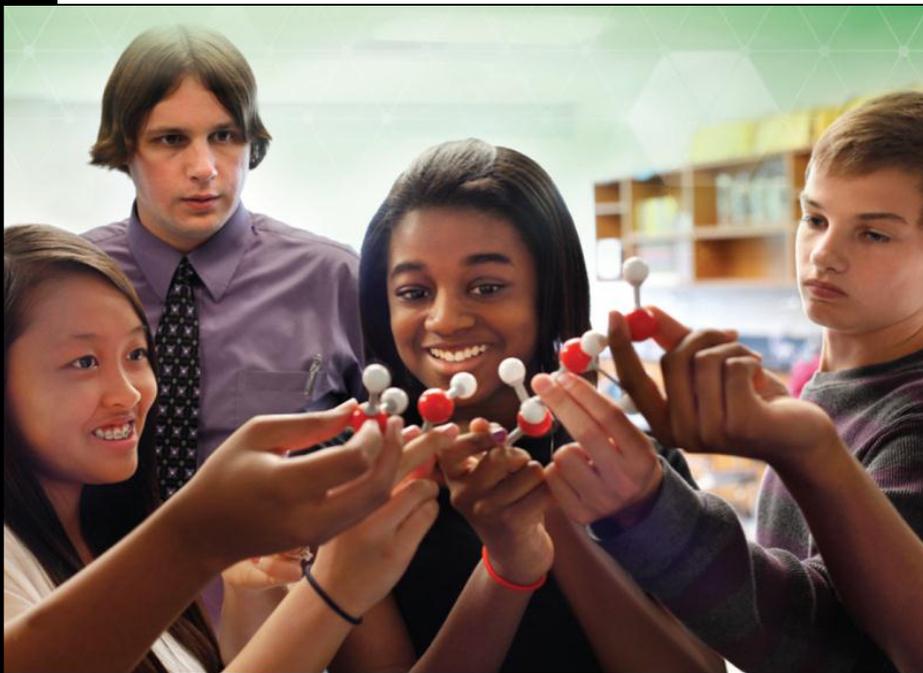




ACS
Chemistry for Life™

Maryland Business Roundtable for Education



Governor's Workforce Investment Board

June 20, 2012



Who we are at MBRT

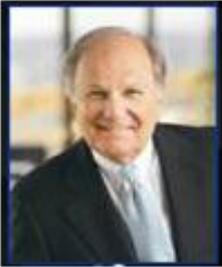
Maryland Business Roundtable for Education Leadership

Chairman
2008 - present



Jim Pitts
Northrop Grumman

Past Chair
1996 - 2007



Chip Mason
Legg Mason

Past Chair
1994 - 1996



Ed Mitchell
PEPCO

Founding Chair
1992 - 1994



Norm Augustine
Lockheed Martin

Founded in 1992, the Maryland Business Roundtable for Education (MBRT) is a coalition of more than 100 leading employers.

These organizations have made a long-term commitment to support education reform and improve student achievement in Maryland.



