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**TO:** Members of the State Board of Education  
**FROM:** Lillian M. Lowery, Ed.D. *Lillian M. Lowery*  
**DATE:** July 22, 2014  
**SUBJECT:** Expanding Access to Digital Learning and Computing in Maryland

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**PURPOSE:**

A brief update will be provided to the State Board that shares the progress of digital learning and computing in Maryland.

**BACKGROUND:**

In February 2007, the Maryland Technology Literacy Standards for Students were accepted by the Maryland State Board of Education. Students now have a different set of technology skills than they did in 2007, and new skills needed in this area are being identified. Several initiatives revolving around computing have been occurring in Maryland for some time, but more recently, growth in this area is expanding. Several partners are involved in this work including local education agencies, UMBC, Microsoft, code.org, National Center for Women & Information Technology, and Google.

**EXECUTIVE SUMMARY:**

It is important for the Board to be updated of the work being done in digital learning and computing, not only at the Maryland State Department of Education, but in collaboration with other education partners. This work will help further the mission of STEM education and prepare our students with technical skills and knowledge they need to be productive members of the workforce.

**ACTION:**

No action required, for discussion only.

## Scenario for Existing Technology Standards 2.0 – 6.0

### 7<sup>th</sup> grade disciplinary lesson on Invasive Species - Explain how change to the biological component of the Everglades ecosystem by the Burmese Python affected the populations of native animals.

Students will work collaboratively with a partner to create a product that explains the changes. The product may be an electronic poster (glogsteredu), web page, brochure, or an electronic slide presentation (PowerPoint, Prezi, etc.) and must provide a supportable explanation based on accurate data and cite resources used. A rubric for the presentation is provided to the students.

Lesson begins with a close reading of a NPR article *Invasive Pythons Put a Squeeze on Everglades* written by Christopher Joyce, August 20, 2012. Partners share ideas and develop answers to questions with a partner. Each partner group shares out with the entire class.

Class listens to a PBS audio clip or watches a graphic video on actual python findings.

The teacher works with a student or a small group of students to create a LiveBinder site for this collaborative project. The LiveBinder contains a beginning bank of identified resources for students to use and a tab for each partner group. The student or small group will show the class how to use LiveBinder and how to incorporate Google docs into it. Partners begin searching for information related to the topic, store relevant sites and other resources under their LiveBinder tab. Collaborative planning and note taking can be conducted through the integration of LiveBinder, web mapping applications, and Google docs.

Final products can be shared with their classmates, teacher, and parents. After classmates provide constructive comments about presentations, each partner group will conduct a self-reflection.

#### Standards addressed:

##### 2.0 Digital Citizenship

- Work cooperatively and collaboratively with others when using technology
- Use electronic resources appropriately – including paraphrasing
- Cite resources
- Use technology tools to learn new content and reinforce skills

##### 3.0 Technology for Learning and Collaboration

- Use technology tools to work collaboratively within the school community
- Create new documents to complete learning assignments or demonstrate new understanding
- Collect, manipulate, analyze and display data and information using tools such as computers

##### 4.0 Technology for Communication and Expression

- Present information independently to various audiences
- Select and use appropriate multimedia and publishing tools
- Present ideas and information in formats such as electronic presentations, web pages
- Evaluate student created products

##### 5.0 Technology for Information Use and Management

- Select relevant information from appropriate technology resources
- Apply evaluation strategies when using electronic resources

##### 6.0 Technology for Problem-Solving and Decision-Making

- Display data and information using technology tools
- Identify technology resources to gather information about a problem/situation that requires further study.

# Expanding Access to Digital Learning and Computing in Maryland

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Val Emrich

Cindy L. Hasselbring

Katharine Oliver

# Digital Learning and Computing in Maryland

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- STEM Education
- Digital Literacy Standards
- Career Technology Education (CTE)  
Program

# The T in STEM

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- STEM On-line Courses
  - Cyber Security
  - Foundations of Computer Science
  - Computer Science Principles
  
- STEM Initiatives
  - Girls in STEM
  - STEM / CS Summer Camps

# *Partners in Expanding Access*

## *CE21, CS4HS, CWIT, Code.org...*

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UMBC

AN HONORS UNIVERSITY IN MARYLAND



Powering Up Computing Education



COMPUTER  
SCIENCE

Education Week

[WWW.CSEDWEEK.ORG](http://WWW.CSEDWEEK.ORG)



Google



# Digital Literacy

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- Technology Plan Interim Report - 2011
  - Waiver until September 2015
  
