Utah STEM School Designation

2015-2016

Application Packet

Pre-Application Deadline:
October 1, 2015

Application Deadline:
December 18, 2015

Utah State Office of Education

STEM Action Center with the Governor's Office of Economic Development

Utah STEM SCHOOL DESIGNATION – School Application Overview

1. **School Information**
   Name of School: Beehive Science and Technology Academy
   Address: 830 East 9400 South Sandy, Utah 84094
   Phone: 801-576-0070
   Website: beehiveacademy.org
   Public/Charter/Private: Charter

2. **Lead Contact for STEM School Designation Application**
   Name: Hanifi Oguz
   Email:principal@beehiveacademy.org
   Position: Principal

3. **Members of the STEM Schools Designation Application Team**
   Name, title, email for all members. Should include representation of administration, teacher, STEM partners, and stakeholder groups (such as community council, parents, etc.)

Hanifi Oguz	School Principal	hanifi.oguz@beehiveacademy.org
Zack Temircan	Academic Dean	zack@beehiveacademy.org
Germaine Barnes	School Safety Coordinator	germaine.barnes@beehiveacademy.org
Carol Firmage	Humanities Dept. Chair, English Teacher	carol.firmage@beehiveacademy.org
Halis Kablan	STEM Coordinator, Science Teacher	halis.kablan@beehiveacademy.org
Michael Defronzo	Mathematics Teacher	michael.defronzo@beehiveacademy.org
Pedro Martinez	Senior Engineer, IM Flash- Industry Partner Representative to BSTA	pmartinez@imflash.com

Utah STEM School Designation Criteria
Pilot Year Model

4. **What level are you applying for? (Bronze, Silver, Gold, Platinum)**
   Note: If you are applying for Gold or Platinum, you will be required to schedule a site visit for the STEM AC evaluation team in late January / February.
   Gold

5. **In 250 words or less, please describe the STEM vision for your school.**

Beehive Science and Technology Academy (BSTA) is a STEM-focused, charter school which uses iPads and other technology aided education tools. We serve around 300 students in grades 6 through 12. BSTA offers courses and extended day activities that promote STEM, including computer science and advanced math courses, STEM expo projects and other STEM related activities. BSTA also prepares students for prestigious STEM competitions such as Robotics, Lego Robotics, MathCounts, Math Matters and state science fairs. College prep courses are offered with particular emphasis on STEM related industries so that Beehive students graduate ready to move on to their next level of education.

The main objective is to develop students who possess critical thinking skills, mathematical reasoning, and complex problem-solving abilities, and who will be equipped for college matriculation and work-ready careers in the areas of Science, Technology, Engineering, and Math. Project-based learning is at the center of BSTA's STEM learning and certification programs, leading to increased student engagement, collaborative work ethic, and real-world culminating projects that showcase students' understanding and acquisition of academic vocabulary, math conceptual mastery, problem-solving/reasoning skills, and computational fluency-automaticity.

Every student in the school is issued an iPad that are used extensively in each classroom, as well as for major projects. Each year, all students participate in the Utah STEM Expo hosted by BSTA. iPads are particularly used for this event as students have to design a project, film it, put it on BSTA's YouTube channel, and then demonstrate it in front of thousands of visitors.

Utah STEM School Designation Criteria
Pilot Year Model

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1a. Interdisciplinary Instruction Helps Students Make Interdisciplinary Connections *There are collaborative team(s) comprised of teachers who teach different disciplines. Students identify ways that disciplines are interrelated, reinforced, and complement one another.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Teachers ask students to think about how the content of the lesson relates to other STEM disciplines. - Students are asked to apply what they learned in another subject to a lesson, assignment, or activity at least once per month.	- Teachers ask students to think about how the content of the lesson related to ALL other disciplines. - Students are engaged in an integrated unit that articulates interdisciplinary connections one or more times per week.

Narrative: 1a: Exemplary – 3 points

BSTA strives to make interdisciplinary connections for students across the curriculum a common practice, at least once per week. Students are expected to understand how subjects are interrelated and complementary in the following ways:

Grade Level Collaborative Teacher Teams (CTT) and Department CTTs meet on alternating weeks, one meeting each week. All teachers at BSTA participate in CTTs. At Grade Level CTT meetings, teachers discuss Learner Centered Problems (LCP) and collaborate on strategies to improve student proficiency in the LCPs and other specific areas. This includes much collaborative curriculum planning across all content areas in our school, including the elective courses. This process has been expanded due to our two-year school improvement plan, "Assessment To Achievement," which BSTA volunteered to participate in. This year, CTTs are placing a large emphasis on writing skills, ratios and percents, and statistics in high school grades, across all subject areas.

Utah STEM School Designation Criteria
Pilot Year Model

Departmental CTTs collaborate to create instructional rubrics which are used in all departments. Students are assessed weekly on writing specific skills in each content area. Each department built its own rubric for an assessment based on a model rubric created in the math department. Students are provided with a similar rubric before they begin writing, and students self-assess their writing as a way to build metacognitive skills. The rubric becomes a means of instructing the students about what is expected of them.

Math, language arts, science, art, music, and history classes all have planned curriculum overlaps. For example, a project created to assess students in Secondary 1 Math had students create and use exponential equations, tables, and graphs to represent the half-life of Carbon 14 in a sample. Students also quantified the data to represent the South African ebola outbreak which began in 2014. Using tables, graphs, equations, and a written essay of their findings, students formed conjectures and made projections about future outbreaks of the disease.

In music classes, students discuss the history, politics, and other inspirations behind specific music genres and the time periods in which they were popular, including but not limited to the anti-war music of the 1960's and the Punk Rock Movement of the 1980's. Students form conjectures as to the motivation for these and various other musical genres of the world.

English language arts, math, and social studies teachers collaborated on a unit of literature using *Flatland* by Edwin Abbott, a mathematician/theologian in the late 1800s. *Flatland* is a satire about Victorian society, which uses characters who are represented by geometric shapes-- "the more angles your shape has, the greater your social status." The novel is thought provoking and rich in geometric descriptions and mathematical vocabulary. Abbott describes an entirely self-absorbed society that is either unwilling or unable to accept new science or ideas that are beyond their views of normality. Student assignments included an essay to tell what shape they would have been and why, again drawing on their metacognition to self-analyze and quantify themselves in historic comparison to characters in Victorian society.

Utah STEM School Designation Criteria
Pilot Year Model

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1b. Problem-Solving Learning *Learning is student-led, interdisciplinary, and engaged in real-world content and multiple solutions for student cooperation utilizing STEM knowledge and skills. Problem-solving learning at this school requires a thorough process of inquiry, knowledge building, and resolutions. Curriculum includes projects, often interdisciplinary and ranging from short- to long-term, which are focused on solving an authentic problem.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Problem-solving learning (short-term) is evident in lessons/activities at least once per month in the STEM curriculum. - Problem-solving learning in projects (long-term) is evident in the STEM curriculum at least three times per year. - Students are required to do research for problem-solving learning at least three times per year.	- Problem-solving learning in short-term projects is evident in lessons/activities at least once per week in the STEM curriculum. - Problem-solving learning in long-term projects is evident in the STEM curriculum at least five per year and three per year in other disciplines. - Problem-solving learning in long-term projects at the school draw from multiple courses or subjects.

Narrative: 1b: Exemplary – 3 points

At BSTA, students are engaged in utilizing their STEM knowledge and skills in solving problems and completing projects both short and long-term.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

BSTA hosts the Utah Stem Expo at the South Towne Expo Center each spring and has done so since 2013. Students create projects in math, science, computer programming, and this year also in the arts. Students select their project in September and spend the year working on it. They complete write-ups about their selection, record video demonstrations that they post on Youtube, and preview their assignments for parents at open houses and public events long before the Expo. These are NOT typical science projects, but in-depth research and development opportunities. In the past, students have built hovercrafts, created hydrogen gas that could help power gasoline engines, and numerous other projects. Future projects include building an Aim's Room (please visit our Stem Expo in the spring.)

In 2015, BSTA became a pilot school for College Prep Mathematics (CPM), a rigorous, problem-solving based mathematics curriculum. CPM lessons rely on cooperative or group activities in which students are given problems to solve, which are taught weekly at all grade levels. Teachers facilitate discussion, direction, and investigation by students. Later lectures address the students' problems, attempts, and successes during the problem solving sessions. Direct instruction fills in students' gaps in understanding by defining terms, symbols, and algorithms to formalize the concepts.

A recent example of a problem based math lesson Was "Newton's Revenge" in which it was rumored that a roller coaster was unsafe because people were getting hurt when they raised their hands by hitting them on the ceiling of a tunnel the coaster traveled through. Students in the eighth grade created scatter plots and a trend line (on Desmos) to examine the data and make a projection about how tall a person would need to be to reach the ceiling from a seated position. They concluded that the roller coaster was safe for people less than eight feet tall.

Computer science and programming classes use problem solving instruction to teach flow-charting as a way to solve problems.

Science Classes use the Discovery Education Science Techbook, an online content portal that provides students with access to content in text, audio and visual formats.. Students have access to an interactive glossary, videos, reading passages, charts, virtual labs, simulations and assessment tools. Each concept is based on the 5E Model (Engage-Explore-Explain-Elaborate-Evaluate). The above mentioned materials are distributed in a manner under these 5E tabs to help students build up on inquiry learning. This learning model is especially useful to enhance mastering the subject matter, developing scientific reasoning, and cultivating interest and attitude about science.

In the engineering class, students design and build many projects. During this process students use a decision making matrix for solving problems that result while designing and constructing projects. Last summer a few students and teachers collaborated to design and build a 10'x12' storage shed for the school. Together they designed a roof truss system and solved the many problems that arose in this real world endeavor.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1c. Student Cooperation *Students learn from each other and work well together.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Students collaborate and work as teams in STEM disciplines at least once per week. - Student products in STEM disciplines reflect group learning interactions at least once per month. - Students are engaged in giving and receiving constructive feedback to peers in STEM learning cooperative settings at least three times per year.	- Students collaborate and work as teams in all disciplines at least once per week. - Student products in all disciplines reflect group learning interactions at least once per month. - Students are engaged in giving and receiving constructive feedback to peers in all course cooperative settings at least three times per year. - Students use appropriate technology as available for collaborative work, communication, research and data collection/analysis, in projects and other assessments daily.

Narrative: Exemplary -- 3 points

Students at BSTA of various ages are collaborative, learn from each other, and work well together on projects and in various STEM capacities.

In Science classes, students regularly work in groups to complete projects from the large, overarching annual STEM Expo projects to smaller weekly classroom projects, and daily activities. Group work is the norm in science classes. Students routinely create models (e.g. solar system models or moon phases model).

The math department uses College Prep Mathematics (CPM), a rigorous, problem-solving based mathematics curriculum weekly. CPM lessons rely on cooperative and/or group activities in which students work in teams to solve problems at all grade levels. Math classes use CPM activities at least once per week. Teachers facilitate discussion, direction, and investigation by students. CPM includes Desmos, a computerized charting and graphing tool, which students

Utah STEM School Designation Criteria
Pilot Year Model
use alongside TI and Casio graphing calculators. Once per quarter, math students demonstrate their work on specific problems to their whole class who then offer constructive feedback. (Please use this link to view a short video of a cooperative math activity)

Social Studies classes have weekly group current event discussion projects.

Creative activities are designed in many classes to form new teams at the start of a new unit.

Google classroom is used in many classes to connect students together as they collaborate digitally to solve problems and create projects.

Utah STEM School Designation Criteria
Pilot Year Model

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1d. Connections to the Real-World and Current Events *Students make connections between what they are learning and real-world experiences, current events, and/or their daily lives.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Instruction regularly helps students to better understand current events and/or issues. - Students are required to apply knowledge learned in the classroom to conceptual or theoretical real-world scenario at least three times per month in STEM disciplines.	- Instruction consistently helps students to better understand current events and/or issues, including those specific to Utah, the United States, and international communities. - Students are required to apply knowledge learned in the classroom to conceptual or theoretical real-world scenarios at least three times per month in all disciplines.

Narrative: Exemplary -- 3 points

At BSTA, students are connected to the world and its events daily through many different disciplines.

Social Studies classes watch news clips and have current event discussion/projects regularly.

