1. Federal STEM Policy this Month

December was a big month for STEM education. Most notably, the House and Senate passed the Every Student Succeeds Act (ESSA) as well as an Omnibus spending bill before leaving Washington, DC, for the holidays. As has been widely reported, President Obama signed ESSA into law at a December 10th White House signing ceremony, marking the end of the era of No Child Left Behind. While the lengthy bill has many provisions, STEM education advocates were pleased that the bill retains required assessments in math and science (along with reading), and encourages states to assess their educator professional development needs and to invest in STEM educators, as needed, along with other STEM-friendly provisions. (The STEM Education Coalition has done its own analysis of the law.) While the community is disappointed that the only STEM-specific program administered by the Department of Education—the Math Science Partnership program—has been eliminated, states and districts will be able to focus on more and better STEM education in new ways. As has been said repeatedly by proponents of ESSA, its implementation will be crucial. The Department of Education has already issued its first Dear Colleague Letter that conveys basic information on transition and regulatory plans as well as its first solicitation for input from the community. The guidance is expected to come quickly, and STEM education advocates will have to be ready to respond in 2016.

Finalizing spending for FY 2016 was resolved just before Congress vacated Capitol Hill for the rest of the year, and the budget deal that former Speaker of the House John Boehner struck before turning the gavel over to Representative Paul Ryan (R-WI) benefited some programs important to STEM advocates. In particular, the Math Science Partnerships will be funded at the same level in FY 2016 that they were in FY 2015 ($152.7 million), which is a win in the current fiscal environment. In addition, the National Science Foundation (NSF) won a small increase and avoided a proposal from House conservatives to outline funding levels by directorates—a strategy that some have tried to assert some control over the Foundation’s awards. Overall STEM education advocates feel about the spending bill as they did about ESSA—mixed. Looking to 2016, it is hoped that the America COMPETES bill might make some progress, although the bill approved by the House earlier this year won’t get much traction in the Senate, meaning Senate Commerce, Science and Transportation Committee members will have to roll up their sleeves. The Carl D. Perkins Career and Technical Education Act and the Higher Education
Act will hopefully get some attention from the education committees now that ESSA has been signed, but the House and Senate haven’t seemed to sync up their plans on either matter just yet.

After the holidays, the first policy development will be the President’s last State of the Union address, which is scheduled for January 12. It is rumored that there could be some discussion of STEM education and the importance of computer science in particular, but that speech will go through dozens of drafts between now and then. While advocates wait for that address, they can celebrate the accomplishments of the community in 2015.

2. **STEM Tidbits**  
**PRESIDENT OBAMA SIGNS LANDMARK EDUCATION LAW**  
On Thursday, December 10th, President Obama was surrounded by lawmakers, advocates, teachers and students when he signed the bipartisan *Every Student Succeeds Act*. This legislation replaces the outdated *No Child Left Behind Act*, while making new commitments to support STEM education. Senators Lamar Alexander (R-TN) and Patty Murray (D-WA), and Representatives John Kline (R-MN) and Bobby Scott (D-VA) worked for months to bring an overhaul over the finish line. Some of its provisions include: maintaining rigorous college and career standards in science and mathematics education that are also aligned to career and technical education standards; providing states the funding flexibility to improve science assessments through integrating engineering design skills and practices; providing state and local flexibility specifically for STEM teacher professional development and high quality instruction; supporting alternative certification for STEM teachers, as well as differential pay; and ensuring the inclusion of STEM-related education activities as part of a well-rounded education that can be funded in both classroom and informal educational settings. The new bill also explicitly includes “engineering” and other STEM subjects, such as “computer science” (CS) in the definition of “well rounded education subjects.” As large districts like Chicago Public Schools work to make CS a graduation requirement, that change and others are welcome news to STEM and CS advocates. On Wednesday December 16th, Acting Secretary John King noted during a stakeholder gathering in D.C. that building an equitable pipeline of quality STEM teachers and programs that serve all students would be a priority for his Administration. For more information on this historic signing, please go [here](#).

**ED RELEASES 2016 NATIONAL EDUCATION TECHNOLOGY PLAN**  
On Thursday, December 10th, the U.S. Department of Education announced the release of the 2016 [National Education Technology Plan](#) and new commitments to support personalized professional learning for district leaders across the country working to implement the effective use of technology for student achievement. Updated every five years, the plan is the flagship educational technology policy document for the United States. The new plan emphasizes active use and collaborative leadership, while calling upon all education stakeholders to ensure equity of access to transformational learning experiences enabled by technology to make anywhere-anytime learning possible. Secretary Arne Duncan, who is stepping down at the end of the month, said “[Technology] can change the experiences of students in the most challenging circumstances by helping educators to personalize the learning experience based on students’ needs and interests—meeting our students where they are and challenging them to reach even higher… and includes a strong focus on equity because every student deserves an equal chance to engage in educational experiences powered by technology.” In addition to the release of the plan, the Department celebrated the one-year anniversary of the [Future Ready initiative](#) by
announcing the launch of 17 statewide Future Ready initiatives. Since the launch of Future Ready in 2014, more than 2,000 superintendents across the country have signed the pledge and committed to foster and lead a culture of digital learning in their district and to share what they have learned with other districts. More than 44 national and 12 regional partner organizations have committed to helping states, districts and schools become Future Ready. “Through collaboration, a robust infrastructure and personalized learning, Future Ready district leaders are shaping the vision for how technology can transform learning for all students,” said John King, who will replace Arne Duncan next month. For more information about the national technology plan, please go here.

