

## Critical Component Ratings

**Name:**

**Date:**

**High School:**

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**1: The following statements refer to Critical Component (CC) 1. Please think about the following definition when considering how you would rate the statements below.**

***CC1 Definition: College-Prep, STEM Focused Curriculum for All.*** Rigorous courses in all 4 STEM areas, or, engineering and technology are explicitly, intentionally integrated into STEM subjects and non-STEM subjects in preparation for college. (Atkinson et al., 2007; Brody, 2006 as cited in Subotnik, Tai, Rickoff, & Almarode, 2010; Kaser, 2006 as cited in Means et al., 2008; Means et al., 2008; Rosenstock, 2008; Scott, 2009)

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't Know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) All students are required to take more STEM offerings than typical of surrounding schools or districts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Requires all students to take at least a pre-calculus class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Requires students to take a biology, chemistry, and physics course for graduation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Requires students to take one engineering course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Requires students to take one course in technology such as media and the arts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) Integrates STEM courses or principles with non-STEM subject areas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) All students receive college preparation throughout their courses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments regarding survey questions for CC1:**

**2: The following statements refer to Critical Component (CC) 2. Please think about the following definition when considering how you would rate the statements below.**

**CC2 Definition: Reform Instructional Strategies and Project-Based Learning.** STEM classes emphasize instructional practices/strategies informed by research found in *Adding It Up* (NRC, 2001), *Taking Science to School*, (NRC, 2007), *Learning Science in Informal Environments* (NRC, 2009), *Restructuring Engineering Education: A Focus on Change* (NSF, 1995), *Fostering Learning in the Networked World* (Borgman, Abelson, Dirks, Johnson, Koedinger, Linn & Szalay, 2008) for active teaching and learning (Lynch, 2008) and immersing students in STEM content, processes, habits of mind and skills (Atkinson et al., 2007; Means et al., 2008; Scott, 2009). Opportunities for project-based learning and student production are encouraged, during and beyond the school day. Students are productive and active in STEM learning, as measured by performance-based assessment practices that have an authentic fit with STEM disciplines (Atkinson et al., 2007; Means et al., 2008; New Tech High, 2010; NRC, 2004, 2005, 2007, 2010; Rosenstock, 2008; Subotnik et al., 2010; Scott, 2009).

**Please rate the extent to which you agree or disagree with the following statements:**

This school...	Strongly Disagree (1)	Disagree (2)	Don't Know (3)	Agree (4)	Strongly Agree (5)
(1) Students investigate STEM related topics for an extended period of time (at least a week) allowing for more depth and complexity in the topic of study.	<input type="radio"/>				
(2) Teachers place greater emphasis on reasoning and problem solving than on operations and computations.	<input type="radio"/>				
(3) Students monitor and evaluate their own problem solving (e.g. grading their own assignments).	<input type="radio"/>				

(4) Students frequently work together in groups to solve open-ended problems.	<input type="radio"/>				
(5) Teachers encourage scientific thinking and reasoning (i.e. “how we know”).	<input type="radio"/>				
(6) Teachers orchestrate classroom investigations and discussions where students’ ideas are valued.	<input type="radio"/>				
(7) Teachers incorporate 21st Century skills (i.e. collaboration, communication, critical thinking, and creativity) into the goals and products of their instructional practices.	<input type="radio"/>				
(8) Teachers use knowledge and performance based assessment practices that have an authentic fit with STEM disciplines (e.g. projects, portfolios).	<input type="radio"/>				
(9) Teachers use a mastery model approach (students had a chance to learn from their mistakes).	<input type="radio"/>				
(10) Teachers connect STEM related topics with the surrounding community.	<input type="radio"/>				
(11) Teaches students lab skills and engineering design processes for investigating STEM related topics.	<input type="radio"/>				

**Comments regarding survey questions for CC2:**

**3: The following statements refer to Critical Component (CC) 3. Please think about the following definition when considering how you would rate the statements below.**

