

Elementary Science - Evolution to S.T.E.A.M.

November 16, 2021

Over the years, Williamsville's Science program kept changing, and so did the state standards. Limited instruction time had a huge impact on student performance.



ELEMENTARY
SCIENCE PROGRAM

It's Science Time!



National Science data showed a
DECLINE in **INSTRUCTIONAL**
TIME and **STUDENT**
PERFORMANCE
over the past 20 years



COINCIDENCE?

The Problem



Common factors that impacted national science performance:

1. Not enough instructional time
2. Teachers unprepared
3. Limited resources

There is a growing need for STEAM education in our US elementary schools...

THE SOLUTION



The NEW Science Standards...

- Focus on DOING science, instead of reading about it
- Less VOCABULARY, more emphasis on PLANNING / DESIGNING SOLUTIONS to Real-World Problems (building models)
- Incorporate Engineering Practices to engage students in hands-on processes

BUT... THIS TYPE OF TEACHING

REQUIRES MORE TIME

To meet the new Science standards *and*
address the issue of TIME...

Williamsville created a **NEW**
SCIENCE formula that
“breaks the mold” of
previous models...





More Time
+ Prepared Teacher

BETTER SCIENCE for Students

A STAR is born! STEAM Class:

- Focuses on the **new** Science Standards
- Incorporates **Technology, Engineering, Arts, and Math**
- Allows students to experience **hands-on concepts** of science
- Fosters **curiosity**
- Encourages students to **discover answers** for themselves
- Teaches students to **re-think and re-evaluate** their ideas

STEAM focuses on the **PROCESS**,
rather than the **PRODUCT**

For example, the water cycle is about evaporation, condensation, and precipitation, but instead of focusing on the vocabulary words and their definitions, the focus is now on the process of the water cycle, and how students can model it, and make sense of it.

STEM ENGINEERING PROCESS

1 ASK

WHAT IS THE PROBLEM I NEED TO SOLVE??



2 IMAGINE

WHAT ARE SOME WAYS TO SOLVE THIS PROBLEM??



My friends
and I need to
design a fast bike
to ride to school!

3 PLAN

WHAT ARE WE GOING TO DO TO SOLVE THE PROBLEM??



4 CREATE

LET'S BUILD IT!!



5 TEST

HOW WELL DOES IT WORK??



6 IMPROVE

WHAT CAN WE DO TO MAKE IT BETTER??

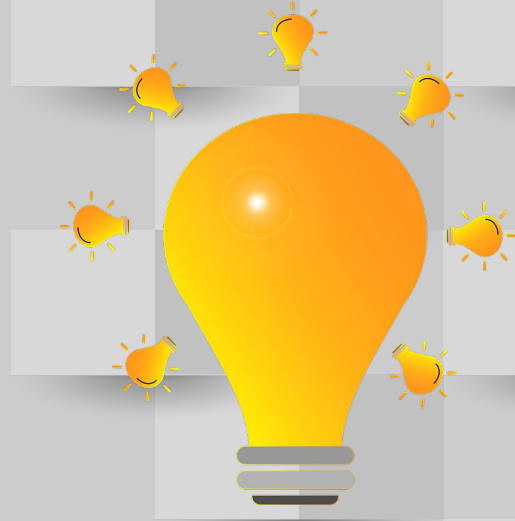


How does this look at CP?

- Students have a lesson in the STEAM Lab **each week** with Mrs. Hardbattle
- Lessons include:
 - Hands-on activities
 - Science experiments
 - Open-ended discussions
 - Challenges to solve real-world problems
- Students continually go through the **Engineering Design Process** to **plan**, **create**, **test**, and **improve** their creations and ideas

The STEAM Program Also Teaches:

- Teamwork
- Problem solving
- Critical thinking
- Creativity
- Flexibility
- Perseverance
- How to celebrate mistakes and learn from them



Why is STEAM so important?

By the time our students enter the workforce,

65%

**of the jobs that will be available
don't even exist, today!**

**We are preparing tomorrow's leaders for an
*unknown world. They'll need to be **problem
solvers, thinkers, and innovators!*****

This program is only a few months old, and we already have immense support from fellow teachers, administrators, parents, and the community.

I love seeing students realize their potential through hands-on experiences. They thrive when they can create and learn in a “judgement-free” environment.



STEAM Class - A fledgling program...



A program that will
continue to grow
and evolve...



And will take
off and fly!

STEAM



I look forward to watching your children grow into the problem-solvers, risk-takers, and innovators I know they are. Thanks for inviting me to speak about the new STEAM program!

COME HOP ABOARD...

IT'S FULL "STEAM" AHEAD!



**Any
questions?**