

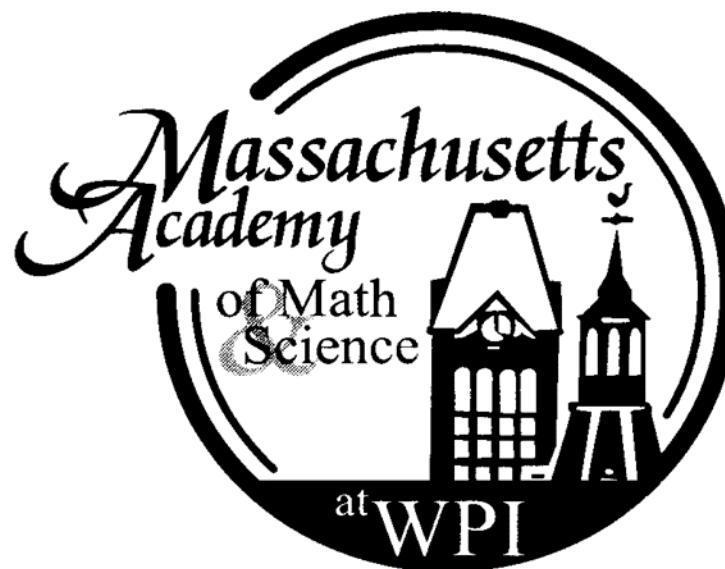
SCHOOL GROWTH PLAN

MASS ACADEMY OF MATH AND SCIENCE

2021-2024

SCHOOL COUNCIL MEMBERS

Anne Ludes	Director
Angela Taricco	Faculty
Kristen Small	Faculty
Anna Wyndham	Class of 2022 Student
Justin Wang	Class of 2022 Student
Ansh Tripathi	Class of 2022 Student
Jianyu Liang	Class of 2022 Parent
Scott Fenton	Class of 2022 Parent
Bala Sreenivasan	Class of 2022 Parent
Saaya Daga	Class of 2023 Student
Erika Lam	Class of 2023 Student
Vinayak Rao	Class of 2023 Student
Sashank Tadimeti	Class of 2023 Student
Ankita Shah	Class of 2023 Parent
Ping Liu	Class of 2023 Parent
Sujatha Krishan	Class of 2023 Parent
Anna Been	WPI Counselor



Our Mission

The mission of the Massachusetts Academy of Math and Science is to prepare students to be leaders in global innovation by engaging them in rigorous, relevant, and integrated and collaborative learning experiences with a STEM focus, and by incorporating the liberal arts and authentic research in a community that is committed to the following:

- Life-long learning, by providing the tools, skills, and strategies for students to engage actively in their own education
- Dynamic and evolving curricula, which are project-based, interactive, and technologically advanced
- Excellence and innovation in education, thereby serving as a model and providing resources for other schools in the Commonwealth of Massachusetts

Core Values of the Academy

- Collaboration
- Intellectual Curiosity
- Perseverance
- Student-Centered Learning
- Project-Based Learning
- A Supportive Community-Based Environment

Beliefs about Learning

- All students have the potential to achieve.
- Students learn best when given the opportunity to teach others in a collaborative environment.
- Students acquire a deeper knowledge through interactive project-based learning experiences.
- Optimal learning occurs in a safe, supportive community that maintains high expectations.

Vision of the Graduate

The Mass Academy Graduate is:

- Forward-Thinking
- Innovative
- Inquisitive
- Confident

Habits of Mind

At the core of all learning are the following habits of mind:

- Constructive acceptance and use of feedback
- Effective management of time and meeting of deadlines
- Consistent and active contribution of knowledge, opinions, and skills
- Consistent and active work towards group goals
- Being prepared and organized for class

School Growth Plan

Goal 1

<p style="text-align: center;">Statement of Need</p> <p>What student need do you hope to address with this action plan?</p>	<p>The Academy may be missing an important opportunity to think comprehensively about their unique program and shaping students' habits of mind as scientists, researchers, citizens of the world, and future leaders. Because the Academy students experience a nearly homogenous program, there are unrealized possibilities of resonance between the different subjects and interdisciplinary projects.</p>
<p style="text-align: center;">Statement of Goals/Objective</p> <p>What is the goal of this action plan? This should be stated in terms of a measurable outcome.</p>	<p>By July 2023, all Mass Academy 11th grade courses will have a fully-documented curriculum using the modified Understanding by Design template adopted by the school.</p>
<p style="text-align: center;">Theory of Action</p> <p>How will this Goal/Objective address the student need?</p>	<p>By completing a written curriculum for all courses, the school could clarify the essential understandings for students as well as identify and/or create opportunities for cross-departmental collaboration and coplanning. This would allow Mass Academy to improve the school experience for students by potentially reducing stress, creating more time for student support, and making learning more inquiry-based and authentic.</p>
<p style="text-align: center;">Alignment</p> <p>How is this aligned to the NEASC Standards for Accreditation.</p>	<p>This goal aligns with Standard 2: Student Learning. Specifically, this goal addresses Principle 2.2 of Effective Practice, <i>“There is a written curriculum in a consistent format for all courses in all departments that includes units of study with guiding/essential questions, concepts, content, and skills and integrates the school’s vision of the graduate.”</i></p>
<p style="text-align: center;">Measure of Success</p> <p>How will you know when the student need is being met?</p>	<p>All unit plans will be completed, including all components within the UbD template. Curriculum documents will continue to be updated as changes occur.</p>

