Utah STEM School Designation

2015-2016

Application Packet

Pre-Application Deadline:
October 1, 2015

Application Deadline:
February 18, 2016

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: DaVinci Academy of Science and the Arts
   Address: 2033 Grant Ave. Ogden, UT 84401
   Phone: 801 409-0725
   Website: davinciacademy.org
   Public/Charter/Private: Charter

2. **Lead Contact for STEM School Designation Application**
   Name: Deborah B Neal
   Email: deb.neal@davinciacademy.org
   Position: Director

3. **Members of the STEM Schools Designation Application Team:**

   Fred Donaldson Executive Administrator
   Deb Neal Middle School Director
   Simon Post High School Director
   Erika Kortman Elementary Director
   Jesslyn Anderson Virtual Director
   Nicole Scadlock/Jani Ashbaker Special Education Directors
   Garen Kidd IT Director
   Lisette Brown Head School Counselor
   Cheyenne Herland Tech. Education Specialist/Middle School science teacher

4. **What level are you applying for? (Bronze, Silver, Gold, Platinum) Gold (99 points)**
   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.

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

Vision Statement: To create an academic institution where everyone can learn, develop their talents, acquire appropriate social and cognitive skills and master their academic goals.

Mission statement: DaVinci Academy of Sciences and the Arts is dedicated to developing competent, inventive, ethical, and divergent thinkers who are able to apply their knowledge, skills, leadership, and problem-solving abilities to become productive citizens of the dynamic world. Please see our web site for more details of our school culture. We offer programs that promote enthusiasm, exploration, and academic excellence in an interdisciplinary curriculum that involves real-world experience and application. We serve as a laboratory school to examine and develop new methods and materials in curriculum innovation and reform, including, but not limited to, traditional, online, and distance education programs. We serve as a model for private sector and public education partnerships, including mentor and internship opportunities. We implement a curriculum that complies with all state requirements in serving a school population of grades K-12. The Utah State Core Curriculum serves as the foundation of subjects taught and provide a minimum basis for academic requirements. Our comprehensive program of instruction is based on offering a rigorous curriculum of science, technology, engineering, arts, and math.

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.

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Narrative: Exemplary(3);

Our STEM Action Plan has been adopted and implemented by our school, attachment 1a-1. Also see DaVinci Academy of Science and the Arts Charter, attachment 1a-3. Our secondary program utilizes grade level teams that are comprised of teachers from different subject areas working together to develop and implement rigorous lessons, see attachment 1a-4. We plan and execute project based learning in all of our subject areas on a daily basis. Our 5-12th grade teachers collaborate on project based learning activities. During science fair development, English teachers teach students to write abstracts. Math teachers help students create and understand data. Technology teachers help students to graph and analyze data. Science Fair timeline, attachment 1a-5. Watch the robotics video on how well they incorporate robotics with our last theater production.
Teachers are always implementing cross-curricular lessons into their day. During language arts time, 4th graders completed a nonfiction novel study on “Mistakes That Worked.” Attachment 1a-6. During this unit, students had the opportunity to make our own fudge to try out the recipe from the book. While following the recipe, students realized that we were using math skills including reading fractions and measuring. Science and technology were discussed during this lesson while discovering how a hot plate produces electricity to melt the chocolate. This is just one example, but teachers are constantly integrating cross-curricular lessons throughout the day.

Students were asked, multiple times a day, to make personal connections to what they have heard (a read aloud book) or what they have done (a group activity). Without prompting they often make connections between subjects (science to language arts, math to engineering) and between subject learned in school and their home life. This creates a long-lasting, powerful memory for the student.

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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.

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Narrative: Existing(2);

Problem solving learning in an integral part of our entire curriculum. Our school schedule has been adopted to allow for weekly time to work on projects, attachment 1b-1, shows our bell schedule. This allows adequate time to develop inquiry, build knowledge and construct solutions. All subjects taught are expected to allow time for hands on learning each week. Long term project include quarterly family projects for our K-4 students based on STEM foundations, science fair for grades K-12, preparation to compete in competitions such as Envirothon, Academic Decathlon, Science Olympiad, Robotics K-12(FLL, FTC, and FRC), Physics Day, and MESA competitions. Our Fall theater production utilized our robotic classes to build a movable stage for this year's production, attachment 1b-2.

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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.

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Narrative: Existing(2);

Students have many opportunities to work in groups in all their classes.. Our classes are arranged in a way that promotes group learning. We do not have desks in our classrooms, but instead have tables. In all subjects the teachers work to incorporate as much group learning as possible. The 3rd and 4th graders have collaborated for our monthly student assemblies this year. Each month we focus on a character building trait. The 3rd and 4th graders take that character trait and come up with a way to present it to the rest of the student body. They have used different technology to create videos using stop motion, attachment 2c-1. Kindergarten children work independently for between 45 minutes and 1 hour a day. During this time they work together in pairing and groups of their choosing. Collaboration is a must; without it they wouldn't be able to accomplish anything. Lab structure in Secondary is designed for group work. Students rotate from station to station, to gather data and share data at the end of the lesson. Each department has computer carts that are shared to facilitate the dissemination of data. We utilize canvas in all 7-12 classes to allow students to create and share information. Google doc's has also proven an excellent resource to allow students to work cooperatively. Example 1c-2.

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1d. Connections to the Real-World and Current Events *Students make connections between what they are learning and real-world experiences,*	The school does not include and/or does not have evidence of this element in	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	- 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

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current events, and/or their daily lives.	practice at this time.		theoretical real-world scenario at least three times per month in STEM disciplines.	learned in the classroom to conceptual or theoretical real-world scenarios at least three times per month in all disciplines.

Narrative: Existing (3):

We partner with all Isee programs, attachment 1d-1. Our 3rd and 4th grade students had the opportunity to have the Living Planet Aquarium come to our classrooms and do a presentation that were focused on the water cycle. They brought a real working model of the water cycle for kids to interact with. High school AP biology and biology go on field trips to the Living Planet Aquarium as well.The Natural History Museum of Utah did a presentation on the fossils specific to Utah. Students were able to handle actual fossils and compare and contrast while applying what we have learned in our classrooms. Middle school students go yearly to participate in their inquiry based learning programs. Physics and Earth Systems clases go the the Clark Planetarium to explore astronomy. Discovery Gateway provides hands on chemistry for our 5th and 6th graders. Our Botany classes go to Red Butte Gardens for field Ecology. The Leonardo on Wheels comes to our school for hands on interactive science exhibits for 7th-9th graders, we also go to field trips there depending on current exhibits, the 5th and 6th graders just went to the Mummies exhibit. Hawk Watch International comes to our yearly Earth Day assembly as well as out Wildlife biology classes. K-6th grades go to Thanksgiving Point for the yearly Tulip festival and the Museum of Natural Curiosity, attachment 1d-2. 1st-4th graders take yearly field trips to Black Island Farms where they have opportunities to learn about real life experiences. They witnessed farming careers and what Utah farmers do on a daily basis, attachment 1d-3. Our Kindergartens are participating in Trout in the Classroom, watching trout grow and develope and will be participating in their release into the Ogden River this Spring, attachment 1d-4. Utah Agriculture in the Classroom provided site visits for our k-12 students about the importance of agriculture in the classroom.Professional development was also offered to the teachers.With our students participating in all of the Isee opportunities that are available, they develop natural curiosity and a sense of wonder.