- Professional Development
  - Menu of Options
  - Blended Learning



# Digital Literacy

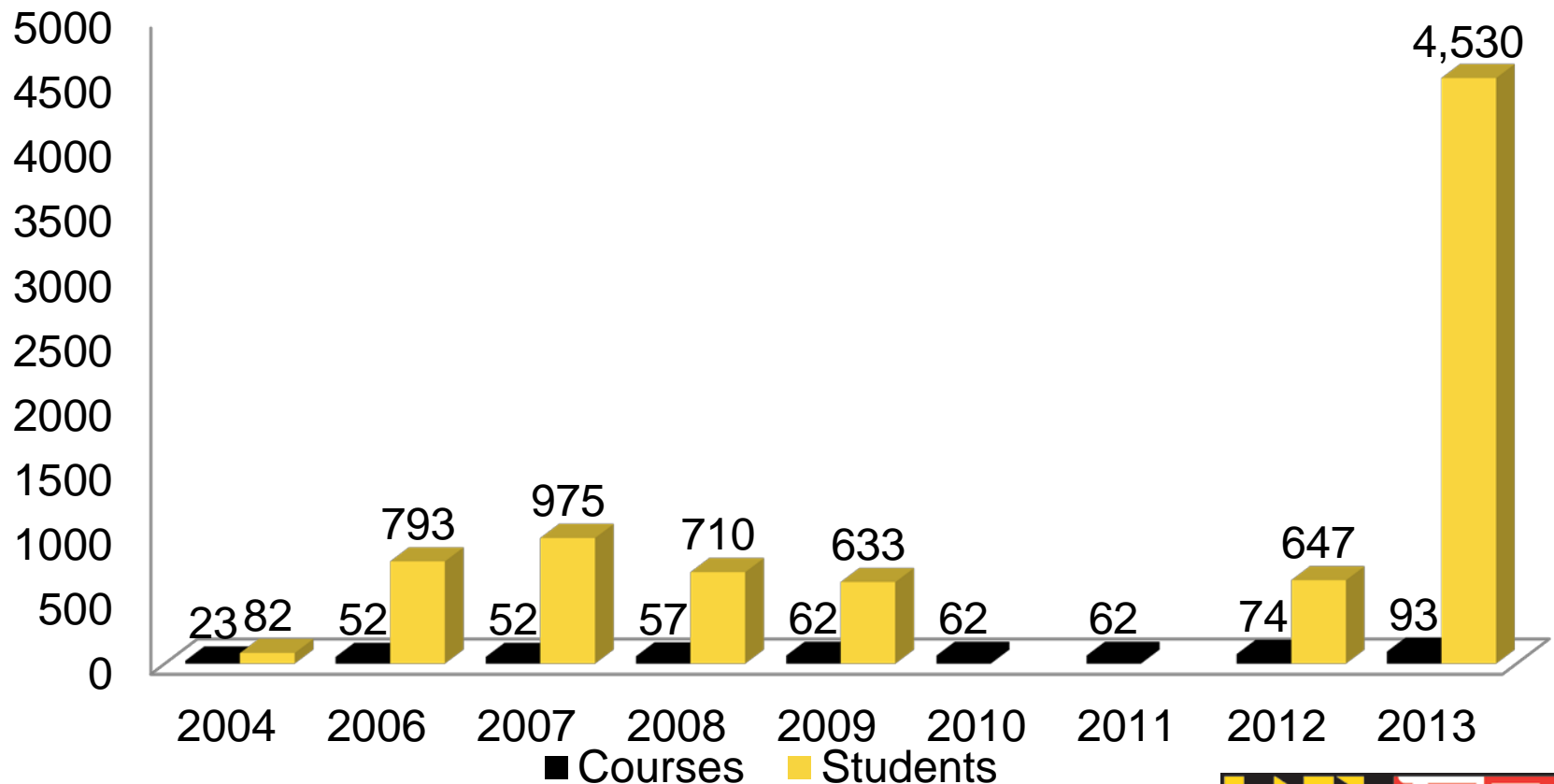
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- Revising Maryland Technology Standards for Students
  - Competencies
  - Scenarios
  
- Digital Learning
  - Blended
  - Online






# Student Online Courses



# Expanding Access: CTE Programs

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- Academy of Information Technology 
- Database Academy (Oracle) 
- IT Networking Academy (Cisco) 
- Computer Science (CSTA/NSF) 



# Computer Science CTE Program

## 1<sup>st</sup> Course

- *Foundations of Computer Science* – National Model Curriculum

## 2<sup>nd</sup> Course

- *Computer Science Principles* – Aligned to College Board (AP)

## 3<sup>rd</sup> Course

- *Computer Science: Advance Placement*  
College Board AP Exam

- **CyberWatch:** *Ethics and Information*

Age OR

- **CW:** *Microcomputer Operating Systems*

OR

- **College:** Dual Enrollment in CS/IT

## Technical Skill Attainment

- College Credit by Exam
- Dual Enrollment

## Certification

- Microsoft Technology Associate



## 4<sup>th</sup> Course

### Options

UMBC

AN HONORS UNIVERSITY IN MARYLAND



# *Computer Science and Preparing for IT Careers in Maryland*



Exploration and  
Awareness



Career  
Development and  
College Credit



Preparing  
Teachers and  
Expanding  
Access



# Thank you

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- Val Emrich, Director of Instructional Technology
- Cindy L. Hasselbring, Special Assistant to the State Superintendent
- Katharine Oliver, Assistant State Superintendent, Career and College Readiness