Action Steps List the specific tasks that you believe will take you to your goal. Try to list sequentially from the first step to last.	Timeline Use actual dates if possible.	Person(s) Responsible Use specific names if possible.	Resources Needed What will be needed to support the task in terms of training, materials, etc.?	Measures of Success What will you see if this step has been successful? With students? In the classroom? With teachers?	Budget Impact What is the cost and source of funding?
Develop, through training, coaching, and dialogue, a common understanding among the faculty about the value, purpose, and use of examining and documenting curriculum	By December 2022	Director	Training and time	All faculty will make progress on the UbD plans for their content Students will be able to state the essential question(s) for each course	Cost of training, which may be substantial depending on the selected consultant; this will be built into the annual budget
Coordinate curriculum to ensure that the work students are asked to complete is essential and represents a manageable workload that supports the well-being of students	By June 2024	Director and Mass Academy teachers	Time for collaboration meetings	Curriculum documents will be updated to include any identified adjustments Students will be able to articulate clear connections between what they are learning in different courses	Minimal, but will require significant and ongoing meeting time which will be challenging to build into our calendar
Explore culturally-proficient, diverse curricula and pedagogies that challenge the underlying racial and gender biases in the scientific community and the world	By June 2024, with work beginning in 2022	All faculty	Training and possibly selected texts for book groups and deeper learning	All teachers will be able to incorporate into their curriculum and classroom meaningful references to racial and gender biases in their related fields. Teachers will implement culturally responsive teaching practices that provide broader range of perspectives for students	Could be significant, particularly for training of staff; this will be built into future budgets and/or we will seek outside grants
Ensure that teachers have the skills and time to develop, review, and coordinate curriculum across content areas and receive	Ongoing	Director	Consultant/coach to support faculty with their individual curriculum	All teachers will be able to articulate what students will learn, why it is important,	No additional funding; tied in to other action steps

meaningful feedback to support curricular improvement; provide differentiated support based on each teacher's content and unique needs			development; time in the schedule to allow faculty to work individually or collaboratively	and how they will know if students met the intended targets. Students will be able to explain what they are learning and how it connects to the bigger ideas (essential questions and enduring understandings)	
Identify additional resources (STEM professionals, WPI faculty) to mentor or provide guidance to Mass Academy students	By June 2024	Director and faculty	Access to WPI resources, local agencies, and networking opportunities Access to soon-to-be created Alumni Association	Students will access STEM professionals beyond the walls of Mass Academy, thus increasing exposure to how they can apply STEM in their future careers	Minimal, perhaps some membership fees to professional organizations

Goal 2

<p>Statement of Need</p> <p>What student need do you hope to address with this action plan?</p>	<p>As is the case with high achieving students, Academy students are highly motivated to work hard and long to learn and achieve at the highest level. While this is certainly an admirable trait, the Academy recognizes the risks that come when physical and mental health are sacrificed to serve achievement.</p>
<p>Statement of Goals/Objective</p> <p>What is the goal of this action plan? This should be stated in terms of a measurable outcome.</p>	<p>By June 2024, Mass Academy will develop and implement a sustainable model for students and staff to regularly monitor students' overall wellbeing, particularly as it relates to stress, and respond with appropriate interventions or adjustments to practice.</p>
<p>Theory of Action</p> <p>How will this Goal/Objective address the student need?</p>	<p>By continuing to emphasize and expand the role of well-being programming, the Academy will help students experience the many benefits that come with a focus on physical and mental health. These benefits could include reduced stress levels, more sleep, and a greater sense of well-being. The potential impact on students' lives is significant with students learning at an early age to pay attention to and advocate for their physical, emotional, and mental health.</p>
<p>Alignment</p> <p>How is this aligned to the NEASC Standards for Accreditation.</p>	<p>This goal aligns with Standard 3: Professional Practices. Specifically, this goal addresses Principle 3.3 of Effective Practice, <i>“Educators examine evidence of student learning and well-being to improve curriculum, instruction, assessment practices, and programs and services.”</i></p>
<p>Measure of Success</p> <p>How will you know when the student need is being met?</p>	<p>With student input, we will develop an effective tool for measuring how students are impacted by stress. This tool will be used at regular intervals to monitor student wellbeing and determine if interventions or adjustments to student habits or our program are necessary. End of year survey data will indicate students feel the adults at the school are responsive to their needs.</p>

Action Steps	Timeline	Person(s) Responsible	Resources Needed	Measures of Success	Budget Impact
List the specific tasks that you believe will take you to your goal. Try to list sequentially from the first step to last.	Use actual dates if possible.	Use specific names if possible.	What will be needed to support the task in terms of training, materials, etc.?	What will you see if this step has been successful? With students? In the classroom? With teachers?	What is the cost and source of funding?