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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.

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Narrative: Existing(2)

1st and 2nd grade the students are given a task of using marshmallows and spaghetti noodles to build a tower. The students first developed a plan by working with their group and drawing what their tower would look like. The students then implemented their plan and began building. As the students were building they made changes to their original plan as they evaluated what was working and what was not working. 1st and 2nd grade the students learned about gravity and air resistance. They built capsules containing eggs and dropped them from the top of the playground equipment. The goal was to not have their egg break. The students first wrote down the supplies they would need and drew a picture of what their capsule would look like. They then worked collaboratively as a group to build their capsule. After the capsule was dropped the students checked to see if their egg survived their fall. 1st through 4th grade students built towers using only note cards and tape. The students first developed a plan and then implemented their plan with the group. Half way through we stopped a class and evaluated how the building was going. Discussing what was working and what was not working. The class then reevaluated their plans and then made changes in their building as needed, attachment 1e-1. 3rd and 4th grade classrooms have engineering games available that the students love building with and exploring. One of the games is called suspend and is a balance game where the students build with metal rods. The other engineering game consists of plastic pieces in which they can connect together to form different shapes. They students love to be creative and come up with fun designs. 3rd and 4th grade students used toothpicks and gumdrops to build a structure that was then tested to see how much weight it could hold. Students had to work together to design a plan then use the materials given to build their structure. Kindergarten students design, build and rebuild every day. We have many materials (magnetic building sets, gear builders, large and small wooden blocks, K'nex and many others). They are asked them to formalize their thoughts on their designs both through pictures and outloud as they walk me through how they built what they did, why they built it that way and what they could do to make the structure stronger. We offer all levels of First robotics. FLL for K-6th grades, FTC for 6th through 9th grade and FRC for 9th through 12th grade, attachment 1e-3. We compete in all regional and Statewide competitions. We also have Vex robots in our CTE program for all of our 7th graders, attachment 1e-2. Our 6-12th grade sciences are already incorporating the NGSS Engineering standards into their curriculum, prior to formal adoption by the State. The engineering process is referenced as often as possible to have students construct and understand the world around them.

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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..

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Narrative: Exemplary(3);

DaVinci Academy of Science and the Arts implements curriculum that complies with all state requirements in serving a school population of grades K-12. The Utah State Core Curriculum serves as the foundation of the subjects taught and provide a minimum basis for academic requirements for advancement to graduation. We offer rigorous STEM electives for all of our 7-12th graders, 1f-1.We also require that all graduating seniors have four credits of math, science, and english to meet our graduation standards, attachment 1f-2. We also utilize benchmark data to show progression of core concepts. Students not mastering core subjects by at least 60% are required to be placed in math, english and science labs, as well as after school tutoring. We also support student success with IEP and ELL students. We also require our seniors to complete a senior capstone project for graduation. They can choose any topic to defend their thesis on. We are an AVID school K-12. Attachment 1f-3. We utilize AVID philosophies in all of our classes, advisories, and teacher professional development. We also offer after school STEM based YMCA programs. Our on site YMCA STEM coordinator helps coordinate field trips, after school clubs, MESA activities, and community service. We just completed participating in the “You be the Chemist Challenge” for grades 5-8. Our 5th and 6th graders participate in Mission to Mars sponsored by Hill Air Force Base each year to learn about life on other planets, attachment 1f-4. They construct habitats and participate in a”link-up” day at Weber State University with many schools. We offer an Academic Decathlon class for our secondary students. This is a very rigorous class that requires students to review and study many evenings and weekends. Our team just placed first in the small schools division in regionals and will compete in the State competition in March, this is our fourth year participating. We also have a junior high team for 6,7,and 8th graders called “Pentathlon”.

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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.

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Narrative: Exemplary(3);

All secondary classes have instruction that is students centered. The instruction is tiered based on prior knowledge of classes taught. Our AP Biology students have to take biology and chemistry prior to taking AP biology. This is not true for many secondary programs but we felt the students were more successful with these pre requisites. They are asked to acquire knowledge and analyze and solve complex problems. We have a rube Goldberg competition yearly and also participate in the Prosthetic Challenge with MESA every year. We incorporate these activities into our physics and physics with technology classes. We operate our assessments on the secondary level similarly to college programs. Quarterly benchmarks are cumulative for year long classes and semester classes have finals. We structure our finals week so that our students learn how to manage multiple priorities at the same time. We utilize a common summative performance assessment rubric for all of our scientific skills, scientific writing and lab reports, example 1g-1. This process for scientific observations is utilized for grades K-12, with tiered expectations based on grade levels.1st and 2nd graders learned about wind and water erosion. For this unit the students took part in different investigations . Students created their own glaciers and then recorded their observation in their scientific notebook, explaining how glaciers erode away the land. They also observed how wind and water affect the earth by observing sand and soil . Students worked in groups and made predictions as to what would happen to that sand. They then blew wind on the sand using straws and recorded their observation. Rain and rivers were simulated by sprinkling or pouring water on the sand and recording their observation. Students also explored water erosion by using a dropper to drop water on to different colored skittles and then observing how the drops of water eroded away the color. Observations were recorded in their science journals explaining why the erosion was occurring.1st and 2nd graders also explored gravity and air resistance. The unit started by focusing on why objects fall to the grown. They dropped many different items comparing the rate at which they fall. Predictions were made as to why objects fall to earth at a different rate. The main prediction was due to the object's mass. The students then explored object mass by dropping golf balls and ping pong balls and a flat piece of paper and a crumbled piece of paper. They recorded their observation and noticed that mass was not a factor. The students on their own developed an understanding that air resistance was a factor that affect the rate at which objects fall, attachment 1g-2.

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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.

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Narrative: Exemplary(3)

Our secondary students have a variety of activities that are offered. We provide college tours to all of the Universities and colleges in Utah. We have monthly field trips planned to Weber State University(WSU) to visit specific colleges, attachment 2a-1. We have a semester business fair that allows students to develop a business and sell their products for the entire school body. We have the OWATC and WSU come and talk to our students about the technical career options available. The US air force, army and marines come to speak to our upperclassmen about the possibilities available. We have a scholarship counselor that works with advisory teachers and students about college STEM scholarships offered. We have an STEM Outreach coordinator that researches all and any stem activities for our K-12 students and always has new and exciting opportunities to make available to them. One of our Juniors last year, who is also Captain of the robotics team, landed a paid internship by Northrop Grumman, first time a high school student was offered this position. We work with HAFB that offers a variety of STEM activities: Sea Perch, Starbase, Mission to Mars, and aeronautics programs for our aeronautic club. We have speakers come to enrich classroom instruction: wildlife biologists, engineers, professors from WSU to teach classes, Ogden Nature Center, Utah Society for Environmental Education, Soil Conservation Service and ATK Orbital. All of our 7th grade CTE classes went to STEMfest this year, attachment 2a-2, as well as the robotics teams and all students interested in a stem career.
Our elementary students completed a family project at the beginning of the year where each student picked and researched an inventor, artist, or scientist, attachment 2a-3. They picked their person based on their interests. Some students picked a person within a career field they may be interested in. This exposed them to different job requirements and information based on that career. Some of our students went and interviewed people within that career field to obtain information. Our school also has an artist board and a scientist board of the month. Each classroom will work together to complete these boards throughout the year. Students input is valuable.

