



**Board Workshop:** May 20, 2025

**Title:** Programming Update for PreK-5 STEAM

**Type:** Discussion

**Presenter(s):** Jody De St Hubert, Director of Teaching and Learning; and Mark Carlson, Curriculum Coordinator

**Description:** The Edina Public Schools STEAM (Science, Technology, Engineering, Arts, and Mathematics) Programming Model continues to evolve with a structured, phased approach rooted in four key concepts: Inquiry, Authenticity, Integration, and Partnership and aligned with Strategic Initiative A. The model has been built on three proposed layers, with significant progress achieved in implementing Layers 1 and 2. Layer 1 ensures a strong foundation in literacy and numeracy, while Layer 2 introduces grade-level Cornerstone Projects aligned to academic standards specifically in Science and designed by Edina teachers.

After engaging in extensive conversations with a variety of stakeholder groups about Layer 3 development, building-level customization, this layer has been removed from the model due to concerns around staff capacity, equity, and consistency across schools. Moving forward, the district will continue to develop and refine Cornerstone Projects for grades K-5, with full implementation targeted by the 2027-28 school year. The strategic implementation includes sustained professional development, ongoing evaluation, and continued alignment with the district's broader instructional initiatives, ensuring that all students benefit from a cohesive and enriched STEAM learning experience.

**Recommendation:** This report is an informational update for the board. It includes a specific request for feedback on the recommendation to eliminate the third layer of proposed STEAM Programming, Building Level Development.

**Desired Outcome(s) from the Board:** Please review the report and bring your questions and feedback about the update and recommendation.

**Appendixes:**

Appendix I: Portrait of a Well-Rounded Edina Graduate

Appendix II: STEAM Lesson Design Rubric and Checklist

Appendix III: STEAM One-pager

## **STEAM Update**

The STEAM update includes the following sections:

- STEAM Design Team Contributors
- EPS STEAM Programming Model
- 2024-25 Developments
- New Proposal
- Timeline

## **Design Team**

Educators that have contributed to the design process include:

- |                       |                         |
|-----------------------|-------------------------|
| • Zach Baker          | • Lizabeth Ortiz Perez  |
| • Caitlin Bickel      | • Zach Prowell          |
| • Brianna Carlson     | • Sarah Stegemann       |
| • Jenna Courtney      | • Marissa Walsh         |
| • Heather Edam        | • Lynnea West           |
| • Matt Flugum         | • Krista Winkel         |
| • Leanne French-Amara | • Deb Richards          |
| • Jamie Hawkinson     | • Leah Byrd             |
| • Laurie Holland      | • Mark Carlson          |
| • Rebecca Huberty     | • Jody De St Hubert     |
| • Ashly Krohn         | • Dr. Cara Rieckenberg  |
| • Jermey Kigin        | • Dr. Anne Marie Leland |
| • Allison Knoph       | • Dr. Ann Marie Thomas  |
| • Nathan Monseth      | • Dr. Randy Smasal      |
| • Molly O'Keefe       |                         |

## **Background Information:**

### **Key Components of the Edina STEAM Programming Model:**

The STEAM Design Team has defined STEAM work for Edina Public Schools based on four key concepts. As work continues our goal is to provide students with educational opportunities that center around these concepts.

**Inquiry:** Inquiry is an approach to learning that involves a process of exploring the natural or material world, asking questions, making discoveries, and testing those questions in the search for new understanding. It is driven by creativity, curiosity, and play.

**Authenticity:** Authentic learning means students are engaged in solving meaningful, real world issues and problems. In Edina, Authenticity is grounded in purpose, allows for multiple entry points, and creates opportunities to apply previous learning.

**Integration:** Integrated learning environments connect different areas of study or different topics in the same area of study by cutting across subject matter or topic matter silos. In Edina, Integration promotes flexible and critical thinking while offering multiple methods for students to demonstrate knowledge, skills, and competencies. Integration serves as a vehicle to make learning more engaging and powerful than when concepts are taught in isolation.

