Describe STEM career pathway requirements and numbers of completers. **[40 pts]**

Big Lake Schools includes Liberty Elementary School, which is our primary EC - 2nd Grade building; Independence Elementary STEM, which is our intermediate Grades 3-5 building; Big Lake Middle School which houses Grades 6-8; and Big Lake High School, which houses Grades 9-12. Independence Elementary STEM immerses all our students into STEM programming, as well as learning all content areas through the lens of the 4Cs (Critical Thinking, Communication, Collaboration, and Creativity) as well as the Engineering Design Process (Ask, Explore, Create, Evaluate, Explain, Share). Students take these skills with them as they move into the middle school and then onto our high school where they are able to select coursework that aligns with STEM careers, as well as participate in apprenticeship programs.

During the 2024-25 school year, we had 275 Third Grade Students, 247 Fourth Grade Students, and 234 Fifth Grade Students participating in the following STEM coursework: Project Lead the Way Launch, Engineering, and Innovative Arts.

Our students' strong foundation in STEM both provides interest and brings success in the multiple STEM career pathway opportunities, as well as higher level coursework, that is offered at our High School. Below are examples of this coursework, as well as numbers of students participating.

2. School participate and/or organized a STEM outreach or community service project.

Describe STEM outreach or community service project. **[30 pts]**

Independence Elementary STEM has Community Partners to ensure students' learning and experiences go beyond our building and to encourage a community and global perspective. Every classroom teacher has a community partner who they connect with throughout the year. The goal is for our students and school to benefit from learning from our community organizations and companies, but also for our students and school to be able to serve and support our community. In addition, throughout the year we highlight STEM careers and have our community members share what STEM skills they use in their workplace and how our students can begin preparing now for a career in that particular field. Use the link below to view one of our Community Partner Highlight.
https://youtu.be/Ioz6HcAJ97c

Our Community Partners in 2024-25 were:
Carefree Country Club
Dave Nelson Greenhouse
Options, Inc.
Horace Mann - Tom Wenner
Kopp Concrete, Inc.
Keller Lake Commons
Big Lake Food Shelf
Sherburne County Sheriff's Office
Groom My Friend
Big Lake Public Library
Minnco Credit Union
Willow Landing
Big Lake Vet Hospital
Centra Care
North Star Pro Realty
The Wave
Ember Coffee
H.O.P.E. Stables
Ruff Start Rescue

Ruff Start Rescue became a new Community Partner in 2024–25, working with our 5th-grade team to introduce students to their mission of saving animals' lives and improving community welfare through adoption, education, and resources for people and pets.

During one of their visits, students enjoyed an engaging presentation about the organization's work, interacted with adoptable cats, and participated in a hands-on activity crafting cat toys to support the rescue. This experience not only enriched our students' learning but also offered them a meaningful connection to community service and the opportunity to make a positive impact. We continually strive to expand our Community Partners to provide students with unique, real-world learning experiences, and this partnership is a wonderful example of that mission in action.

Upload photo(s) of STEM outreach or community service project. **[10 pts]**

5 photos max.

Question #2 - Jo...

Add file

3. Two or more teachers/administrators collaborated on an integrative STEM project.

List teachers' names and subject areas, and describe collaborative, integrative STEM project, focusing on the integrative nature of the teaching and learning. **[30 pts]**

As part of the 3rd grade science standards and curriculum, students compared the traits of dinosaur fossils with the traits of modern animals. In order to make a claim about the appearance and behavior of dinosaurs when they were living. To extend the lesson STEM integrationists collaborated with classroom teachers to develop a hands-on approach to the topic. In the extension lesson students observe and collect data about modern animal skulls. Students used the information from their classroom learning and the skull investigation, to make a claim about which animal belonged to a mystery skull.

Upload photo(s) of collaborative, integrative STEM project. **[10 pts]**

5 photos max.

Question #3 - Jo...

Add file

4. School hosted and/or sponsored a family-oriented STEM event.

Describe family-oriented STEM event. **[30 pts]**

Independence Elementary STEM hosted our annual STEM night on Thursday, March 13th, 2025. We invited our other three schools to participate. Families were able to join their students to see examples and explore what being a STEM school is all about and how that progression is seen being Introduced at our primary building, being fully immersed at our school, and then using those skills in their middle and high school years. We had over 1400 people in attendance.

Upload photo(s) of family-oriented STEM event. **[10 pts]**

5 photos max.

Question 4a - Jo...

Question 4b - Jo...

Question 4c - Jo...

Question 4d - Jo...

Question 4e - Jo...