Math class problems are often taken from real world events. A recent project in Secondary I Math had students use data from the 2013 Ebola outbreak in South Africa. Students made tables, graphs, and wrote equations. They found that the numbers being infected each month followed an exponential curve. They wrote equations and made projections about the future spread of the disease.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Financial Literacy classes teach students to prepare for the workforce with mock job interviews, balance a checkbook with simulated checking accounts, manage credit cards, understand insurance, estate planning, investments and how to budget money for a successful life.

In music classes, students discuss the history, politics, and other inspirations behind specific music genres and the time periods in which they were popular, including but not limited to the anti-war music of the 1960's and the Punk Rock Movement of the 1980's. Students form conjectures as to the motivation for these and various other musical genres of the world.

Digital photography classes teach the art of catching the moment in a photograph in collaboration with reporting on current events.

English classes have discussions and regular journal entries relating to current events to incidents that have taken place in the literature that they are studying.

Science classes use Discovery Education and its Virtual Labs to investigate real world connections to the science curriculum.

In their science classes, students use their Utah STEM Expo projects to make connections to daily life and/or industry use. Students relate their project to every-day activities or an industry in their Youtube video showcasing their STEM Expo project and in preparing their project website.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1e. Engineering Design Process *The teacher supports students' use of an engineering design process (prototype, test, evaluate, and revise).*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Engineering design process is the focus of science and CTE classroom curriculum at least twice per year. - One problem-solving learning project per year requires development of a product/outcome utilizing the engineering design process in most STEM classes.	- The engineering design process is the focus of science and CTE classroom curriculum at least four times per year. - The engineering design process is referenced in all classes as a possible strategy to addressing a problem.

Narrative: Exemplary -- 3 points

The teachers at BSTA support students as they learn the engineering design process.

CTE classes use specialized equipment and Vex robotics with an emphasis on the engineering design process.

Gateway To Engineering classes teach students the engineering design process.

Computer science classes teach the engineering design process.

Computer gaming development classes teach the engineering design process.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Art classes teach the engineering design process with 3D printers to make Christmas Ornaments. Students learn the engineering design process using 3D pens, scanners, and printers in Robotics Clubs and Competitive Teams.

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1f. Standards and Core Course Sequence *The school takes standards (Utah Core Standards, 21st Century Skills (http://www.p21.org/), etc.) into account in school scheduling/curriculum design/instruction.*	*N/A* *Standards-based instruction aligned to the Utah Core Standards is central to instruction. Schools need to have this element in place to be eligible for STEM School Certification.*	N/A *Standards-based instruction aligned to the Utah Core Standards is central to instruction. Schools need to have this element in place to be eligible for STEM School Certification.*	- Utah standards are the central component of all lessons for all classes. - Educators frequently review disciplinary standards for their subject area(s). - The curriculum is vertically aligned within programs, as well as to the current Utah Core Standards. - *Secondary schools:* The school provides a thoughtful rationale for the core course sequencing.	- Educators frequently review disciplinary standards for subject area(s) specific to their teaching assignment and other subject areas. - Educators utilize additional standard sets, such as 21st century skills, computer science standards, etc., to inform instruction. - Teacher teams vertically plan STEM instruction within schools. - *Secondary schools:* Students have opportunities to take STEM-based courses beyond the traditional grade-level requirements.

Narrative: Exemplary -- 3 points

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

BSTA uses Utah Core Standards: Honors Level, National standards, Common Core Standards, and 21st Century Skills in scheduling and designing its instruction.

Students attended the *Day of the Dead Pre-Med Conference* in October 2015 at the University of Utah School of Medicine. This conference gave our high school seniors insight into the application process for medical school and a glimpse into what awaits medical students as a study and a career. Highlights included a visit to the cadaver lab.

Students attended *Science Day* at the University of Utah in November 2015. There they attended workshops offered by the University's best professors and local STEM industry leaders.

Math classes incorporate the Utah Core Curriculum (UTCC), The Common Core State Standards (CCSS) for Classroom Practice and the National Council of Teachers of Mathematics (NCTM) Principles and Standards which are the foundation for the design of the College Prep Mathematics (CPM) program being used. Most math teachers are members of at least one of the Councils. All teach well beyond the scope of the Core curriculum.

A+ classes follow the MATHCOUNTS curriculum and include arithmetic, algebra, counting, geometry, number theory, probability, and statistics. The focus of MATHCOUNTS curriculum is in developing mathematical problem solving skills.

Utah STEM School Designation Criteria
Pilot Year Model

1. **Curriculum: Problem-Solving Rigorous Learning**

STEM Curriculum is selected based on Utah Core Standards. The curriculum has an articulated interconnectedness between science, technology, engineering and math. Curriculum and instruction are coordinated between the various aspects of STEM. Projects form a substantial part of the curriculum.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
1g. Cognitively Demanding Work *Students use thinking and process skills. This includes considering alternative arguments or explanations, making predictions, interpreting their experiences, analyzing data, explaining their reasoning, and supporting their conclusions with evidence.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Student learning products exemplify at DOK 2-3 level at least once a month. Classroom instruction is predominantly student-centered, and all students are asked to extend and refine their acquired knowledge to routinely analyze and solve problems, as well as create unique solutions. - All students are asked to support their conclusions with evidence. Students are asked to explain their reasoning. - All students are asked to consider and/or define alternative explanations.	- Student learning products exemplify at DOK 3-4 level one or more times per month. Classroom instruction is predominantly student-centered, and all students are asked to have the competence to think in complex ways and apply the knowledge and skills they have acquired. Students are asked to create solutions and take action that further develops their skills and knowledge. - All students are asked to support their conclusions with evidence. Students are asked to explain their reasoning. - All students are asked to come up with alternative explanations or arguments. All students are asked to make hypotheses or predictions.

Narrative: Exemplary 3

- BSTA Teachers create and use SAGE Formative Tests regularly (bi-monthly) to challenge and assess students with 40% to 50% of the questions at or above DOK 3.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

- Computer Programming and Game Development Classes apply Webb's Depth of Knowledge Levels to Bloom's Cognitive Process Dimensions to develop challenging curriculum at or above DOK 3.
- BSTA Collaborative Teacher teams implement Evidence Based Instructional Strategies (EBIS) to raise the bar of student accomplishment. BSTA has chosen to implement strategies that will enforce metacognitive skills across all content areas .
- Each student at BSTA works all year to complete a project that will be displayed at The Utah Stem Expo in the spring. This is so much more than just a science project. Students select their project in September, complete continuous studies and research, create websites, youtube videos, and finally build their projects to display at the Expo. Some of the past projects included: a hovercraft and a device to create hydrogen fuel from water to enhance fuel consumption.
- Science classes start with advanced depth of knowledge projects in the early grades. A middle school project, "Track the Moon" shows how sixth grade students learn about the moon's orbit.
- The following clubs held after school are further examples of work students do that is cognitively demanding:
- Lego League
- Chess Club
- Future City Design
- Turkish Olympiad
- Math Counts
- Math League
- Digital Media

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

2. **Leadership**

The school leadership has created clear definitions and a vision of STEM teaching and learning as it applies in the local school and as informed by state, national, and global efforts. Collaboration exists between community, industry and other education partners. Efforts are made to connect to national and global efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
2a. Career Exposure *Students participate in post-secondary education exposure activities, such as college tours, and in career-readiness experiences, including internships and mentoring. In some cases, experiences may be customized for each student.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Career field experiences are offered to students at least two times per year for authentic learning. - Careers are directly incorporated into the STEM instruction at least once per month. - *Secondary Schools:* Internships or on-site STEM participation exist for some of the students. - *Secondary Schools*: All students participate in job-shadowing, field experiences, or other on-site experiences in STEM fields at least once each year.	- Outside-the-classroom learning includes field experience and authentic, contextual learning that directly connects to the in-class curriculum. - Partners help students and teachers understand what is expected of a student planning to enter a career in the partner's field.

School Name: Beehive Science and Technology Academy (BSTA)

Narrative: Exemplary -- 3 points

BSTA prepares all students to be college and career ready with a rigorous and broad curriculum, grounded in the core academic discipline, but also consisting of other subjects that are part of a well-rounded education. Academic preparation alone is not enough to ensure postsecondary readiness but it is clear that it is an essential part of readiness for college, careers, and life in the 21st century. Thus, BSTA college programs are designed to support the students starting in the ninth grade the areas of academic planning, four-year high school plans, and post high school planning. Students will learn specific information about themselves through self-knowledge, education and occupation exploration in college and career ready classes, such as College Advisory Class and ACT/SAT Preparation Class. The broad goal of teaching these classes is to help students begin to figure out who they are while they decide what they want to become.

BSTA's college advisory program provides students the opportunity to explore careers, get familiar with personal skills to have a successful career, and learn about colleges, the scholarship process, and the application process. Moreover, BSTA offers college mentorship and leadership program for students. The CMLP (College Mentorship and Leadership Program) is a multi-faceted program, designed to prepare students to be admitted to top colleges. Students are able to improve their academic and personal skills. The purpose of the CMLP program is to give an extra edge to our students so they can be eligible for more resources during their college life. The program also has a major ingredient of guidance to secure the character and personality part of college admission and provides highly motivated and enriching activities. Along the way, students will be guided through scholarship and awards applications for colleges such as the Congressional Award.

BSTA organizes field trips and college trips to expose and prepare its students for various career opportunities. College recruiters and representatives from other careers like the Air Force, IM Flash, etc., come to BSTA each year to talk about their respective careers and scopes. BSTA also arranges and encourages students to do internship programs to experience different jobs in the field. Students go with faculty to various college fairs, and STEM fests to expose them to STEM careers. BSTA invites many colleges and companies to the BSTA sponsored Utah STEM Expo to talk to students about their job opportunities.

Utah STEM School Designation Criteria
Pilot Year Model

Leadership

The school leadership has created clear definitions and a vision of STEM teaching and learning as it applies in the local school and as informed by state, national, and global efforts. Collaboration exists between community, industry and other education partners. Efforts are made to connect to national and global efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
2b. College and Career Readiness Skills *Students use the skills of communication, creativity, collaboration, leadership, critical thinking, and technological proficiency.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	*STEM lessons/activities require students to exercise skills they will use in the workplace:* - Lessons/activities require students to demonstrate leadership and responsibility. - Lessons/activities require students to present information effectively and are aligned with the Utah ELA standards for communication. - Lessons/activities require students to exercise time management and organize their work. -	*ALL lessons/activities require students to regularly exercise skills they will use in the workplace:* - Lessons/activities require students to demonstrate leadership and responsibility. - Lessons/activities require students to present information effectively, and are aligned with the Utah ELA standards for communication. - Lessons/activities require students to exercise time management and organize their work.

Narrative: Exemplary -- 3 points

BSTA students are asked to do activities, projects and assignments that help prepare them for the workplace by employing time management and organizational skills. They regularly do projects that require collaboration, creativity and communication in all of their classes. All students are required to prepare a STEM project and present it on Youtube, at the Utah STEM Expo, and at other public events. Students are provided a guidebook with each step outlined, a required due date, and a grade.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

In non-STEM subjects, students also do numerous projects and presentations using Apple TVs in each classroom. There are many apps and programs used by all teachers and students as they interact with each other virtually using their iPads. Each student has an interactive student calendar in their CoolSIS account, which allows them to organize themselves, keep track of their grades and have access to course documents. Teachers assign projects and assignments in CoolSIS, which is automatically added to students' calendars.

Communication is one of our school wide goals. Two of BSTA's DRSLs are effective communication skills (see artifacts) and 21st century technology skills. There is a poster in each classroom in the school listing these goals, and each teacher incorporates these skills into their teaching.

Each year, BSTA organizes the STEM YouTube video contest in connection with their STEM Expo project. All students are required to participate. Students upload their videos to YouTube, and then watch the videos of their friends and classmates, after which they leave encouraging and inciteful comments. Students also participate in other public events and interact with people while they present their projects. These many different opportunities greatly improve their communication skills both to their peers and the general public.

