

Testimony
Committee on Science, Space, and Technology
**Hearing on “Keeping America FIRST: Federal Investments in Research, Science, and
Technology at NSF, NIST, OSTP, and Interagency STEM Programs”**
November 13, 2013

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Introduction

Thank you for the opportunity to testify before the Committee and to offer our views on the discussion draft of the FIRST Act and issues related to federal STEM education programs and policies.

The STEM Education Coalition is an alliance of more than 500 education, business, and professional organizations from across the country that are united in the goal of promoting policies to improve science, technology, engineering, and mathematics (STEM) education at every level. Our Coalition closely follows the development and evolution of policies across the federal government that seek to address the challenges our nation faces in educating the future STEM workforce. A listing of the members of the Coalition’s Leadership Council, which develops and guides our public policy agenda is included as Appendix A to this testimony.

STEM education is closely linked with our nation’s economic prosperity in the modern global economy and strong STEM skills are a central element of a well-rounded education. Why?

Here are a few reasons:

- According to the Council on Foreign Relations, 60 percent of U.S. employers are having difficulties finding qualified workers to fill vacancies at their companies.¹
- While the U.S. economy grapples with economic recovery, job postings in in the STEM occupations outnumber unemployed workers by nearly two to one.²
- At all levels of educational attainment, STEM job holders earn 11 percent higher wages compared with their same-degree counterparts in other jobs.³
- 47 percent of Bachelor’s degrees in STEM occupations earn more than PhDs in non-STEM occupations.⁴

¹ <http://www.cfr.org/united-states/us-education-reform-national-security/p27618>

² <http://changetheequation.org/stemdemand>

³ <http://www.nga.org/cms/home/nga-center-for-best-practices/center-publications/page-edu-publications/col2-content/main-content-list/building-a-science-technology-en-1.html>

⁴ <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/STEMWEBINAR.pdf>

Accordingly, STEM education must be elevated as a national policy priority as reflected through education reforms, policies to drive innovation, and budgetary priorities. More precisely, the Coalition feels strongly that action on STEM education policy should match the rhetoric on its importance.

While the collected fields that make up “STEM” are clearly connected with future economic growth and the job market for people with these skills is relatively strong, it’s also important to point out that the STEM fields are not a monolith – policies to strengthen the U.S. STEM education pipeline must be flexible and adaptive to a rapidly changing educational and workforce landscape.

U.S. Competitiveness, STEM Education, and the Importance of the America COMPETES Act

We are very pleased that this Committee is again considering federal STEM education policies and the reauthorization of major portions of the America COMPETES Act.

The passage of the original America COMPETES Act in 2007 and its subsequent reauthorization in 2010 demonstrated to the entire world that U.S. leaders can work together effectively to strengthen the foundations of American innovation. That original and overwhelmingly bipartisan bill laid out a very bold vision for expanding federal investments in basic scientific research and bolstering the U.S. STEM education pipeline. That vision was a direct response to widespread concerns that U.S. leadership in science and technology was slipping.

Six years later, with our nation slowly emerging from worst economic downturn since the Great Depression, and with fiscal budget pressures at unprecedented levels, those same concerns have only multiplied.

A 2011 Harris poll funded by one of our member organizations found that, although most parents of K–12 students (93 percent) believe that STEM education should be a priority in the U.S., only half (49 percent) agreed that it actually is a top priority for this country. Further, this study found that only one in five U.S. STEM college students felt that their K–12 education prepared them extremely well for their college courses in STEM.⁵

Compounding this struggle to improve education outcomes is the reality that the federal STEM education portfolio is in need of a serious overhaul. There are currently more than 200 STEM education programs scattered across 13 different agencies, a huge portion of which fall under the jurisdiction of the Committee. A large fraction of these programs are quite small in scope. On the other end of the spectrum, the Department of Education’s Math and Science Partnership program – the largest federal program that is focused solely on STEM outcomes – has not been reauthorized in more than a decade. Many federal programs have limited data on outcomes and effectiveness and all of the programs in the current federal portfolio would benefit from greater cross-agency coordination and a better system of evaluation.