**CC3 Definition: Integrated, Innovative Technology Use.** Technology connects students with information systems, models, databases, and STEM research; teachers; mentors; and, social networking resources for STEM ideas during and outside the school day (Means et al., 2008; NRC, 1999, 2009; New Tech High, 2010; Rosenstock, 2008). The school’s structure and use of technology has the potential to change relationships between students, teachers and knowledge (Borgman et al., 2008; Coburn, 2003; Elmore, 1996; Rosenstock, 2008) and flatten hierarchies (Atkinson et al., 2007; New Tech High, 2010; Scott, 2009).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't Know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Supports the usage of technology through school policy and practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Uses social networking or learning management systems (i.e. blackboard, echo) as a tool for teachers and students in instructional contexts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Allows students to access technology and/or generate knowledge independently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Teachers use technology to influence the learning opportunities in the classroom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Has sufficient lab facilities, equipment and/or classroom computers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments regarding survey questions for CC3:**

**4: The following statements refer to Critical Component (CC) 4. Please think about the following definition when considering how you would rate the statements below.**

**CC4 Definition: STEM-rich, Informal Experiences.** Learning opportunities are not bounded, but ubiquitous. Learning spills into areas regarded as “informal STEM education” and includes apprenticeships, mentoring, social networking and doing STEM in locations off of the school site, in the community, museums and STEM centers, and business and industry (NRC, 2009;

PCAST, 2010, Rosenstock, 2008). As a result, the relationship between students, teachers and knowledge changes (Coburn, 2003; Elmore, 1996), and hierarchies flatten to “...substantially alter the traditional roles of learners, teachers, and instructional resources in the learning environment” (NSF-DR-K12, 2010, p. 7).

**Please rate the extent to which you agree or disagree with the following statements:**

This school...	Strongly Disagree (1)	Disagree (2)	Don't Know (3)	Agree (4)	Strongly Agree (5)
(1) A majority of students participate in STEM related clubs and associations (e.g. robotics club, HOSA, FFA).	<input type="radio"/>				
(2) Has STEM related summer programs such as internships or mentorships.	<input type="radio"/>				
(3) A majority of students to partake in STEM related research projects that extend beyond the school day (e.g. presenting at a conference).	<input type="radio"/>				
(4) Students use social media to collaborate with peers and the global community on STEM related topics.	<input type="radio"/>				

**Comments regarding survey questions for CC4:**

**5: The following statements refer to Critical Component (CC) 5. Please think about the following definition when considering how you would rate the statements below.**

**CC5 Definition: Connections with Business, Industry, and the World of Work.** The school boundaries extend beyond the larger school community by creating partnerships with business and industry. The school environment intentionally reflects the workplace whereby students have the opportunity to think like STEM and non-STEM professionals through internships, mentorships, projects, and other work related activities. Students also have the opportunity to

interact with industry professionals and present their work in professional venues. Students connect to business/industry/world of work via mentorships, internships, or projects that occur within or outside the normal school day/year (Atkinson et al., 2007; Brody, 2006 in Subotnik et al., 2010; Kaser, 2006 in Means et al., 2008; Kolicant & Pollock in Subotnik et al., 2010; Means et al., 2008; Rosenstock, 2008; Stone III et al., 2006 in Means et al., 2008). This is envisioned in DR-K12 solicitation: *“The responsibilities for meeting the goals of formal education will undoubtedly shift to include a broader community of stakeholders, such as informal institutions, STEM professionals, parents and caregivers”* (NSF DR-K12, 2010 p. 7).

**Please rate the extent to which you agree or disagree with the following statements:**

This school...	Strongly Disagree (1)	Disagree (2)	Don't Know (3)	Agree (4)	Strongly Agree (5)
(1) Over the four years, the majority of students are provided the opportunity to connect with STEM professionals through internships, mentorships, jobs, projects, or community service.	<input type="radio"/>				
(2) Students have frequent interactions with STEM professionals outside the regular school day, week, or year (e.g. having an engineer judge a science fair).	<input type="radio"/>				
(3) Has industry partners that assist in the planning and implementation of in-school activities.	<input type="radio"/>				
(4) Over the four years, the majority of students are members of and interact with professionals at STEM-related national or local association events.	<input type="radio"/>				
(5) Has professional development opportunities for teachers (with local business and industry partners).	<input type="radio"/>				
(6) Teaches students how to create and aspire to realistic career goals.	<input type="radio"/>				
(7) Provides students the opportunity to learn about professional STEM workplaces, how to participate in them, and the expectations of them (e.g. coming in on time, wearing the proper dress, and when to maintain confidentiality).	<input type="radio"/>				
(8) Has technology, tools, and labs that	<input type="radio"/>				