**Partnership:** Partnerships are widespread collaborations and connections across students, classrooms, subject areas, schools and the Edina community. Partnerships with professional scientists, engineers, artists and mathematicians bring content expertise into the elementary classroom and offer an early opportunity for career exposure

### **STEAM Programming when fully Implemented (previously proposed):**

To help focus the work, the Design Team decided to take a layered approach. Below is a brief description of the three layers:

#### **Layer 1: Strong Foundation in Literacy and Numeracy**

This layer forms the bedrock for work for the STEAM initiative. This layer is foundational and allows for the use of the four key concepts of STEAM as students will need to use their abilities to obtain information, apply critical thinking, and communicate results. This layer will be consistent across all six buildings through pedagogy and resources such that all Edina students will have a similar experience at all six buildings.

#### **Layer 2: Cornerstone Projects**

Each grade level will have a Cornerstone Project that is developed by Edina teachers for Edina teachers. These projects will begin with lessons from Mystery Science as the basis for the project. Each project will have 10-14 lessons, and will address standards across multiple subjects. They are developed using a rubric based upon the four key components. When STEAM programming is fully implemented, these projects will be in all classrooms across the district. This layer allows for a consistent experience with STEAM programming for all students.

#### **Layer 3: Building Level Development (previously proposed)**

This layer is still in the design phase of development. The idea of this layer is for teams of educators in each building to begin to develop additional units and

projects based on the four key concepts. This may take the form of buildings choosing themes to build off of as they begin the development process.

### **2024-25 Developments:**

During the 2024-25 school year we have continued to prepare for full implementation of K-5 STEAM programming. Below are some of the developments that have occurred throughout the academic year.

- Staff meetings at all K-5 buildings and several leadership teams throughout the district to communicate the progress made and the programmatic shifts that will occur with STEAM programming.
- Solicited 3-5 teachers to volunteer to pilot the Cornerstone Projects during the 24-25 school year.
- Pilot teachers were given professional development for teaching the new projects that focused on teaching through an inquiry lens.
- A website for teachers was developed that contained descriptions of the projects, standards being assessed, learning targets, lesson notes and all resources for each lesson. This was added to the LaunchPad and shared with pilot teachers.
- The 5th grade pilot was placed on hold when the project partner (Student Spaceflight Experiment Project SSEP) was unable to provide an adequate timeline for launch.
- A new team of 5th grade teachers were brought together to create a new Cornerstone Project. This project is currently in development and will be ready for pilot use during the 25-26 school year.
- Half day meeting with all K-5 Principals to complete an IROD on building level development (layer 3) previously proposed STEAM programming.
- Discussion about STEAM programming with the Teaching and Learning Board Committee to ensure alignment between initial vision and current development of programming specifically around Layer 3.
- 3rd and 4th grade pilot teachers delivered Cornerstone Projects during the spring of 2025.
- Meetings occurred between Teaching and Learning and pilot teachers to collect feedback to help improve the projects for the 25-26 school year.
- Surveyed 3-5 teachers for preference of when they would like to receive professional development for teaching Cornerstone Projects.

Additionally a few items are planned but have not yet been completed.

- All teachers 3-5 teachers that did not pilot the Cornerstones will receive professional development either during the summer of 2025 or in the fall of the 2025 school year based on teacher preference. This professional development will be almost identical to what the pilot teachers received.
- The 5th Grade Cornerstone Development Team will continue to create a 5th Grade project to be ready for pilot in 2025-26.

### **New Proposal for Layer 3:**

In previous EPS School Board updates we have proposed having a third layer to STEAM programming. This layer would extend the 4 key concepts through the development of STEAM units and projects that leverage the unique assets and talents of each building with the possibility of unique themes by building.

Through conversations and discussions with teachers, principals, the Teaching and Learning Team and the Teaching and Learning Board Committee, we are proposing eliminating this layer. Below are some of the reasons for elimination of this layer.