Utah STEM School Designation Criteria
Pilot Year Model

2. **Leadership**

The school leadership has created clear definitions and a vision of STEM teaching and learning as it applies in the local school and as informed by state, national, and global efforts. Collaboration exists between community, industry and other education partners. Efforts are made to connect to national and global efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
2c. STEM Instructional Team Leaders Support Instruction *A portion of school's staff, in addition to administrators, has time designated for instructional leadership and actively supports instruction (e.g., leads professional development, models instruction, gives feedback on instruction, etc.). School leaders ensure that staff members have opportunities to grow in their roles as STEM school teachers and leaders.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- A STEM leadership team is in place to ensure continuous STEM program improvement. - Teacher teams address expectations of school set by the leadership team. - Teams meet regularly to discuss school goals and progress, research, best practices, and opportunities for improvement. - School leaders ensure that teachers have opportunities to see exemplary practice. - Teachers know that it's okay to try new practices. School leaders support teachers when they fail with constructive procedures and feedback. - Utah Effective Teaching Standards and Utah Educational Leadership Standards are **involved in planning and framework** for leadership development—see http://www.schools.utah.gov/CURR/educatoreffectiveness/Standards.aspx - School leader(s) encourage and support teachers to seek out additional professional learning opportunities beyond school/LEA.	- A STEM leadership team is in place to define and monitor and evaluate entire school. - Leadership teams meet regularly to discuss research, best practices, successes, and opportunities for improvement toward STEM School goals. - School leaders model instructional practice, **demonstrate and support staff development in high-quality instruction**. - School leaders model and support risk-taking and autonomy for staff. - School leaders model and support staff innovation and/or attempting new strategies. - Utah Effective Teaching Standards and Utah Educational Leadership Standards are **directly referenced and central to planning, development, and evaluation** of leadership efforts—see http://www.schools.utah.gov/CURR/educatoreffectiveness/Standards.aspx

Narrative: Exemplary -- 3 points

BSTA staff and administration work together to ensure teachers have the opportunity to enhance their abilities as STEM leaders. Teachers are encouraged and recognized for seeking out learning opportunities for professional development. They also know that if they try something new and it fails, the administration will be supportive and helpful in giving feedback for success in future tries.

We have a STEM Coordinator to lead STEM teaching in the school. Our STEM committee involves three administrators, three teachers and one parent. The committee meets quarterly to discuss STEM education and its implementation. It also meets as needed when a STEM related activity or event is organized. Teachers are encouraged and recognized for seeking out learning opportunities for professional development. The Smart School suggestion came from staff, and school administration worked with the school board to find the matching $240,000 to start the technology program in the school. BSTA has piloted the Assessment to Achievement program, the Globolaria Game Design program, the Smart School Technology Program, Edivate, PLTW, and the STEM Math program from the STEM Action Center. Administrators and coaches model teaching and scenarios to staff during the in-service days and various professional development events. Staff evaluations and professional development opportunities are designed according to the Utah standards.

Utah STEM School Designation Criteria
Pilot Year Model

Leadership

The school leadership has created clear definitions and a vision of STEM teaching and learning as it applies in the local school and as informed by state, national, and global efforts. Collaboration exists between community, industry and other education partners. Efforts are made to connect to national and global efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
2d. Staff Has Sense of School Ownership and Participates in Decision Making *Staff members behave in a manner that exhibits their responsibility for and commitment to the success of the school. The staff contributes to and has a say in decisions regarding the school. The staff works with independence and self-direction.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The school leadership engages staff in strategic planning. - The school leadership has an articulated process for staff to give input and feedback. - Decisions are made by greater than 50% of the school's staff.	- The school leadership engages ALL staff members in strategic planning. - The school leadership has an articulated process for staff members to give input and feedback, and responds to feedback in an open setting. - Decisions are made by ALL school faculty and staff members.

Narrative: Exemplary -- 3 points

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

The administration at BSTA endeavors to make all staff and their families feel welcome and a part of the BSTA family. This makes for better success in the classroom, and commitment to the success of the school. When a new faculty or staff member is hired, he or she is welcomed and told they will now be an essential part of the effort to prepare students for the future. They are greeted with the idea that they will always be a part of the Beehive family, no matter how long they stay. Each year there are several opportunities for staff and their families to come together and interact—Fall Festival (in October), a holiday dinner, and picnics in the spring, etc.

At least once a month, a school-wide faculty meeting is held where everyone is given a chance to voice their opinions on items that concern the whole school. Even where decisions are made by the administration, faculty and staff are made aware of those decisions and asked for input. The month's birthdays are also celebrated as well as any accomplishments recently made.

There is no micromanaging at Beehive. The faculty is allowed to work independently and with self-direction in their various subjects. Each individual has a different teaching style, and at BSTA everyone is allowed to use that style to become the most inspiring teacher he or she can be. At the end of the year, all staff come together and do a year end wrap-up meeting. Together, everyone evaluates the year and its various programs. At these meetings, evaluations are made as to the effectiveness and success of each one. Changes and adjustments are made to make each school year an improvement. Then before school starts during our in-service days, teachers have lengthy discussions in which implementation plans are discussed. Various staff surveys are also held to get input. A technology survey, and a professional development survey are just two of them.

Utah STEM School Designation Criteria
Pilot Year Model

3. Assessment

Assessments are ongoing, authentic and cross-curricular. They are project-focused and performance-based. Rubrics for projects are provided and articulate with the goals of the assessment. Formative assessment informs summative assessment and teaching efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
3a. Student Learning Outcomes (SLOs) Process *Demonstration that school utilizes SLO process to measure student outcomes and teacher instruction.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- STEM courses utilize SLOs to measure progress toward targets for at least two expected student learning outcomes. - Students are actively informed about mastery expectations and progress.	- 80% of courses utilize SLOs to measure progress toward targets for at least two expected student learning outcomes. - Qualitative assessments exist around student learning outcomes.

Narrative: Exemplary--3 points

Students are continually actively informed of their progress at BSTA as is demonstrated by the following:

Students and parents are informed of progress in all classes through Coolsis, an online grading tool, which is available on student iPads, and for parent mobile devices.

Students and parents are informed of progress throughout the year with eight report cards sent home by mail, as well as up to date information on CoolSIS.

Teachers are expected to respond to parent emails within 24 hours, which aids in prompt communication about a student's progress.

Parent-Teacher Conferences are held twice during the year to allow for more communication about student progress. Meeting with teachers by appointment is also available any time.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

Testing is used in tracking student progress at different levels. The SAGE interim and Summative tests aid in tracking student progress throughout the year. These test results guide teachers in planning their teaching and in setting goals. Individual student reports are used to inform students of their level and to set their own goals. SAGE Formative testing is used in a more frequent manner to guide and keep track of student learning.

In high school, a student's level is measured with standardized testing. ACT Explore in 9th grade, ACT Plan in 10th grade and the ACT in 11th grade are administered once a year to help with college admission planning.

Assessment to Achievement program guides teachers in using measurable data to guide them in their teaching. The School Transformation Team (STT) meets regularly to plan and guide the Collaborative Teacher Teams (CTTs) in their strategies and teaching methods to improve assessment outcome.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

3. **Assessment**

Assessments are ongoing, authentic and cross-curricular. They are project-focused and performance-based. Rubrics for projects are provided and articulate with the goals of the assessment. Formative assessment informs summative assessment and teaching efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
3b. Use of Assessment to Inform Instruction *The teacher uses information on current student understanding to inform and plan future instruction.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- All teachers use multiple indicators of success (e.g., performance assessments, observations, monitoring student dialogue) at least once a week to inform their decisions about instruction (reteach concepts, try an alternative instructional strategy, organize the students differently, provide an alternative example). - Most teachers go back and reteach concepts based on student understanding. - Teachers consistently use observation and monitor student dialogue to assess student learning.	- All teachers use multiple indicators of success (e.g., performance assessments, observations, monitoring student dialogue) almost every class session to inform decisions about instruction (e.g., reteach concepts, try an alternative instructional strategy, organize the students differently, provide an alternative example). - Teachers use observation and monitor student dialogue to consistently assess student learning, and share their data in teacher teams at least once a month.

Narrative: Exemplary--3 points

The teachers at BSTA use current student understanding to plan their instruction in the following ways:

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Teachers are using SAGE Interim/Summative data to help them make decisions about students' performance and plan their future instruction.

MAP testing is used for certain students to aid teachers in decision-making.

Teachers submit curriculum maps at the beginning of the year to the administration. While they are following their curriculum maps throughout the year, teachers make changes according to the students' pace in learning.

Grade level meetings and department meetings help teachers in discussing and deciding strategies for student group learning levels and to track their progress.

Assessment to Achievement goals that have been set are used in classes to track student learning and success. Resources provided through the Assessment to Achievement system help teachers make decisions based on data.

Khan Academy is an online system used by the Math department to track individual students' math progress. Reports generated based on students' responses guide teachers in determining the need to reteach certain concepts.

SAGE Formative is used by some teachers to assess and track students' success based on topics and state standards. Reports generated based on students' responses guide teachers in determining the need for reteaching concepts.

Discovery Education Techbook is used by the science department to provide content and assessment to students. This system helps teachers keep track of students' understanding of science concepts. Reports generated based on student responses guide teachers in determining the need for reteaching concepts.

Utah STEM School Designation Criteria
Pilot Year Model

4. **Professional Learning**

STEM-focused professional learning is fully implemented. Professional development aligns with Utah's requirements for professional learning (Utah Code 53A-3-701) and aligns with Utah Core Standards and Utah Effective Teaching Standards. Learning communities and learning networks are integrated into efforts for personal growth and school wide growth.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
4a. Staff Engagement in Relevant Professional Learning Opportunities *The staff participates in internal or external growth and development activities that are beneficial and relevant to their work. Staff members are willing to try new practices and adjust what they do for the greatest benefit for students.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Professional development meets **ALL** of the criteria established in Professional Learning Standards articulated in Utah law 53A-3-701 passed in 2014 http://le.utah.gov/~code/TITLE53A/htm/53 A03_070100.htm - School leader(s) make sure teachers have access to STEM professional learning at least once per school year. - Staff members occasionally try new strategies (e.g., instructional, management, stakeholder outreach). - Staff members have clear opportunities to give input about professional development needs and outcomes received at the school.	- Professional development meets **ALL** of the criteria established in Professional Learning Standards articulated in Utah Code 53A-3-701, passed in 2014 http://le.utah.gov/~code/TITLE53A/htm/53A03_070100.htm - School leader(s) make sure teachers participate in professional learning at least once per month. - Staff members regularly try new strategies (e.g., instructional, management, stakeholder outreach). Some PD experiences or staff collaboration time are structured to focus on new practices.

Narrative: Exemplary--3 points

Beehive Science and Technology Academy has implemented a comprehensive approach to the professional development of our administration and teaching staff by ensuring professional learning occurs within learning communities committed to continuous improvement, individual and collective responsibility, and

School Name: Beehive Science and Technology Academy (BSTA)

goal alignment. Our administration is affiliated with the *Accord Institute for Educational Research*. The Institute organizes workshops, trainings, seminars and conferences to spur professional growth for teachers, administrators, and other school staff. The support and training BSTA has received is as follows:

Provides guidance on promoting STEM practices at school sites and how to organize and hold STEM/STEAM Fairs, festivals and expositions.

Training to teachers on how to create curricula on A+ Math and present this curricula to students. Mr. Oguz and Mr. Zack Temerican, the Principal and Vice Principal of BSTA, attend the trainings offered by the Accord Institute monthly. Some topics have included data driven instruction, inquiry based science curricula, and how to refine skills in problem solving, adaptive reasoning, and proofing.

We conduct an annual survey with our staff, which asks what additional professional development opportunities staff desires and also any STEM related training they feel would be beneficial. These surveys are conducted in late spring and help determine professional development topics for the summer and fall.

Our teachers participate in professional learning at least two times per month ranging from three to eleven hours of learning monthly per teacher. This is accomplished through many avenues. We utilize a professional learning website titled, *Edivate*. On this site, each of our teachers set their own learning goals and then obtain these goals through opportunities offered in reviewing videos of other teachers on topics of their choice. Reviewing research and participating in online discussions with other educators are a few of the methods used. Administration gets monthly reports to ensure teachers are making progress toward their goals, and we collaborate often providing educational videos, academic articles and examples of new practices.

We have organized teacher learning communities, which meet twice monthly to discuss new practices, data driven curricula and concepts gained in book studies organized by our administration.