resemble work environments.					
(9) Learning is contextualized within realistic applications of work, allowing students to engage in hands-on work similar to what they would find in a real workplace.	<input type="radio"/>				
(10) Student career interests are developed through active student involvement in STEM professional activities (e.g., researching, mentorships, and internships).	<input type="radio"/>				
(11) Students participate in non-STEM related activities in the community.	<input type="radio"/>				
(12) Has opportunities for students to think like scientists, technologists, engineers, or mathematicians (e.g. CTE, projects, clubs, and internships).	<input type="radio"/>				
(13)Has an advisory board that supports professional development with local business and industry partners.	<input type="radio"/>				

**Comments regarding survey questions for CC5:**

**6: The following statements refer to Critical Component (CC) 6. Please think about the following definition when considering how you would rate the statements below.**

**CC6 Definition: *College Level Coursework.*** School schedule is flexible and designed to provide opportunities for students to take classes at institutions of higher education or online (Atkinson, et al., 2007; Martinez & Klopott, 2005; Means et al., 2008; Rosenstock, 2008; Subotnik, Rayback & Edminston, 2006 as cited in Means et al., 2008).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't Know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Has STEM classes for credit at an institution of higher education (including courses taught online).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Makes scheduling accommodations for students who want to take courses at an institution of higher education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Offers in house AP or college level courses (STEM or non-STEM).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) All students participate in courses specifically for college prep (e.g. advisory, SAT prep, diagnostic, financial assistance).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Has partnerships with higher education institutions that connect with coursework offerings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) Over the four years, a majority of students experience a college campus (e.g. walking tour) where they gain an understanding of college life and culture.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) Has a substantial number of college credits that students can accumulate in high school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments questions regarding CC6:**

**7: The following statements refer to Critical Component (CC) 7. Please think about the following definition when considering how you would rate the statements below.**

***CC7 Definition: CC7: Well-Prepared STEM Teachers and Professionalized Teaching Staff.***

Teachers are qualified and have advanced STEM content knowledge and/or practical experience in STEM careers. The school had opportunities for in-house professional development, collaboration and interactions with STEM professionals. (N. Spillane, 2015; Means et al., 2008; Subotnik et al., 2010)

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Has teachers who are highly qualified in STEM either through education or work experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Teachers work collaboratively during frequent common planning time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Teachers build and participate in professional learning communities to plan high quality STEM instruction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Teachers report a high level of satisfaction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Teachers feel supported by the school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) Has ongoing professional development for teachers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) Teachers are open to learning about and implementing various teaching methods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(8) Has opportunities for teacher interaction with STEM partners through professional development or curriculum development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(9) Empowers teachers to make their own decisions about curriculum and instruction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments regarding survey questions for CC7:**

**8: The following statements refer to Critical Component (CC) 8. Please think about the following definition when considering how you would rate the statements below**

**CC8 Definition: Inclusive STEM Mission.** The school’s stated goals are to prepare students for STEM, with emphasis on recruiting students from underrepresented groups (Means et al, 2008; PCAST, 2010; Scott, 2009, Obama, 2010).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Prepares all students for college through a rigorous curriculum in STEM.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Has minimal or no academic selection criteria when admitting students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Actively works to recruit a diverse student body.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Students perceive the school as inclusive (same standards for all).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Has clearly developed statements of purpose (to develop habits of heart and mind).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) Infuses their values into curriculum development and practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) Displays the accomplishments of students who exemplified these values in the school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments regarding CC8:**

**9: The following statements refer to Critical Component (CC) 9. Please think about the following definition when considering how you would rate the statements below.**