School: DaVinci Academy of Science and the Arts

2. **Leadership**

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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.

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Narrative: Exemplary(3;)

Our teacher handbook outlines our desired results for student learning(DRSL's): collaboration,communication, citizenship, contemplation, competitiveness, curiosity, creativity, compassion and conservation, attachment 2b-1. We emphasize our DRL's in all that we teach, everyday. We also have a school improvement plan, attachment 10a-4 that outlines what our collaborative and supportive professional development plan is that reflects the mission and goals of DaVinci Academy.

We have a technology plan, attachment 10a-2, that articulates standards, goals and objectives that also blends with the Utah Core. The methodology involves something as simple as logging into a computer to using spreadsheets, data driven operations and technology based classes just like they would do in the workplace. As they move up in grade the instructions and use of technology become more vital. Students have access to many laptops and desktops and are encouraged to use them on a daily basis. Utilizing many formats to create student work such as web development, graphic arts, game design and video production. This has helped us with student technology proficiency. The major role is that of the teachers willingness to use those tools to facilitate a lesson with the students. We start at a young age at DASA and move them through to more advance classes that use these tools more frequently. We have robotics in k-4, vex in middle school and advance robotics in high school. Use google for education daily as well as many online platforms that the students learn. Gene manipulation using a virtual world on a laptop is invaluable to students and shows where the future is going. Students are broken up into groups in some classes to take on leadership roles of developer, engineer, project management and marketing. We have a traditional student government that plans assemblies, student council that plans student activities, student representatives on our school board and our Parent Teacher Student Organization. We have students who are aides for a semester that work with our K-6th grades classes who are interested in education as a profession. Our seniors organize and plan a day of community service at the Ogden Nature Center every year in honor of a former student that was killed. We coordinate that activity with WSU and the Ogden Nature Center, attachment 2b-2. A few of the pictures with artifact materials would not let me label them as 2b-2, these pictures are from this year's Adrian Maxson Service Day that our Seniors participated in. We always have a assembly for the entire school in the morning with Adrian's parents here and take this opportunity to talk about service with the entire school body.

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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*	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 leaders) encourage and support teachers to seek out additional professional learning opportunities	- 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/

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school teachers and leaders.			beyond school/LEA.	educatoreffectiveness/Standards.aspx

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Utah STEM School Designation Criteria
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Narrative: Exemplary(3);

We have a great internal structure for our programs. Secondary utilizes Department heads and grade level team leaders to facilitate information to all of the staff and faculty. Our leadership has placed critical specialized support roles to ensure that we are continually learning as educators. We have STEM Director in place to coordinate all STEM activities in the school. She works with local colleges, organizations, governments, businesses, USOE, USEE, technical services, science partners, engineering firms,YMCA, and the STEM Action Center. We place students in USU's Engineering State Program, University of Utah ACCESS program for encouraging young woman in the sciences and technology, Utah Energy Workforce Scholarship Program, and the National Youth Science camp. We have received over $200,00.00. in grants to support our STEM activities this year alone.. We have designated support specialists that help us learn new ways of instructional delivery. We have outlined in our School Plans our primary PD goals for technology, engineering math and science. Our PD goals,attachment 10a-3, includes plans and schedules show that we have continually placed educator training as vital to the success of the school. We continue to grow each year by advancing our training, being specific in what we want to train teaches on. Our PD committee meets on a regular basis to ensure correct training and to help us focus on what we need professionally.

In doing this, we seek for feedback on where we can improve while adjusting the instructions given based off of feedback received. We routinely have our specialists in the classrooms with teachers training them on a number of various items. While our leadership is looking into constructive feedback for improvement as well as classroom visits. We have faculty surveys that we give out that helps us identify what faculty would like to learn as well as new methodologies and instructions that the body of teachers focus on. We encourage our teachers to observe other teachers in their teaching styles. All of our AP teachers receive training and also help to serve in AP test evaluations. We have standards that we have implemented that sometimes go above and beyond what a normal institution would do. Those standards are in alignment with our vision and our mission as well as the technology, science and math and engineering standards and goals. We encourage all of our staff and faculty to participate in STEM professional development. All of our elementary teachers are in a stem endorsement program with WSU and Davis school district. Out science and technology teachers attend state and national conferences: USTA, NSTA, and UCET. Many of our teachers volunteer with state wide robotic competitions and are presenting papers at USEE conferences. See attachment 2c-1.

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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.

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Narrative: Exemplary(3);:

For this academic school year, teachers worked alongside administration to pick a new science curriculum. Teachers evaluated many curriculum choices and worked with administration to determine the curriculum that would best fit the needs of the students and the values of the school. Teachers are encouraged to bring new ideas and strategies into the classroom, as well as providing input to the direction of the school. Teachers are asked to pick math textbooks that work best with their course offerings. Professional development is planned by teacher for teachers, attachment 10a-3. The school improvement plan, attachment 10a-4 and the technology plan, attachment 10a-2, were developed with faculty and staff input. Teacher participation is strongly encouraged with all of our school planning. We are encouraged by our Executive Administrator to attend school board meetings to voice our concerns when it comes to strategic planning in an open setting. We plan professional development, inservices and training as committees with great representation of all departments both elementary and secondary.

Teachers make presentations to the Land trust committee about programs that need funding and supporting STEM was the overriding theme this year to support our school application. Technology, math manipulatives, and field trips to support STEM education were all funded. The EdTech specialist works with science, math and technology departments all year to ensure teaches are getting the necessary support to engage students in hands-on-inquiry utilizing technology, 2d-1.

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	The school does not include and/or does not have evidence of this element in	Work is in progress to develop this element within the school. This element is included in the school's STEM	- STEM courses utilize SLOs to measure progress toward targets for at least two expected student learning outcomes.	- 80% of courses utilize SLOs to measure progress toward targets for at least two expected student learning outcomes.

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Demonstration that school utilizes SLO process to measure student outcomes and teacher instruction.	practice at this time.	planning document.	- Students are actively informed about mastery expectations and progress.	- Qualitative assessments exist around student learning outcomes.

Narrative: Existing(2);

All teachers are expected to create quarter benchmarks that are tied to Student Learning Outcomes(SLO's) covered during that quarter. Progress towards SLO's are then analyzed by teachers both individually and in groups. These outcomes are recorded and reviewed when preparing upcoming lessons. Teachers are given a full workday just to crunch and analyze student progress towards SLO's taught in classes. Students not meeting specific SLOs are given more opportunities to demonstrate mastery in a variety of ways, attachment 3a-1 and 3b-1 provide examples. Elementary, Secondary department and grade levels meet to analyze data and make instructional changes as necessary. Notations are made in SIS so all teachers can be active to provide remediation as necessary and enrichment when possible.