Beehive staff is participating in “Assessment to Achievement,” which is a two year opportunity focusing on effectively using relevant data to improve student outcomes. This training is sponsored by USOE and Ed Direction and ten staff members are being trained directly. They then train our remaining staff. Teams increase their own expertise in analyzing data gained from student outcomes and using these skills to inform instructional and program decisions and improve student achievement. Participants will collaborate as school teams to analyze the data and implement school-wide strategies. These teacher teams attend over ten full days of training per year. Our staff is specifically focusing on “Metacognition” with our students teaching them to think about how they think. Our staff is utilizing specific tools such as rubrics to encourage comprehensive writing.

Our staff continues their professional development through continuing education. Our two computer and IT teachers are prime examples. Ms. Guney completed her MS in Computer Science and Software Engineering from Colorado Technical University in November 2014. Ms. Temerican also completed her MS in Computer Science and Software Engineering from Colorado Technical University in March 2015. Both teachers are members of the “Computer Science Teacher

Association-CSTA. Other training attended was in January, 2015 Globaloria for Game Design and in October, 2015 Microsoft Game Programming. These two teachers routinely provide training on our professional development days for our entire staff on apps and available software for classroom use. Mr. Kablan, our Science chair, ensured all three of our Science teachers attended AMS Summer Materials Camp sponsored by the University of Utah. The purpose of this training was to demonstrate how to properly use materials science in STEM Education. Mr. Kablan also attends meetings with the STEM Action Center quarterly. He attended the Northern Utah Stem Expo in order to collaborate with participating schools. He heads our Robotics Team and attended the FTC Kickoff, which is the start of the competition season.

4. Professional Learning

STEM-focused professional learning is fully implemented. Professional development aligns with Utah's requirements for professional learning (Utah Code 53A-3-701) and aligns with Utah Core Standards and Utah Effective Teaching Standards. Learning communities and learning networks are integrated into efforts for personal growth and school wide growth.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
4b. Professional Development Resources *Resources (both time and funding) are available to help teachers and staff develop and further their skills.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- School leadership ensures that professional development opportunities are identified and shared. - School leadership makes sure that professional development is high quality. - School leadership supports staff interests in STEM professional learning. - Leaders designate financial and human resources to support staff professional development.	- The leadership obtains grant(s) and/or brings in resources beyond school funding streams to support professional development. - Leaders evaluate the impact of professional development.

Utah STEM School Designation Criteria
Pilot Year Model
Narrative: Exemplary--3 points

The 2015-2016 school year is the second year grant funding was obtained to continue utilizing software to assist our teachers with their professional development goals. The software utilized is “Edivate.” Each teacher has a “learning plan” with stated goals, which are monitored monthly. One hundred percent of our staff is utilizing this tool to set professional learning goals and work towards increasing their knowledge and skills to achieve these goals. The teachers meet twice per month on an established schedule and TLC groups of three to four teachers to discuss knowledge gained and strategies for improvement. These meeting days we provide a substitute teacher to help cover classes so the teachers can meet and learn from each other.

Last year we received a grant for $2500 from Century Link to train our computer teachers. They attended training on game development with these funds.

The USOE and Ed Direction is sponsoring a grant for training titled, “Assessment to Achievement,” which we applied for and received. This is a two-year training of ten staff members on how to analyze data properly regarding student achievement and then implement instructional strategies to improve student performance. In addition to this training, the teams meet weekly to discuss the strategies and provide additional resources to fellow teachers to utilize in their classes.

The school is receiving training funds from a Title I grant for professional development of our staff. A portion of our Title I funds is also used for training of our teachers and support staff.

Beehive received a USOE grant titled “Mentorship Grant” in which the funds are used to provide support of our teachers by a “Mentor” teacher with over twenty years of experience.

The Utah State Charter School Board provides Beehive Academy with an annual training grant of $1850. These funds have provided an opportunity to bring in outside trainers to provide quality instruction to our teachers. One example of this was training provided August 4, 2015 on student engagement.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
We have partnered with STEM related businesses such as IMFlash to help teachers make curriculum relevant to current uses in professional careers. Our students are visiting their company and representatives are coming to the school to do presentations several times a year.

Beehive Academy values our staff and their knowledge and experience as one of our greatest assets to improve student achievement. We have a strategic plan for professional development through personal learning plans in Edivate, providing relevant training on STEM teaching methods and content knowledge through professional development training days. TLC's or Teacher Learning Communities are provided scheduled time for twice monthly meetings with coverage for a substitute teacher in some classes as needed. Teachers are provided an experienced teacher as a mentor to help them develop their curriculum to become more effective for our diverse population of students. Most importantly, we are learning how to use student data to improve our teaching methods and curriculum in the most thorough training any of us has experienced through "Assessment to Achievement."

Utah STEM School Designation Criteria
Pilot Year Model

4. **Professional Learning**
STEM-focused professional learning is fully implemented. Professional development aligns with Utah's requirements for professional learning (Utah Code 53A-3-701) and aligns with Utah Core Standards and Utah Effective Teaching Standards. Learning communities and learning networks are integrated into efforts for personal growth and school wide growth.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
4c. Staff Reflects On Their Work *The staff considers the strengths and weaknesses of their practices and ways they can improve.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Staff members explicitly identify times to consider the strengths and weaknesses of their work. - Staff members document monthly reflections about how to improve their work.	- Staff members develop strategies for improving their work in collaboration with colleagues and administration. - Staff members document weekly reflections about how to improve their work.

Narrative: Exemplary--3 points

Beehive Science and Technology Academy staff members complete thorough self-evaluations annually. In these evaluations, our teachers reflect on the curricula used and what can be improved to meet the diverse learning styles of our student population. Additionally, the teachers reflect on teaching methods and regularly share an activity utilized, which engaged all students during their TLC meetings and staff meetings held weekly. These are reflected in grade level, department and staff meeting notes. The teachers have been analyzing their methods during their "Assessment to Achievement" training and making adjustments accordingly in classroom lessons in order to emphasize teaching our students about their own metacognition in learning STEM curriculum. Personal teaching reflections are a part of the teachers' learning plans in Edivate. Currently, these are discussed monthly with administrators and if further support is

needed, it is arranged. Teachers are evaluated and provided feedback up to three times annually by administrators who utilize the Duubl site. This allows for a very comprehensive evaluation of their lessons, classroom management, content knowledge, and application of information to real world examples.

Utah STEM School Designation Criteria
Pilot Year Model

5. **Teaching**

Teaching is conducted with a focus on STEM concepts, processes and thinking. Teachers coordinate lessons, ideas and planning among one another with a mechanism in place for doing so in both formal and informal ways. Incentives exist for supporting one another. Correlations among various aspects of STEM are articulated and explicit. The faculty demonstrates content competency in all areas of STEM and have relevant endorsements. Efforts are made to support content sharing.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
5a. Code of Behavior and Values *The staff emphasizes and demonstrates code of behavior and values for themselves and students. The staff listens to, supports, and engages constructively with colleagues.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The student handbook articulates a code of behavior, values, and treatment of one another with trust and respect. - The code is visibly displayed. - Staff and students talk about the code of behavior and values in classes.	- Staff and students talk about it in and outside of class (in hallways and after school activities). - Students use and are assessed on core values in their learning. - A program for recognition of student conduct exists. - STEM career behaviors and skills are embedded into the code of behavior and values.

Narrative: Exemplary--3 points

At BSTA, the staff demonstrates a high level code of behavior and values for themselves and their students. All the staff are supportive of each other, listen to problems and try to encourage and assist whenever possible. Examples of the beliefs and values are as follows:

Beehive Science and Technology Academy Student Handbook outlines the expected code of behavior for students along with consequences and the discipline procedure that will be followed. These rules are covered during the orientation presentations before school starts. At the beginning of the year, these rules are also read with the students during Silent Sustained Reading (SSR) times and any questions by the students answered to clarify the rules.

Utah STEM School Designation Criteria
Pilot Year Model

The Discipline Record System (DRS) on Coolsis is used by the staff to record positive and negative behavior demonstrated by the students. Consequences like loss of privileges, lunch detention, after school detention, etc. are in place for negative points. Rewards like free dress days, certificates, etc. are in place for positive points. Coolsis sends an email and/or smartphone notification to parents for any positive or negative behavior incidents.

The Beehive Science and Technology Academy Employee Handbook describes the code of conduct expected from the staff.

In order to spread kind behavior habits among students, Hope Squad initiated the Kindness Counts program. Any student can report an act of kindness observed during school through Edmodo. Last year, if the count reached 700 acts within a certain time, a field day was promised to the students. The goal was achieved in a short time, and the field day was a great success.

Kindness counts cards are handed out to students by teachers to recognize positive or kind behavior. These cards can be taken to Ms Barnes (Discipline Coordinator) to get prizes in addition to positive points entered on Coolsis.

Students learn to be responsible by following steps for Utah STEM Expo project assignments. Each step with separate due dates helps students plan and manage their time responsibly. Students upload their project videos to YouTube and embed them to their websites. In each of these steps they are responsible for the content of their digital products.

Time management and taking responsibility for their products are expected in every class for any assignment or project.

These values and skills help build up their STEM career behaviors and skills.

The Character Education and Life Skills course is one hour per week in each grade of middle school. The objective of the Life Skills Class is to encourage students to take responsibility for their actions, to familiarize them with good character traits, to introduce them to role models, and to help develop good citizens with high moral values.

In Computer Game Design course, students learn about Ethics in Game Design.

Beehive Science & Technology Academy has the following beliefs and values:

- All students will strive for academic growth, with an emphasis on literacy, science, math, and technology skills.
- Excellence is achieved in a variety of academic, creative, and personal ways.
- Each student is a valued individual with unique physical, social, emotional and intellectual needs.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

- Teachers, administrators, parents, students and the community share the responsibility for advancing the school's mission.
- Students will model appropriate behavior in a safe and supportive setting to achieve future success in a diverse global community.
- Student learning is supported by a commitment to continuous improvement and research-based pedagogy.
- Extracurricular programs and activities promote holistic student development.
- Vigorous college preparatory programs help students graduate as competitive candidates for the world's top learning institutions.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

5. Teaching

Teaching is conducted with a focus on STEM concepts, processes and thinking. Teachers coordinate lessons, ideas and planning among one another with a mechanism in place for doing so in both formal and informal ways. Incentives exist for supporting one another. Correlations among various aspects of STEM are articulated and explicit. The faculty demonstrates content competency in all areas of STEM and have relevant endorsements. Efforts are made to support content sharing.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
5b. Teacher Differentiation of Instruction Based on Learning Needs *The teacher customizes instruction based on abilities, learning styles, and developmental levels of the students.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Course pacing of content covered is modified to accommodate for differences among students. - Teachers ensure that rigor is maintained while making lessons accessible for all students. - Teachers adapts curriculum to better fit student learning styles. - Teachers use a range of pedagogical strategies.	- Teacher differentiation incorporates students' real-life applications for outside learning. - Students are able to self-select the differentiation. - Teachers regularly and systematically share information about students' learning differences.

Narrative: Exemplary--3 points

Teachers at BSTA are constantly reviewing student abilities, learning styles and developmental levels of their students and adjusting instruction as needed. They use test results, daily checks and a variety of methods to confirm the students are learning the material.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Assessment to Achievement Action Plan is devised in a way to provide differentiation within the classroom as outlined on the attached “Action Plan for Improving Teaching and Learning at Beehive Academy”.

Assessment to Achievement methods have helped teachers to check the students’ learning and thinking skills. Many different learning styles are also discussed and addressed through grade level and department meetings biweekly.

In group projects in US History Class, students are given choices of producing different types of material to fulfill the requirements of the project. For example, in the “Protesting the Taxation Acts-Presentations” they have to choose from a writing a commercial, jingle, poem or making a poster as detailed in the artifacts.

In group projects in 6th Grade Language Arts class, students have to choose a role like Artist, Scribe, Researcher and Presenter, to prepare their group project as exemplified on the attached “African Monster Webquest”, where they have to follow a rubric to guide them to excellence.

The Smart School Program at Beehive Academy provides all students with iPads that they can use for school. In an effort to provide differentiated education, teachers use different apps and online platforms. A few online platforms to name are Google Classroom, Khan Academy, Discovery Education and Edmodo. Additionally, teachers can make app requests to use in their classes as can be seen in the attachment.

