includes expenditure and revenue from ECDS use of campus facilities and services.</p>

	Program Structure	Planning and Coordinating	Acceleration	Financing
Charter School Early College High School	<p>At Charter School all services have to be purchased. The program structure is based on a four-year program in partnership with a public university. Students must meet Charter School Core Principles enrollment criteria. Investment involves transportation and leased space in an existing high school as well as other instructional and facility services that sum up to \$275,678. University faculty teaches most college credit courses at Charter School location. Participating students will earn a high school diploma and two years of college credit.</p>	<p>An ECHSI intermediary provided support in acquiring the school charter as well as assistance in developing community and business partnerships. Core planning team includes: a project director, seven college faculty members, a grant writer/business development consultant, an administrative assistant, and support from charter school board. The board includes representatives from the school district, business and community organizations. In the first phase, university faculty participates in development of an academic plan that combines high school and college courses. A college liaison position funded by the school, university partner, and a foundation takes place in the 2nd year. The liaison role is to work with all parties involved in students' enrollment in college courses. Substantial investments were made for facility improvements, and in equipment, including computers and office machines. Funds included budget for recruitment and publicity, services of a financial consultant and a grant writer, and a full-time principal and office administrator for ongoing management and coordination.</p>	<p>Students support preparation work in 9th and 10th grade in order to meet graduation requirements and take college courses. Student learning experience includes project based learning, community-based internships and apprenticeships. Lecture includes field-based trips and research as well as guest speakers and seminars on careers and technical fields. Students are also eligible to earn college credit courses through Advance Placement courses. Funds includes summer school and academic summer activities on university campus, hiring of a part-time outreach community coordinator, and 17 full-time teachers at a student-teacher ratio of 1:24. One to one-fifth FTE is allocated for teacher absence and professional development. Student support includes: parents volunteer involvement, full-time and part-time staff, 7 instructional assistants, computer lab manager, 3 counselors, and special education paraprofessional.</p>	<p>Funding support includes grants such as Charter start-up grant from the U.S. Department of Education and business contributions such as science and computer labs. Charter school district invested in capital improvements of \$750,000. The fee per college course is about \$7,000. The basic per student allocation funds college courses cost. However, schools must find other revenues or sustainable resources to pay for college courses, as grant funding is not a reliable on the long-term. First year budget for textbooks and curriculum materials totals to \$140,000. College textbook accounts for most of this spending; leading to reuse of books for the following 3 school years.</p>

City of Boston Mayor's Office Press Release for C-Town Tech

NEWS RELEASE
For Immediate Release
December 17, 2014

Media Contact:

Incoming Charlestown High School Freshman will be eligible to receive up to 30 free college credits through new Information Technology Program funded by SAP

The C-Town Tech program focuses on connecting college and career at the high school level

BOSTON – Contributing to a citywide vision to ensure that more youth complete high school, earn a college degree, and get a start on career preparation, Charlestown High School is now enrolling students in a new information technology (IT) program at Charlestown High School, called C-Town Tech. The goal of the program is to link high school with career development and community college in order to increase the number of youth who complete high school and attain a postsecondary credential with strong labor market value.

The C-Town Tech program is a partnership between SAP, the market leader in enterprise application software, Jobs for the Future, Bunker Hill Community College, the Boston Public Schools, the Mayor's Office and the Boston Private Industry Council (PIC) to create a seamless pathway from high school through college and into jobs at companies like SAP. Through the program, students can earn up to 30 college credits (up to two full college semesters) toward an industry-recognized IT degree at Bunker Hill Community College while in high school and participate in work-related activities such as job shadows and internships.

"This new program serves two goals," said Mayor Walsh. "Students save money on college because they get free credits in high school and our local businesses will have a better prepared and skilled workforce. We are excited about partnering with one of our region's largest employers," said Mayor Walsh. "With partnerships like this, we hope to create a new blueprint for high school learning and workforce training. We hope to get parents and students thinking about being career ready in their formative high school years, and to provide opportunities for great jobs. Piloting these types of programs is both exciting and essential to our local and global economy."

Through this partnership, students will start earning college credit in the 9th grade while being exposed to IT careers through coordination between SAP and the Boston PIC, the organization that places high school students in Boston area internships and supports their progress. Entry level IT jobs in the Boston area pay well; for example, help desk salaries start at over \$45,000. Students in the program will also have access to mentors at SAP along with work-based learning activities such as job shadowing, career academies and career fairs, and short-term and long-term internships at SAP and within its ecosystem.

The program is part of SAP's efforts to scale signature education initiatives such as B-TECH, a new early college high school in New York City the company helped develop. C-Town Tech is part of a wider effort SAP is driving to equip the world's youth with tools they need to thrive in the 21st century workforce.

The first IT Pathway program will launch at Charlestown High School in September 2015. C-Town Tech is an example of the kind of career preparation program embraced by the Pathways

City of Boston Mayor's Office Press Release for C-Town Tech

to Prosperity Network, an eleven state effort of Jobs for the Future and the Harvard Graduate School of Education, the goal of which is to build a stronger career education system in the United States and one more responsive to the needs of the labor market.

A recruitment campaign for enrollment at Charlestown High School began in December and will continue through January. The campaign includes short events that focus on exposing students in the 8th grade to IT careers and professions in order for them and their parents to make an informed choice about pursuing the C-Town Tech program. The next recruitment event will take place at Charlestown High School on January 10, 2015 from 9 a.m. to 10:30 a.m.

Once students are in the program, they will be enrolled in a summer bridge program at Bunker Hill Community College to assist in their transition. In addition, they will have a dedicated Pathways Coordinator to collaborate with students and parents to ensure their college preparedness throughout the program.

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JOBS FOR THE FUTURE

TEL 617.728.4446 FAX 617.728.4857 info@jff.org

88 Broad Street, 8th Floor, Boston, MA 02110 (HQ)
122 C Street, NW, Suite 650, Washington, DC 20001
505 14th Street, Suite 900, Oakland, CA 94612

WWW.JFF.ORG

