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Future Ready in Massachusetts: Reaching Higher for College Readiness and Success

REACH HIGHER MASSACHUSETTS

FUTURE READY MASSACHUSETTS

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Sights of Massachusetts

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Tastes of Massachusetts

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Education in Massachusetts

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WE HAVE GOATS!

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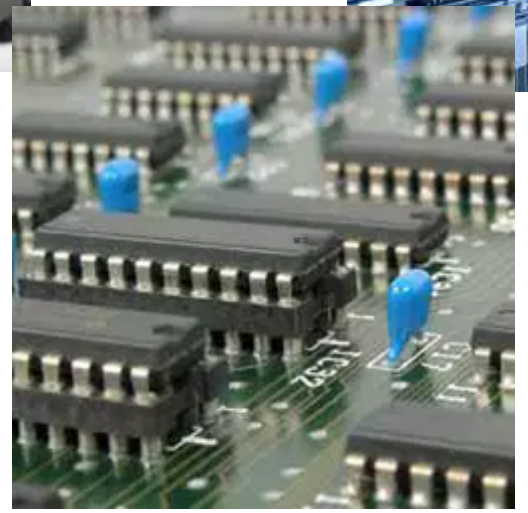
Marlborough



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Industry Partners

Boston Scientific

HOLOGIC®
The Science of Sure

sunovion

UMassMemorial
Marlborough Hospital

Raytheon

GE Healthcare

MARLBOROUGH REGIONAL CHAMBER OF COMMERCE

DOW®

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Marlborough High School

MPS
Marlborough Public Schools

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Partnerships and Initiatives

Massachusetts Department of Elementary & Secondary Education

Commonwealth Commitment to College Access, Affordability & Completion

Massachusetts Department of Higher Education

MassTransfer

MASCA
Massachusetts School Counselors Association

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Why is Post-Secondary Readiness So Important in MA?

		Students in grad cohort 2009	Graduate within 5 years	Enrolled in college (Immediate Fall)	Persistently enrolled in college	Obtain a degree within 6 years
None	# of students					
	% of cohort					
None	# of students					
	% of cohort					
State	# of students	77,038	64,737	44,274	37,816	28,380
	% of cohort	100%	84%	57%	49%	37%

Post-Secondary Outcome Data Obtained from Massachusetts Department of Elementary and Secondary Education DART

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How Have Things Changed in the Last 5 Years?

		Students in grad cohort 2014	Graduate within 5 years	Enrolled in college (Immediate Fall)	Persistently enrolled in college
None	# of students				
	% of cohort				
None	# of students				
	% of cohort				
State	# of students	73,168	64,723	45,379	39,380
	% of cohort	100%	88%	62%	54%

Post-Secondary Outcome Data Obtained from Massachusetts Department of Elementary and Secondary Education DART

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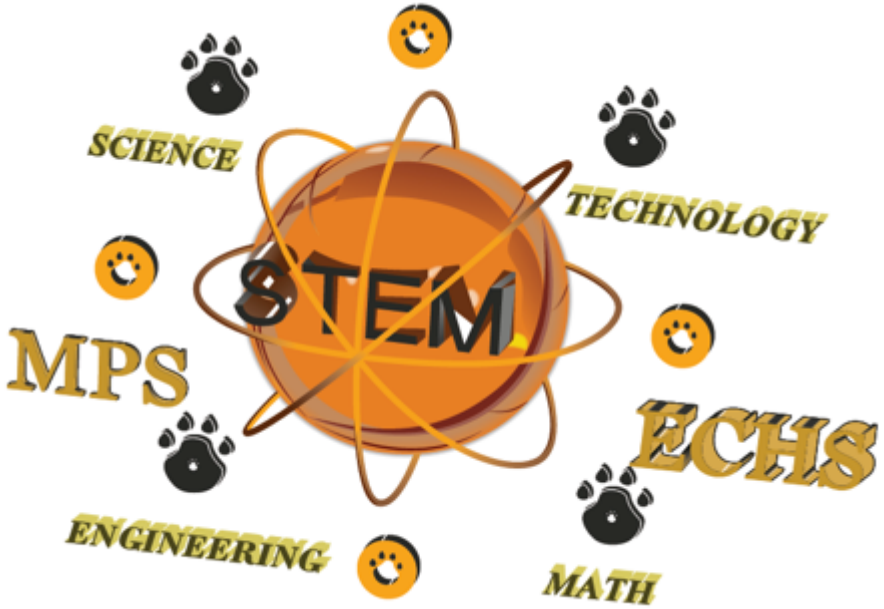
Marlborough Public Schools Expansion of STEM Early College High School Program