Department meetings, grade level meetings and faculty meetings are times when teachers can share and discuss differentiation among a variety of student groups. In the attached example, the agenda items are ELL students and Title 1 students.

Utah STEM Expo, which is a major project for students to accomplish in science classes, gives the students the option of selecting their projects from a list of science, math, computer science, art and technology projects. Then, they put their selections through the online project selection form to let the teachers know of their choices.

Professional Development is an important focus at Beehive Academy, where teachers can improve their skills by working in groups/teams. An example is the TLC meetings that are scheduled biweekly with small groups where teachers utilize Edivation to improve skills. Here is a link: https://www.pd360.com/

In the CMLP (College Mentorship and Leadership Program), students are setting goals in personal development, public service, physical fitness and exploration/expedition to obtain certificates and medals from the Congressional Award after completing certain hours in their goals. Please follow the link to get more information about the award: http://congressionalaward.org/program/program-areas/

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

5. **Teaching**

Teaching is conducted with a focus on STEM concepts, processes and thinking. Teachers coordinate lessons, ideas and planning among one another with a mechanism in place for doing so in both formal and informal ways. Incentives exist for supporting one another. Correlations among various aspects of STEM are articulated and explicit. The faculty demonstrates content competency in all areas of STEM and have relevant endorsements. Efforts are made to support content sharing.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
5c. Staff Spreads Practices *The staff shares with others practices they enact in their classrooms and school.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- STEM practices and strategies are shared across all staff members in the school. - The staff at this school shares information and strategies with other schools interested in STEM practices.	- Staff members at this school provide PD/training/ consultation to each other and to other schools interested in STEM practices. - Staff members at this school share instructional materials with each other and with other schools interested in STEM practices.

Narrative: Exemplary--3 points

Teachers and staff collaborate and share with each other the successful practices that are used in the classroom. These practices are shared in grade level and department meetings, and informally in classrooms and the staff room.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

Teachers are meeting in small groups every two weeks to focus on professional development through the online system called Edivation. These meetings are focused on learning and using new teaching methods, improving instruction and overcoming challenges in the teaching profession. https://www.pd360.com/

In-service training days before school starts in the fall and professional development days throughout the year help teachers improve in their profession as well as learn new ways and tools to improve their teaching.

Assessment to Achievement program brings all teachers together to work towards a common goal in improving BSTA's education in certain areas. Goals set through the program and tools provided help teachers collect data about their students and set new goals towards their learning.

Utah STEM Expo is designed to invite other schools to bring their students to demonstrate their STEM projects. Beehive Science and Technology Academy students participate in many other events to demonstrate their STEM projects to increase awareness in STEM education. Beehive Academy is willing to share the STEM experience with other schools and communities. An invitation was sent out to all the science teachers in the community through USOE and some schools showed up with students and projects.

The science department encourages students to participate in STEM activities as well as present in different events. Some events that our students have presented in are: Utah Scouting Expo, Utah State Fair, Healthy STEM 5K, Charter Day on the Hill, Utah STEM Fest. Recently, we were contacted by the PTA president at West Kearns Elementary to take some students to their STEM Night to present their projects.

Utah Council for Citizen Diplomacy brought some International visitors to Beehive Academy to observe STEM focus for our students.

USOE invited Beehive Academy to share practices at a Title I Directors meeting.

Similarly, there have been many invitations and/or presentations by our staff about our STEM applications in different meetings and conferences.

Lastly, a science specialist from Arkansas State Department of Education contacted Beehive Academy Principal, Mr. Oguz and obtained materials and advise about how to run a STEM Expo for Arkansas Schools.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

5. **Teaching**

Teaching is conducted with a focus on STEM concepts, processes and thinking. Teachers coordinate lessons, ideas and planning among one another with a mechanism in place for doing so in both formal and informal ways. Incentives exist for supporting one another. Correlations among various aspects of STEM are articulated and explicit. The faculty demonstrates content competency in all areas of STEM and have relevant endorsements. Efforts are made to support content sharing.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
5d. Common Planning Time and Individual Planning Time are Incorporated into the Schedule *Planning time specifically devoted to supporting collaborations among school staff, and planning time provided specifically for staff to prepare individually for instruction, in any way that*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Teachers have a set time to collaborate and work individually at least monthly together to plan integrated lessons, share/co-create STEM activities, and plan learning outcomes. Regular, collaborative planning time allows teachers within grade levels to give each other advice and ideas about instruction, and work through problems together.	- Teachers have a set time to collaborate and work individually at least weekly together to plan integrated lessons, share/co-create STEM activities, and plan learning outcomes. - Regular, collaborative planning time allows teachers within and across grade levels to give each other advice and ideas about instruction, and work through problems together.

School Name: Beehive Science and Technology Academy (BSTA)

they choose.				

Narrative: Exemplary--3 points

Teachers at BSTA have planning and collaboration time built into their schedules to support each other and work through problems that occur in their classrooms. Twice a month, TLC groups meet together to discuss instruction methods and improve practices. Grade Level groups meet once a month to collaborate and give each other advice and work through problems together. STTs meet together once a month to track progress of CTT groups and discuss ways of improvement of goal applications throughout the school. CTT Groups meet together twice a month as part of a department meeting to analyze classroom data and discuss ways of implementation of goals set through Assessment to Achievement.

All of these meetings and minutes are required to be typed/uploaded to the shared documents on Google Drive for everyone to have access to them. This enables the administration to be able to keep track of these meetings. At the same time, all staff members have access to these minutes to share and collaborate with the rest of the staff.

There are several examples of meeting agendas and minutes attached in the artifacts.

Utah STEM School Designation Criteria
Pilot Year Model

6. **Student Engagement and Equity**

There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

6a. Support for Social and Emotional Needs of Students *The staff considers the range of students' needs. These include social, emotional, and academic needs.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The school has a student induction process, program, or activities that support incoming students. - Teachers reach out to family and talk with students to understand students' social and emotional well-being. - Regularly scheduled strategies and procedures have been implemented across the entire school that focus on relationships and on developing and fostering global literacy (e.g., student advisory class, class meeting, or homeroom).	- The school has a student induction process, program, or activities that supports new students' transitioning to the school in ALL grade levels. - Teachers meet regularly to discuss students' social and emotional needs. - A scheduled part of the school day extends instruction or focuses on supporting relationship building. - Annual resources are allocated to develop, revise, and sustain strategies and procedures across the entire school (e.g., student advisory class, class meeting, or homeroom). - Students, teachers, parents, and external partners provide input into strategies and procedures (e.g., student advisory class, class meeting, or homeroom).

Narrative: Exemplary--3 points

Beehive Science and Technology Academy welcomes new students from the moment they indicate an interest in the school. We conduct numerous open houses where we discuss all of our programs and certifications students may receive from our STEM curriculum. There are tours of the school and students are on hand demonstrating their STEM projects and meet new prospective students and answer questions about the school. We offer a shadow program where the students can shadow a Beehive student for a day. Prospective students will be assigned a student volunteer who will welcome them to the school and explain how our classes benefit them and introduce the new student to teachers and staff. There is an orientation night for all students and their parents, which many new and returning students attend. We have a "meet and greet" time beforehand with refreshments, which is popular. Each new student is offered a "buddy" to help them navigate school and classes until they feel comfortable and this often results in friendships.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

BSTA has a “home visit” program in which parents sign up for an evening that is convenient. A teacher and an administrator will come to their home for approximately thirty minutes and meet with the family and the student. This is very successful in establishing a trustful relationship with our families. We usually average between 65 to 70% of our families who sign up for a home visit.

BSTA has a required “Character Education” class, which all 6th grade students take. This is designed to foster good character and habits in our students. They discuss current issues that are critical for success such as integrity, being aware of how one treats others, and demonstrating respect for self and others. Students find service projects to participate in such as food drives, collecting socks or toilet paper for the shelters and collecting pennies to donate. Additionally, in the school the students conduct kind acts such as giving inspirational notes to other students and staff.

Beehive addresses the issue of suicide prevention and anti-bullying with two programs. The first is a “Hope Squad” of students who are extensively trained to talk with troubled students and then report it if they feel the student is in need of counseling or help. These students simply ensure no student feels alone or unnoticed. The Hope Squad wears specialty tee shirts so others may see them and know they can speak to them. These were students nominated by all students as caring and trustworthy. The Hope Squad sponsors another program titled, “Kindness Counts.” They and staff recognize acts of kindness by giving positive comments and rewards.

We offer a homeroom class we call SSR (sustained silent reading). This is where student announcements occur and when we have contests for service drives students participate as a group. But more importantly, students read aloud a book together for about ten minutes and then they also read their own books silently the remainder of the class, thus improving reading skills and instilling the joy of reading.

Beehive Academy offers free after school tutoring and clubs. Our students can get homework assistance from teachers Tuesday through Thursdays and a few teachers offer it on Fridays as well. Our students have an opportunity to participate in clubs such as Robotics, Lego Club, Minecraft, Chess, and Game Design. They work in teams under the supervision of a teacher and parent mentors. Often members of the community assist too.

We offer numerous opportunities for student advising including an ACT Prep class as part of the 11th grade curriculum. The students are prepared through careful analysis of content and test strategies to do their best when they take the ACT.

Beehive has a program titled College Mentorship and Leadership Preparation or CMLP. Students apply and are chosen to participate and are placed into small groups of five or six under the advisement of a mentor teacher. These teachers model leadership and help students develop their skills through open discussions and activities. The students go on college tour trips both in state and out of state and are provided with options to consider. They earn service hours and work towards a Congressional Award.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Each high school student is counseled individually by our College Advisor and Vice Principal. They are given information on scholarships, grants and entrance requirements for colleges and universities.

6. **Student Engagement and Equity**

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
6b. Belief That All Students Can Learn *The staff takes steps to ensure all students have opportunities to master content.*	*N/A* *Belief that all students can learn is central to instruction. Schools need to have this element in place to be eligible for STEM School Certification.*	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The school works to provide equitable access to rigorous, high-level courses. - All students' specific and identified needs are being met. - Specific considerations are made in STEM classrooms that support all students, including populations underrepresented in STEM fields. - Teachers receive professional development on underrepresented populations in STEM fields to inform instruction.	- The school works to provide equitable access to rigorous, high-level courses. - Special programs have been designed to encourage underrepresented students to develop interest in STEM careers. - Special programs have been designed to encourage underrepresented students to develop interest in STEM careers.

Narrative: Exemplary--3 points

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

Firstly, Beehive Science and Technology Academy is a public school with a minority charter. This means we are intended to attract students from under-represented communities. Currently we have over 32 different cultures represented in our school.

Our students have access to an advanced Math Program called A+ Math. Beehive Academy CTE Pathways deliver relevant and rigorous academic and technical experiences in Computer Science and Engineering.

Programming/Software Development

Digital Media

(Utah) Pre-Engineering

Web Development and Administration

Database Development and Administration

The Advanced Placement program offers college level courses at high schools across the United States and Canada.

BSTA has offered the following AP Courses;

AP Biology,

AP Calculus AB,

AP Chemistry

AP Studio Art: 2D Design,

AP US History,

AP Physics

AP Computer Science

AP English

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Concurrent enrollment is the process in which high school students (only Juniors and Seniors) enroll at a university or college to attain class credit for high school and/or college.

BSTA and SLCC (Salt Lake Community College) have signed an agreement to become partners so that BSTA students can take college courses from SLCC without paying tuition at SLCC. All credits transfer to Utah Universities.

One-to-one Student Education Occupation Plan (SEOP) meetings once or twice a year.

11th Grade ACT/SAT Prep. Courses and camps are part of our regular course curriculum.

College Mentorship and Leadership Program (CMLP)-This program pairs a small group of students (5-7) with a teacher mentor. These groups meet regularly for community service projects, leadership development activities, study and discussion groups and to support the ACT/SAT preparation. These students also participate in the Congressional Award Program in which they must have an excellent GPA, certified public service hours and demonstrated leadership at school and in the community. The students apply and are awarded medals based upon their achievements. Last year our Valedictorian was awarded a Gold Medal and it was presented by Congress in Washington D.C.