Add file

5. School hosted and/or sponsored a STEM Career Fair or similar event for students.

Describe STEM Career Fair or a similar event. **[30 pts]**

Big Lake High School has developed an outstanding apprenticeship program at their school that has been continuously growing in its offerings and impact throughout the past 10+ years. In 2019 when Indy transitioned to a STEM school, we partnered with the High School to include our 5th grade students in this amazing event, which is now titled the Big Lake Schools Youth Apprenticeship & Career Fair. The 2024-25 STEM Career Fair took place on September 19, 2024. Our students are able to explore over 100 different STEM careers and see and interact firsthand here on our campus with persons in these fields.

Upload photo(s) of STEM Career Fair or similar event. **[10 pts]**

5 photos max.

Question 5a - Jo... Question 5b - Jo... Question 5c - Jo... Question 5d - Jo...

Add file

Teacher(s)/administrator(s) presented a STEM-related session at the 2025 ITEEA Annual Conference in St. Louis, MO or a similar National or International Conference. Provide conference title, date of presentation, presentation title, and name(s) of presenter(s). **[20 pts]**

Teacher(s)/administrator(s) participated in the STEM Showcase at the 2025 ITEEA Annual Conference in St. Louis, MO. Provide name(s) of presenter(s) and title of presentation. **[20 pts]**

Teacher(s)/administrator(s) presented a session at the ITEEA 2025 Fall Forum or at a similar virtual event. Provide presentation title and name(s) of presenter(s). **[20 pts]**

Teacher(s)/administrator(s) published an article or manuscript in a peer-reviewed journal in the past three years. Provide complete citation, article URL, or other publication identifier. **[20 pts]**

School news or event was publicized on ITEEA's News webpage or in ITEEA's *STEM Connections* newsletter. Provide date and title of post and description of publicized news or event. **[20 pts]**

School had an active Career and Technical Student Organizations (CTSO) chapter, e.g., Technology Student Association (TSA) or Skills USA. Provide CTSO name, chapter advisor name, and chapter number (or another identifier). **[20 pts]**

Students participated in a Career and Technical Student Organization (CTSO), e.g., Technology Student Association (TSA) or Skills USA, competition or event. Provide CTSO name, chapter advisor name, and name and date of competition or event. **[20 pts]**

Minnesota State Engineering Center of Excellence hosts an Engineering Machine Design Contest every spring. Members of the Independence Elementary STEM School participated in this competition March 28th, 2025 at Anoka Technical College. Our team designed and built a complex machine using everyday objects with the guidance of a coach. The completed machine used multiple steps to complete a simple task. Teams were scored on a Team Journal, Team Presentation, and Machine Design and Operation. The theme of the contest was: Current of Creativity: Transforming Water Technology.

School had an active honor society chapter, e.g., National STEM Honor Society (NSTEM). Provide honor society organization, chapter advisor name and chapter number. **[20 pts]**

Teacher(s) participated in an ITEEA STEM CTL™ professional learning byDesign event e.g. virtual workshop, microbadge, asynchronous training, or summer workshop. Provide teacher name and date and title of event. **[20 pts]**

School adopted safety protocols – a standard operating procedure for the STEM lab that may include a safety manual, safety rules, HAZMAT sheets, procedures should an accident occur – for your STEM classroom or lab and post it in your classroom and/or on your school's website. Upload a copy of your safety protocol document(s). **[20 pts]**

STEM Safety Pro…

Add file

School offered at least one Engineering byDesign™ (EbD) course. List teacher's name(s) and course(s) taught. **[20 pts]**

Describe how your Technology, Engineering, and STEM curriculum addresses each of the eight Standards from ITEEA's *Standards of Technological and Engineering Literacy (STEL)*. [10 pts each]

a. The Nature and Characteristics of Technology and Engineering

Independence Elementary STEM School students engage in learning activities that require them to design solutions by safely using tools, materials, and skills. Project Lead the Way Launch students use Vex construction and robotics kits to create solutions to real world problems. They are introduced to the new building materials, model their safe use, and learn specific techniques for successful construction. In our 5th grade Environmental Clean Up lesson, students use block coding to solve the environmental problem of plastics in our ocean. We discuss the economic, political, and cultural forces involved in environmental engineering.

b. Core Concepts of Technology and Engineering

Students create tools and machines to extend human capabilities during our Flying Rosie challenge. In each of the STEM lab challenges we create , we are deliberate in choosing our criteria and constraints to reflect the goals of the project. All students engage in the Engineering Design Process to create a wide variety of solutions to real world problems.