MICROSOFT DISCUSSES FUTURE OF COMPUTER SCIENCE IN K-12 EDUCATION
On Thursday, December 10th, Microsoft’s Education Innovation and Policy Center hosted a panel discussion, “Computer Science and Equity: Policies That Work,” as part of Computer Science Education Week 2015. The discussion, which took place shortly before the computer-science friendly Every Student Succeeds Act (ESSA) was signed into law, focused on the efforts of state lawmakers to make Computer Science (CS) more available in schools throughout the nation such as by elevating the status of CS from an elective to a core component of K-12 education. Governor Asa Hutchinson (R) of Arkansas, one of the national leaders in CS prioritization, recently made it a requirement for all public high schools in the state to offer CS. The amount of students taking CS in that state has skyrocketed from 1,100 students in the 2014-2015 school year to more than 4,000 students so far this year. Anthony Owen, Computer Science Coordinator at the Arkansas Department of Education, spoke about the need to raise awareness of efforts such as that in Arkansas throughout the country. When leaders hear about successes, more funding is likely to be allocated to make CS a more integral component of K-12 education. Owen noted that funding is critical, as his state and many others do not have the teacher capacity to deliver on the promise of universally required CS, as is the case in Great Britain and China. Therefore he hopes that a national shift and a more integrated pipeline of qualified teachers will get Arkansas and other states closer to that vision. Pat Yongpradit, Chief Academic Officer at Code.org, added to the conversation, stating that one way to solve the capacity gap would be to support pre-service on CS skills that incentivizes institutions of higher education to offer CS training as teachers entering the profession. He stressed that CS is a foundational skill not just for the STEM fields, but for all fields that require critical thinking and problem solving. He noted that this capacity building is critical since 9 out of 10 parents want CS to be offered for their kids, but only 1 in 4 schools offer it as a subject. He also recommended that states clarify what CS standards should be. Jennifer Zinth, director of high school and STEM at the Education Commission of the States, also spoke to the fact that more states are allowing CS to fulfill a credit for graduation and that colleges should follow suit and give students credit for completion of CS in K-12 grades. For more information about the panel and corresponding discussion, please go here.

STEM EDUCATION COALITION HIGHLIGHTS INFORMAL SCIENCE PARTNERSHIPS
On Wednesday, December 9th, the STEM Education Coalition and the Afterschool Alliance held a briefing, “Informal STEM Education 101: Public-Private Partnerships and Measures of Success.” The briefing, which is part of an ongoing series, was designed to give attendees a better sense of how informal STEM education - education that happens outside of the regular school day – is achieving results by exposing more students to STEM subjects and the policies that are helping grow these programs. Representative Lamar Smith (R-TX), Chairman of the House Science, Space, and Technology Committee, opened the briefing by talking about the growth of the STEM Education Coalition in the last decade and said that while the U.S. is
investing $3 billion per year in STEM education, there is still work to be done as the U.S. falls behind other countries in math and science. Tyler Chandler, Florida state director of the Afterschool All-Stars, spoke about how informal STEM programs actually work on the ground—citing the breakthrough results that the afterschool programs are achieving in fields like robotics and the partnerships that serve as their foundation. For an informal STEM program to work, he pointed to a triangular partnership of non-profit agencies, local government, and private industry. Chandler noted that one of the biggest lifts that private industry can make for informal STEM programs is not simply funding, but also providing manpower to programs and mentorship for students that would expose them to how STEM skills are being utilized in the real world. Nick Hutchinson, executive director of US2020, built on that concern, citing issues with finding qualified professionals to deliver the STEM content knowledge to students. His organization is designed to help match STEM professionals in the industry as mentors within local districts and programs to help provide students hands-on projects. Through support from the White House and by creating an innovative online platform that allows STEM professionals to match with schools and local programs in need, Hutchinson hopes to match 1 million STEM mentors with programs by the year 2020. Anita Krishnamurthi, Vice President for STEM Policy at the Afterschool Alliance, also spoke about increasing parent desire for STEM activities in afterschool programs. Programs have responded to that demand rising as 69% of afterschool programs are now offering STEM learning opportunities. One ancillary benefit of this growth is that children begin to value STEM as a discipline and identify the skills during school. All of the participants agreed on the importance of having dedicated staff in schools to coordinate informal programs and having buy-in from principals and district leadership to allow these programs to continue to grow and prosper. For more information about the STEM Education coalition, please go here.

3. Announcements, News, and other Notable Updates

In Wake of ESSA, Senate Passes Long-Overdue Education Research Bill
Education Week (Dec. 18, 2015)

11 clever toys to make STEM fun for your kids
Mashable (Dec. 15, 2015)

UC Pressured to Count Computer Science toward High School Math Requirement
San Jose Mercury News (Dec. 14, 2015)

Many Women in STEM Fields Expect to Quit Within Five Years

Can Tech Solve Climate Change?
TechCrunch (Dec. 12, 2015)

How to Make Computer Science Accessible to All Students
Teach for America (Dec. 11, 2015)

4. Upcoming Deadlines

Build on President’s Call to Support CS in K-12 Schools
(First Deadline by Dec. 22, 2015; Second Deadline by January 5, 2016)
5. About WPLLC
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