Our BSTA staff attends in-school presentations with our industry partners such as IMFlash. The students learn about STEM careers directly from those involved in the industry as do the teachers. Often they then visit the business location to tour and discuss STEM related careers (Artifact 6b.5). Recently, we presented training to our teachers based upon “Vital Signs-Reports on Condition of STEM Learning in the U.S.” We read the report and held open discussions with the staff. In fact, these discussions helped us formulate one of our goals in our five-year plan to implement strategies to increase the enrollment and participation of minorities at Beehive Academy. (Artifact 6b.6)

Utah STEM School Designation Criteria
Pilot Year Model

6. **Student Engagement and Equity**

There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
6c. Student Participation in Decision-Making	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Students participate in the development/revision of the code of behavior and values. - Students are encouraged to give feedback at any time (via a suggestion box, etc.). - There are structured opportunities for students to provide feedback.	- Students participate in high-level school decision-making, such as disciplinary regulations, course planning and development. - School has a system in place to ensure that there is representative voice in student decision-making.

Narrative: Exemplary--3 points

At Beehive Academy Student opinion is valued in developing the direction of our school. An "Annual Student Survey" is conducted in which students provide stakeholder feedback on curricula, school environment and activities and many other topics. (Artifact 6c.1) Our student body elects a "Student Council" that participates in planning activities, discussing ideas for school improvement, class offerings and numerous other topics. The council is mentored by a teacher and

parent liaison. All grade levels are represented by at least one member. (Artifact 6c.2) Students are invited to attend the PTA meetings as well as parents to discuss issues regarding school discipline, uniform policies, fundraising activities and other related topics. (Artifact 6c.3)

Utah STEM School Designation Criteria
Pilot Year Model

6. **Student Engagement and Equity**

There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
6d. Extracurricular Activities *Students have the opportunity to participate in sports, clubs, and STEM activities that take place outside of regular school hours.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Programming is connected to the school day curriculum. - The school offers extracurricular activities that are engaged in by **some** of the students. - Some of the students participate in STEM competitions on-site/online STEM exhibits, and/or in state and national STEM forums.	- STEM experiences are directly connected in in-class learning. - The school offers extracurricular activities that are engaged in by **most** of the students. - **S**tudents participate in STEM competitions on-site/online STEM exhibits, and/or in state and national STEM forums.

Narrative: Exemplary--3 points

Beehive Administrators and staff have close connections with the Utah STEM Action Center and meet on a regular basis to ensure our approach to STEM education is current and effective. The STEM Action Center is a featured guest at our annual STEM Expo. In the past, a member from the Center has given a welcome speech to all participants. Each year our students attend the STEM Expo sponsored by UVU and the STEM Action Center. Our students participate in

Utah STEM School Designation Criteria
Pilot Year Model
Math Matters Competitions, MMA American Mathematics Competitions, and Salt Lake Valley Science and Engineering Fair, Lego League-Robotics Competition (2016-- Utah Champions representing Utah at the International Competition in St. Louis, Missouri in April, 2016) and Robotics competitions. (Artifact 6d.1)

BSTA offers after school clubs three to four days a week most of which support STEM. Some of these clubs are “Coding Club” where students learn to write software code, Mathcounts, Future City, Robotics, and Film Club to name a few. Our students choose a club to attend, and we have over 78% of our students that participate in one or more clubs. (Artifact 6d.2)

Each student at Beehive creates a STEM project annually, in which they research the science, complete a written description of the project, obtain the materials and complete it by demonstrating and filming it for our YouTube channel. Additionally, students use their technology skills to design a website for their projects. The students then demonstrate their projects at our STEM EXPO at the end of the year for over 4000 visitors and dignitaries. (Artifact 6d.3)

Science classes at each grade level do weekly labs that incorporate kinesthetic learning styles. Students learn the experimental inquiry process and work to understand scientific concepts. The school utilizes an exceptional level of technology with the use of a 3D scanner and two 3D printers to design and make models of their work. (Artifact 6d.3) BSTA offers after school clubs to all students for one hour three days per week. There are no fees to participate and most of our students participate in one or more of these clubs. (Artifact 6d.4)

Utah STEM School Designation Criteria
Pilot Year Model

6. **Student Engagement and Equity**

There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
6e. Representative Population *School maintains student population with a focus on reflecting a population representative of the community/area the school serves.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The school engages in outreach, support, and focus on underrepresented student populations.	- The school actively recruits student populations reflective of the diversity and gender of the local community. - School population is fully representative of the diversity and gender of the local community.

Narrative: Exemplary--3 points

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

Beehive Science and Technology Academy is identified as a “Minority Charter” by the Utah State Department of Education. We have a comprehensive plan for outreach to all minority communities. This is accomplished through our marketing plan whereby flyers are sent to community centers representing minority communities, and brochures are distributed to women’s technology and business groups. Our cooperation and partnership with both in and out of state universities is designed to encourage the discussion of our school for students desiring STEM related degrees for the younger siblings of university students. For the 2014 School Enrollment, we had 66.79% males and 33.21% females. Our ethnicity representation was 3.44% Asian male and 1.15% Asian female; .76% Black male, 6.11% Hispanic male and 3.82% female. There were .38% Pacific Islander male and .38% female, 55.73% White male and 27.48% female. Those in the multiple ethnicity category were .38% male and female. In 2015 the reporting method changed to eliminate percentages in favor of actual numbers. For the 2015 School Enrollment, we had the following ethnicity representation: 10 Asian males and 9 Asian females, 6 Black males and 2 females, 19 Hispanic males and 12 females. There is 1 Pacific Islander male and 1 female, American Indian: 1 male; 182 White males and 95 females. Those in the multiple ethnicity category were 4 males and 2 females.

As we all know statistics are not always representative of actual information. For instance, we have numerous students from India who do NOT identify themselves as Asian on applications. We hold an international celebration day annually in which students prepare information, food, dances, etc. from their native cultures and we represent over 32 different cultures in our school including Russian, Bosnian, Polish, Egyptian, Syrian and Iranian to name a few. These however, do not “fit” the categories listed for minorities but we feel nevertheless they ensure diversity.

Our diverse learning community includes our population of students with special needs (Special Education). Approximately 20% of our students have Individual Education Plans compared to the State of Utah average of 12%. An additional 5% have 504 Plans to support their special needs. We can speculate and deduce the cause for our increased population based on parent feedback, physician referrals and information gained in our application process and orientations but it seems the three primary reasons are: our small class sizes at capped at 25, our use of technology to support learning, as well as the STEM focus in our curriculum. Our Title I funding percentages are available on the CNP website and BSTA has participated in the NSLP for four complete school years beginning in the 2012-12 School Year.

Percentages for free and reduced lunch qualifying students are as follows: 2012-2013: 21.43%, 2013-2014: 34.01%, 2014-2015: 25.17%, 2015-2016: 23.99%. One challenge we have as a school is that despite our efforts to have parents complete this form to identify qualifying status, we routinely have only 30-34% who complete the form any given year. Of those completing it nearly 92% qualify for the Free and Reduced Lunch Program. As stated before, a significant portion of our families are immigrants and do not desire government assistance. Some may fear it adversely affecting their visa applications. Nevertheless we truly represent the community our students are coming from according to economic status.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

6. **Student Engagement and Equity**

There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
6f. Student Autonomy *Students have independence in and ownership of their learning. Students set goals for their learning and make choices about how to accomplish them.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Some lessons/activities required students to take initiative and be self-directed. - The majority of STEM lessons/activities require students to manage their own work and bring it to completion. - Students make meaningful choices about their learning (e.g. choosing a topic) experiences.	- Most lessons/activities required students to take initiative and be self-directed. - Most STEM lessons/activities require students to manage their own work and produce results. - Teachers seek input from students about their personal interests to incorporate into lessons. - Students make choices that significantly shape their learning experiences (e.g., choose style of

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

				learning). - Teachers allow students to lead the class. - Teachers seek input from students about their personal interests to incorporate into lessons.

Narrative: Exemplary--3 points

Beehive Science and Technology Academy utilizes a learning management format for it's students. We are an ISchool so students access their curriculum on their school issued Ipads through various learning management systems such as Google Classroom, our school management software--CoolSis and Discovery Education Learning. The students will often access the required reading, videos, lesson activities, group blogs, discussions and quizzes through this format. There is still direct instruction in the classroom to support the students in need of the visual and auditory direction from the teacher to gain the knowledge. This allows for students to work at their own pace with supports to advance to higher levels and be challenged, or spend more time on a difficult concept.

- Many assignments students receive offer choices of topic, method of research, and type of presentation. One example of this is the "Short Project North American Explorers."

- The school offers free after school tutoring for one hour and students may attend as needed on a voluntary basis. At times teachers will require students to attend who need support. Students will electronically submit work for grading or complete tests and quizzes electronically approximately 65% of the time.

- Not long after the beginning of each school year, students are given a STEM project handbook in their science classes. This lays out each stage they have to complete for their STEM project, which culminates in the STEM Expo in the spring. Included in the handbook are the specific due dates for each stage. (Artifact 6f.2) They are graded based on meeting their due dates, the quality of the project, the ability to research and describe their projects, and the video and website created. This is just one example of the type of STEM projects in our school. Another example of how cross curricular cooperation in STEM is utilized at Beehive is as follows. A math teacher and language arts teacher had students complete a project based upon the book "Flatland" by Edwin Abbott. This book is a satire set in a Victorian era society. The characters are all represented by geometric shapes and their social status in society is based upon how many angles they have.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
In math class, students worked on their societal placement by utilizing descriptive geometric vocabulary and visualizations. Then in their language arts class, the students compared societies from the Victorian era to the ones they created. This is an example of the students driving the curriculum within a literary framework. These are just two examples of how our curriculum is designed to allow students to complete projects, which are self monitored.

- Teachers seek input from students about their personal interests to incorporate into lessons.

- Students make choices that significantly shape their learning experiences (e.g., choose style of learning). Most of our students with special needs have an accommodation to complete written work with the assistance of technology (usually work typed in a word processing program) unless the lesson itself is designed to improve writing skills specifically. We found this to be useful for all our students as we prepare them to utilize the supports technology offers our students in the business world. Students are given opportunities in their courses to choose projects and work partners, topics to research, whether they want to read an electronic copy or a book, and many other choices. BSTA addresses the need for all learners to choose the style that best meets their needs in terms of offering in person instruction, videos, discussions, debates, blogs and other verbal methods, labs, hands on games, 3D scanners and printers, Legos, robotics, engineering classes to build machines, and activities designed to keep students moving around the room to address kinesthetic learners to name some of these methods.

- Teachers at BSTA all have in class presentations, speeches, debates, recitals, and small team activities designed to develop each student's public speaking and presentation skills. Often students are encouraged to create videos during projects to help them critique their own ability for improvement. This is also a technique we use to help our teachers--some of whom film their teaching for our professional development tool "Edivate." It enables a live critique at points during the video from administrators and peer mentors. Some of these videos are saved and uploaded to Edivate's video library.

Teachers seek input from students about their personal interests to incorporate into lessons. BSTA conducts an annual survey of our staff, students, and parents as a method of gaining insight for our School Improvement Plan. We value the critical feedback in order to ensure we are addressing concerns and communicating our efforts. One example provided is Mr. DeFronzo's class survey on whether they preferred a paper or electronic final. Another example Is Ms. Firmage's Final Exam, which surveys her students about what literature should be kept in the curriculum.

Utah STEM School Designation Criteria
Pilot Year Model

6. **Student Engagement and Equity**

There is solid evidence for engagement of all demographics in the local community. Efforts are connected and follow a coherent, research-based plan. Efforts show a deep understanding of STEM equity issues and needs. Students are regularly involved in planning and conducting learning activities. Students are regularly engaged in the actual doing of science, mathematics, and project-based learning.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

6g. Students Reflect on Their Learning *Students reflect on the strengths and weaknesses of their learning approaches and ways they can improve them; students accept changes.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Most classes employ the use of self-assessment for students to reflect on their learning specific to content and skills for each unit/problem solving learning project. - Students identify and document strengths and weaknesses at least twice a year in collaboration with faculty.	- All classes employ the use of self-assessment for students to reflect on their learning specific to content and skills for each unit/problem-solving learning project. - Students identify and document strengths and weaknesses more than four times per year in collaboration with faculty. - School maintains a portfolio of student reflections to inform students' continued self-assessment over the course of their high school career.