**CC9 Definition: Flexible and Autonomous Administration.** The organizational structure of the school is mission-driven (Scott, 2012). School leaders have a well-defined strategy for STEM instruction and it is implemented with fidelity within all aspects of school administration (Childress, Elmore, Grossman, & Johnson, 2007). The school may have partnerships with charter networks, non-governmental organizations, or the business community, and these partners work with the ISHS to develop shared goals as well as to provide leverage, expertise, leadership, and resources to the school, supporting it as a long-term partner (Miron & Gulosino, 2013; Farrell, Wohlsetter, & Smith, 2012). In this sense, the ISHS’s administrative structure exhibits an external awareness to the community outside the school that promotes a bias towards innovation and action, while also increasing the collective capacity of the school (Crowther, 2011; Dinham, 2005).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) School administrators and teachers use student outcome data to inform policy and decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Has a sustainable model for school leadership.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Administration and teachers are adaptable and continuously improving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) School leader has the freedom to make decisions without interference from the district.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Teachers share in decision-making throughout the school (flattened organizational structure)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) Has hiring autonomy and the administration can focus on selecting teachers that are a “good fit” for the school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) Gives teachers autonomy over curriculum and instruction in the classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(8) Support, guidance, and/or direction is received from external organizations for administration, curriculum, or instruction (e.g. Project Lead the Way, Charter management organization, non-	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

governmental organizations)					
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**Comments regarding survey questions for CC9:**

**10: The following statements refer to Critical Component (CC) 10. Please think about the following definition when considering how you would rate the statements below.**

**C10 Definition: Supports for Underrepresented Students.** Supports such as bridge programs, tutoring programs, extended school day, extended school year, or looping exist to strengthen student transitions to STEM careers. Such supports result in altered, improved opportunity structures, i.e., students are positioned for STEM college majors, careers, and jobs; and student social structures and identities change to accommodate new opportunity structures (Carnegie Corporation, 2009; Lynch, 2000; Means et al., 2008).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Supports students academically above and beyond tutoring in the school day (e.g. bridge programs, extended school day, extended school year, or looping).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Has a variety of tutoring programs (e.g. teachers as tutors, university tutors, crowd source online tutoring, peer tutoring).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Has a separate advisory program that supports all students in preparing for college.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Has teachers incorporate advisory practices within their classroom (e.g. conversation about college, writing essays).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Assists students in securing internships or mentorships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments regarding survey questions for CC10:**

**11: The following statements refer to Critical Component (CC) 11. Please think about the following definition when considering how you would rate the statements below.**

**CC11 Definition: *Dynamic Assessment Systems for Continuous Improvement.*** The school community supports continuous improvement through data systems. Teachers use summative assessments (e.g., mastery based learning) to inform future instruction and to enhance student learning. School leaders and teachers examine standardized and summative assessment data to inform teaching strategies, student supports, professional development opportunities, and resource allocation. Teachers monitor students' progress through online data management systems, and allow supports as needed, or offer additional learning opportunities. Data is available to students and parents (Means, Padilla, & Gallagher, 2010; Means, Gallager, & Padilla, 2007; Mandinach, Honey, & Light, 2006).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Teachers make adjustments in their methods based on how students are performing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Teachers set objectives and measure students' progress to assess their goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Has a designated person or group of people as responsible for analyzing school performance data and disseminating findings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Teachers use student-level data to inform a variety of classroom interventions and adjustments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Students receive personalized instruction/review based on their performance on assessments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) School provides data to teachers on their classroom practices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) Teachers use data to improve their own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

performances.					
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**Comments regarding survey questions for CC11:**

**12: The following statements refer to Critical Component (CC) 12. Please think about the following definition when considering how you would rate the statements below.**

**CC12 Definition: Innovative and Responsive Leadership.** The school leadership is proactive and continuously addresses the needs of teachers, students, and the greater community through innovative solutions, open communication, and uplifting leadership (Hargreaves, Boyle, Harris, 2014). Leadership is distributed formally and informally, among administrators and a teachers creating a flattened hierarchy to manage a complex school environment (Gronn, 2009; J. Spillane, 2006). Teachers are professionalized and have some autonomy over the curriculum and instruction in the classroom (N. Spillane, 2015). In this sense, the school leadership is characterized by flat, organic leadership structures and attends to the needs and functions of the school (J. Spillane, 2012).