GEORGETOWN UNIVERSITY



Center
on Education
and the Workforce



STEM

SCIENCE
TECHNOLOGY
ENGINEERING
MATHEMATICS



ANTHONY P. CARNEVALE
NICOLE SMITH
MICHELLE MELTON



Helping students be on track for high demand careers

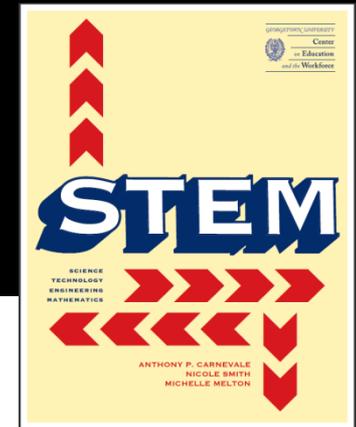
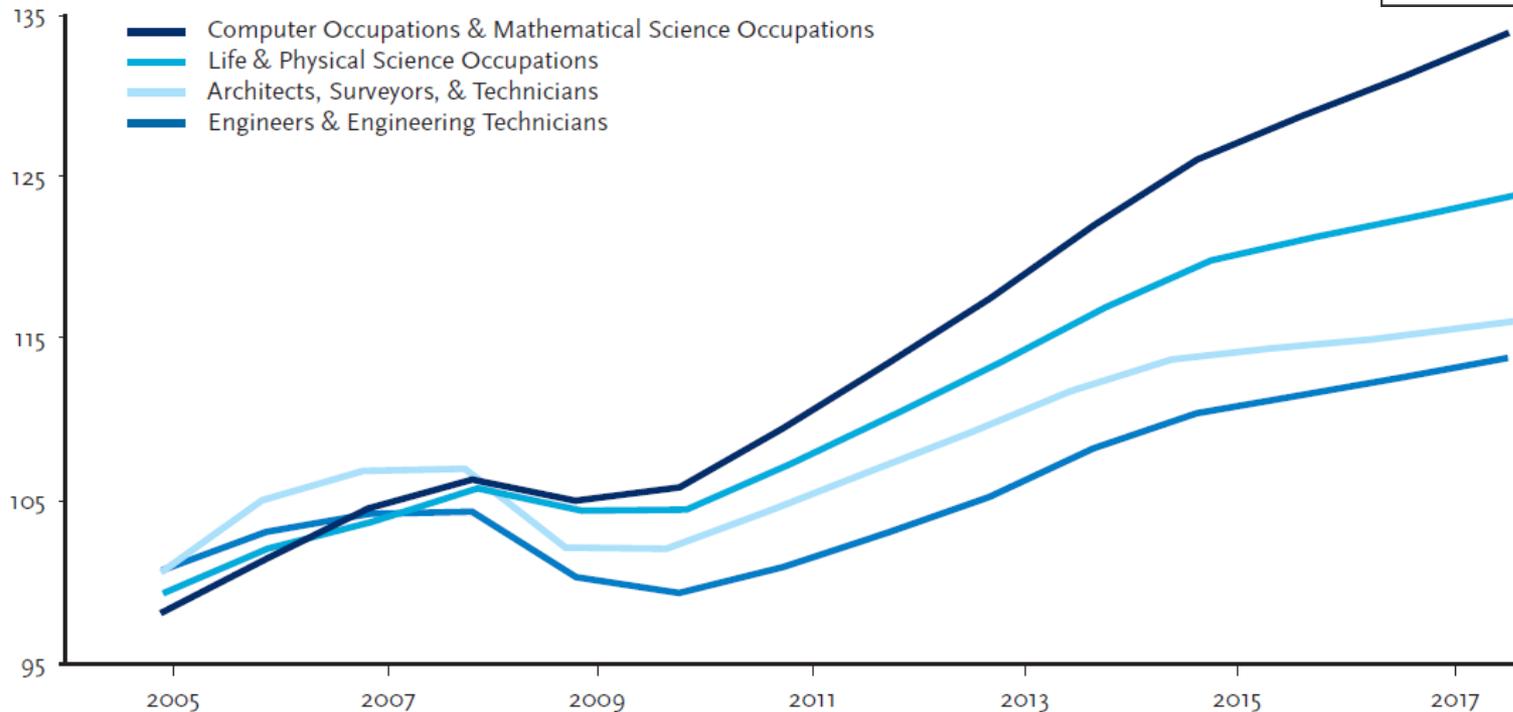


Figure 3: STEM job projections normalized (2005 = 100)



Source: Georgetown University Center on Education and the Workforce forecast of occupational growth, 2018.

MARYLAND's Educational Pipeline



In Maryland, for every 100 ninth grade students ...



... 75 students graduate from high school four years later.



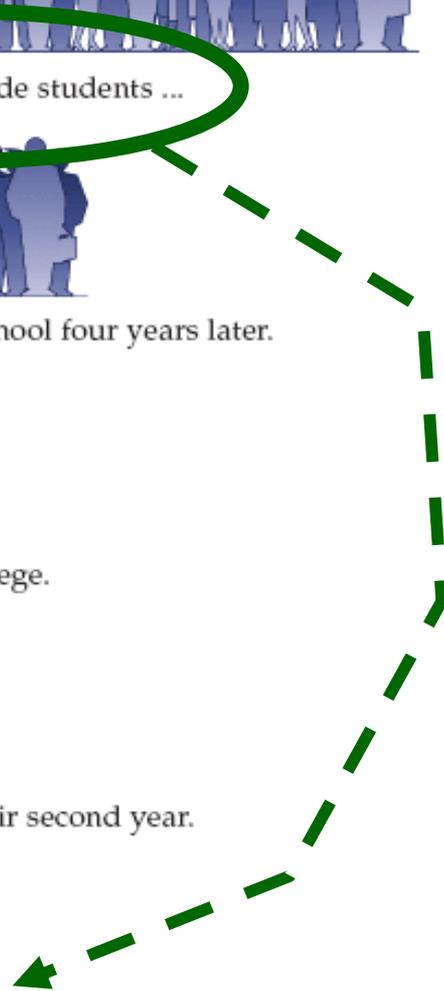
... 45 students immediately enter college.