⁵ <http://www.microsoft.com/presspass/press/2011/sep11/09-07MSSTEMSurveyPR.msp>

Our government needs a comprehensive and strategic effort to review all federal STEM programs on a regular basis to ensure that effective programs are scaled up and that underperforming programs are improved or eliminated over time. Further, effective policies to manage the federal STEM education portfolio should be bipartisan and evidence-based and must be informed by a strong and supportive community of stakeholders in the business, professional, research, and education communities. Scaling up what we know works is the only way we will ever improve real learning opportunities for the millions of students who must succeed in STEM fields in the future.

As the global economic landscape continues to expand and evolve, a succession of Continuing Resolutions, coupled with the persistent Sequester, have put federal agencies like the National Science Foundation (NSF) in the extremely difficult position of needing to do more with less in order just to keep up with other countries.

While it is relatively easy to talk about the broad challenges we face around U.S. competitiveness and STEM education, it is much harder to construct reasonable policy solutions. Our Coalition certainly appreciates this challenge and shares responsibility with you and others to develop and support policies that will give the country the vibrant and diverse STEM workforce it needs. We are pleased to have the opportunity to offer our views on several important education policy issues addressed in the FIRST Act discussion draft.

Specific Feedback on the FIRST Act Discussion Draft

In preparing our Coalition's testimony, we are responding to several direct questions posed by the Committee and we also offer additional observations and recommendations.

Question: Why is stakeholder input important for the federal support of STEM education programs and activities? How will the proposed legislation encourage greater input and engagement from STEM education related stakeholder communities?

Because improving U.S. STEM education is a long-term undertaking, our nation desperately needs a thorough and ongoing public debate on the best overall strategy. No one within our government or the education community is going to be able to develop or implement any kind of "master plan" on their own. We are going to have to work together across party lines, across disciplinary lines, and across federal agency boundaries and the different branches of government.

The Administration put forward a budget proposal for Fiscal Year 2014 that was the most ambitious and sweeping effort to reorganize federal programs related to STEM education since the Sputnik era. This budget proposal would have consolidated or restructured more than 100 existing programs. However, the Administration's plan lacked crucial details and was produced with minimal critical input from STEM stakeholders. As an example, a major flaw in this plan was the lack of detail about how – or if – the missions of consolidated or eliminated programs would be incorporated into new initiatives proposed at other agencies. Included as Appendix B to our testimony is a copy of a detailed letter to the House and Senate Appropriations

Committees with our Coalition's more detailed assessment of the Administration's budget proposal. Many of our members and allied organizations have offered similar sets of recommendations on strategies related to federal STEM programs.^{6 7 8}

Education has become a data-driven endeavor and education policy decisions need a firm basis in evidence, the effectiveness of which must be informed by educational stakeholders. We also need to remove political considerations as much as possible from this process.

The discussion draft would create a STEM Education Advisory Panel, established under the President's Council of Advisors on Science and Technology (PCAST) that would be appointed by the President and populated by knowledgeable individuals from across the stakeholder spectrum. The explicit purpose of this panel would be to provide a range of external input to federal decision makers on STEM-related policy questions from current trends, to non-profit and business community contributions, to management and evaluation of federal programs.

When we talk about STEM stakeholders it is important to be specific. In order for any feedback process to be truly effective, it needs to be based in large degree on the "ground truth" inputs of educational practitioners – the teachers, school leaders and administrators that run public schools and universities, as well as their partners in the out-of-school world that includes disciplinary societies, employers, museums, community centers and the like. Too often these "on the ground" voices are lost in conversations of national education policy. These stakeholders are also essential in determining the questions about what "effective" really means when evaluating federal programs. Securing the buy-in of these groups is critical to the long-term success of the education reforms that will be the object of changes in the federal STEM portfolio.

The Advisory Panel could be also improved by providing more specificity and transparency on the types of inputs and critical issue areas where the expertise of panel would be sought. For example, this group could be charged explicitly with developing specific recommendations on the criteria for evaluating the effectiveness of federal STEM programs and the proper "mix" of programs across agencies.

Another important area of focus is around the intergration of in-school and out-of-school STEM content and programming, where an increasing body of research shows that effective out-of-school-time programs can help young people appreciate the value of STEM fields and provide them with hands-on "real" experiences. This is a particular challenge that involves coordination and management of programs across multiple agencies.