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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.

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Narrative: Exemplary(3);

As a school we use many forms of assessment to direct our instructions. One example of this is our school youtube channel, where we share and display authentic, original student products. Teachers are also able to review these videos to reflect on teaching practice. Students are able to share their work and school community with strategic partners. Three times a year (fall, winter, spring) we use AimsWeb and Dibels assessment as a prescreener for our K-6 students. With this data we place students in our intentional reading and math intervention groups. These groups pinpoint what the individual student needs to focus on and are progress monitored on the specific skills. We then reassess the students using AimsWeb and Dibels again in January and May to check student progress. Every 8 weeks we meet as a team to discuss progress monitoring data and determine if the student is improving or needs to be referred for further evaluation. based on this assessment process, we have been able to offer not only traditional intervention services, we now offer enrichment services for those students who are excelling, specifically math.
At the end of each quarter we give our students benchmark tests. After each benchmark the teachers break down the the test by standard and question. The teachers then meet as a grade level team and then with the school wide support team to discuss student data and determine based on data, how their groupings, instruction, and scope and sequence needs to be adjusted. This is expected by 100% of our teachers. We allow grade level and department time to plan and collaborate. All assessments and benchmarks exist around student learning outcomes. Projects are valuable indicators of student learning outcomes. We partner with our film and theater department for support and direction.

We also assess our students in a variety of ways, both quantitatively (as described above) and qualitatively, as described below. Since we are a science and arts school, many of our students are assessed qualitatively, such as music recitals, art shows, projects, theatre performances, and class or school presentations. Students are expected to show mastery of content through these presentations or performances. Competitions are also a method for measuring student mastery of content. We have several classes that expect students to compete in competitions that really help students demonstrate skills learned in class. Such classes as physics day, mock trial, academic decathlon, robotics, writing and art challenges are just some of the competitions students engage in that help demonstrate mastery of content, attachment 3b-1.

4. **Professional Learning**

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Pilot Year Model

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.

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Pilot Year Model

Narrative: Exemplary(3);

Professional learning is based off the needs of the school, which is outlined in the school improvement plan,attachment 10a-4.. This year our professional learning covers five areas: classroom management, effective instructional practices, use and implementation of technology, policy implementation, use of college prep time. Full staff meetings are provided at least monthly for all teachers, sometimes two times a month depending on the month. The other Fridays are reserved for department-level and grade-level meetings. All students are released by 1 pm on Friday, which allows time for focused, collaborative professional development. These meetings are focused on specific topics based on the needs of our students. Each month we review and plan for upcoming professional development and make adjustments as needed.

We have introduced and implemented Canvas successfully for our students and faculty. We want our students to have an advantage in college preparatory programs. Google for education, more robotics, greater collaboration within teams and departments and a growing base of online technology based classes like game development and coding. We have redefined our Tech Plan, attachment, 10a-2, which defines more details on tech PD's, measurements and assessments in PD and having the support structure in place to facilitate our technology based agendas. IT also provides standards on core items of support and training.
All of our secondary science teachers attended the NSTA conference in Reno this year. STEM workshops were attended with enthusiasm. All of our elementary teachers are part of a cohort in a stem endorsement class at WSU, attachment 4a-2.. They attend class every Wednesday night and will take six classes towards their USOE STEM endorsement. They utilize what they are learning in their classes all the time.
Our science and math department chairs attend state math and science meetings to keep abreast of changing standards. Our middle school Director was on the new science standards team for the the new 6,7, and 8th grade SEED standards. A representative from all grades go to the USTA conference every year. This was critical this year with the implementation of the new SEED standards in 2017-2018.

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2. **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.

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Utah STEM School Designation Criteria
Pilot Year Model

Narrative: Exemplary(3)

Both time and funding are available to help teachers and staff develop and further their skills.Teachers are encouraged and supported for all and any STEM training. Teachers attending the STEM endorsement class are allowed homework time together to work on assignments. We have adjusted their planning time for this allowance. A grant was obtained to fund their entire endorsement program.Teaches are encouraged to take leadership roles in the community. We are active in the Weber Chamber of Commerce Partners in Education, attachment 4b-1, as well as Woman in Business. We meet with the Mayor on STEM initiatives within the city. We have one teacher attending a Weber School District seed training for the new 7th grade standards. Two of our faculty are presenting at this year's USEE conference discussing with classroom teachers the incorporation of technology, outdoor education and hands on science, attachment 4b-2. We focus a monthly technology talk with teachers to work with our Edtech specialist to produce technology lessons once per month throughout the school year, attachment 4b-3. We provide smart board and canvas trainings and ask teachers to complete assignments in canvas, We have vendors come in as necessary to support technology. Our IT Director works closely with our teachers to ensure they have the support they need. Directors evaluate the professional development for the year and teaches and staff provide input on the direction for professional development for the next year. STEM will continue to be our focus.

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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: Existing(2)

Teachers are asked to fill out a yearly review form to allow them to reflect on their professional development needs, attachment 4c-1 As an AVID school, we are required to submit a portfolio each year to document our programs and teachers utilizing the AVID methodologies. All staff members are expected to provide at a minimum one piece of evidence each quarter, attachment 4c-2. Our STEM activities are in a perfect alignment with AVID teachings. Our teachers are asked to fill out professional expectations at the start of each school year, taking into account their strengths and weaknesses. it is from this where we offer professional development. For example, our biology teacher is interested in getting up to speed on the new NGSS standards that will be in review and adoption in utah in a few years. She is looking for professional development opportunities to support this and the school will support her. Canvas is utilized by both students and faculty, courses have been developed by faculty/peer leaders to provide support, resources and accountability for learning and application, attachment 4c-3.

School: DaVinci Academy of Science and the Arts

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.

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Utah STEM School Designation Criteria
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Narrative: Existing(2)

Our faculty handbook, attachment 5a-1 addresses our code of behavior and conduct. At the start of every school year, teachers are asked to develop social contracts with their classes. We also ask our teachers to develop social contracts for ourselves, attachment 5a-2. We use a rewards program called ”High Fives”, attachment 5a-3. We ask teachers to fill these out randomly when someone has exhibited a positive behavior. They are given to the employee then pinned on a bulletin board in the faculty lounge. At our once a month general faculty meetings, many are shared by our Executive Director and then put in a basket for a drawing of $50.00 cash. It a wonderful reminder to support each other in all of our accomplishments and hard work. Our CTE Director recently hosted a vex tournament and she was recognized by many of the faculty. Our robotics teacher has also helped run robotic scrimmages with FLL and FTC and was recognized by many of his peers. Because we are a K-12 school, we get to see our students grow and mature. Secondary teachers meet our students at the door every period and get high fives and fist bumps from them as they enter their classes. Our embracing culture here at DaVinci promotes that we get to know our students well. We have semester awards based on our DRSL’s and recognize our students in assemblies. Many of our STEM teachers come from a varied background, having had other STEM related careers prior to teaching. We are living examples of what STEM careers can do for you. Our students respect that we come from a very varied backgrounds and they embrace that culture. We are fortunate that students come because they want to be here. Our arts and STEM programs have an amazing reputation, we have a waiting list that go unfilled each year. Our students and teachers are well supported. Each team of K-6 teachers has a weekly planning time while our students rotate through specials. From 12:00-3:00, teachers on a teams collaborate together on each subject and its content, attachment 5a-3.. This is also a time where teachers can share ideas and help each other with complicated situations, academically or behaviorally. We also have quarterly professional development days where we review and discuss student data. We take data from assessments and see what we can do to help all children progress. STEM attitude is prevalent throughout both buildings and we are always looking for new and varied ways to support and engage our faculty.