Develop a wellness self-assessment that is efficient and sustainable for students to use regularly throughout the year.	By October 2022	Director, School Counselor	Research will need to be done, and input from WPI's Wellness Counselor	Mass Academy faculty and students will have real-time data with which to make informed decisions	Minimal
Continue to consistently implement, monitor for effectiveness, and expand well-being programming	Ongoing	Director, School Counselor	Depending on identified programmatic needs, staff training and other related resources Time for program development and trainings	Mass Academy will have an articulated menu of services, programs, and actionable responses to student needs	Some funding for workshops and trainings; funds will be set aside in the annual budget and/or staff will seek appropriate grant funding (for larger needs)
Inventory and document the existing student support program including resources, interventions, and protocols. Develop a multi-tiered system of support to assist with making informed decisions to assist students academically, socially, and emotionally.	By June 2024	Director, School Counselor	This will be ongoing. The first step will be to begin developing a multi-tiered system of support plan. As new programs are implemented, they will be added. Training for director and school counselor as needed.	Mass Academy will have an articulated menu of services, programs, and actionable responses to student needs, as well as an established process for responding to student needs	Minimal, aside from staff time Potentially some additional funds for training in the development of a multi-tiered system of support
Identify and implement the steps to reduce the student workload without negatively impacting academic progress, for example, collaborating and coordinating units across disciplines, and/or providing students with summer instruction prior to entering the Academy	By June 2024	Director and Mass Academy faculty	Training and/or coaching on curriculum review and assessment.	Mass Academy students will report they recognize that all assigned tasks are meaningful and enhance their learning experience. Students will identify connections between content areas and how	Could be significant, depending on the selected consultancy model Funds will be set aside in the budget once cost is determined

				their work across subjects are aligned.	
Monitor students' school/life balance through formal and informal means throughout the year to ensure wellness programming aligns with existing needs.	Ongoing, with implementation beginning in fall of 2022	Director, School Counselor	Time for the faculty to review the results and plan any necessary interventions or adjustments to practice	<p>Student end of year surveys will show students feel the faculty was responsive to their needs</p> <p>Students will perform better overall, stay awake in class, and require less whole-school wellness programming (outside of Advisory time).</p>	Minimal

Goal 3

<p>Statement of Need</p> <p>What student need do you hope to address with this action plan?</p>	<p>With the world at their fingertips, it is increasingly important for students to have awareness of the world around them and recognize their civic responsibility to enact change for the betterment of others.</p>
<p>Statement of Goals/Objective</p> <p>What is the goal of this action plan? This should be stated in terms of a measurable outcome.</p>	<p>By June 2024, Mass Academy students will engage in meaningful learning experiences through comprehensive service learning, civic engagement, and/or international opportunities. This will be accomplished by reviewing and modifying existing program requirements (senior projects, community service, etc) to ensure alignment with the school's mission and goals. The purpose of these experiences is to immerse oneself at a deep level in a real-life problem and collaborate with other organizations or agencies to address the problem and improve the lives of others.</p>
<p>Theory of Action</p> <p>How will this Goal/Objective address the student need?</p>	<p>Through experiences that engage them with the greater local, state, and global community, Mass Academy students will make informed decisions with a deeper understanding of and appreciation for the impact of their efforts on the greater good. Furthermore, this work will build students' confidence, communication, and leadership skills.</p> <p>This goal goes beyond our standard requirements by incorporating authentic interactions with a community to foster a sense of commitment and civic responsibility. This is an opportunity to revisit existing components of our program, particularly the community service requirement and senior independent study project, to realign this work to the school's mission (<i>to prepare students to be <u>leaders in global innovation</u> by engaging them in <u>rigorous, relevant, and integrated and collaborative</u> learning experiences</i>) without adding an additional requirement for our students.</p>
<p>Alignment</p> <p>How is this aligned to the NEASC Standards for Accreditation.</p>	<p>This goal aligns with Standard 1: Learning Culture. Specifically, this goal addresses Principle 1.7 of Effective Practice, <i>"The school culture fosters civic engagement and social and personal responsibility."</i></p>
<p>Measure of Success</p> <p>How will you know when the student need is being met?</p>	<p>All members of the class of 2025 will complete an immersive learning experience, either in the local community or abroad, in which they have worked toward solving a real-life problem.</p>