JOBS FOR THE FUTURE

PSW Youth Careers

QUINSIGAMOND Community College

"In times of drastic change it is the learners who inherit the future. The learned usually find themselves beautifully equipped to live in a world that no longer exists." ***- Eric Hoffer***

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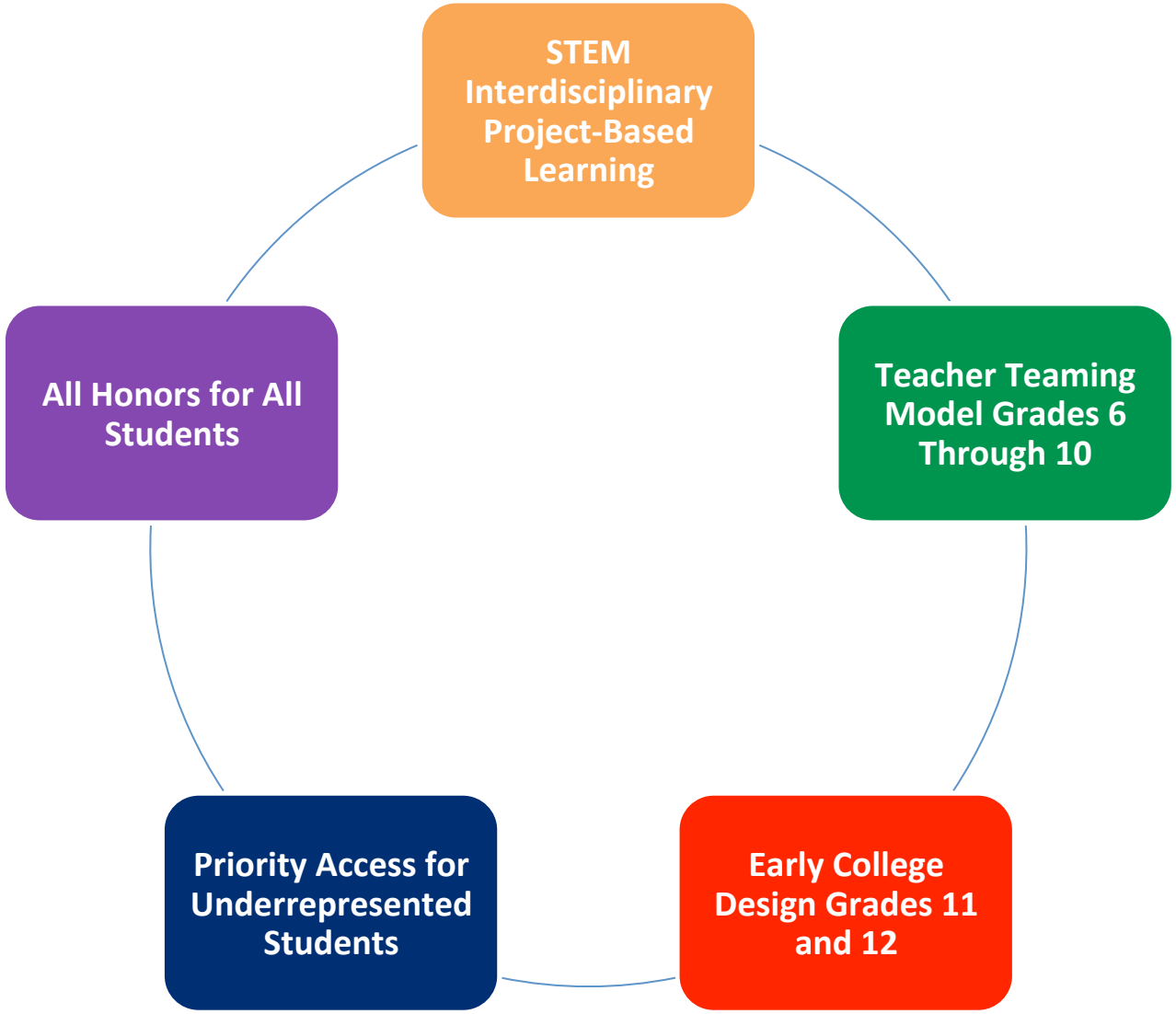
Awarded MA Race to the Top Grant in 2011



