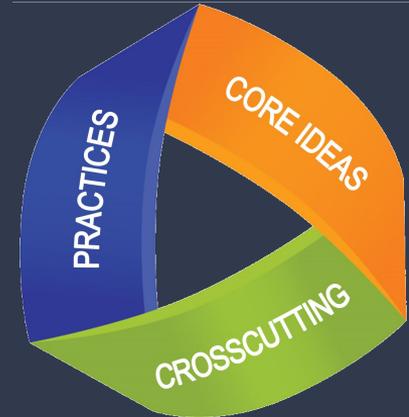


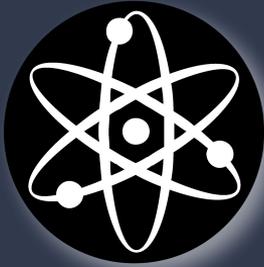
AHHS Science Department Update

November, 2021

Mr. MacLeish - Science Chair
Mr. Engelhardt - Principal



Overview



Science

The overall goal of the Science Dept is to provide students with the **curiosity, skills, and knowledge** they need to succeed in an increasingly complex world.

- ❑ A broad understanding of **science concepts** across a full range of science disciplines.
- ❑ An authentic **hands-on learning experience**.
- ❑ Real practical **experiences** applying technology to improve their learning.

Overview

- **7th Grade Science** - An Introduction to Scientific Thinking
- **Earth Science**: A in depth look at our planet's physical systems.
- **Technology**: Intro to Computer Systems and their role in society.
- High School: **Living Environment, Chemistry, Physics**
- HS Electives - **Nutrition, Forensics, Robotics**
- Research - 4 Year Sequence in **Scientific Inquiry/Research**
- Advanced Placement: **AP Biology & AP Psychology**

New York State Regents Level Courses



Following the graduation requirements set by NYSED the Hamilton Science Department offers the following **Regents Level** Courses:

1. **Earth Science**
[ALL 8th Graders are accelerated into this course.]
2. **Living Environment**
[A course in Biology and Ecology]
3. **Chemistry**
[A high level course exploring the building blocks of the universe]
4. **Physics**
[A course focused on how objects interact and the rules that govern the physical world]

Meeting Graduations Requirements



Year	Percent of Students who met NYS Science Exam Graduation Requirement by end of 9th Grade
2016	96
2017	80
2018	92
2019	84
2020	~
5 Year Trend	88

STEM Master Teacher Fellowship



STEM Master Teacher Program:

- Ms. Puma and Mr. MacLeish are currently serving their third year of a 5 year Fellowship as part of the Mercy College **Stem Master Teacher** program
- This has provided access to the tremendous resources of Mercy College. As part of that program Ms. Puma and MacLeish have begun a STEM leadership project:
 - We began with bringing our staff up to date with the latest digital tools needed during the COVID closures.
 - We have now transitioned our focus to lead the transition to the Next Generation Science Standards from grades 4-12.
 - We began working with teachers on grades 4-12 to ensure a cohesive alignment of the NGSS curriculum.
 - These new science standards are heavily focused on student discovery, engineering practices and 21st century skills.

STEM Ambassador

STEM Ambassador Program:

Mr Hernandez has been accepted into the **Mercy Stem Ambassador program**, providing him with some amazing and relevant professional development to help guide our students into a love of science and discovery.

MERCY
COLLEGE

CENTER FOR
STEM
EDUCATION



Science Course Offerings



Academic Course Offerings:

New for 2021; Our course offerings at Hamilton have increased to offer **AP Psychology** (Mr. Hennep).

Our **Anatomy/Physiology** (Mr. Hennep), **Forensics, & Nutrition** (Ms. Puma) electives continue to be popular and successful choices for our High School students.

Science Research Program (Ms. Doolittle) provides science students with the opportunity to complete a 4 year sequence in **Scientific Research** in partnership with SUNY Albany. **This course can earn students up to 12 College Credits**

We provide our 8th graders with an accelerated program into **Regents Earth Science**, which allows Hamilton students to complete 5+ science courses before graduation.

Many graduates leave Hamilton with more than 8 Science credits on their transcript.

Science Extracurricular Opportunities



Exploring the World of Science

Clubs and ExtraCurriculars

Our **Science Olympiad** (Mr. Segaloof & Mr. Murphy) teams, in both the Middle and High School are very popular and growing each year.

The **Hamilton Green Club** is also in full swing under the guidance of Ms. Thomas and in coordination with our science teachers.

In addition, the **Robotics Club** is often full of middle schoolers programming and solving problems using robotics.

The 8th grade program also runs several **STEM Challenge Days** to increase student team building and interest in engineering solutions.

Prior to COVID, our Half-Day program included STEM Challenges and a Career Day, which brought in professionals from all walks of life; many from STEM professions. That program should return in future years.

In our end of year Raider Games event we have even included a STEM and academic challenge as events.

Science School Wide Initiatives



School Wide Initiatives:

The new cafeteria recycling program in partnership with **We Future Cycle**, has also been a very successful program that will provide **a relevant and authentic experience** for our students on how to care for the world around them.

It will also tie into the our science curriculum on all levels.