Narrative: Existing--2 points

Beehive Science and Technology Academy routinely has students reflect on their thinking and their learning. One example of this is the "Sixth Grade Science Core Curriculum Benchmark Student Self Assessment" (Artifact 6g.1). An additional example is the documentation for a reflective assignment email from Daniel Bryant to Germaine Barnes dated January 19, 2016. This outlines a reflective assignment regarding the "Sandwich Algorithm" (Artifact 6g.2). A third example of a reflective assignment is the "Semester Feedback Form" in which students were asked to reflect and give feedback on activities from their language arts class for the semester (Artifact 6g.3). Mr. Harlow's student survey is a mixture of personal and subject matter but helps students provide feedback on their knowledge and personal relationship with the teacher (Artifact 6g.4).

The next example of students providing feedback regarding the curriculum is the U.S. Literature Final Exam in which students were asked to write a persuasive essay on which piece of work they read during the semester that should be kept in the curriculum and why using evidence from the text. Students were then asked to prepare a five-minute speech from their essay (Artifact 6g.5). Additionally, all teachers are using rubrics with our students in which they "self evaluate" their work in their classes. This process is being utilized as a method for students to review their work and compare it to the levels of expected achievement in the rubrics. The students' questions of how they can improve are then answered (Artifacts 6g.6-7).

Utah STEM School Designation Criteria
Pilot Year Model

Beehive faculty conduct quarterly self-assessments with students in reflective writing assignments. Students complete these prior to the end of the grading periods and during formal assessments. Students are asked to reflect upon their learning, skills, knowledge and understanding of the curriculum presented. The teachers utilize this feedback to reflect upon their teaching methods, curriculum maps and lesson plans. Additionally, there is a comprehensive student survey conducted annually in which students reflect and comment on teachers, lessons, courses offered and many other concepts regarding the academic environment. The system utilized for our grading and behavior is "Coolsis." This software allows students to observe their calendar, schedule, assignments, grades, classroom behavior, and attendance. This enables the student to reflect upon their completed work and grades and then identify and discuss with their teachers their strengths and weaknesses and develop goals for improvement. The students then discuss these goals and choose electives, which may offer supports needed such as "study table" or "remedial math." The other support they may choose is free after school tutoring (Artifact 6g.8-9). Beehive Academy encourages our students to reflect upon their own academic needs and choose solutions tailored to those needs.

Beehive Academy maintains a few portfolios of student reflections to inform students' continued self-assessment over the course of their high school career. One portfolio pertains to each students' STEM education and includes the steps completed in their STEM portfolio. This portfolio contains the students' choice of project, materials list, video of the project, and the website created by the student highlighting their project (Artifact 6g.10).

The next example is a 4 year portfolio, which is completed by all high school students in collaboration with our student advisor and vice principal. This portfolio includes all course credits required to graduate and meet the Utah State requirements (Artifact 6g.11).

Utah STEM School Designation Criteria
Pilot Year Model

7. Community

There is an established community of practice regarding STEM learning and STEM teaching. Events, activities and opportunities for involvement help students, teachers, parents and community members learn about and support STEM education in the school.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
7a. Family Involvement *Families are aware of/participate in student activity and achievement.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Staff members keep students' parents/guardians up to date about classroom instruction and their student's learning. - Some teachers use technology to regularly communicate student progress to parents/guardians. - Opportunities exist for parents to be involved in presentations and/or assisting in the classroom.	- Staff members keep students' parents/guardians up to date about classroom instruction and their student's learning and seek structured feedback. - All teachers use technology to regularly communicate student progress to parents/guardians. - The school actively engages in strategies to increase parent engagement.

Narrative: Exemplary -- 3 points

Beehive Academy uses *CoolSIS*, which is a leading school information system. Teachers easily enter their graded assignments and organize their courses. Here, parents also have access to everything as soon as teachers and administrators enter their information. Parents and students can access CoolSIS through the web, smartphones, and tablets. *CoolSIS* keeps all stakeholders up-to-date with the student's grades and behavior incidents by sending push notifications to the parent's smartphone. Moreover, *CoolSIS* can send text messages about any progress made by the student. *CoolSIS* helps teachers and administrators to build connections with their students and parents.

Utah STEM School Designation Criteria
Pilot Year Model

Beehive parents are involved in various ways with their child's schooling. One way is to become involved with the Parent Teacher Organization (PTO). The PTO at Beehive operates under a broad purpose of securing educational advantages for students. Parents who become involved in the PTO have opportunities to participate in many school activities including conducting fundraising, parent-teacher conferences, reviews and amendments to the school improvement plan, and providing input and holding regular events for families. Also, parents provide input into the end of each year's status report; they approve the capital and operational budget requests, solicit input from and hear the concerns of constituents about school programs, review the results of all relevant state and district administered surveys, provide counsel to the Board of Education on issues and policies, participate in the selection process when there is a vacancy for the position of a board member at the school, advocate for the school, serve in an advisory capacity to the principal, and request local position exchanges.

Beehive has a parent, teacher and community communication liaison to coordinate the communication efforts. Regular emails are sent to keep parents informed of all that happens at Beehive.

Eight printed report cards are mailed throughout the year to keep parents informed about their student's academic progress.

Student and parents communicate through email, Edmodo, Google Classroom and other online platforms.

Home visits are conducted to involve parents.

Parent orientation nights, back to school nights, and bi-annual parent teacher conferences are held each year. Many other one-on-one meetings between parents and teachers also occur.

Utah STEM School Designation Criteria
Pilot Year Model

7. Community

There is an established community of practice regarding STEM learning and STEM teaching. Events, activities and opportunities for involvement help students, teachers, parents and community members learn about and support STEM education in the school.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
7b. Service Learning *Students participate in service learning or volunteer activities to give back to partners in the community.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Students engage in service-learning opportunities that are aligned with school curriculum and instruction at least once per year.	- Students and some partners engage in service learning opportunities that are aligned with school curriculum and instruction two or more times per year. - Student leadership is evidenced in the planning and implementation of service learning.

Narrative: Exemplary -- 3 points

The students and staff at BSTA participate in various community outreach programs each school year. Some of the ways BSTA members have given back to the community are:

Community event programs: A food drive to support the local food bank, CMLP (College Mentor and Leadership Program) volunteer hours, National Honor Society charity drive, Student council charity drive, and Hope Squad.

Food drives: Beehive students and parents collect canned food, toys, coats, clothes or other donations for the needy. Teachers (e.g., character education, social science) give to charity projects for students to experience service to the community and to enrich students' knowledge.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
The model combines inquiry into poverty with charitable activities and helps foster connections between students and the human beings they aim to serve.

Some of the charity work done during the holiday season is as follows: students answer a letter to Santa from a needy child; Beehive students send a care package to deployed troops, veterans, or wounded soldiers; students write a thank you letter and include some food to active soldiers; the students donate children's books, novels, and other reading materials to shelters, libraries, and schools.

In addition, Beehive Academy has a college mentorship and leadership program in which students have to do some sort of community volunteer activities to fulfill the community service requirement. For example, they have volunteered to run/walk for an event, like 5K –Utah, participated in a clean up of a local park, school, or church, volunteered on Thanksgiving Day with their whole family to serve a meal in a local shelter, hosted a food-packaging event at our school to help hungry children, offer peer tutoring, attended college leadership conferences that UVU organizes to guide high school students about how to be successful and become a good leader in the community.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

7. Community

There is an established community of practice regarding STEM learning and STEM teaching. Events, activities and opportunities for involvement help students, teachers, parents and community members learn about and support STEM education in the school.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
7c. School Establishes and Maintains Community Presence *School actively engages the community and participates in community involvement activities.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The facility is open to students before and after school hours to help build the school community and provide opportunities to continue academic work. - School supports community-based events with facilities. - STEM teams communicate frequently and consistently with the community.	- The school works with community organizations to support community initiatives (e.g., staff and students volunteer, school and community organizations work together for a common cause). - Opportunities exist to showcase student work through community events via on-site or online exhibitions.

Narrative: Exemplary -- 3 points

Beehive Academy conducts and attends many community events to participate in the local community. For example, BSTA hosts the annual Utah STEM Expo, and Math Matters. BSTA students participate in the Scouting Expo, Utah State Fair, the Regional Science Fair organization, Comic con, FLL, Robotics, Healthy STEM, Charter day On the Hill, and School Choice every year. Students learn to establish goals, delegate responsibility and give directions to their peers on executing tasks successfully while attending and organizing such events.

The UTAH STEM Expo is an excellent opportunity for middle/high school students to demonstrate their STEM explorations in and out of the classroom and extensions of the inquiry process posed in their projects and demos. The Expo itself offers a venue for students to showcase the fruits of their STEM studies and

hard work, a venue for professionals to show how STEM is used to better our communities, and one for spectators to participate in hands-on experiments. The Expo event connects our school to the community, our students to professionals, and generates interest and excitement for science, technology, engineering and mathematics.

Mathmatters is a math contest for all 5th and 6th grade students in Utah. Every year, 300 students participate in this great math event and receive prizes.

8. **Facilities**

Spaces are available for collaboration and project work. Facilities have been adapted or designed for STEM learning. Facilities reflect a focus on STEM learning efforts. Facilities reflect student design and input in the use of the facilities. Materials and equipment follow safety protocols. Obvious efforts have been made to make resources available to students for use in learning, design and project efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
8a. Technology Use *Students use technology as intended for learning purposes.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The teacher uses current and emerging technologies in instruction of most classes. - Teachers teach students specific skills using a range of technologies (computers to AutoCad, etc.). - Products of 21st century technology tool use by students are visible throughout the school through several grade levels. - Teachers and students receive ongoing access and opportunities to expand their proficiency in technology use at	- The teacher uses current and emerging technologies in instruction of ALL classes. - Products of 21st century technology tool use by students are visible throughout the school through ALL grade levels. - Teachers and students receive ongoing access and opportunities to expand their proficiency in technology use at least once per month. - Teachers challenge students to identify and use the tools they need to solve problems. - Technology is used to engage in global learning opportunities and communities that extend beyond

Utah STEM School Designation Criteria
Pilot Year Model

			least once per year.	the state of Utah.

Narrative: Exemplary -- 3 points

Teachers at BSTA use current technology to teach students in STEM and all other subjects. Beehive Academy is a smart school with all students and teachers having IPADs and related technologies available. There are two PC labs and one MAC lab at the school. All the classrooms are equipped with digital projection, Apple TV and integrated sound systems, and the school has upgraded its wireless network to increase network highway traffic. Wireless switches and adaptors are installed all around with the capability available for up to 1000 devices. The Internet connection was increased to a gigabyte dedicated fiber optic line through UEN. All teachers have been extensively trained to use technology in their instruction. The total number of training days for technology use is more than 10 days. Teachers work and support each other in using technology for instruction in their professional learning communities. Google classroom, Educreations, Kahoot, Khan Academy, Discovery education, Ted talks, Evernotes, Goodreads, Garage Band, Flashcards, My homework, and Duolingo are some of the technology tools utilized by students and teachers.

Some students take online courses at BSTA. Teachers also use technology to improve themselves as they are part of the Edivate learning community. Here they interact with teachers around the country. Students use YouTube to interact with their STEM projects and through their Google sites with the global community.

Artifacts: Apps list, Ipad Policy, Smart Technology document, Survey result, Edivate, Youtube video and student website sample student work of technology use.

Utah STEM School Designation Criteria
Pilot Year Model

8. **Facilities**

Spaces are available for collaboration and project work. Facilities have been adapted or designed for STEM learning. Facilities reflect a focus on STEM learning efforts. Facilities reflect student design and input in the use of the facilities. Materials and equipment follow safety protocols. Obvious efforts have been made to make resources available to students for use in learning, design and project efforts.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
8b. Allocation for Physical Resources to Support STEM Learning for Students *The allocation and use of resources and space are present to create flexible community learning environments to meet the needs of project-based learning.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Spaces are available for collaboration and project work. - Facilities have been adapted or designed for STEM learning. - Materials and equipment follow safety protocols.	- Spaces are available for collaboration and project work, and are regularly used by all students and teachers to facilitate learning. - Facilities reflect student design and input on use of the facilities.