- **Capacity**
  - K-5 administration and Teaching and Learning express concern that attempting too many major changes will overwhelm our ability to implement them successfully.
  - With new Read Act implementations, new ELA standards and curriculum, new standards coming in Social Studies and Math that could require some significant changes, teachers are spread thin. The addition of this layer may be a significant lift with the current load educators are trying to navigate.
- **Inequities between buildings**
  - Teaching and Learning has concerns that the development of building level STEAM could lead to some significant differences between buildings.
  - Differences in building resources, including space, personnel, and leadership, could create disparate programming, ultimately causing inequitable student experiences.
- **Possible Enrollment and Staffing Concerns**
  - Variations in STEAM programming across buildings could influence student and staff building preferences.

### **Cornerstone Projects:**

The Teaching and Learning Department has consulted with Dr. Ann Marie Thomas and worked with Edina teachers to create Cornerstone Projects at the 3rd and 4th grade levels and are currently redoing the project at the 5th grade level. Here is a brief outline of the projects and partnerships for each project.

#### **3rd Grade - Design a Home for Pollinators**

Question: How can we design an environment to help pollinators thrive?

Description: Students will learn about pollinators, plants, gardens and life cycles, and use these learnings to create a design for a pollinator pathway in an Edina Park or on the school grounds.

Partners: University of St. Thomas Sustainability Program, Dr. Maria Dahmus Director, Office of Sustainability Initiatives & Sustainable Community

Partnerships, Pollinate Minnesota, Erin Rupp Founder and Executive Director

#### **4th Grade - Waves of Sound**

Question: How can music be created?

Description: In this 13 session cornerstone unit that crosses ELA, Math, Science, and Music class, students will discover what is sound, how different vibrations/wavelengths produce different sounds, and how sound is produced in instruments. Students will discover sound contributes to culture and history. Students will explore instruments in music class and how the different materials, sizes, and shapes produce different sounds. The culminating event includes an opinion essay on a preferred instrument choice for 5th grade band/orchestra, and correlates to Edina Live! (Pops) concert and 4th grade instrument interviews.

Partners: Edina High School Music Department

#### **5th Grade - Design Challenge - MN Zoo**

Question: How can we engineer an innovative animal enrichments and design exhibit solutions for the Minnesota Zoo

Description: This project is still currently being developed by Edina 5th grade teachers from across EPS. The project will integrate engineering design with knowledge learned from the Web of Life Mystery Science unit. We will be incorporating the Minnesota Zoo STEM Design Challenge into this project.

Partners: Minnesota Zoo and local engineers (currently working on building this partnership).