Earth Day helped the district to reach another milestone. **Dr. Baiocco signed the carbon-neutral pledge "Let's Go Zero," making Elmsford the first school district in the country to do so.**

SUNY Albany – Scientific Research Program



4 year program in Scientific Research

9th Grade - Introduction to Scientific Inquiry

10-12th Grade - Student led- Scientific Research

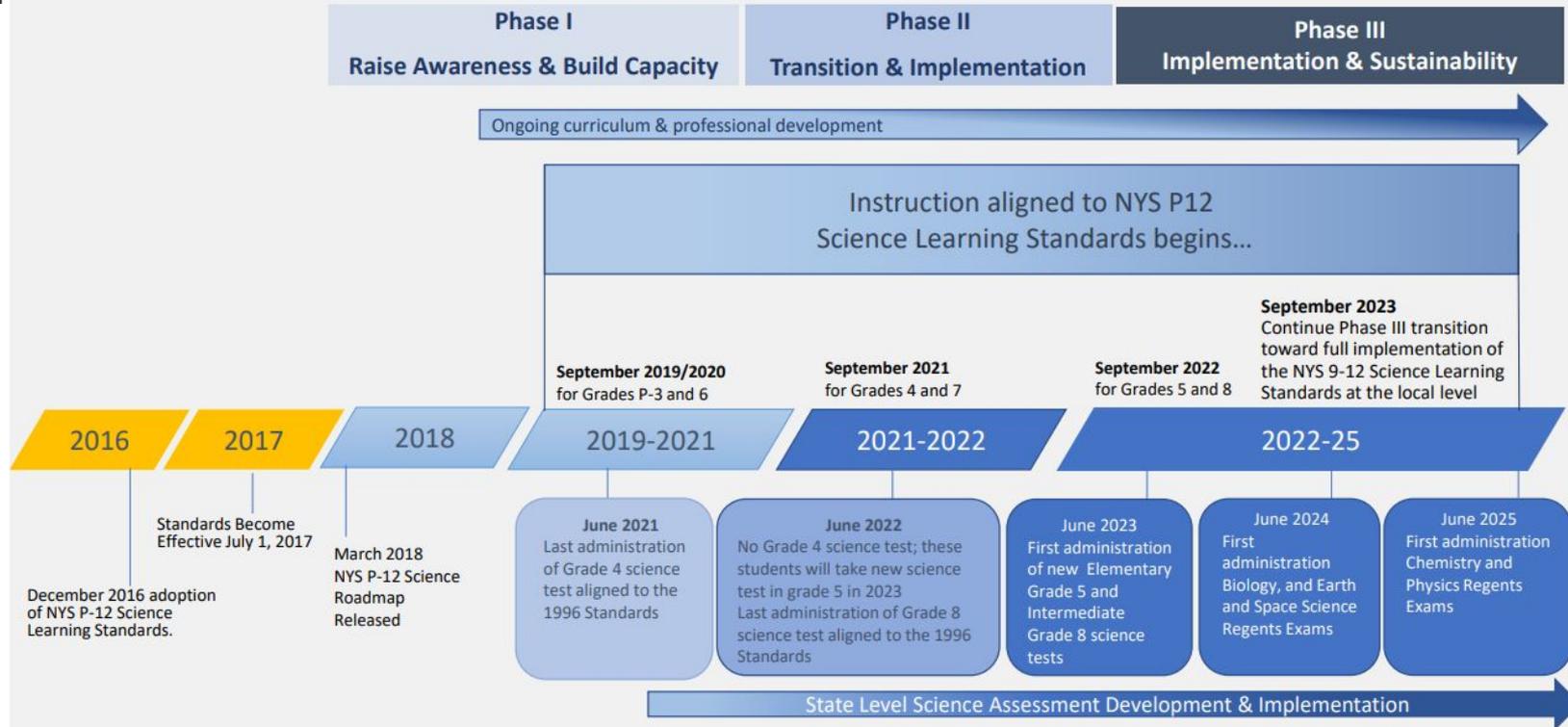
- Methods and Practices of Research
- Students choose their project
- **Summer enrichment programs available**
- Faculty mentors to support student work
- Enter Project into various Scientific Research Competitions
- Culminates in a Scientific Research Symposium Presentation

Students that complete the entire program successfully will earn up to **12 Credits from SUNY Albany.**

What's Next?

New York State P-12 Science Standards Development, Adoption, and Implementation

Revised April 2020



Updates and Changes to the Curriculum



The **NY State Science Learning Standards** are based on the Next Generation Science Standards.

“The [NYSSLS] are designed to help realize a vision for education in the sciences and engineering in which students, over multiple years of school, actively engage in scientific and engineering practices and apply crosscutting concepts to deepen their understanding of the core ideas in these fields.”

-Appendix A - Next Generation Science Standards

Infusing Literacy in the Science Content Area



Concrete Examples

- Science in the news and students lives.
- “Close reads” on scientific research that is relevant to content areas.
- Readings integrated into lab assignments
- Discovering through literature about pioneers or contributors in particular areas of science.
- Infusing local community/cultural connections to science concepts.
- Bulletin Boards that reflect our commitment to science being relevant and accessible to all students.