School: DaVinci Academy of Science and the Arts

3. **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.

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Utah STEM School Designation Criteria
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Narrative: Existing(2);

Teachers use a variety of instructional strategies to best serve the many learning styles in the classroom. All teachers use a center based approach for instruction that encourages self-directed learning and differentiation, always ensuring that academic rigor is maintained even with differentiation. I.E.P teachers and intervention teachers service students in a pull out setting as well as pushing into the regular classroom and providing support to the learners in the regular education setting. Attachment 5b-1 is a sample of our class syllabi. Teachers are also learning and implementing Kagan, K-6, structures that encourages movement, music, and student to student structured engagement. Teachers work together to create student learning groups in their own classrooms and across the grade level to best service the students learning style and abilities. Our IEP and Interventionist help with differentiation. This is especially true for our science, CTE, and robotics classes because all students are integrated. Our 504's allow accommodations and even those students who need small differences, we help. Each teacher has assigned days for homework labs for grades 5-12 after school, this allows students to stay on task. Monthly for secondary teachers and weekly meetings with K-6 grade levels allows teachers to share information about students. We work very closely with our counseling staff to see that students needs are being met. Secondary has an advisory time Monday through Thursday, and they have specific activities on each day, attachment 5b-1. Elementary has anti-bullying campaigns to help facilitate student learning.instruction based on the needs of individual students. Our AVID training and implementation provide a systematic approach to differentiate for levels of student learning. Many of our faculty share professionally with other schools interested in STEM. Our Science Department Chair helps other charter schools with science fair training and judging. When we plan professional development, we rely on on "experts" to train and pass along knowledge acquired.

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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);

Teachers meet weekly as a teams to plan and discuss lessons and ideas for the week or month. Teachers share different ideas or lessons they have found or researched with each other and determine the best way to implement into their curriculum and their scope and sequence.
The teachers also share and learn about new STEM lessons and practices during their weekly STEM endorsement class they are are taking at Weber State. In this class, the teachers also collaborate and discuss ideas and lessons with other teachers from Davis district. The STEM Director meets with all K-12 teachers to pass along ideas and information that she has gathered. Emails are the general format. STEM action center grants are worked on collaboratively to get additional funding for our programs. Listservs from our isee partners, USOE, NSTA and USTA are all shared with our teachers. The Center for Math and Science Education works closely with DaVinci to get the STEM support and professional development that is needed. Best practices are shared and encouraged.

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School: DaVinci Academy of Science and the Arts

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 they choose.*	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.

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Narrative: Exemplary(3);

The K-4 program has several dedicated planning times throughout the month. Each week grade level teams have a three hour block of planning time to discuss and plan ideas and instruction as well as meeting with the building administrator to discuss current data. Every Friday, the school has early out at 12:45 and teachers spend from 1:00-3:50 planning in teams, meeting as a full staff, and working individually to plan and prep their instruction. Every quarter grade levels, intervention teachers, I.E.P teachers and administration meet to discuss and review screener data (DIBELS, aimsWeb), benchmark data, and students in intervention. Based on this data and discussion, students are placed into appropriate ability level groups for intervention. Secondary has a weekly time to collaborate, first Fridays are a general staff meetings, second Fridays are departments, third Fridays are grade level time and fourth Fridays are cross circular. We have a PBL mission to have cross-curricular classes: Theater make-up worked with anatomy to get facial structures anatomically correct. Ogden Nature Center worked with our 7th and 8th graders for a song to tell students what they need to have a successful field trip, attachment 5d-1. Our photography class produced a video for UEN on STEM best practices, they wouldn't let me attach it. The youtube channel on our web site provide many examples of the results of collaborative planning.

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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)*
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).

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Narrative: Exemplary(3);

Our secondary program offers Dragon Camp for our incoming 7th and 8th graders every fall on their registration day. Students get a tour and team building activities lead by our student council. 4th graders have a move up day to see the new building Little DaVinci to the main campus so they be prepared for the fall. Our K-4 program is a block away from the 5-12 building. Many of our students choose to be a teacher's aide for the elementary students. Our secondary quarterly incentive activities for honor roll include 6th graders. Movies, waffles, and ice cream sundae activities are offered. Our counseling office offers family and student services for all of our students who need help. Counselors meet with all advisories to go course selection for the following year. All teachers post their availability after school and run homework labs to help students master core content. Our STEM programs get the most support due to the technical nature of these programs. WSU tutors are also available to help as well. Grants, USTAR funds and YMCA funding help make all of these STEM activities available.

The K-4 program has an on-site Parent and Student advocate. Our counselors provide pd training, they support our HOPE squad, attachment 6a-1. They also work with students and have monthly relationship building times. The support the advisory classes. The have scholarship nights, FAFSA workshops, AVID parent nights, yearly science fair meetings to help parents, cyber bullying workshops, SIS nights to help parent navigate with checking their grades. Our Parent and Student advocate has responsibilities to identify and work with students with various social and emotional struggles in and out of the classroom, and provide community resources and supports to parents. Students are identified through teacher recommendations and team data discussions. One teacher empowered her class to create and share a video reinforcing a lesson on respect, which was then incorporated into the other elementary classrooms. We are currently providing lunch bunch social skills groups to our 1st-4th grade students, creating and implementing individual positive behavior plans to individual students, providing individual social skills lessons to targeted students, and working with our economically disadvantaged parents to find community resources to help them outside of school hours.

The K-4 building also learns a monthly value, 5th and 6th quarterly and secondary has advisory lessons in their reminding them what our core values are, attachment 6a-2. Teachers teach weekly lessons about these values in their classroom, and hand out tickets to students that demonstrate these values and 5th and 6th graders get tickets for jobs well done that are put in for a monthly drawing.Students are recognized through daily drawings of tickets and monthly award assemblies. A focus on these values help build student relationships in school, and helps

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students to become well rounded members of the community. Based on the diversity of our student body, we are encouraging all students to develop interest in STEM fields.

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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)*
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.

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Narrative: Exemplary(3);

Secondary offers numerous AP classes to promote high level rigour. We discovered this year that we need an additional AP lab time for our science classes and will offer that next year. A great example of teacher input and schedule changes happening.Students can attend classes at WSU if they are exceeded what we can offer: Chemistry 1010, Biology 1010, and math 1050 or 1060. Many of our students go to Expanding Your Horizons sponsored by ATK Orbital as well as Engineering Day at the University of Utah and WSU. Students needs are being met whether it's remedial, core classes or gifted and AP programs. We offer pre AP classes in science for or 7th and 8th graders. We participate in MESA stem activities to include our underrepresented populations. Many of our students have received MESA scholarships. We work with HAFB to get training for our STEM programs: Starbase, Mission to Mars and science fair. Scholarships are offered to students who can not afford these activities, see DaVinci Web site. Our PTSO also provides scholarships as well. Our STEM coordinator provide information about special programs designed to encourage underrepresented students in STEM careers. She meets with advisories and students individually to support and develop their stem interests. She works with the scholarship counselor to make access equitable and promote stem related college programs.