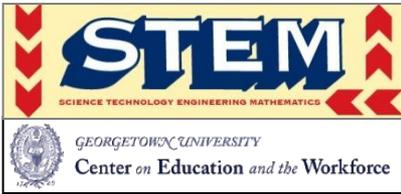
... 32 students are still enrolled in their second year.



... 19 students graduate with either an associate's degree within three years or a bachelor's degree within six years.



Are we filling the STEM pipeline?



100

students enter college & obtain BA

19

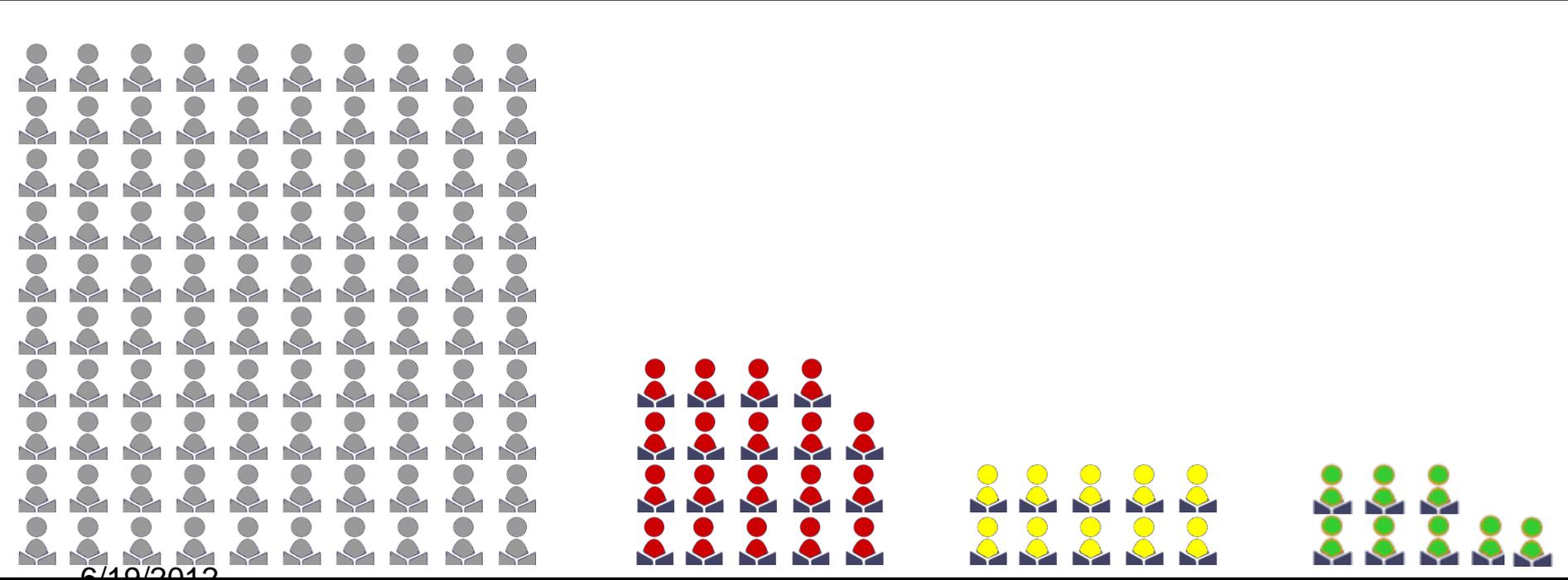
Graduate with BA in STEM major

10

STEM BA grads work in STEM (after college)

8

STEM BA grads work in STEM (after 10 years)



Women are diverting STEM even quicker



100

women enter college & obtain BA

12

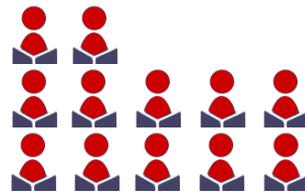
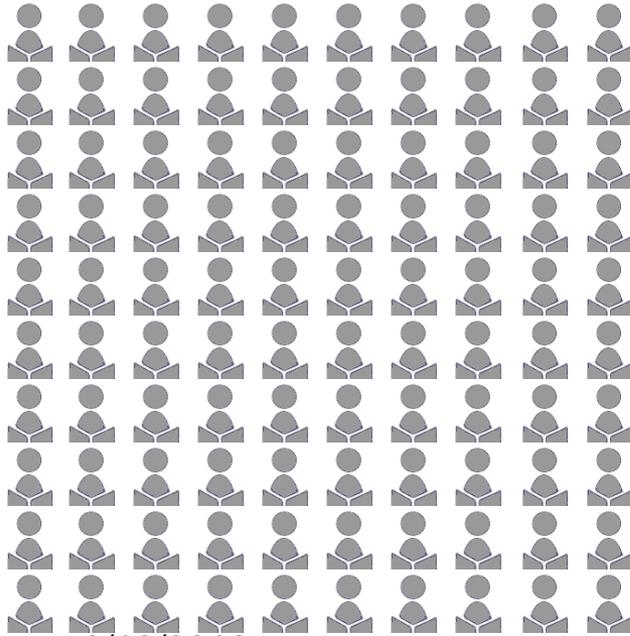
Graduate with BA in STEM major