Also notably absent from the mission of the Advisory Panel is a specific charge to address diversity, inclusion, and equity issues. One of the central goals of our Coalition has been to support innovative initiatives to encourage more of our best students, especially those from underrepresented or disadvantaged groupspopulations, to study in STEM fields – an important goal of any federal STEM strategy. A large number of our Coalition members and others across the science and technology community operate successful programs focused on addressing

⁶https://www.aau.edu/registration/public/Guiding_Principles_for_Community_Support_of_America_COMPETES_Reauthorization_as_of_4-18-13.pdf

⁷http://www.stemedcoalition.org/wp-content/uploads/2010/05/SupportAfterschoolSTEM_letter_with_sigs.pdf

⁸<http://www.acs.org/content/dam/acsorg/policy/publicpolicies/enable/innovation/acs-letter-to-house-s-t-committee-competes-bill.pdf>

inequalities in education and the workforce and there are many valuable lessons learned that can inform federal efforts with similar goals.

Finally, our Coalition has also long-supported an inclusive definition and use of the term “STEM education” by federal and state programs that is not limited to only math and science, but also embraces engineering and technology, and broadly encompasses STEM fields and their unique needs in formal and informal settings. A broader, more flexible and more diverse federal definition of STEM education would afford states and localities the ability to invest in subjects outside of traditional math and science. For example, those concerned about the teaching and learning of computer science are particularly concerned about the narrowness of definitions of STEM education and other provisions in federal laws that have contributed to the marginalization of computer science education. This Advisory Panel should represent all these fields and dimensions in order to provide comprehensive insights on STEM education programs.

Question: Understanding the current fiscal realities, how will the discussion draft of the FIRST Act help maintain and spur additional innovation and competitiveness in the United States? Why is it important that the United States address the issue of a sustainable path towards future scientific and STEM education funding?

While the discussion draft deals with a broad range of science and technology policies – many of which are beyond the scope of our Coalition’s mission – the fiscal realities we face today as a collective community are starkly clear. Until the U.S. government gets its fiscal house in order, we will continue to endanger our nation’s ability to make sustained investments in the foundations of our prosperity.

We must also do everything we can to ensure that federal resources are being put to the best possible use. Limited budgets mean that we must prioritize federal investments in science and technology, innovation, and education. Every program involving public money must have constructive oversight – and any management system can be improved.

As we see it, one of the most critical public policy challenges is to tackle the knot of issues inherent in a federal portfolio of more than 200 distinct STEM education programs. Numerous studies by the General Accountability Office, several congressional committees, and other outside groups have repeatedly pointed out concerns about duplication, overlap, and effectiveness within some of these programs. At the same time, we could easily point to positive outcomes associated with each of these initiatives.

The challenge for our government is to establish a much more effective, evidence-based process for sorting through the vast landscape of federal STEM programs to leverage limited investments for maximum student learning. It is only through such a process that we will ensure that effective programs are scaled up and that underperforming programs are improved or eliminated.

The discussion draft addresses this critical challenge by bolstering the oversight, input, and evaluation mechanisms that will fuel future budget decisions for STEM programs. In our view, the best possible outcome of these proposals would be to establish a mechanism that, over time, helps build our knowledge base about what truly “effective” means for each element of the federal portfolio. In an environment of constrained budgets, this is the best possible move toward making each federal dollar spent to improve STEM education more effective – and to justify a sustainable expansion of such investments in the future.

Question: The discussion draft proposes a new advisory panel, led by outside stakeholders, changes to CoSTEM and establishes a STEM education coordinating office. How will these changes affect the STEM education community and the way STEM education programs and activities are managed through the federal government?

Over the last several years, our Coalition has been involved in a variety of policy conversations around the issue of how best to deal with the challenges surrounding the management and strategic direction of the federal STEM portfolio. Numerous bills have sought to create or bolster this function in some way and the 2010 America COMPETES Act reauthorization bill set forth a concerted process to do so, through its creation of the interagency Committee on STEM Education under the National Science and Technology Council.

