

## **Continued Support for Active Learning and STEM Education**

The Obama Administration has made an unprecedented commitment to improving access to and quality of STEM education for all students. From challenging the nation to train 100,000 excellent new STEM teachers in a decade, to building an “all hands on deck” approach to improving STEM education through the Educate to Innovate campaign, to elevating the profile of STEM education by starting the annual tradition of the White House Science Fair, the focus has consistently been on ensuring that every student has the opportunity to participate and excel in STEM fields.

Today, in response to OSTP’s Active Learning Call to Action, organizations and institutions from across the Nation are announcing new commitments to provide more students with high-quality education in STEM fields. These announcements include:

### **Higher Education Response to Active Learning in STEM Call to Action**

- The **University of South Alabama** is launching a STEM Faculty Learning Community to advance active learning practices as part of the Active Learning Initiative at South Alabama (ALISA). The University’s Innovation in Learning Center’s initiative guides faculty through developing prototype active-learning activities, incorporating them into courses, and measuring outcomes that can be shared and published.
- **The City University of New York’s (CUNY) Lehman College** is launching a 3-year initiative, Strengthening STEM MINDS, using an active-learning approach to support 7,000 students and 60 teachers in identifying resources to strengthen STEM teaching and learning, deepen STEM content knowledge, and create opportunities to learn STEM in a context that makes it relevant to students’ lives.
- **Bryn Mawr College** intends to establish a task force comprising faculty, students, and staff to develop and institutionalize best practices across STEM departments to broaden the use of high-impact innovations to reach students in all STEM courses. The taskforce will also address faculty development and STEM advising practices to eliminate disparities in student achievement and persistence in STEM.
- **The College of New Jersey** is redesigning its Creative Design course for pre-service STEM teachers to focus on Human-Centered Design, an active-learning technique that engages students by placing them in the shoes of a person affected by a problem to stimulate the students to design more

creative solutions. This effort will impact at least 500 engineering students and pre-service integrative STEM teachers in the next 4 years.

- **Kennesaw State University** is launching Game Jam Jr. program to teach 2,000 students, ages 7-12, in game design and development. The program will support students in Georgia, New York, Massachusetts, California, and the District of Columbia in 2017 and uses role play, participation, and playing physical and digital games to actively engage students in learning game design and implementation. In partnership with the Girls Scouts of Greater Atlanta, Kennesaw State University will host a Game Development Bootcamp in Georgia in 2017 that will conclude with a game jam and a Game Jam patch will be awarded to the participants.

### **PK-12 Response to Active Learning in STEM Call to Action**

- The **Navajo Nation Math Circles** is launching math circles to reach Navajo reservation territories in Arizona, Utah, and New Mexico. The Navajo Nation Math Circles combines active-learning math techniques with Navajo culture to teach mathematics to students in grades K-12. Students will participate in mathematics problem solving to establish connections between the math they study in school, their culture, and mathematical research.
- **Pixar Animation Studio and Khan Academy** are extending Pixar In a Box to include a new lesson. The free online resources include video lessons, interactive exercises, and physical activities. The interactive exercises present students with simulated environments in which they are tasked with solving real problems faced at Pixar. The open-ended activities, both digital and physical, challenge students to apply what they've learned to create new content of their own. The new resource will show how Color Science is used in the production of films and teach the underlying concepts of the physics of light and human color perception.
- **BioBuilder** will partner with **ProblemBasedLearning Projects from the New England Board of Higher Education** to create an OpticsBuilder curriculum to introduce students to physical concepts in optics using active-learning methods. OpticsBuilder will include a hands-on, problem-based approach to introduce thousands of students to photolithography and the science of precise measurements, as well as a professional development program to train hundreds of high school teachers nationwide. The program will reach BioBuilder's community of more than 500 teachers in the first year.
- In the 2017-2018 school year, **i2Learning** will conduct STEM Weeks in 10 states including Massachusetts, New York, and New Jersey, serving more than 100,000 students. During STEM Week,

middle school teachers replace regularly scheduled classes with active-learning STEM curricula. i2Learning will also train 5,000 teachers in active-learning strategies to enable them to participate in the STEM Weeks.

- **Desmos**, a free online graphing calculator used by students and teachers, will set a goal to reach 3 million students next year by creating a free online tool that enables teachers to select, sequence, and share student work to enable them to have the kinds of conversations that active learning requires. The tool will integrate evidence-based practices in active learning, student discourse, and feedback from teachers.
- The **Julia Robinson Mathematics Festival** is announcing a partnership with the National Museum of Mathematics to provide mathematics curricula through math circles and clubs to reach more than 1,000 students in New York, the San Francisco Bay area, and Washington, DC. These curricula are designed to encourage a sense of discovery and excitement about mathematics through problem solving and interactive exploration.
- The **Summer Science Program**, a residential program for high-school students to experience team-based, hands-on research to solve a scientific problem, will expand to Purdue University and add a new research project in biochemistry and drug discovery. Over the next decade, 1,500 high school students will conduct original research in biochemistry and biotechnology, astrophysics, and metagenomics.
- The **Idaho STEM Action Center** will invest \$800,000 in grant programs and activities to reach 13,000 students through public schools, public libraries, and non-profit out-of-school organizations. The PK12 Innovative STEM Project will provide funds for informal and formal educators to implement unique, integrative STEM projects into student-learning environments. The Computer Science Devices grant program will support expanded availability of computer-hardware devices, such as tablets and laptops, providing educators the opportunity to incorporate computer science and programming into their instruction. The F3 grant will support the creation of FIRST Robotics teams at all age levels. The Idaho STEM Action Center also is launching an online STEM Mentor Platform to will allow students and teachers across Idaho access to STEM experts to support active learning and teaching in the learning environment and create regional state Idaho Science and Engineering Fairs.
- The **American Society for Engineering Education** will implement “Commit to P12: Where Engineering Begins”, a multi-faceted initiative to reach pre-college students and teachers. The initiative will include workshops, talks, and activities for university faculty and staff to increase awareness of and participation in activities to enhance pre-college engineering activities. In

partnership with DevX, 200 PK-12 teachers will participate in professional development workshops to deliver problem-based learning in classrooms in North Carolina, Ohio, New York, and Missouri in 2017.