- Grades 6 through 12
- No minimum acceptance criteria
- PBL revolved around Engineering with infusion from four core disciplines
- Teachers scheduled for common planning time every day
- Framingham State University writing courses offered junior and senior years

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Evolution of MPS Early College Design

FSU Writing Courses (2013-2015)

Taught by visiting lecturer

Offered twice per week for 15 weeks

100% Completion Rate

Deltas:

Too much downtime for students

Course occupied two periods per day

Students need a full year of English each year of high school

Costly

QCC Online Course (2015 Spring & Fall)

Offered through Blackboard

Variety of offerings in core-readiness and CTE areas

Deltas:

Coursework is above and beyond student's schedule

50% Completion Rate

Costly

New QCC Model (Fall 2016)

Some courses taught by approved MHS teachers

Training program for selected high school faculty

MHS college courses offered throughout 15-week college calendar every school day

Variety of offerings in core-readiness and CTE areas

Pathways linked to MassTransfer/Associate's Programs

Reduced Tuition Cost

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Awarded Youth CareerConnect (YCC) Grant in 2014

MPS STEM 2.0 Model Included…

- Work-based Learning Model
  - Exploratory in Grade 9
  - Mentoring in Grade 10
  - Internship in Grades 11 & 12
- Individual Development Plans
- Facilities Enhancements
  - 21st Century Learning Space
  - Technology Upgrades
- Early College Redesign

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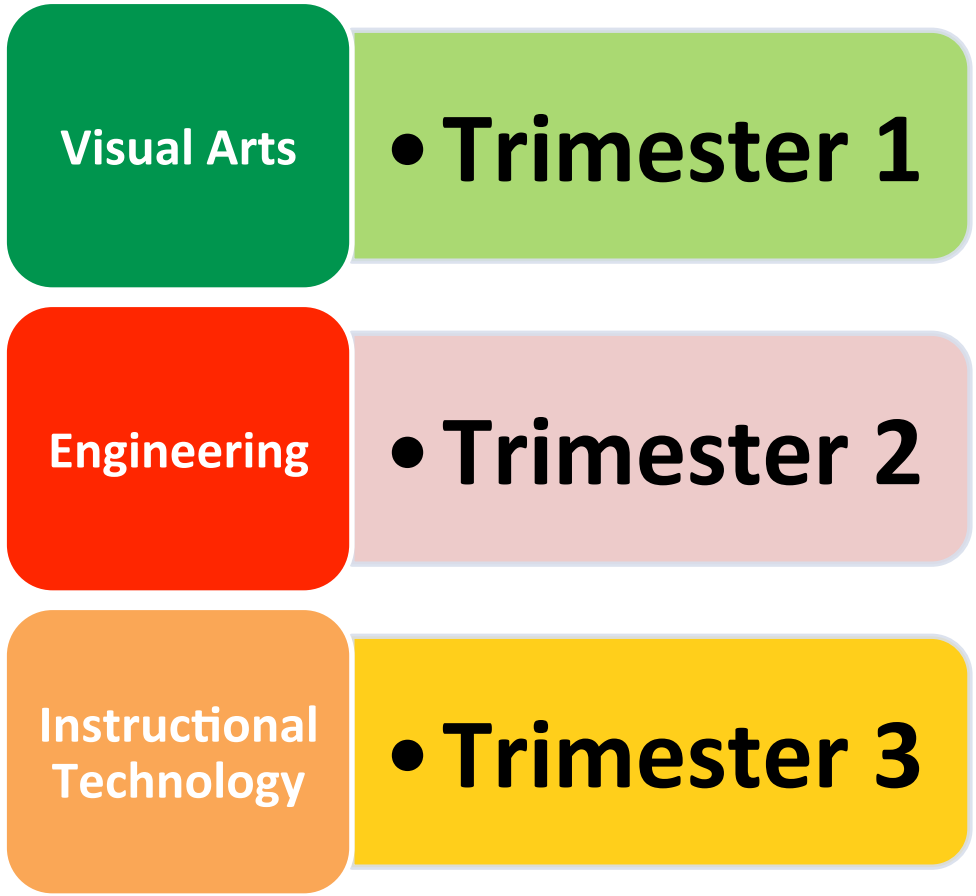
2016 Shift to Middle School STEAM for ALL