As the federal STEM portfolio strategy issue has evolved and our understanding of the intergovernmental, bureaucratic, and budgetary challenges has improved, a few key factors that can help such an effort succeed have emerged:

- Our ability to evaluate the effectiveness of many of the individual programs that make up the diverse federal STEM portfolio is quite limited. For the largest programs, student achievement impacts and other traditional educational measures serve as excellent indicators. However, for the vast array of smaller programs⁹, many of which are targeted at very specific objectives or constituencies, the question of evaluation is much more complex and difficult. It is also a common overgeneralization to view small educational programs as inherently ineffective. Therefore, a key aspect of the federal management strategy is building up our capacity to critically and properly evaluate these programs. There is no single performance measure – such as impacts on test scores – that will work for every program.
- Access to a large pool of staff expertise on STEM education-related teaching, learning, and programmatic matters is essential to the success of any coordination process.
- The coordination and management effort needs to be able to solicit and receive regular input from outside stakeholders within the STEM community.
- It is highly desirable to locate the bulk of the coordination effort in an area of government that is insulated as much as possible from perceived political influence.

⁹ Of the 247 STEM programs identified by CoSTEM: 67 are less than \$1 million, 149 are less than \$5 million, and only 5 are greater than \$100 million annually.

- This activity should not be overly focused on eliminating duplication and overlap amongst federal programs and also be empowered to identify and address emerging issues, such as the need to balance and integrate afterschool and in-school STEM learning or to build pathways for getting interesting content produced by federal scientists into the hands of the right educators.
- The coordination effort should have a clear pathway for informing and influencing budget decisions.

While there is no single body in government that satisfies all of these conditions, the STEM Education Coordination Office that the discussion draft would create at the NSF would address nearly all of these criteria.

The NSF already has a large pool of the requisite expertise, is widely recognized for its peer-review process and its work in educational research and program evaluation, and its professional staff are widely respected for their independence and extensive network of relationships within the community.

The major challenges posed by locating the Coordination Office at NSF will be in ensuring that it has an adequate staff and secures the “buy-in” of other science and education agencies in its work and that its recommendations have “teeth” within the Administration’s budget development and interagency management process.

One way to address the staffing challenge might be to develop this new office under the model used by several other interagency coordinating bodies to require agencies that fall under the coordination of the new office to detail one or more staffers to work in it, creating both buy-in and capacity at the same time.

From our perspective, the most significant single impact of the policies proposed by the discussion draft will be to put in place a permanent, evidence-driven mechanism to coordinate, evaluate, and manage the more than \$3 billion in annual federal investments dedicated to improving STEM education.

Conclusion

Simply put, if we are to keep up with our global competitors, we had better step up our commitment to improving STEM education and increasing opportunities to access innovative STEM education programs both in and out-of-school.. While the rhetoric around the issue is loud, and the community has powerful supporters, associated changes in policies and public investments have been disappointing. We hope that changes to the programs that govern investments in our future STEM workforce and the research that is so important to innovation more closely match the calls for more and better STEM education in the future. We appreciate the opportunity to share our views with you and look forward to working with you as the Committee further considers this legislation.

Appendix A: Members of the STEM Education Coalition Leadership Council and Affiliates

Chair: [National Science Teachers Association](#)

Co-Chairs

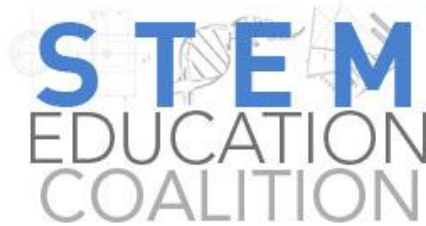
- [American Chemical Society](#)
- [ASME](#)
- [Education Development Center, Inc.](#)
- [Hands-On Science Partnership](#)
- [Microsoft Corporation](#)
- [National Council of Teachers of Mathematics](#)

Council Members

- [Afterschool Alliance](#)
- [American Association of Colleges for Teacher Education](#)
- [American Farm Bureau Foundation for Agriculture](#)
- [American Society for Biochemistry and Molecular Biology](#)
- [American Society for Engineering Education](#)
- [American Society of Civil Engineers](#)
- [American Statistical Association](#)
- [ASHRAE](#)
- [Association for Computing Machinery](#)
- [Association of Public and Land-grant Universities, APLU](#)
- [Battelle](#)
- [Business-Higher Education Forum](#)
- [Cable in the Classroom](#)
- [Campaign for Environmental Literacy](#)
- [Education Testing Service, ETS](#)
- [Entertainment Industries Council](#)
- [ExxonMobil](#)
- [IEEE-USA](#)
- [Illinois Math and Science Academy/Committee for the Advancement of STEM Speciality Schools](#)
- [John Wiley & Sons, Inc.](#)
- [National Association of Manufacturers](#)
- [Project Lead the Way](#)
- [Texas Instruments](#)
- [The Alliance for Science and Technology Research in America](#)
- [Time Warner Cable](#)
- [Universal Technical Institute](#)