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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: Existing(2)

Student Council meets with the Executive administrator as needs arise to discuss concerns over behavior and values. The student body president has a position on the School board and meets with them monthly. The Vice President meets with the PTSO to discuss student concerns. School carnivals run for the elementary kids are planned and worked by the student council, 6c-1. The student body is encouraged to talk to their representatives to get issues discussed and resolved. Through social media, students are encouraged to give feedback. When our students wanted AP physics offered, they meet with the physics teacher to express their concerns and the class was offered this year. Science electives are also discussed and planned based on student needs.

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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.

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Narrative: Exemplary(3);:

K-6th grade students have opportunities to participate in many after school activities. We have lego robotic for K-3rd students and another group of 4th-6th students. The K-3rd group meet once a week and work on beginning design and building skills. The 4th-6th student meet twice a week and participate in competitions, example 6d-1. We all also have karate, girls on the run and girl scouts. Many of our students also take part in our YMCA after school program that has a stem focus.: Clubs in secondary include robotics, aerospace, science olympiad, envirothon, aeronautics, gaming, coding, and the Green dragons our conservation club. Many of these clubs culminate in yearly competitions. Robotics has local , regional, and state competitions. Envirothon sends two teams each year to Southern utah to compete in a state wide competition. Green Dragons is the name of our conservation club. They run our composting, and recycling programs for the entire school, attachment 6d-2. . They built the compost bin and set up our cafeterias where all three lunches participate. It's become a competition to see who can waste the least. We have sent participants and observers to the ISEF competition based on the quality and caliber of their projects. Our science fair students have qualified from the International Science and Engineering Fair(ISEF) for the past seven years. The YMCA runs an after school program as well as camps during the summer for our K-8th graders. This year there will be three separate stem based camps, taught by our own stem endorsed teachers. This is a great marketing opportunity for us to have students with a STEM emphasis attend our school and discover the fun in STEM.

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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.

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Narrative: Exemplary(3);

DaVinci Academy of Science and the Arts is located in downtown Ogden. Our student population is drawn from mostly the Ogden school district which has a significant hispanic population. We have a 51% free and or reduced lunch rate. We hold community open houses twice a year to recruit local students. We attend local events to market our programs to families in our area. We go to HAFB for two separate open houses to recruit local Air Force families. We advertise in the HAFB relocation guide. We have a booth at the local farmers market in the summer to recruit local families. We rent grocery carts advertising space at the local Maceys to advertise our programs. We present at local charter schools that age out in 8th or 9th grade and meet with students to tell them about our programs. Our STEM class offerings are very popular. We advertise with local businesses by keeping our brochures available, attachment 6e-1. As part of the Ogden/Weber Chamber of Commerce, we participate in the Partners in Education that recognizes local contributions to education. We allow student to visit and shadow other students to make sure DaVinci is the right school for them and also have our secondary student body officers provide tours. We get a number of students from the summer YMCA programs, which was a pivotal reason we decided to house the YMCA program at our school. We also interview each and every family that attend DaVinci to make sure this is the right place for their students. We also have many faculty and staff that volunteer with local organizations that helps with our student recruitment: Girls on the Run, WSU robotic competitions(local, state and National), Ogden Nature Center, Aerospace museum and girl/boy scouts are programs that we currently support.

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)*

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

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Narrative: Existing(2);

In our 5th-12th grade program, all students maintain an AVID binder. This binder is broken into sections to allow students to maintain organization. We provide school planners to all students in grades 1-12. Students are graded on these binders in their advisory classes. All of the stem related classes need this level of organization to maintain assignments. Lab notebooks are kept for all science classes and graded, attachment 6f-1. Students create authentic presentations in their experiments. They are not discouraged from using slang or emoji's, but encouraged to participate in a process of evaluating our own professionalism and creating a class standard that is part of the facilitated discussion as their presentations are shared Because students get to share their understanding of the science concepts from the lense of their own cultures and creativity, they are very committed to the projects. Elementary grade students keep a student data binder. In these binders each student sets goals for reading, math, spelling, and writing. These goals help students have independence and stay motivated with their learning. Once a goal has been set, they get to brainstorm ideas on how they can meet that goal. They track their goals and graph progress after each assessment. These binders are sent home quarterly for parents to look through and discuss progress and goals with their student. Teachers periodically check in with students on these binders and progress being made, but students are responsible for tracking and keeping them organized.

The K-4 students all set individualized third quarter goals. Students worked with both parents and teachers to set goals on work and projects such as passing off sight words, reading at home and turning in homework. These goals will be discussed and, ultimately, the children will be responsible for meeting these goals.

In the kindergarten, students are encouraged to bring in information and items that help them become a "classroom expert" on the subject of their choosing, attachment 6f-2. These materials are kept in the classroom and the students are able to use them during the 45 minute to 1 hour choice time they have each day. During this choice time they are able to direct their learning, often choosing to build on the lessons in class such as making books about animals and building structures that they've used in guided centers.

The themes presented to the class are more often than not implemented due to student interest in a subject; themes often being expanded upon due to student suggestions and excitement. Students are in charge of calendar time, the pledge and at times whole group instruction when they speak to the class about their area of expertise.

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During science, building investigations are supported. Students are always allowed ample time to explore, investigate and ask questions. There are no passive experiments, students dig in, make discoveries and extend their learning as part of everyday.

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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)*
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)

Our AVID program requires us to use self-assessments for our students, attachment 6g-1. Teachers work with students to allow them to discover and reflect on units and projects. Our school is founded on the foundation of problem based learning. It is very important that students connect with prior work on this extensively knowledge to determine the length and depth of studies required, In their avid binders they are asked document strengths and weakness and areas for self improvement. Our advisory classes work on this as well.

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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.

