Empowering K-12 Students to Tackle Real-World Challenges in Space Engineering:
A Collaboration between MaxIQ Space & BluShift Aerospace

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CubeSat Developers Workshop 2023 | Cal State Poly

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How do we prepare students to be useful players in industry?

Space - Based STEM Education for All

Affordable | Accessible | Practical

Opportunities:

- Remote Sensing
- Model Rocket Projects
- High - Altitude Balloon Flights
- Suborbital Rocket Flights
- BluShift Aerospace's MARVEL 2.0 Engine Test
  - Vibration Test
  - Environmental Monitoring

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What are **we** as an industry doing ***right now*** to inspire ***curiosity*** in the hearts and minds of ***our future employees***?

Student Perspectives:

Suhani Karanjawala

Senior at Montgomery High School, Skillman NJ

Student Experience

Visit Highlights

- Networking with engineers, administrators, and other students
- Viewing the facility/gaining an inside look at engineering at the industrial level
- Being an active part of the test and being able to see our payload's involvement

Student Experience

What We Learned

- Technical skills and science related to our payload
- Teamwork in the context of engineering
- Adabiltibility and problem solving in the context of engineering
- Application of classroom content in an industry setting

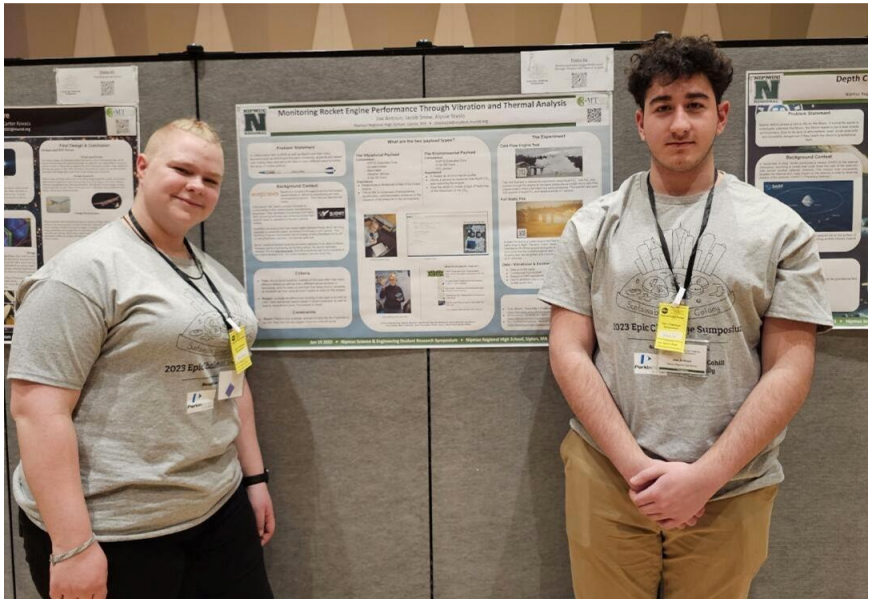
Educator Perspectives:

James Gorman

Educator at Nipmuc Regional High School - Upton, MA


WOZ

Presenting at NASA Goddard



Educator Perspectives:

Daniel Lee

Science and engineering educator at Montgomery High School - Skillman NJ

Educator's Perspective

Student work flow and benchmarks

- Iterative process in both testing and launch regarding data collection
- Commercially available products
- Accountability in deadlines and benchmarks consistent with industry

Beyond Science and Engineering Practices

- Systems engineering perspective and direct project management
- Accountable to data analysis for use in industry
- Interscholastic collaboration and meaningful collaboration with industry