Link to: [Affiliate Members of the STEM Education Coalition](#)

Appendix B: STEM Education Coalition Letter in Response to the Budget Proposal



May 22, 2013

The Honorable Barbara A. Mikulski
Chair, Committee on Appropriations
United States Senate

The Honorable Harold Rogers
Chair, Committee on Appropriations
U.S. House of Representatives

The Honorable Richard C. Shelby
Ranking Member, Committee on
Appropriations
United States Senate

The Honorable Nita M. Lowey
Ranking Member, Committee on
Appropriations
U.S. House of Representatives

CC: Members of the House and Senate Appropriations Committees

Dear Appropriations Committee Leaders:

As the House and Senate Committees on Appropriations proceed with setting federal spending priorities for Fiscal Year (FY) 2014, the STEM Education Coalition would like to offer views on the Administration's recently released budget proposals related to science, technology, engineering, and mathematics (STEM) education programs.

The Administration's FY2014 budget proposal is the most ambitious and sweeping effort to reorganize federal programs related to STEM education since the Sputnik era and we greatly appreciate the clear commitment of the Administration to continue to support STEM education as a national priority. The budget proposes \$3.1 billion to support federal STEM education programs, a 6.7 percent increase over FY2012/13 levels. The budget proposes 13 new initiatives, most of which would require separate Congressional authorization, and also seeks to consolidate or restructure 114 of the 226 currently existing federal programs, 78 of which would be terminated with funds totaling \$176 million being directed to other agencies.

However, the broad scope of these proposed changes raises a number of serious policy questions about the relative and proper roles of federal agencies in supporting STEM education efforts within K-12, undergraduate, graduate, informal, and workforce settings that deserve careful and complete consideration by Congress in partnership with the STEM education community.

Appendix B: STEM Education Coalition Letter in Response to the Budget Proposal

Consolidation and Realignment of Federal STEM Programs

Our Coalition has a long history of support for comprehensive and strategic efforts to coordinate, evaluate, and review all federal STEM programs on a regular basis to ensure that effective programs are scaled up and that underperforming programs are improved or eliminated. Over that past three years, we have encouraged and participated in the efforts of the Federal Coordination in STEM Education Task Force and the Committee on STEM Education of the National Science and Technology Council which were established by the America COMPETES Act in 2009 to accomplish this function across federal agencies.

The Administration's budget proposal would consolidate or restructure more than half of the more than 200 existing federal STEM education programs. The Administration has also signaled that it intends to release a "Strategic Plan for STEM Education" in the next several weeks which we hope will share more details on how the proposed consolidations would align to overall national goals for improving STEM education. Many of the programs proposed for consolidation or elimination are at mission agencies that have longstanding expertise in specialized STEM fields or address specific workforce needs and many others have focused on informal STEM education activities. These areas make important contributions to improving U.S. STEM education. We eagerly look forward to reviewing the Administration's forthcoming Strategic Plan, especially with regard to how the missions of programs proposed for consolidation would be integrated into newly proposed initiatives.

While our Coalition does not take a position on each individual program that would be affected, we encourage the Appropriations Committees to look at each of the specific STEM education programs on an individual basis and to listen carefully to the organizations and constituencies – especially the students and educators – who would be impacted by the proposed consolidations.

Views on Specific Administration Proposals

We greatly appreciate the Administration's continued commitment to support STEM education as a budgetary priority – especially in an environment of constrained resources – as demonstrated by the overall proposed spending level of \$3.1 billion for STEM programs, a 6.7% increase. As discussed previously, we strongly urge the Appropriations Committee to look closely at each of the Administration's proposed changes to specific programs on an individualized basis and not simply eliminate each program proposed for termination while also not funding any of the newly proposed STEM initiatives intended to replace them.

Our nation desperately needs a thorough public debate on the best overall strategy for improving U.S. STEM education and the remainder of this letter will detail our views on a wide range of the Administration's proposals.