5

STEM BA grads work in STEM (after 2 years)

3

STEM BA grads work in STEM (after 10 years)



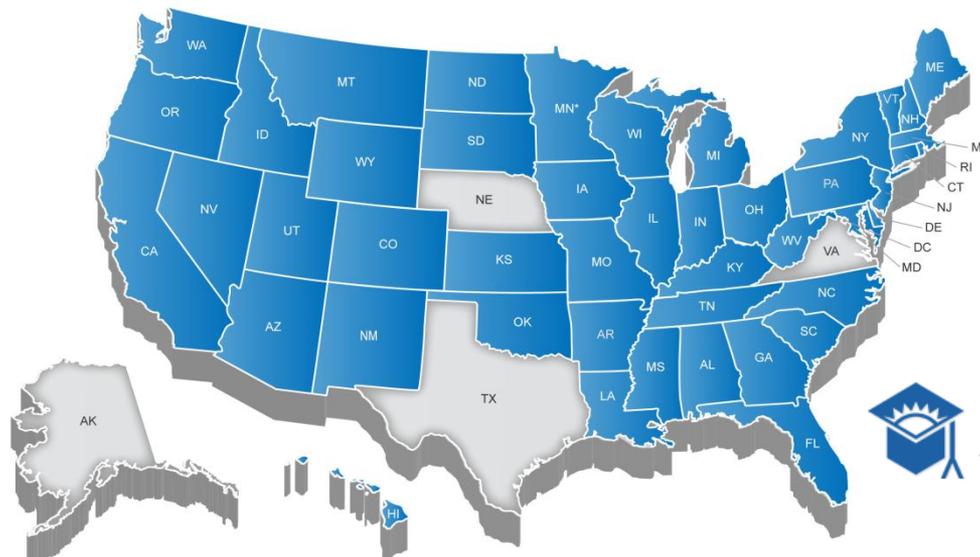
6/10/2012



COMMON CORE STATE STANDARDS INITIATIVE

PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

46 States + DC Have Adopted



19/2012



NEXT GENERATION SCIENCE STANDARDS

A FRAMEWORK FOR K-12 SCIENCE EDUCATION

Practices, Crosscutting Concepts, and Core Ideas

NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES



GWIB Partnership

2010-present

State Energy Sector Partnership Grant



September 15, 2010



EVENTS TRAINING ABOUT US

JOBS FOR A HEALTHY PLANET

RENEWABLE TECHNOLOGY

ENVIRONMENTAL TECHNOLOGY

MANUFACTURING SUSTAINABILITY

BUILDING TRADES & CONSTRUCTION

MARYLAND
Smart. Green. Growing.
GREEN JOB TRAINING AT NO COST
FOR ELIGIBLE APPLICANTS

PLAY

Teris P.
Solar Entrepreneur
Seven Seas Energy

2.5x

POLL RESULTS

Which area are you most likely to pursue a career in?

Solar 25%

WHY GREEN?

Maryland and the nation are undergoing a shift in the way they produce, distribute, use, and conserve energy. Studies forecast that investments in energy efficiency and clean energy could create as many as 100,000 green jobs in Maryland over the next twenty years. To prepare our workforce, a coalition has created FREE green job training programs for ready and eligible individuals. Marylanders can now get the skills and certifications needed for green jobs.