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Narrative: Exemplary(3);

We require 15 hours per year of community service from each family. Many of our families participate with our school guidance and direction. We have parents that are on our school board, Land Trust committee, curriculum committee, safety committee, fundraising committee, PTSO, school sports booster club, and after school clubs supported by parents. We have back to school nights in the Fall. We offer parent forum night's: internet safety, college scholarships,checking students grades on SIS and technology. Parent teachers conferences are held multiple times each year depending on grade levels. We provide training to parents on how to access teacher blogs and Canvas.We host a yearly Veterans Day assembly and have a number of our military families and staff participate and attend. We survey parents and students as we develop long and short term goals. PTSO has a big fundraiser in the Fall, attachment 7a-1. All of the money earned is given to teachers in the form of " Mini-Grants". These has been able to support STEM activities in the classrooms. We also have another large fundraiser in the Spring, "The Gala". attachment 7a-2. 100% of these proceeds go to support STEM programs. Teachers can apply for grants up to $500.00 for STEM related items. Last year we raised $10,000.00 and this years goal is $20,000.00. Due to the nature of a charter school we have to actively engage parents about what we are doing and how we are doing. We use twitter, facebook, and Youtube to keep up on social media, see DaVinci Web site.
Our elementary students participate in quarterly family projects where the student and family collaborate on science, arts, and social studies projects, attachment 7a-3. The teachers send home weekly newsletters to communicate to families what content was covered that week as well as what is upcoming, 7a-4. These newsletters are also posted on the website weekly. The canvas platform allows us to be actively engaging technology with our families.Multiple teachers maintain a classroom blog to update families with photos, helpful websites, documents and online resources.
All parents are able to share pictures, ideas and questions on an online forum. This lets the parents see, via images and videos, exactly what their children have been doing, allowing them to engage the child in extensions activities at home, or at the very least, have a stimulating dinner conversation about what happened in school that day. We are an integral part of downtown Ogden. Last year, our students art and science project was chosen to be made into a plaque along the Ogden River trail, attachment 7a-5. The river is within walking distance of the school and has become our outdoor laboratory.

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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.

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Narrative: Exemplary(3)

Our secondary program organizes yearly the Adrian Maxson Service Day at the Ogden nature Center every Fall. When we were smaller, we would send the entire school for a day of community service and environmental studies, attachment 2b-2. This year, we sent the senior class and had assistance from local environmental agencies in teaching the students about the “Tragedy of the Commons”. We have two organized community service days per year for the entire school, “Fall In” and “Spring out”. Student advisories organize and choose community service activities that they have an interest in: helping at the local animal shelter, singing at local nursing homes and hospitals, armed service goody bags, cleaning up downtown and food/sock/underwear drives. Students plan and implement these service learning projects. We are a designated Utah Green School for three years running, 2c-1. Our AP science students help with elementary STEM activities. AP Physics conducted a pendulum experiment and worked with the Kindergartners to gather and analyze their data. AP Biology helped judge the middle school science fair, there were over 100 projects that they evaluated and provided student input.

A standard for writing in 1st and 2nd grade is how to write a friendly letter. After the students learned the process and structure of writing a friendly letters they wrote two friendly letters. The first letter that wrote was for veterans day. Thanking the veterans for their service. The second letter were to soldiers currently deployed from their family over christmas . The students planned and implemented writing the letters on their own. This service learning activity allowed students to look outside of our school and see what service other are giving us and what we can do to thank them for that.

The 3rd and 4th grade students also had an opportunity to write letters as well, attachment 7b-1. The students wrote letters to other children with life threatening diseases and in people in assisted living. With this service project the students continued working on their writing skills while learning about others in our community. They also made a quilt for a teacher at our school who was pregnant with twins and her husband was diagnosed with stage four cancer. The students decided they wanted to do something for her and decided on a quilt, attachment 7b-2. The class lead this project by planning and implementing their ideas. Kindergarten classes make regular trips to the Weber river, located three blocks from the school. The children often take bags and pick up trash along the way and along the river. This is tied into the work that Weber Basin Anglers (Trout Unlimited) and Twin Territories do to keep the rivers clean and safe for wildlife and humans. This was an effort lead by the children as they often remarked on the amount of trash found along the walk and the river itself. They also hosted a “Helpers Feast” to honor and thank those who impact the children on a regular basis. Invitees and attendees included: the school crossing guard, local police, fire and EMT personnel, animal control officers, community advocates and members of our partners at Trout Unlimited. A video from the feast was featured on all major news stations in

Northern Utah. The students helped plan the feast and we worked together to come up with a list of who should be invited. They colored with the helpers and help serve them food and drinks.

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.

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Narrative: Exemplary(3)

We open our doors daily at 7:00 for the main building and 7:15 for the elementary building. We have breakfast available at both buildings for student who want this service. We provide before and after school tutoring daily. All of our STEM activities that are not part of regular class work are offered in the afternoons, attachment 7c-1. Our stem coordinator facilitates a large variety of programs for us to showcase our student achievements. Each day of the week has different activities. These activities are planned around student interests. We needed a younger group to be organized for our robotics team and a parent stepped forward to run a K-2 lego group. The after school YMCA program was established to make it easier for families to have quality afterschool programming. They now provide stem activities to complement our program. We provide science fair workshops to parents and students. We participate in concerts at local venues. Our musical groups have sung at local concerts and the Partners in Education breakfast. We are asked to bring our robots to the local Fair grounds to showcase our student efforts. We were showcased during Engineers week with Northrop Grumman at HAFB. The UEN used our science and art collaboration to make videos for their web site. Some our STEM activities have been highlighted on the Stem Action Center's web site, " Trout in the Classroom " was the most recent one, attachment 1d-4. We are a community partner with Weber State University, Wildcat level. We have a student assigned each semester to help with community engagement. Most recently they helped with Adrian Maxson Service day, tutoring, dances, bowling activity for our senior and juniors and provided judges for our science fair. We were recently asked to be part of an evaluation team for WSU about the community service programs, using our school as a model for an education institution. The YMCA has provided huge financial and program support for our students. The run our "Reality Town" each year for our freshman, provide support to afterschool STEM programs, and tutoring.

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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 least once per year.	- 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 the state of Utah.

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Narrative: Exemplary(3);

We knew that technology was going to be a challenge for students and faculty so this year we have a TecH Specialist. She helps with technology applications for faculty. She runs her classroom as a technology lab and shares her findings with faculty in her EdTech talks. There are four computer labs that are shared for 7-12th grade students, attachment 8a-1. Each department has it's own computer cart that is also shared. 5th and 6th grade have two computer carts they share. K-6th grades have three to five laptops in each classroom for student centers. Each classroom has a document camera, a short throw projector or smartboard, a speaker system, and a teacher laptop or PC. K-4th grade have a set of ozobots for student use as well as access to all of the lego robotics materials. We have Varnier technology and sensors for all of our middle school and secondary science classes, attachment 8a-2. We have a 3D printer that was received through a grant, attachment 8a-3. Our CTE and robotics program utilize this. Teachers are taught yearly on existing sensors and new sensors purchased. Students 1st - 4th learned a new technology skill, Code.org It demonstrates to students the importance of this skill and what they can do with it. Our 7th and 8th graders also participated in code.org and built Raspberry Pie computers.. We offer secondary course online seven periods a day for classes that we do not teach on site. Our students are using coding in the classroom daily. Once a month, our tech Ed specialist teaches a new technology tool to our faculty. Our IT department provides training for Canvas, SIS, various online services and SAGE. We utilize online professional development through NSTA for online learning for STEM professional development for all our teachers teaching science.

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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.