You can view more details around our Flying Rosie Challenge at the link below:
https://docs.google.com/presentation/d/1fHOo-1iMTKWd78QTsZsENzOhId0vOPBZEdJKXAeEV2w/edit?usp=sharing

c. Integration of Knowledge, Technologies, and Practices

At Independence Elementary STEM School, students make connections between STEM and other content areas throughout the school year in each grade level. Trimester STEM Lab Challenges connect design, music and science during our Music Makerspace. During I Love to Read Month we have STEM lessons to help celebrate literacy with hands-on activities for each grade level. We create lessons and activities that enrich our new CKLA reading curriculum with STEM, Science, Social Studies, and Art connections. Our 5th grade students participated in the Engineering Machine Design Contest hosted by the Minnesota State Engineering Center of Excellence. This competition required students to create a multi step energy transfer machine representing Human Body Systems. The students presented their completed machine and presented an Engineering Journal during the competition.

Use the link below to see the EMDC journal:
https://docs.google.com/document/d/1RJgMSqQ9WiOyfDlOL8TkLOGdEIuSmKD32qTj3xgYYRk/edit?usp=sharing

d. Impacts of Technology

During each trimester, every student in each grade will be involved in discussions and lessons about the use of technology. We utilize Common Sense Media’s Digital Citizenship curriculum and lessons to address topics about their use of, and interaction with technology. In each of their specials we aim to prepare our students with the skills they need to be safe and responsible in our digital world.

e. Influence of Society of Technological Development

Advancements in technology are woven into many of our PLTW Launch and Engineering lessons. We make connections between the technology we use in class for projects with the technology that came before. In Launch, students do research on robots to see the advancements made, before they build their own VEX robots. iPads and Chromebooks are compared to early versions of computers the size of rooms and how they have advanced to be even more powerful, yet can fit in our pockets. These improvements are also discussed to bring attention to the fact that the goal of engineers is to improve our world by making things better and this is also the outcome of our Evaluate step in the Engineering Design Process.

f. History of Technology

Students in our school learn about the history of technology in a variety of ways. At various learning levels students explore the ideas and uses of simple machines. They utilize these concepts to build more complex systems. This happens within our 3rd grade Project Lead the Way Launch class and 4th grade Language Arts unit on inventions. These simple machine lessons allow students to explore the tools that were used in the early civilizations for survival, and how they are still relevant today within many items we use daily. Our 3rd grade students complete a Language Arts unit on ancient civilizations and enrich their learning with a STEM lab build of ancient Greek and Roman architecture.

Use the link below to see more learning around the Greek and Roman architecture learning in the STEM lab.
https://docs.google.com/presentation/d/18qHtbUE36VaSb9fS6XlQjzwIgST4UWzhSPso2nKN-tI/edit?usp=sharing

g. Design in Technology and Engineering

Our STEM program has a strong focus on the Engineering Design Process. The framework of ASK, EXPLORE, CREATE, EVALUATE, EXPLAIN, SHARE is embedded throughout our curriculum. Lessons within our classrooms and STEM specials follow this learning language. Lessons include goals, criteria, and constraints to lead students to meet the standards of learning. Students use the criteria and constraints to evaluate design, as well as the impact on humans and human conditions. One example of this is a unit that 3rd grade students complete to investigate weather and understand how engineering is used to protect people from natural disasters.

h. Applying, Maintaining, and Assessing Technological Products and Systems

The main way our program focuses on this standard is giving our students various ways to communicate key ideas about products and systems. Staff development has focused on various strategies that teach students appropriate ways to verbally share their thinking. Our Launch program teaches incoming 3rd grade students the Visual Alphabet, which gives students the tools needed to communicate through drawing and symbols. Prior to designing final products, students develop conceptual models that use labels and measurements. Another key component in our program is coding lessons. These start with 'unplugged' coding in which students work with symbols and words to communicate their code. Our 3rd graders complete the Unplugged Snowman Lesson as a foundation to build their knowledge of coding for different purposes on a variety of platforms.

Use the link below to see the Unplugged Snowman lesson:
https://docs.google.com/presentation/d/1bMtdggMJba-f5H4kDFU8EFFbZyEkLqTjBn3RXh9O5yc/edit?usp=sharing

School has active ITEEA Group School Membership and/or at least one teacher/administrator has an active individual ITEEA Professional membership at the time of application. For group school membership, provide the school's name and for individual memberships, provide member name(s). **[20 pts]**

We have a group school membership: Independence Elementary STEM

Video Submission

Develop and submit a video that showcases your school as a STEM School of Excellence candidate. Sample videos are available on the STEM School or Excellence webpage and may include: interviews with your Principal, Teacher, and/or Students discussing your program; showcase of projects from school; and/or a recording from a STEM event you hosted. **[30 pts]**

Independence El...

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Pay Application Fee *

Prior to submission, you must request an invoice for or pay the STEM School of Excellence application fee (ITEEA members: $195.00; Non-ITEEA members: $295.00).

Enter your 4-digit order number below.

Invoice #