be what I want to be.com / green jobs

History of STEM

2009



2010

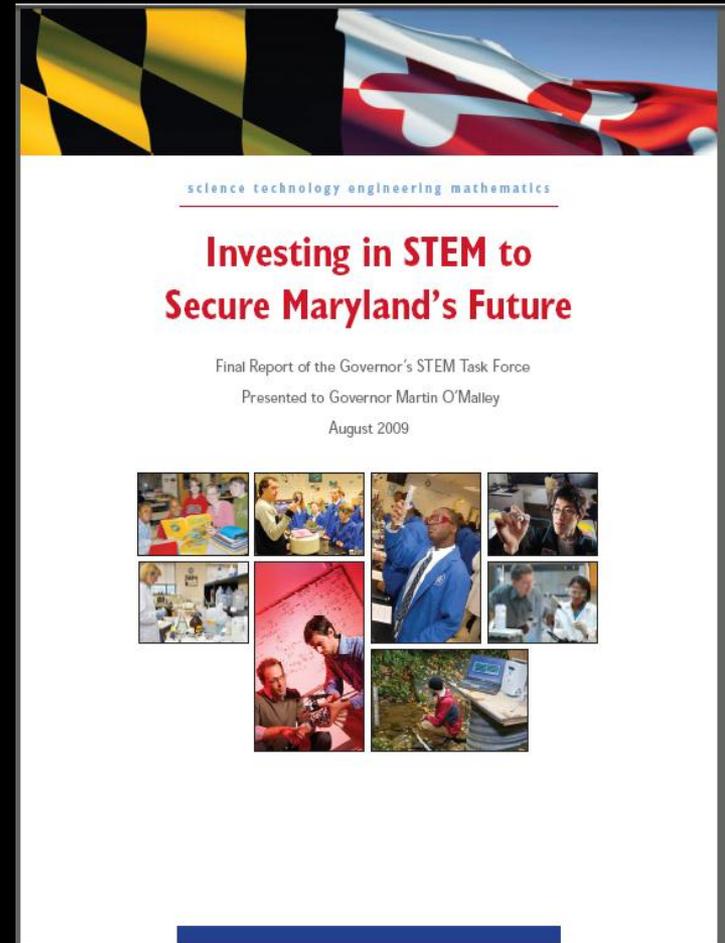
2011

August 2009



The Governor's
P-20 Leadership
Council of
Maryland

**STEM
Task Force**

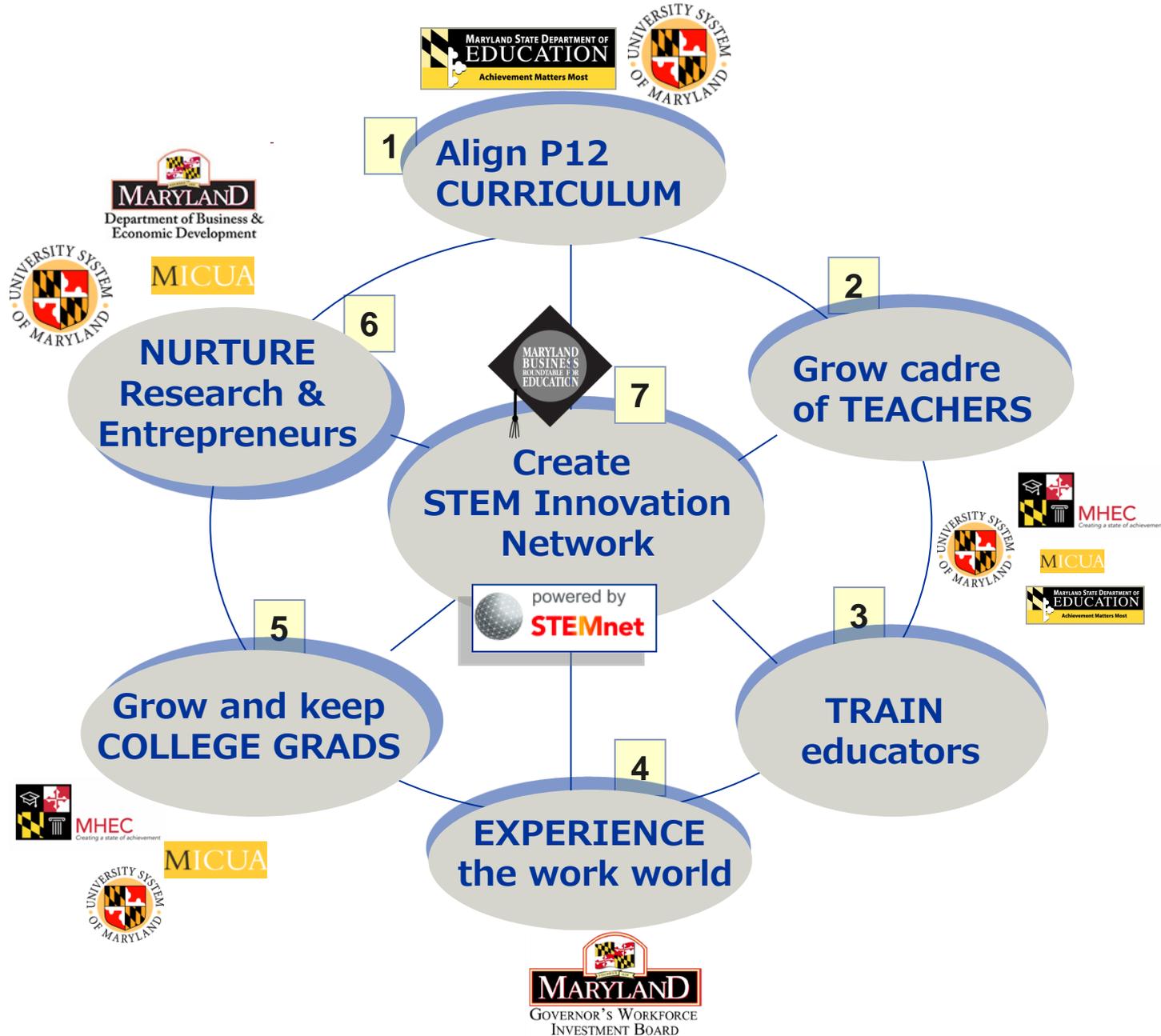


Governor

charges
leaders
for all
7 areas

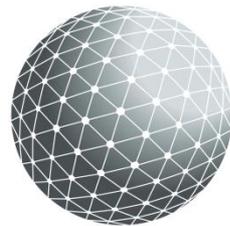
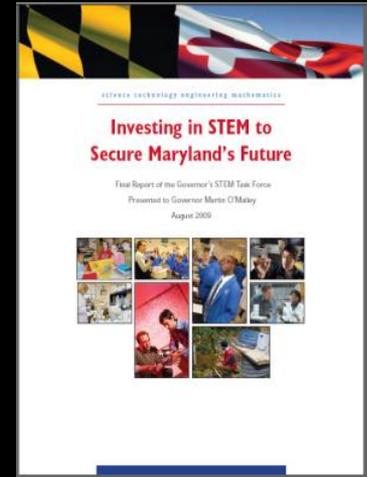


MBRT
charged to
lead STEMnet



Maryland STEM Plan Recommendation #7

Create Maryland's
STEM Innovation Network
to make STEM resources available to all.



STEMnet



6/19/2012

The Case for

STEMnet TEACHERS HUB

A NETWORK TO PROPEL INNOVATION IN
SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS IN MARYLAND

Maryland Business Roundtable for Education | October 2010



TEACHERS

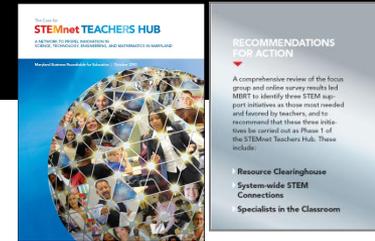
The first hub of STEMnet

Fall 2011
Kicked-off

- **Baltimore Co.**
- **Harford Co.**

5/19/2012

Our prioritized response



Teacher-centered solutions



System-wide STEM connections

STEM Resource Clearinghouse