Narrative: Exemplary -- 3 points

There are spaces allocated at BSTA for students to collaborate and work on projects. After school there are three computer labs for students to use during tutoring/club times four days a week. These areas include 2 robotics rooms, 1 Lego robotics room, and 1 Vex robotics room is allocated to robotics related group activities. The media center is available to students for project work and collaboration. Students are able to communicate, interact and collaborate through their IPads and apps like Edmodo and Google Classroom. There is a science lab that is open to students for projects and collaboration. The discipline and safety coordinator at the school works with teachers to ensure that they are trained in and follow safety protocols. Students maintain a student store, have bulletin boards to present their materials, and use various rooms for their activities. Student clubs and activities are provided with the necessary facilities. Students have decorated and painted the common use areas and some classrooms.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model
Artifacts: Photos of these areas, List of project collaboration rooms. Student council minutes.

9. **Strategic Alliances**

Alliances exist between the school and strategic partners. Parents and parent groups are involved in the school process and decision making. Business, industry, and other community partners work together to promote STEM learning and career awareness. Long-term partnerships are formed and supported through ongoing efforts. Partnerships are evaluated at least annually, and additional partnerships are formed to support emerging needs and opportunities. Teachers have ongoing relationships with industry partners and engage in externships.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*

9a. Partners Support Instruction and Provide Resources
Partners from industry, institutes of higher education, career and technical centers, etc. participate in and/or support instruction to meet a variety of academic goals, which often includes connecting students with professionals.
	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Community members are actively engaged in the vision and work of the school (e.g. curriculum, co-teaching, field experiences).
			- Partners help teachers understand what is expected of a student planning to enter a career in the partner's field.
			- Business, community, and post- secondary partnerships are involved in all STEM classes at least once per school year to:
			  - Develop lesson plans or problem-solving learning projects with teachers.
			  - Provide professional learning.
			  - Provide field experience or site-based learning opportunities.
			- Partners provide resources to support student learning outcomes.
				- The school actively seeks input from partners and integrates suggestions into school-wide strategies
				- Partners recruit other STEM partners to support the school with resources.

Utah STEM School Designation Criteria
Pilot Year Model
Narrative: Exemplary -- 3 points

Beehive Academy partners with various industries, organizations and institutes of higher education. Parents and the school parent organization (PTO) are active partners in these efforts. In PTO and school community platforms, these efforts are extensively discussed, and available resources and funds are channeled to the appropriate participants. More funding and other strategic alliances and partnerships are constantly explored. The school community council allocated 40% of the land trust funds to STEM education in the school. PTO members and parents are actively looking out for sponsors for the Utah STEM Expo and other STEM educational activities, like Robotics, Lego, etc. They look out for financial support as well as getting the field experience to our school and engaging partners with the school.

The STEM Action Center is our strategic partner in our STEM education. They sponsor the Utah STEM Expo. Our school procured the Edivate STEM professional development tool, a CTE grant of PLTW for eighth grade students, STEM Math software, a Smart School Technology grant, Robotics grants and various student grants to participate in STEM competitions. We received a STEM grant for the art teacher to teach 3D art.

IM Flash sponsors the Utah STEM Expo and they are our strategic partners in our STEM education. They contributed to our STEM designation application by sending an expert to serve on the committee. We have a strategic agreement with them to expose our students to high tech jobs. Yearly, 4 activities are arranged with two expert speeches and 2 field trips to the IM Flash facility. Further internship opportunities are constantly being explored.

CTE Career Pathways programs in four different areas of technology are implemented with the support of the USOE.

Salt Lake Community College has an agreement with Beehive Academy to provide concurrent enrollment courses in various fields to our students. Students are able to get the university 1-year completion certificate and associate degree with a nominal $10 per credit fee. Many of the advanced STEM courses are offered to them.

Through CMLP (College Mentorship and Leadership Program), many leadership programs are developed with Utah Valley University, the University of Utah, and Westminster College.

Sandy City and the Sandy Area Chamber of Commerce are our strategic partners in our STEM education, and we are continuously utilizing their resources.

Through CTE- College and Career Awareness class, parents and experts from different STEM fields are invited to share their experiences with our students.

Our Robotics and Lego Robotics programs are supported by parents and industries who provide expertise and financial support.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

9. **Strategic Alliances**

Alliances exist between the school and strategic partners. Parents and parent groups are involved in the school process and decision making. Business, industry, and other community partners work together to promote STEM learning and career awareness. Long-term partnerships are formed and supported through ongoing efforts. Partnerships are evaluated at least annually, and additional partnerships are formed to support emerging needs and opportunities. Teachers have ongoing relationships with industry partners and engage in externships.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
9b. Partners Help Establish and Maintain Community Presence *Partners increase knowledge and visibility of the STEM school.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Several partners actively showcase student work in their business or elsewhere in the community, and/or support publicity around student STEM learning. - Partners engage in school-related functions with students.	- Partners attend and/or host community events to support the school or showcase student work

Narrative: Exemplary -- 3 points

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

The Utah STEM Expo is hosted by Beehive Academy and is supported by many organizations and companies. They bring STEM job expertise to the community, and financial support and field knowledge to share with our community. The Utah STEM Action Center, ALS Environmental, US Synthetics, T. D. Williamson, Inc., Sandy City, Utah Association of Public Charter Schools, Accord Institute for Education and Research, Westminster College, University of Utah, Department of Physics and Astronomy, Weber State University, University of Utah College of Science, University of Utah College of Engineering, IM Flash Technologies, Utah National Guard, Utah Computer Science Teachers Association, Sandy Area Chamber of Commerce, Cowabunga Bay, Utah State University, and the U.S. Navy are some of our sponsors and supporters. Many public schools and charter public schools also collaborate and support the event.

Students also attend various STEM related events like, Utah STEM Fest, Robotics competitions, Healthy STEM and other local and national STEM events.

9. **Strategic Alliances**

Alliances exist between the school and strategic partners. Parents and parent groups are involved in the school process and decision making. Business, industry, and other community partners work together to promote STEM learning and career awareness. Long-term partnerships are formed and supported through ongoing efforts. Partnerships are evaluated at least annually, and additional partnerships are formed to support emerging needs and opportunities. Teachers have ongoing relationships with industry partners and engage in externships.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
9c. Staff Establishes and Maintains Partnerships *Staff creates and develops partnerships with organizations external to the school.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- Some staff members at this school create external partnerships with the school, such as with colleges, universities, businesses, or institutions. - Staff members work collaboratively with the school's external partners.	- Most staff members this school create and maintain external partnerships with the school, such as with colleges, universities, businesses, or institutions.

Narrative: Exemplary--3 points

Beehive Academy partners with various industries, organizations and institutes of higher education. Parents and the school parent organization (PTO) are active partners in these efforts. In PTO and school community platforms, these efforts are extensively discussed, and available resources and funds are channeled to the appropriate participants. More funding and other strategic alliances and partnerships are constantly explored. The school community council allocated 40% of the land trust funds to STEM education in the school. PTO members and parents are actively pursuing the sponsors for Utah STEM Expo and other STEM education activities, like Robotics, Lego, etc. They look out for financial support as well as getting the field experience to our school and engaging partners with the school.

The STEM Action Center is our strategic partner in our STEM education. They sponsor the Utah STEM Expo which Beehive hosts each year. Our school procured the Edivate STEM professional development tool, a CTE grant of PLTW for eighth grade students, STEM Math software, a Smart School Technology grant, Robotics grants and various student grants to participate in STEM competitions. We received a STEM grant for the art teacher to teach 3D art.

IM Flash sponsors the Utah STEM Expo and they are our strategic partners in our STEM education. They contributed to our STEM designation application by sending an expert to serve on the committee. We do have a strategic agreement with them to expose our students to high tech jobs. Yearly, 4 activities are arranged with two expert speeches and 2 field trips to the IM Flash facility. Further internship opportunities are constantly being explored.

CTE Career Pathways programs in four different areas of technology are implemented with the support of the USOE.

Salt Lake Community College has an agreement with Beehive Academy to provide concurrent enrollment courses in various fields to our students. Students are able to get the university 1-year completion certificate and associate degree with a nominal $10 per credit fee. Many of the advanced STEM courses are offered to them.

Through CMLP (College Mentorship and Leadership Program), many leadership programs are developed with Utah Valley University, the University of Utah, and Westminster College.

Sandy City and Sandy Area Chamber of Commerce are our strategic partners in our STEM education, and we are continuously utilizing their resources.

Through CTE--College and Career Awareness class, parents and experts from different STEM fields are invited to share their experiences with our students.

Our Robotics and Lego Robotics programs are supported by parents and industries. They provide expertise and financial support.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

10. **Advancement and Sustainability**

A five-year plan includes each of the criteria for an effective STEM school. Strengths and weaknesses are identified. Plans are in place to address weaknesses with evidence and research supporting the plan. Strengths are examined for the purpose of continued improvement. Future efforts and trends are examined, and ongoing renewal is planned for.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
10a. Development of a Five-Year Plan on Goals and Benchmarks for Community Strengths *The school has a five-year plan that includes evaluation of each of the criteria for a STEM school. Examination of strengths takes place for the purpose of continued improvement.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The plan was created by multiple stakeholders and includes at least two strengths to build upon.	- The school plan includes plans for sustainability and improvement regardless of changes in leadership or staff with LEA support.

Utah STEM School Designation Criteria
Pilot Year Model
Narrative: Exemplary--3 points

Beehive Academy has strong engineering, technology programs, project-based STEM learning opportunities and technology aided education for its students. BSTA included these last two strengths in its five year plan to sustain and further improve and refine them. Beehive Academy has a STEM committee consisting of three administrators, three teachers and one industry partner representative. The STEM committee worked on developing a draft for the five year STEM improvement and sustainability plan with strategies, action plans and the necessary funding elements in place. The draft improvement plan was shared with all staff and discussed in an all-faculty meeting where feedback was gathered. The draft plan was also shared with school board members, school community council, PTO (Parent-Teacher Organization) members and student council members. All of these entities discussed the plan and gave their feedback to the STEM committee. The plan was then developed with all stakeholders, and responsible parties' interests in mind. It will be implemented regardless of the changes in leadership or staff as it is a plan shared and accepted by all stakeholders and supported by the school board.

10. **Advancement and Sustainability**

A five-year plan includes each of the criteria for an effective STEM school. Strengths and weaknesses are identified. Plans are in place to address weaknesses with evidence and research supporting the plan. Strengths are examined for the purpose of continued improvement. Future efforts and trends are examined, and ongoing renewal is planned for.

Element	Non-Existent – 0 points	Developing – 1 point	Existing – 2 points	Exemplary – 3 points *(In addition to all "Existing" indicators)*
10b. Development of a Five-Year Plan on Goals and Benchmarks for Improvement *The school has a five-year plan that includes evaluation of each of the criteria for a STEM school. Examination of weaknesses takes place, with evidence and research supporting the plan.*	The school does not include and/or does not have evidence of this element in practice at this time.	Work is in progress to develop this element within the school. This element is included in the school's STEM planning document.	- The plan was created by multiple stakeholders and includes at least two weaknesses to address.	- The school plan includes plans for sustainability and improvement, regardless of changes in leadership or staff with LEA support.

School Name: Beehive Science and Technology Academy (BSTA)

Utah STEM School Designation Criteria
Pilot Year Model

Narrative: Exemplary--3 points

Beehive Science and Technology Academy (BSTA) will increase the student population of females and minorities having access to STEM education at the school. BSTA will work closely with university and industry partners to provide internship and field learning opportunities for all students, and will focus on increasing the participation of underrepresented group participation in STEM education. Increasing relevant activities, internships and field learning opportunities for its students are a high priority. These two goals are part of its five year sustainability and improvement plan. Beehive Academy has a STEM committee consisting of three administrators, three teachers and one industry partner representative. The STEM committee developed a draft five-year STEM improvement and sustainability plan with strategies, action plans, and necessary funding elements. The draft improvement plan was shared with all staff and discussed in an all faculty meeting and feedback was gathered. The draft plan was also shared with school board members, school community council, PTO members and student council members. The plan was discussed in a student council meeting and at an all community meeting. The plan was developed with all stakeholders and all the responsible parties interests in mind, and will be implemented regardless of the changes in the leadership or staff as it has been accepted by all stakeholders and supported by the school board.

School Name: Beehive Science and Technology Academy (BSTA)