Action Steps List the specific tasks that you believe will take you to your goal. Try to list sequentially from the first step to last.	Timeline Use actual dates if possible.	Person(s) Responsible Use specific names if possible.	Resources Needed What will be needed to support the task in terms of training, materials, etc.?	Measures of Success What will you see if this step has been successful? With students? In the classroom? With teachers?	Budget Impact What is the cost and source of funding?
Take an inventory of our existing program and its alignment to the school's mission. Determine where there are opportunities to enhance, modify, or refine the student learning experience (eg. modify community service or independent project requirements)	By January 2023	Director	Time for staff to collaborate	Stakeholders will be able to articulate the alignment between components of the Mass Academy program (community service, SISP, and other requirements) and the school's mission.	Minimal
Establish guidelines for the student learning experience by either adapting an existing set of guidelines or creating a new set of guidelines	By June 2023	Director	Time for staff to collaborate	Students, families, and staff will understand the purpose and expectations of this experience.	Minimal
Revise and/or write language for school handbook to align with new requirement	By June 2023	Director	Time for staff to collaborate	Students, families, and staff will understand the purpose and expectations of this experience.	Minimal
Establish a database of opportunities; continue to add to this database as students complete their experiences	Ongoing	Director and faculty	Time for staff to collaborate	Students and staff will have access to a resource to help identify opportunities for future projects	Minimal

Goal 4

Statement of Need What student need do you hope to address with this action plan?	While Mass Academy students come from many communities and represent diverse backgrounds, not all cultural backgrounds are represented.
Statement of Goals/Objective What is the goal of this action plan? This should be stated in terms of a measurable outcome.	By June 2024, Mass Academy will expand recruitment practices as well as identify barriers that prevent some qualified students from applying to the school and take steps to address those barriers.
Theory of Action How will this Goal/Objective address the student need?	While Mass Academy students are diverse in many ways, including their geographic location, extracurricular interests, talents, and prior learning experiences, Mass Academy has historically had very little or no representation from the African American/Black and Hispanic/Latino populations. Students learn better--and learn more--when exposed to varying points of view. Furthermore, learning in a racially and ethnically diverse community better prepares students for a global society. https://tcf.org/content/report/how-racially-diverse-schools-and-classrooms-can-benefit-all-students/?agreed=1
Alignment How is this aligned to the NEASC Standards for Accreditation.	This goal aligns with Standard 1: Learning Culture. Specifically, this goal addresses Principle 1.1 of Effective Practice, <i>"The school community provides a safe, positive, respectful, and inclusive culture that ensures equity and honors diversity in identity and thought."</i>
Measure of Success How will you know when the student need is being met?	Mass Academy applicants will represent a broader range of demographics including race/ethnicity and economic status. All Mass Academy students will report feeling a sense of belonging and connection to the school and to each other.

Action Steps	Timeline	Person(s) Responsible	Resources Needed	Measures of Success	Budget Impact
List the specific tasks that you believe will take you to your goal. Try to list sequentially from the first step to last.	Use actual dates if possible.	Use specific names if possible.	What will be needed to support the task in terms of training, materials, etc.?	What will you see if this step has been successful? With students? In the classroom? With teachers?	What is the cost and source of funding?
Review our admissions process to identify the root cause(s) behind disparities in the demographics of	Annually	Director and faculty	Outside partners (WPI, local school partners, etc) to	If we remove barriers, more students will apply and we will	Minimal

our applicant pool; remove potential barriers that prevent students from applying			provide insights into what we could possibly do better Time to meet with outside partners	have a greater applicant pool from which to select our incoming students	
Review, and revise as needed, the existing recruitment practices to increase efforts at reaching communities that may not be aware of Mass Academy (and particularly that it is a tuition-free program).	Annually	Director and School Counselor	Time	If we increase our efforts to target recruitment in areas where students and families may not be aware of Mass Academy, more students will apply and we will have a greater applicant pool from which to select our incoming students	Could be significant, depending on the identified recruitment strategies (cost of mailings, ads, subscriptions, etc) Will be built into annual operating budget
Revise existing recruitment practices and outreach to historically marginalized student groups to increase awareness of the Mass Academy tuition-free program	By December 2022	Director	Time	Raised awareness of Mass Academy; improved STEM achievement by students which can lead to applying to Mass Academy when they are in 10th grade	Minimal
Develop partnerships with local middle schools and identify ways to help strengthen math and science skills of students in earlier grades to promote opportunities for accelerated programming at their schools (eg. 8th grade Algebra)	By December 2022	Director	Funding for instructional resources and additional staff to support a STEM pipeline program	Raised awareness of Mass Academy; improved STEM achievement by students which can lead to applying to Mass Academy when they are in 10th grade	Significant; this will require grants and/or substantial increase in our operating budget