Student-centered solutions



*** Pre-screened, trained STEM specialists**





Browse

Filter By

Subject ▾

Pro

Ms. Jones sees everybody in her field of biology, who is trained, in her district and ready to work with her

Page 1 of 4

Sort By

Name

Experience ▾



Ab Aaronson
Cancer Researcher
Company X
[Full Profile](#)

1

Math:
Biology, Biological
Investigation, Cells, Mole...

Top-Rated
Sessions: 10.

2

She checks history and metrics from peers



Jeff Smith
Nano expert
MediRobot
[Full profile](#)

3

She reads Mr. Smith's details, watches his video clip, and invites him to work with her class



Ab Aaronson
Cancer Researcher
Company X
[Full Profile](#)

Biology:
Biology, Biological
Investigation, Cells, Mole...

Program:
Specialist in the Classroom
Maryland Scholars
College Access

Math:
Biology, Biological

4

Mr. Smith's gets an invitation via email and on his STEMnet account



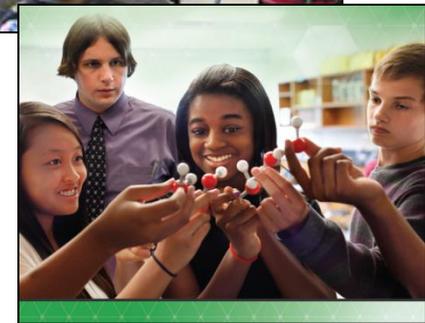
Pre-screened, trained STEM specialists



How will
STEM
professionals
improve
student learning?