The STEAM Approach

- Expand STEM to school-wide STEAM
- Drive PBL through multiple content areas in Grades 5 through 8
- Create 4-year trajectory for STEAM experiences and content exposure in critical areas of whole-child development
- 52 hours of instruction per year in Engineering, Instructional Technology, and Visual Arts
- Relevant content application in the classroom



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2016 Launch of Early College Pathways

	11th Grade	12th Grade
Computer Science	Composition I (Fall)	Introduction to Psychology (Fall)
	Composition II (Spring)	Introductory Sociology – Principles (Spring)
	AP Computer Science Principles	AP Computer Science A
Biotechnology	Composition I (Fall)	Introduction to Psychology (Fall)
	Composition II (Spring)	Introductory Sociology – Principles (Spring)
	AP Biology	Biotechnology
Healthcare (Nursing)	Composition I (Fall)	Introduction to Psychology (Fall)
	Composition II (Spring)	Introductory Sociology – Principles (Spring)
	AP Biology	Anatomy & Physiology I & II
Engineering	Composition I (Fall)	Introduction to Psychology (Fall)
	Composition II (Spring)	Introductory Sociology – Principles (Spring)
	Engineering Course	Engineering Course

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2017 IT Help Desk Certificate Program

11th Grade Spring Semester	12th Grade Fall Semester	12th Grade Spring Semester
IT Help Desk Concepts (Online)	Network Technology (CompTIA's Network+)	Computer Hardware and Support (CompTIA's A+)
	Windows Client Operating Systems (Microsoft Solutions Associate)	Mobile Operating Systems (CompTIA's Mobility+)

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2018 Manufacturing Technology - CNC Technologies Certificate

11th Grade Fall Semester	11th Grade Spring Semester	12th Grade Fall Semester	12th Grade Spring Semester
Manufacturing Safety (OSHA 30 General Industry Certification)	Mechanical CAD I	Basic Machine Operation (MACWIC Level 1)	Manufacturing Quality Assurance and Control Techniques
		CNC Programming (MACWIC Level 2)	Computer-Aided Manufacturing
		Cooperative Work Experience & Seminar	Cooperative Work Experience & Seminar

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2018 Emergency Medical Technician Certificate – EMT

11th Grade Fall Semester	11th Grade Spring Semester	12th Grade Fall Semester	12th Grade Spring Semester
Composition I *Students should plan to take Composition II in Spring even though it is not officially part of the pathway*	Introduction to Microcomputer Applications (Online)	Introduction to Medical Terminology	Strategies for College and Career (Online)
		Principles of Human Biology	Basic Emergency Medical Technology

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2018 Associate's Degree in Computer Systems Engineering Technology – *Computer Support Option*