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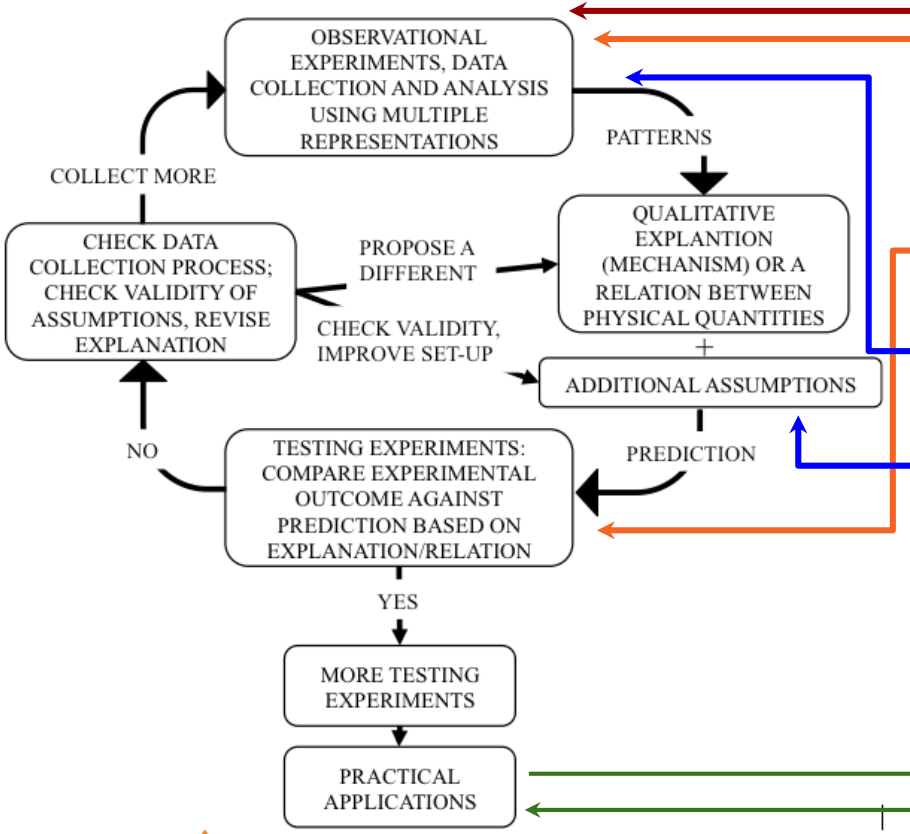
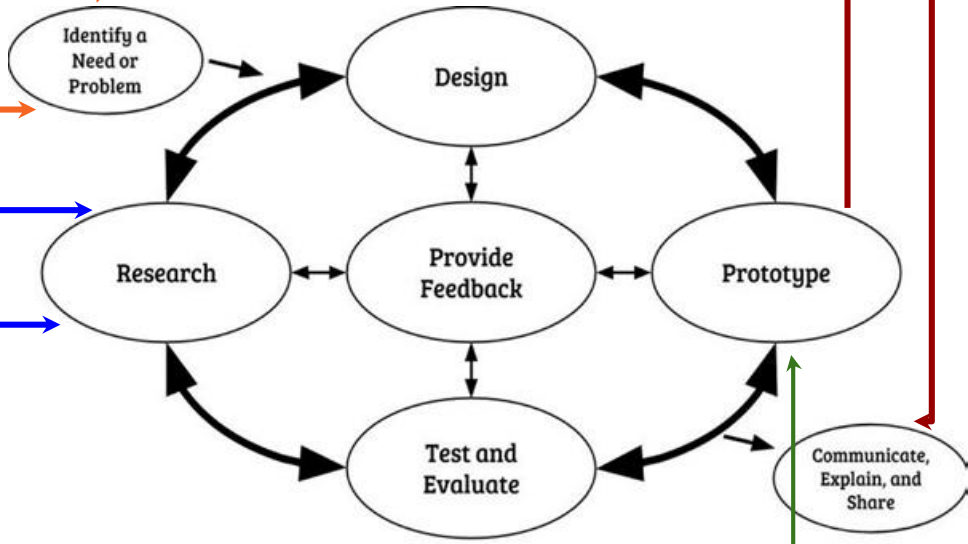
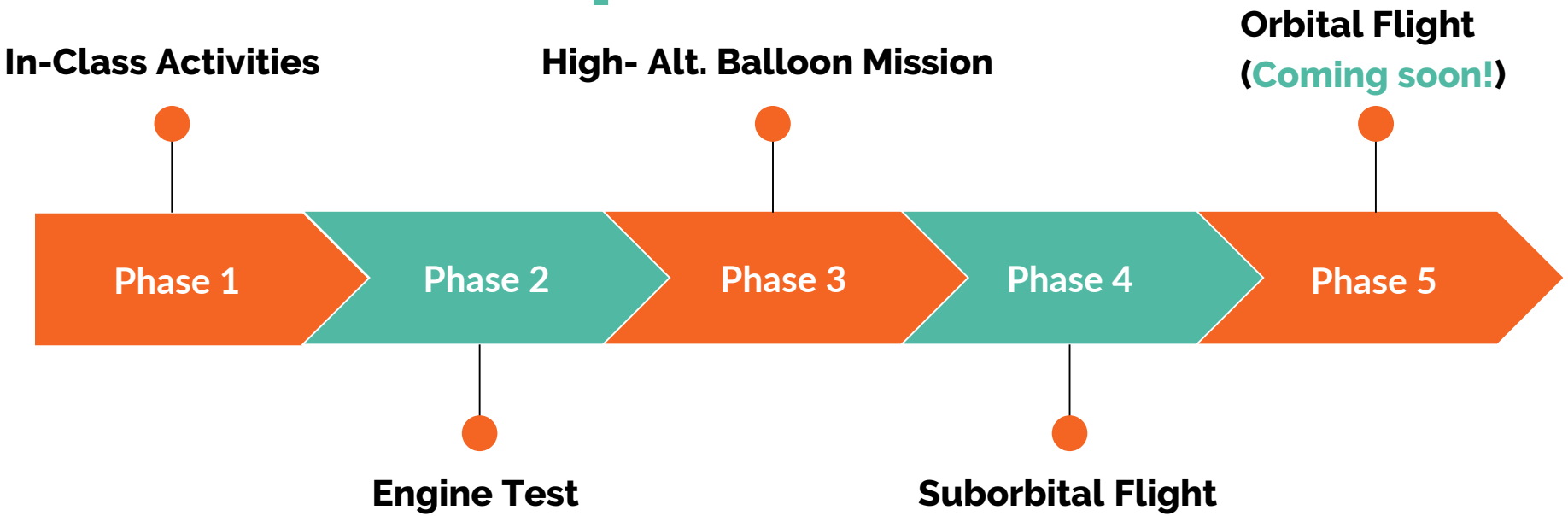
Investigative Science Learning Environment

Engineering Design Cycle





Student Experiments Development Phases



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Example roadmap for a potential 4 year progression

Aerospace club running parallel underneath both curriculums

Standard MaxIQ kits for terrestrial based sensing	Novel mission proposals and custom sensor development	CubeSat mission ideation and data analysis	Custom PCB Sensors and CubeSat integration

Student Experiment Phases

Phase 1,2 and 3	Phase 2 and 3	Phase 2, 3, 4 and 5	Phase 2, 3, 4 and 5

Science and Engineering Design cycles

Science leads to engineered prototypes	Experiments lead to questions that require data	Need for data requires tools to collect data	Implementation of tools allows prototype testing

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Looking Ahead

Community

- Recruiter Network
- Supporting Clubs & Organizations
- Identifying Funding Opportunities

Curriculum

- Data Analysis within each Phase
- Amature Rocketry as a testbed
- Leveraging AI integration

Opportunities

- Individual Missions
- Orbital Flights

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Are you looking for or have opportunities to engage future employees?

We've got you covered!

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Visit us to learn more about programs tailored to encourage students to pursue a career in STEM!

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Igniting a passion for space technologies in the hearts of students since 2021

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