Biology content areas of specific support

1. Molecules
2. Cells
3. Genetics
4. Evolution
5. Organism interdependence
6. Biological investigation



STEM SPECIALISTS
IN THE CLASSROOM

BRINGING WORKPLACE EXPERTISE TO SUPPORT STEM TEACHING AND LEARNING

TEACHER HUB
POWERED BY
STEMnet

Biology Teachers
Speak Out



STEMnet



Scientific practices areas of specific support

1. Hypotheses
2. Investigation
3. Data
4. Evidence





Video >

Sharing our teacher findings



The Case for
STEMnet TEACHERS HUB

A NETWORK TO PROPEL INNOVATION IN
SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS IN MARYLAND

Maryland Business Roundtable for Education | October 2010

STEM SPECIALISTS IN THE CLASSROOM

BRINGING WORKPLACE EXPERTISE TO SUPPORT STEM TEACHING AND LEARNING

TEACHER HUB POWERED BY **STEMnet**

Biology Teachers Speak Out



STEM SPECIALISTS IN THE CLASSROOM

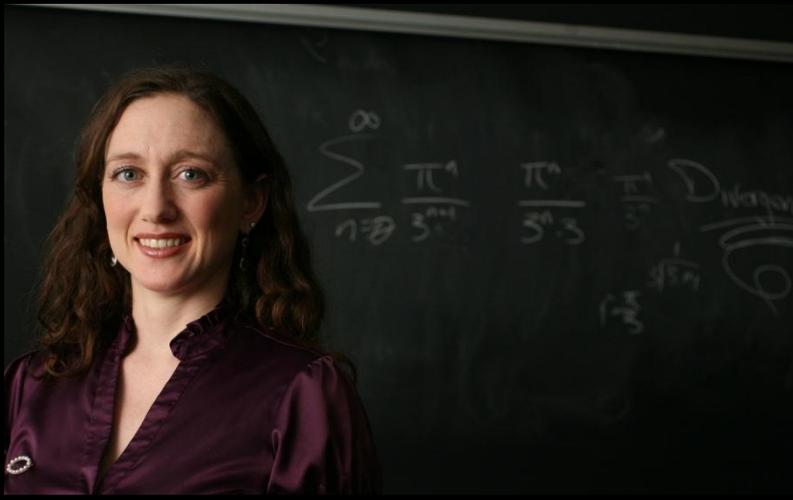
BRINGING WORKPLACE EXPERTISE TO SUPPORT STEM TEACHING AND LEARNING

TEACHER HUB POWERED BY **STEMnet**

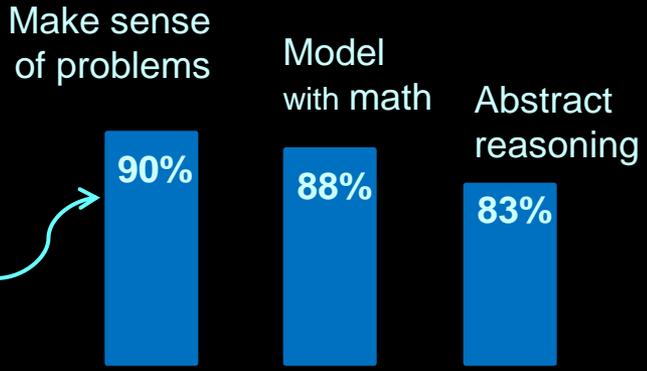
Algebra Teachers Participate Effectively



Listening to Algebra teachers



Teachers seek specific areas of support from STEM Specialists.



380 teachers
21 districts

MBRT Algebra Teacher Survey 2012

Teachers want STEM Specialists to be:



- 98% “well-prepared”
- 94% “engaging”
- 91% “experienced in algebra”

STEM Specialists

2011 & 2012 **Biology, Algebra**

2013 & 2014 **Chemistry, Physics**

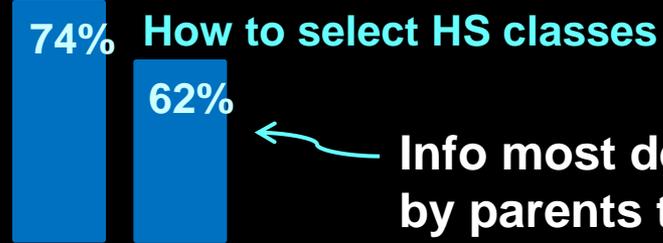
Listening to parents



5,064 parents
21 districts

MBRT Parent Survey 2012

How students are measured



← Info most desired by parents to help their student.