**Please rate the extent to which you agree or disagree with the following statements:**

This school...	Strongly Disagree (1)	Disagree (2)	Don't know (3)	Agree (4)	Strongly Agree (5)
(1) Leader is knowledgeable on instructional practices used in the school.	<input type="radio"/>				
(2) Leader establishes relational trust with teachers, students, family, and the community.	<input type="radio"/>				
(3) Leader is proactive about marketing the school to potential applicants.	<input type="radio"/>				
(4) Leadership sets the tone for community outreach.	<input type="radio"/>				

(5) Leadership has a clearly articulated vision that is openly communicated to the school and its community.	<input type="radio"/>				
(6) Leadership makes an effort to build strong personal connections with all students.	<input type="radio"/>				
(7) There is professional development that is aligned to the school's goals.	<input type="radio"/>				

**Comments regarding survey questions for CC12:**

**13: The following statements refer to Critical Component (CC) 13. Please think about the following definition when considering how you would rate the statements below.**

**CC13 Definition: Positive School Community and Culture of High Expectations for All.** ISHSs have a school environment where students and staff feel a sense of personal, intellectual, and socio-emotional safety. Students are required to take rigorous courses in STEM and become well-equipped for higher education. Students understand that it is acceptable to make mistakes in the learning process and encouraged to take intellectual risks. Teachers are also encouraged to collaborate and take risks in innovative instructional practices. The school environment is personally safe (e.g., free from bullying), and fosters the development of personal identities and interests within a STEM context (Bruce-Davis et al., 2014; Engels et al., 2008; Edwards et al., 1996).

**Please rate the extent to which you agree or disagree with the following statements:**

<b>This school...</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Don't know (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
(1) Students have strong working relationships with teachers, administrators, and their peers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(2) Teachers and students have mutual respect for each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(3) Fosters an environment where students feel a sense of personal safety (i.e. feel free of bullying).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(4) Students show pride in their work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(5) Students show pride in their school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(6) Openly celebrates students' accomplishments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(7) Student career interests are developed and supported.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(8) Teachers encourage collaborative work between students (e.g. project roles, grouping strategies, peer reviewing).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(9) Students adhere to school values (e.g. respect, integrity, and responsibility).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(10) A majority of students can say out loud what the school values are.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(11) Has strong rituals, stories, and norms (e.g. school activities that promote school traditions).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(12) Alumni maintain relationships with the school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(13) Teachers are selected and evaluated on their cultural fit with the school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(14) All students are held to the same expectation of being independent and responsible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments regarding survey questions for CC13:**

**14: The following statements refer to Critical Component (CC) 14. Please think about the following definition when considering how you would rate the statements below.**

**CC14 Definition: Agency and Choice.** Students choose to attend a STEM-focused high school and understand the challenges that will be involved and develop a sense of purpose coherent with the school mission (Merseeth, 2009), committed to a different approach to high school due to its STEM focus (cf., Bargerhuff, 2013; cf., Orfield & Frankenberg, 2013; Rutledge et al., 2015). Students had the agency (Bandura, 1989) that follows from having choices about the school that they attend; and multiple opportunities to make more choices about STEM academic opportunities, accompanied by increasing personal agency and responsibility outside of school. The emphasis on agency and choice broadened students’ sense of belonging in the STEM community and the scope of possibilities.

**Please rate the extent to which you agree or disagree with the following statements:**

This school...	Strongly Disagree (1)	Disagree (2)	Don't know (3)	Agree (4)	Strongly Agree (5)
(1) Students and teachers have a sense of autonomy and agency.	<input type="radio"/>				
(2) Parent participation is encouraged in school events and activities.	<input type="radio"/>				
(3) A two way information exchange exists between parents and the school and this system is well utilized.	<input type="radio"/>				
(4) Has open, continuous communication between the school and parents.	<input type="radio"/>				
(5) Students and families receive specific detailed information about college and the choices they can make.	<input type="radio"/>				
(6) Encourages families “buy in” through culturally responsive supports (e.g. having a translator available at a school meeting on financial aid for college)	<input type="radio"/>				

(7) Recruiting of eighth graders is directed at families of groups underserved in STEM education and includes communication in multiple languages, and multiple forms of communications (flyers, web materials, etc.)	<input type="radio"/>				
(8) Transportation is made available either through school, district, or city resources.	<input type="radio"/>				
(9) Students who have an identified disability or are an English Language Learner are successful and graduate.	<input type="radio"/>				
(10) School personnel make it an implicit and explicit expectation that students take advantage of the opportunities provided.	<input type="radio"/>				
(11) Student choices (college, employment) are openly publicized and celebrated in the school	<input type="radio"/>				
(12) Students and families are assisted in making college choices that are tailored to both student goals and families financial circumstances.	<input type="radio"/>				

**Comments regarding survey questions for CC14:**

**Any other observations:**