Summer 1	11th Grade	Summer 2	12th Grade
Intro to Microcomputer Applications (Online)	Composition I (Fall)	Advanced Microcomputer Applications (Online)	Introductory Sociology (Principles)
IT Help Desk Concepts (Online)	Composition II (Spring)		Introduction to Psychology
	College Algebra (Fall)		Speech Communication Skills
	Introduction to Programming with C++ (Spring)		Technical and Workplace Writing
	Mobile Operating Systems		IT Security Foundations
	Windows Client Operating Systems		Computer Hardware and Support
	Networking Technologies		Windows Server Operating Systems
	Internetworking Principals and Protocols		Unix Operating Systems
			Cooperative Work Experience & Seminar

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Hurdles Along the Way

Challenges	Solutions
Cost	Develop a model that reduces cost by utilizing high school teachers to deliver college courses for dual credit.
Accreditation	Review and adhere to NEASC guidelines for high school teachers delivering college-level courses.
Rigor of College-level Coursework	Develop a mentoring model between high school teachers and college faculty. The model also includes "soft" observations by college faculty of high school college-level classes.
Accuplacer	Offer multiple opportunities for students to take Accuplacer. Offer summer bridge coursework aligned with remedial non-credit bearing courses.

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Breakdown of STEM/ECHS Student Population

Category	Total	Percent of Total	MHS
Total Enrolled (Grades 9 – 12)	292	27.8%	1051 students
Male	153	52.7%	51%
Female	138	47.3%	49%
Hispanic/Latino	93	31.8%	49%
African American	14	4.8%	3%
Special Education	15	5.1%	14%
English Language Learner	10	3.4%	16%
Low Income	116	39.7%	54%
Program Attendance Rate	N/A	97.7%	93%
Program Retention Rate	N/A	91%	N/A

STEM Student Population Data extracted from October 2017 YCC Participant Tracking System Quarterly Report
MHS Student Population Data provided by Department of Elementary and Secondary Education

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Proficient/Advanced MCAS Outcomes

Year	2015		2016		2017	
SUBJECT	STEM	Non-STEM	STEM	Non-STEM	STEM	Non-STEM
Math	95%	72%	92%	57%	97%	63%
ELA	100%	88%	100%	79%	100%	79%
Science (Grade 9)	93%	67%	84%	64%	88%	65%

MCAS Data provided by Massachusetts Department of Elementary and Secondary Education

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Academic Achievement Comparisons

Percentage of Grade 10 Students with a Final Grade of "C" (70%) or Better

Year	2014		2015		2016	
Subject	STEM	Non-STEM	STEM	Non-STEM	STEM	Non-STEM
Math	85%	78%	89%	79%	92%	79%
History	90%	81%	91%	88%	91%	89%
ELA	82%	78%	91%	73%	94%	80%
Science	80%	74%	86%	79%	85%	80%

Academic Achievement Data provided by Aspen student management system

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Attendance and Discipline Outcomes

Year	2014		2015		2016	
	STEM	Non-STEM	STEM	Non-STEM	STEM	Non-STEM
Median Days Absent	3	7	4	6	7	8
Number of Referrals per Student	0.12	1.25	0.14	0.68	0.04	1.21

Attendance and Discipline Data provided by Aspen student management system

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College Readiness Data

- 52% of graduating students in 2015 matriculate into post-secondary STEM pathways
- 63% of graduating students in 2016 matriculate into post-secondary STEM pathways
- 67% of graduating students in 2017 matriculate into post-secondary STEM pathways

Year	2016		2017	
	STEM	Non-STEM	STEM	Non-STEM
Graduation Rate	100%	89%	100%	Not yet available
Post-secondary Matriculation Rate	97%	86%	100%	85%

College Matriculation Data provided by Naviance

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Born From or Inspired by original STEM/ECHS Initiatives

LASELL COLLEGE

YouthWorks
WORK LEARN THRIVE

Marlborough
ECONOMIC DEVELOPMENT CORPORATION

Camp Invention®

100 MALES TO COLLEGE
Brotherhood for College Success

MetroWest CPC College Planning Center
Your Pathway to a Higher Education

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Questions?

MPS Transforming Education

Marlborough Public Schools

Sharon Buckley • Supervisor of Counseling, Grades 6 – 12

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