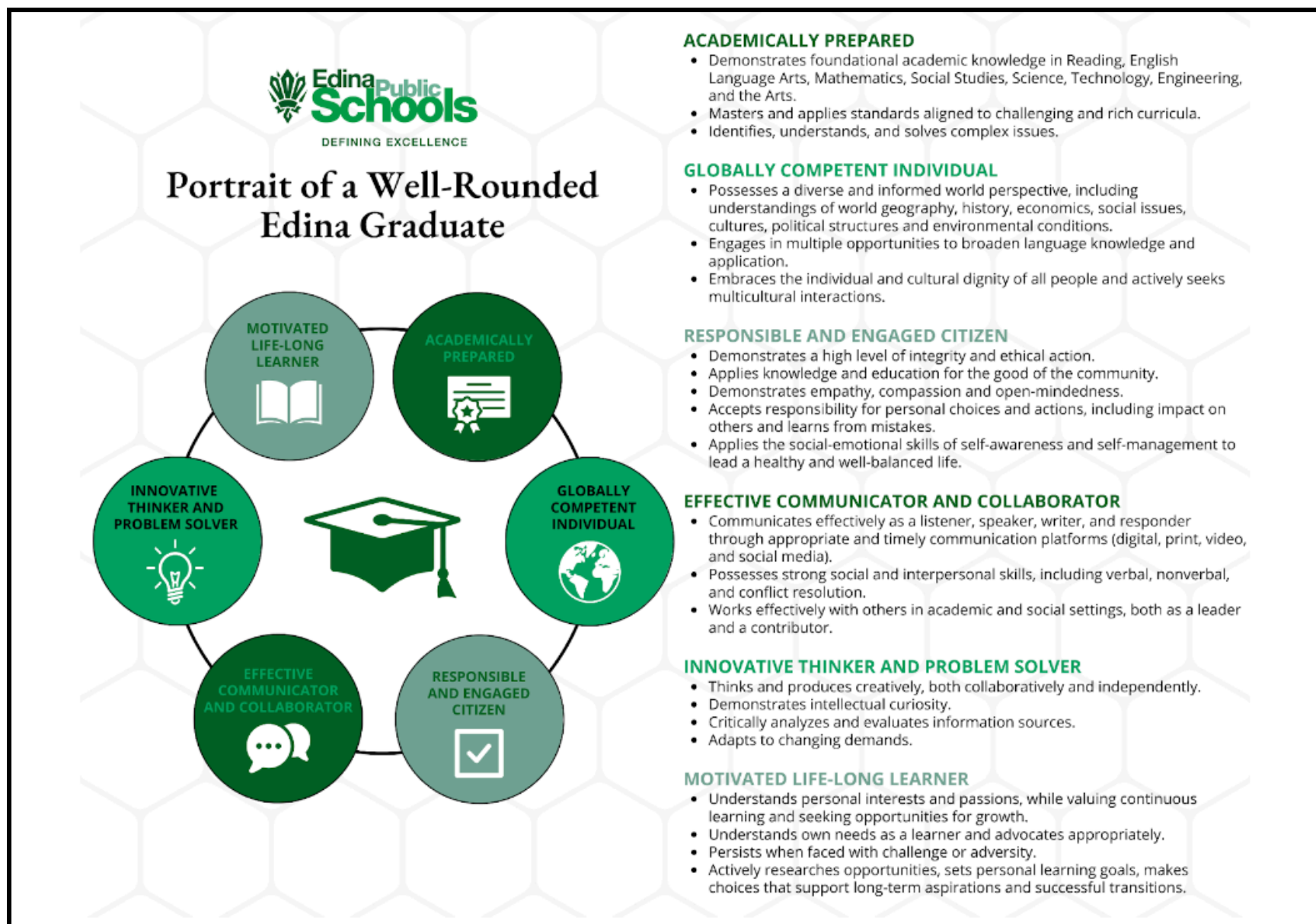
### Next Steps:

Below is a timeline for the next steps needed to fully implement Edina STEAM:

Tasks	24-25	25-26	26-27	27-28
Initial Implementation 3-5 Cornerstone Projects				
PD for 3-5 teachers to support implementation				
<del>Building level STEAM lesson development</del>				
Full Implementation of 3-4 Programming				
Continued refinement and improvement 3-5				
Development of PK-2 Cornerstone Projects				
Full Implementation Cornerstone Projects (Gr 5)				
Initial Implementation of PK-2 Cornerstone Projects				
PD for PK-2 Teachers to support implementation				
Continued refinement and improvement PK-2				
Full Implementation				

When fully implemented, STEAM programming will have a strong foundation of literacy and numeracy to prepare students to apply their learning through a Cornerstone STEAM Project in all grades. Cornerstone projects will be consistently applied across all grade levels and all buildings. Where possible we will continue to look for opportunities to apply our four key components to enrich the student experience for all Edina students.

