Milton Public Schools K-12 Science Education

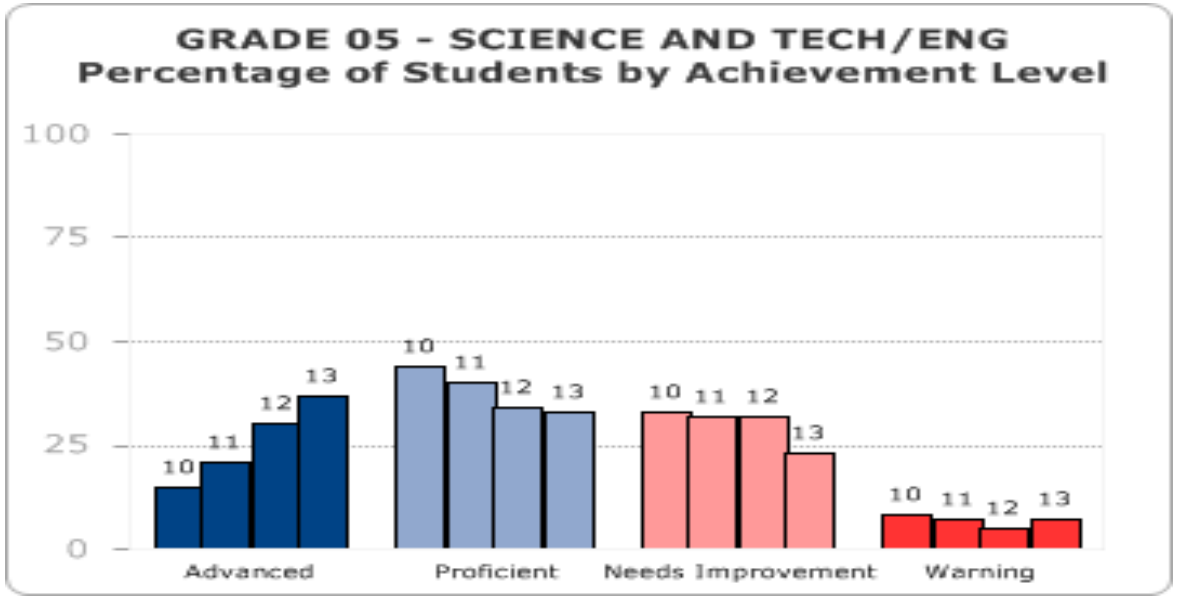
School Committee Presentation

May 14, 2014

Milton Public Schools Science Agenda

- **SCIENCE DATA**
  - What was seen in the science data at each level (elementary, middle school, and high school)?
- **ADVANCEMENT BUDGET 1.0**
  - What needs were identified based on data and how are we currently addressing them?
- **ADVANCEMENT BUDGET 2.0**
  - What are the needs moving forward?

Elementary Science Data



Achievement Level	2010	2011	2012	2013
ADVANCED	15	21	30	37
PROFICIENT	44	40	34	33
NEEDS IMPROVEMENT	33	32	32	23
WARNING	8	7	5	7

Elementary Science Data

Percent of Students Proficient or Higher on Science MCAS

Year	Milton	State
2011	61	50
2012	64	52
2013	70	51

Middle School Science Data

Percent of Students Proficient or Higher on Science MCAS

Year	Milton	State
2011	42	39
2012	48	43
2013	41	39

High School Science Data MCAS Biology

Year	Passing	Advanced or Proficient
2011	96%	78%
2012	95%	85%
2013	99.5%	94%

High School Science Data

AP Scores

Over the past three years **average AP scores in science** and the **percentage of passing scores in science** have improved.

The number of students participating in AP courses in all content areas has increased from **552** to **580**.

Biology - 2.33 to 3.19	Passing rate – 44% to 77%
Chemistry -1.78 to 2.83	Passing rate – 28% to 50%
Physics - 2.33 to 3.11	Passing rate – 39% to 78%

ADVANCEMENT BUDGET 1.0

- During 2012-2013 school year, the Full Leadership Team identified district initiatives to be supported by the Advancement Budget.
- Based on MCAS data, science was identified as one of the priorities.
- Advancement money was budgeted for curricular resources, staff, and professional development in science.

Advancement Budget 1.0

- Purchased new middle school science curriculum, which is aligned with MA DESE standards
- Provided professional development in the areas of science instruction and content at the middle school
- Reinforced STEM in grade 1 and implemented STEM in grade 2
- Added Elementary Science Coordinator to support staff and do a needs assessment for Advancement Budget 2.0

Advancement Budget 1.0

Middle School Curriculum Plan

	1st Trimester	2nd Trimester	3rd Trimester
6th Grade	Earth History (2014-2015)	Nature of Light (2013-2014)	Diversity of Life
7th Grade	Chemical Interactions	Planetary Science	Ecosystems (2014-2015)
8th Grade	Weather and Climate (2014-2015)	Forces and Motion (2013-2014)	Genetics (2013-2014)

Advancement Budget 1.0 - Elementary Schools

- Targeted support in grades 1 & 2 STEM program
  - In class support
  - Professional Development
  - Materials
- Elementary Science Coordinator Position
  - Support teachers in general science instruction and content

Looking Ahead- Advancement Budget 2.0

- New Elementary Science Curriculum that is aligned with MA DESE Standards
- Professional Development
  - Content Knowledge
  - Curriculum & Instruction

Looking Ahead- Advancement Budget 2.0

Elementary Curriculum Plan

2014-15 School Year	Sun, Moon & Planets	Mixtures & Solutions	Living Systems	Sun, Moon & Planets	Mixtures & Solutions	Living Systems	Sun, Moon & Planets	Mixtures & Solutions	Living Systems
Cunningham	CURRENT					X		X	
Collicot			X		X		CURRENT		
Shelved		X		X					X
Glover	CURRENT					X		X	
Tucker			X		X		CURRENT		
Shelved		X		X					X

2015-16 School Year	Sun, Moon & Planets	Mixtures & Solutions	Living Systems	Sun, Moon & Planets	Mixtures & Solutions	Living Systems	Sun, Moon & Planets	Mixtures & Solutions	Living Systems
Cunningham	X					X		X	
Collicot			X		X		X		
Shelved		X		X					X
Glover	X					X		X	
Tucker			X		X		X		
Shelved		X		X					X

Looking Ahead- Advancement Budget 2.0

- Major upgrade to MHS Biotech lab
- Initiate the introduction of digital equipment to all Science labs in order to provide students with authentic lab experiences and generate interest in S.T.E.M.

What is still needed? Advancement Budget 3.0?

- Common Planning Time
- Continued support for purchase of MHS digital Science equipment
- Develop Common Curriculum Assessments
  - Reflect on student work/data
- Professional Development
  - Content
  - Instruction
- K-2 Updated Science Curriculum

Many Thanks to our Partners in Science Education

- Milton Foundation for Education
- Sam's Fund
- Science from Scientists
- Biotech (MFE)
- Blue Hills Bank Charitable Foundation
- Code.org
- National Science Foundation
- Karen Brennan – Harvard

Science from Scientists

Blue Hills Bank
Weatherbug

Discovery Ramps
Sam's Fund