They want it **brief** and **personal**



Text

Email

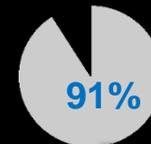
Social

Pew research:

Nearly every parent ... at all income levels can be reached by mobile.

Parents with cell phone

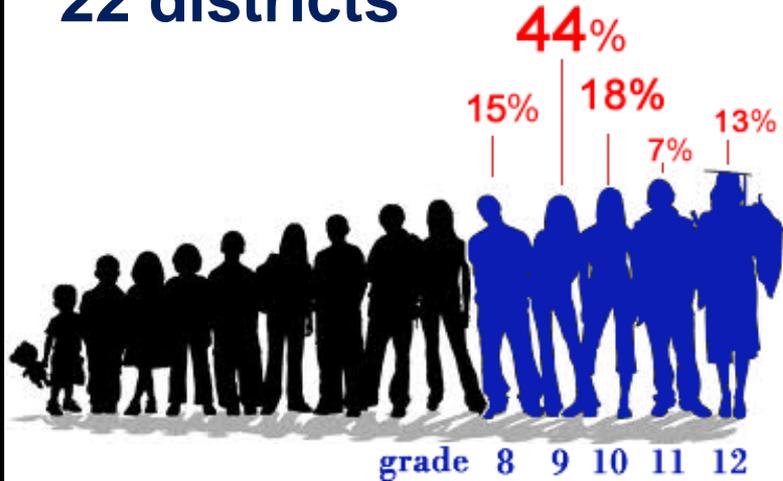
... who use text



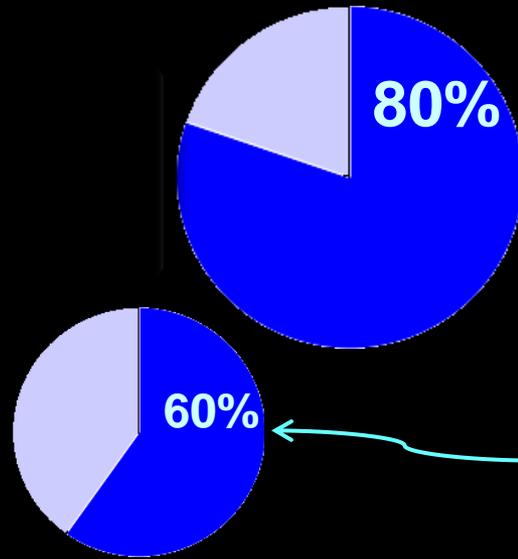
Listening to students



433 students
22 districts



MBRT Student Survey 2012

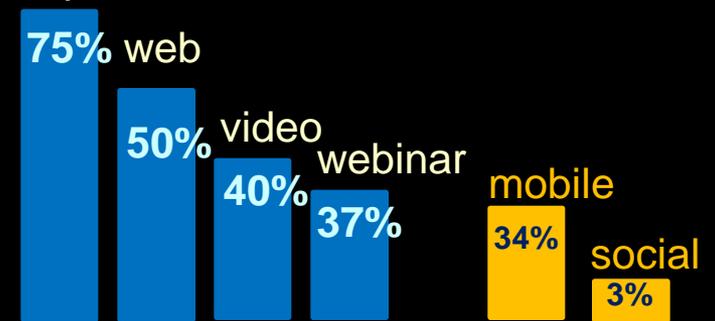


Most feel rigorous courses are important.

Many want STEM careers.

They want adults to engage ...

in person



... but they are still hesitant about adults in their **key digital spaces.**

Maryland Scholars

2009 - 2011

new

2012 - 2014

Existing courses

4 credits of English
3 credits of Math
Algebra 1, Geometry, Algebra 2
3 credits of Lab Science
Biology, Chemistry, Physics (preferred)
3 credits of Social Science
U.S. History, World History, Government
2 credits of the same Foreign Language

Students must attain a 2.5 GPA to qualify
Underlined courses exceed current State requirements.

Current

54%

Goal

67%

Proposed courses

4 credits of English
4 credits of Math *Must include math including or beyond Algebra 2*
3 credits of Lab Science
Biology, Chemistry, Physicc (preferred)
3 credits of Social Science
U.S. History, World History, Government
2 credits of the same Foreign Language

Students must attain a 3.0 GPA to qualify
Underlined courses exceed current State requirements.

Current

16%

Goal

33%

How you can help

As a Specialist

As an Achievement Counts Volunteer

By completing the Internship Survey

By disseminating Parent Messages



Maryland Business Roundtable for Education



Thanks MBRT.org