## Appendix I:





## Appendix II:

### STEAM Unit Rubric

Criteria/Definition	1	2	3	4
<b>Inquiry</b> Inquiry is an approach to learning that involves a process of exploring the natural or material world, asking questions, making discoveries, and testing those questions in the search for new understanding. The 5E Instructional Model is the framework of Inquiry in Edina.	The unit does not incorporate any elements of inquiry instruction.	The unit incorporates some elements of inquiry instruction, such as providing students with opportunities to ask questions, but lacks student directed learning and is primarily teacher directed. Some evidence of the use of the 5e instructional model.	The unit incorporates inquiry elements throughout, with students having clear opportunities to ask questions, and includes some student directed learning. Most elements of the 5e instructional model are evident.	The unit is highly inquiry-based and driven by student curiosity, with students having multiple opportunities to ask questions, design and implement investigations, and analyze data to draw conclusions. The 5e instructional model is fully used.
<b>Authenticity</b> students are engaged in solving meaningful, real world issues and problems. In Edina, Authenticity is grounded in purpose, allows for multiple entry points, and creates integrated opportunities to apply previous learning.	The unit does not incorporate any authentic elements.	The unit incorporates some authentic elements, such as using real-world data or problems, but could be more authentic.	The unit incorporates real-world data or problems, or provides students with opportunities to apply their learning in real-world contexts; however it may have limited impact outside the classroom.	The unit is authentic, incorporating multiple authentic elements including the arts or PE standards. The students will understand how their work impacts the greater community.
<b>Integration</b> Connects different areas of study. In Edina, Integration promotes flexible and critical thinking while offering multiple methods for students to demonstrate knowledge, skills, and competencies.	The unit does not integrate Science standards with standards from any other subject areas.	The unit integrates Science standards with standards from another subject area, is missing standards from the arts or PE and/or the integration is superficial.	The unit integrates Science standards with standards from another subject area and the arts or PE standards in a meaningful way, with clear connections between the standards.	The unit integrates Science standards with standards from another subject area and standards from the arts or PE in a highly meaningful way, with deep connections between the standards.
<b>Professional Partnership</b> Partners: <ul style="list-style-type: none"> <li>● District, Community, Global</li> <li>● STEAM Professionals</li> <li>● Content expertise in the classroom through professionals in the field</li> <li>● Career Exposure</li> </ul>	Unit provides no potential partnership opportunities.	The unit incorporates a professional partnership, but the partnership is not well-defined or does not advance the objectives to the unit.	The unit incorporates a well-defined professional partnership that does not advance the objectives to the unit.	The unit incorporates an exemplary professional partnership that advances the objectives to the unit and provides students with a unique learning experience.

## Checklist for Lesson Design

- **Standards Articulation**

- ☐ Clearly articulate specific standards that will be assessed for learning in the unit. (should be between 3 and 6 standards)
- ☐ A list of other grade level standards that students will apply or practice during the unit.

- **Project Narrative**

- ☐ A general overview of the project with a brief description of what the students will be doing in the unit. This should help interest the reader in the unit. Similar to the unit overview in the Mystery Science Pacing Guide

- **Lesson Outline** (Should be 10-14 45-60 minute lessons that focus on the core outcome try not to include pre-work as the lessons)

- ☐ An overview of what students will be doing in each lesson of the unit. Example
- ☐ This should include learning targets for the lesson
- ☐ Connections to the overall unit.

- **Formative Assessment**

- ☐ Check ins for student learning occur frequently throughout lessons/units of study.

- **Teacher Resources**

- ☐ Slide Deck, Peardeck or other presentation tool that has clear teacher notes embedded throughout the presentation explaining the 'why', background etc.
- ☐ Any additional teacher resources
- ☐ Supplies needed for the unit

- **Student Resources**

- ☐ Any resources students will need for each lesson, worksheets, graphs, maps, links to readings, videos, etc.

- **Final Product or Assessment:**

- ☐ A link describing the final product which allows students to choose a way to demonstrate their learning. OR
- ☐ A link to the assessment should be included.
- ☐ A checklist/guide/rubric for assessing the product.

- **Mystery Science**

- ☐ Clearly state what lessons from Mystery Science will be part of the unit.