

WHERE **SCIENCE****HISTORY****AND****ART** CONNECT

To: Raven Hill friends  
From: Cheri  
Date: November 18, 2023  
Re: **STEM & STEAM**

According to Wikipedia, an acronym is a word formed from the first letters of each word in a multi-word phrase, as in STEM, the acronym for Science Technology Engineering Mathematics. Acronyms go back to Roman times. The official name for the Roman Empire was Senatus Populusque Romanus or SPQR. The shortening of phrases saved time and space in writing back then, just as it does today!

Of course, there was science, technology, engineering, & mathematics long before there was the STEM acronym. In fact, STEM is not as modern as one might think. Abraham Lincoln set up agricultural science programs in 1862 and later engineering programs were added. These agricultural & engineering programs then expanded beyond classroom education to include workforce training. The number of STEM careers increased during World War II and again in 1957 with the beginning of the space race.

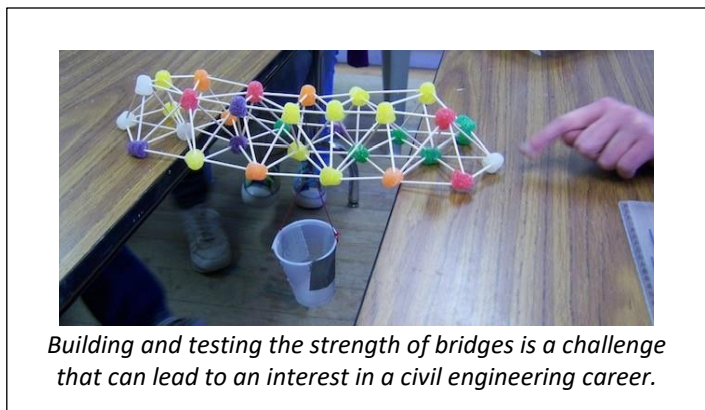


*Egyptians measured using body parts. A cubit is the distance from elbow to tip of finger, about 52.4 centimeters, on an adult. Emily is busy practicing math by measuring Raven Hill's Pyramid in cubits!*



*Marbling paper is an old art form that uses the science of liquid density. The paint floats on water & swirling the paint makes beautiful designs.*

It wasn't until 2001 that the National Science Foundation (NSF) used the first letters of science, technology, engineering, mathematics to form the word STEM. Shortly before that, the acronym was SMET! In 2012, STEM became STEAM, when the letter "A" was added to include the creativity of art. STEM is the more commonly used acronym. Sometimes both acronyms are used and written as STEM/STEAM.



*Building and testing the strength of bridges is a challenge that can lead to an interest in a civil engineering career.*



*In 2003, a group of middle school girls from Charlevoix and Emmet County schools participated in a Raven Hill grant program called **Work SMART**. They learned the Science Math And Related Technologies (SMART) of Work. Their carpentry, electrical, plumbing & masonry work is still displayed at the Center on occasion.*

At the Center, visitors will see real-world applications of STEM and STEAM everywhere. Raven Hill sparks creativity, communication and collaboration. Problem-solving, critical & creative thinking skills are interwoven throughout the Center's exhibits, both inside the buildings and outside on the grounds.



What could be more fun than the STEM of changing motion to electrical energy?!

Through its exhibits and programs, Raven Hill encourages everyone to practice STEM/STEAM skills, especially women and girls. Currently, in 2023, the percentage of women in STEM careers is 29%, as compared with 50% of non-STEM careers, so there is definitely room for improvement.



*The magnet table takes the STEM skill of collaboration. Teams work together to build a stable tower that can remain upright for at least 30 seconds.*

STEM/STEAM experiences happen here naturally, as everyone is emboldened to learn, create, grow and play. There are informal learning opportunities for all ages, disabilities and genders. The learning that happens here can potentially lead to a better future for Earth as our youth meet and resolve the challenges of world hunger, climate change, pandemics and other challenges like urban planning, volcanology or exploring our universe. Maybe the STEM and STEAM opportunities here will lead to careers as artists, snake handlers or aquarists! Who knows? Whatever the interest, there is a STEM career to pursue and Raven Hill is here to help.

**Note:** Raven Hill is closed on Thanksgiving Day, but the Center will be open from noon to 4pm on **Friday, November 24<sup>th</sup>** and **Saturday, the 25<sup>th</sup>**, plus 2pm to 4pm on **Sunday, the 26<sup>th</sup>**. Bring your friends and relatives out to enjoy a fun afternoon of STEM discovery and exploration over the long holiday weekend! Hope to see you soon.

Cheri