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Narrative: Exemplary(3);

All STEM classrooms utilize tables and chairs for group work. most other core classes also think this is a best practice as well. Classrooms have been set up to maximize group activities. Science labs have work benches, water, gas and follow all appropriate safety protocols, attachment 8b-1. We have adopted a classroom to house our robotic classes, attachment 8b-2. All students have been trained and certified to use the required machinery. Our safety protocol was developed so both robotics and theater could take advantage of the tools.Classrooms have adequate space to run student centered labs. At times we utilize larger areas for bigger projects: cafeteria, 3rd floor multi space room, attachment 8b-3, hallways, gymnasium and the attached parking garage. Labs are shared based on activities taught. Computer labs are signed up for as lessons dictate. We have also updated several classrooms to make them more lab useful and better able to support instructional technology to enhance STEM initiatives. We encourage outdoor learning and utilize the Ogden River and the parkway trails system often. There is a large space adjacent to the building that accommodates larger outdoor activities. There is a field across the street from the school that we have been able to use for kites and bottle rockets. Students provide input about facilities through their participation on the school board. Student meet and discuss issues with the Executive Director as needed. We are a historic building in downtown Ogden. We have had several renovations to add space and classrooms as our programs have grown. We purchased another empty elementary school a block away to accommodate our newer and growing K-4 program. As our programs grow and expand so does our facility. STEM activities are always at the forefront of our decision process for facilities to accommodate our ever expanding student interests.

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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.

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Narrative: Exemplary(3):

We have active partnerships with the OWATC, Weber State University(Colleges of Technology and Science), Utah State University, Utah State Extension Service, University of Utah , Ogden/Weber Chamber of Commerce, Ogden City, HAFB, Northrop Grumman, Hill Aerospace Association, Hill Aerospace Museum, Ogden Nature Center, Mountain West Telecom, Microsoft, Ogden City School District, Davis School District, Weber School District, Quest Academy, Ogden Preparatory Academy, STEM Action Center, Hawk Watch International, Thanksgiving Point, Clark Planetarium, Museum of Natural History, Red Butte Gardens, The Living Planet Aquarium, Red Cross, Special Olympics, Youth Impact, YCC, Salvation Army, USEE, Harmons Grocery Store and the YMCA. Our programs are effective because of all of the partnerships we have developed. Every year our Gala is held to support STEM programs that are difficult to find funding for, attachment 9a-1. Last year we made over $10,000.00 and the entire amount went to grants for the teachers for STEM related activities they needed. Robots, science equipment, lab equipment, cameras, robotic parts and supplies, AP text books and graphing calculators were all purchased to support our STEM efforts.
All of our community partners are very active with our programs and development, some participate weekly and others yearly. WSU helps continuously with tutors, professional development, STEM endorsement classes, the Center for Math and Science education provides materials, resources and professional development. They are creating a survey for parents to take for our long range planning goals. The college of science offers workshops to science fair students, help judge our science fairs, teach teachers, helped us develop our K-4 STEM fair this year and come in and teach our students. We actively seek input from all of our partners to maintain and improve our programs. The creation of our STEM Specialist position was due to a conversation that if we were going to focus on STEM we had better put a person in that position to coordinate our efforts. It is through these working relationships that we have been able to expand our programs. Our list did not grow overnight, it has taken a few years to build and maintain these relationships. Our commitment to STEM is built into the very fabric of our charter.

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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

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Narrative: Exemplary(3):

Robotics students are asked to demonstrate their robots during Engineering week at HAFB. We have hosted FLL and FTC scrimmage matches at our school because our robotics program is so well established. We host VEX tournaments for our CTE classes, attachment 9b-1. Ogden Nature Center has presented student art and recognized student volunteers. Harmons grocery store in Ogden displays our student nature art. We have had students for the past seven years advance on to the International Science and Engineering Fair, attachment 9b-2. ATK Orbital has hosted our finalists and asked them to present their projects at their yearly shareholders meeting. The students are the honored guests. Mission to Mars from HAFB has hosted teacher trainings at our school. We have adopted a section of the Ogden River Trail for keeping it clean, attachment 9b-3. We host an International Chinese camp each summer and our students serve as host families. The YMCA presence has helped many of our families with support and services. We have an after school program as well as summer camp. This year we will host two STEM camps as well. All classes, K-12 sign up for a rotation to take turns picking up trash for the section we have adopted on the Ogden River.. We have been honored at a trails festival for our efforts. Our STEM programs not only get recognition for our school, they give our students get the benefit of promoting activities that they are passionate about. This reflects our school in a very positive light.

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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.

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Narrative: Exemplary(3):

Teachers have developed partnerships with WSU professors. Dr. Adam Johnston a physics professor has come in to do science presentations with our students. These presentations were designed to teach and engage the students about the different forces we encounter in our daily lives. Adam has also collaborated with these teachers to help move from a traditional science fair projects to a STEM based learning project that students will work on at home and in the classroom. We also participated in a physics and dance program he organized for our physics and 8th grade students Kindergarten classes have partnered with Trout in the Classroom to raise and release trout.. This requires a close partnership with many community, non-profit and government agencies such as Trout Unlimited, Twin Territory and the Utah DNR. Individuals from these groups come into the school at least several times a month to meet with students, discuss the growth of the fish and help maintain the aquarium environment. We are also working closely with the CCELL(Center for Community Engaged Learning) at WSU. We attend volunteer fairs to get students to help with tutoring and support STEM programs. They have speed networking activities to align professors with programs in the school that need support. We are currently working with three WSU engineer students on their senior project and they are rebuilding our theater's sound system. We are having our first Volunteer fair for our students. Most of our teachers take advantage of the benefits our community partners offer due to the direct impact on student learning outcomes. Organizations from the community: Special Olympics, Ogden Nature Center, Salvation Army, Red Cross and YCC, are coming into to the school to directly seek out student volunteers. This was a direct result of attending WSU volunteer fairs. Our yearly Gala would not be successful without all of the donations from the community for our silent auction items: Jetblue Airlines, Eccles Art Center, Ogden Nature Center, Roosters Restaurant, Disneyland, local artists, just to name a few support our programs and know the resources will all go to support our STEM activities.

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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.

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Narrative: Existing(2):

We have a Ten year strategic plan, attachment 10a-1, a Technical Development Plan, attachment 10a-2, a Professional Development Plan, attachment 10a-3, and a School Improvement Plan, attachment 10a-4. These plans were developed by multiple stakeholders. All of these plans allow for sustainability and improvement. We have had many board members, administrators, directors, faculty and staff come and go over the past 11 years. We are confidant that the programs we offer to the students, families and partners who support us are firmly established. Our STEM emphasis has allowed our programs to grow and flourish.

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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.

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Narrative: Existing(2):

We have multiple plans in place, attachment 10a, that support our structure and growth. These are the plans that help guide us and provide direction for our programs. They were developed by stakeholders and our planning documents are reviewed and updated continuously. We have expanded considerably from when we first opened 11 years ago. We started with just 9th grade and added a grade each year until we had our first graduating class, four years later. Two years after that, we added our 7th and 8th grades. Three years ago we finished with grades K-4. We also have a distance population we serve with satellite programs in Logan, Kaysville, Ogden, and Draper. Our student population is now 1,100 students. We discovered that the rigorous classes that we were offering needed to be supported by adding the lower grades to allow them to excel in our programs. Our goals and benchmarks have been adjusted to reflect our growing student population. STEM programs that we are offering are a huge part of that success. Our programs have been sustained with the support of our community, talented faculty and families that want a more rigorous learning environment for their children

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