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Department of Education (DoEd)

Math and Science Partnerships (MSP)- The DoEd's own most recent evaluation of this program has shown that it is effective at improving student success and teacher content knowledge in STEM subjects and we strongly support continued funding of the MSP program at at least the current level of \$150 million. Similar to prior years, the Administration has proposed a new Effective Teacher and Learning: STEM initiative to replace the MSP program and we appreciate the Administration's updated budget justification language acknowledging that the current program will continue intact until this new initiative is authorized by Congress.

STEM Master Teacher Corps- We support the Administration's proposal for a pilot-scale STEM Master Teacher Corps program. This appropriately-sized effort would allow the DoEd to develop a better understanding of how to identify, recognize, and reward the most accomplished STEM educators by increasing their compensation, providing them with leadership opportunities, and helping to create a national community of outstanding STEM educators.

STEM Innovation Networks: We commend the Administration's focus on expanding efforts to support innovation in K-12 STEM education and look forward to working with the Administration to secure Congressional authorization for this proposal. We have long supported a balanced approach to STEM education at DoEd that combines both large-scale formula-based efforts with more targeted and flexible competitive programs. We also strongly urge that this new initiative support strong partnerships that incorporate informal and hands-on STEM learning with classroom-based approaches.

National Science Foundation (NSF)

Education and Human Resources (EHR) Directorate: We support full funding of the National Science Foundation's Education and Human Resources Directorate at the proposed level of \$880 million. Robust and sustained investments in STEM-related educational research and innovation programs are an essential element of improving U.S. STEM education. We believe very strongly that education is a core mission of the NSF, equal in importance to its other missions in research and public awareness. NSF must maintain an appropriate long-term balance between serving needs in K-12, undergraduate, graduate, and informal education settings. While we appreciate the NSF's emphasis on new undergraduate and graduate educational initiatives, we also want to ensure that this new focus does not lessen NSF's focus or enthusiasm to advance long-standing K-12 and informal education goals.

Catalyzing Advances in Undergraduate STEM Education (CAUSE): We support the \$123 million proposal to establish this new agency-wide program to maximize the impact of NSF's ongoing efforts to support undergraduate STEM education. We also support this program's focus on broadening participation in STEM, increasing institutional capacity, and alignment with workforce needs.

Appendix B: STEM Education Coalition Letter in Response to the Budget Proposal

Science, Technology, Engineering, and Mathematics, Including Computing Partnerships (STEM-C Partnerships): We support NSF's proposal to integrate a focus on computing into the existing NSF MSP program in the \$57 million STEM-C Partnerships initiative. We strongly support a definition of STEM subjects that would allow for the inclusion of computing and computer science and other fields relevant to workforce needs.

Noyce Teacher Scholarship Program: We support the budget request of \$60 million for the Noyce program, a 10.9% increase. We strongly support efforts to recruit and retain STEM educators with strong content backgrounds, especially those that prepare new STEM graduates for teaching careers.

Advancing Informal STEM Learning (AISL): We are disappointed by the proposed reduction in FY14 for the AISL program, a \$13.6M decrease (or 23%) from current funding levels. This is the only program at NSF that focuses on research and best practices to understand learning in out-of-school settings, which is an extremely important component of STEM education reform.

Graduate Fellowship Programs: We note that the budget proposal would consolidate a large number of existing graduate fellowship programs in STEM fields, both from within NSF and from other agencies, into a single large program managed by NSF. We are eager to learn more about how NSF proposes to manage this transition, especially with regard to support for graduate fellowships in STEM fields that have not traditionally been major research areas for the NSF.

Smithsonian STEM Initiative

The Administration has proposed \$25 million for a new STEM education initiative at the Smithsonian. This initiative, which would be coordinated by the Center for Learning and Digital Access, proposes to create new online STEM resources for students and teachers that are aligned to the learning standards set by the states. This initiative also appears to consolidate a number of informal, afterschool, and outside-the-classroom education efforts being conducted at other science agencies. We appreciate the goal of better aligning such programs across multiple agencies and look forward to learning about how the Smithsonian would specifically support the informal science education community, integrate with ongoing mission agency efforts and areas of expertise, and work directly with educators and stakeholders in this space.

We appreciate the opportunity to share our views with you and look forward to working with you closely during the Appropriations process.

Respectfully,

Afterschool Alliance
Altshuller Institute for TRIZ Studies
American Chemical Society
American Geophysical Union
ASME Board on Education

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Battelle

Education Development Center

Funutation Tekademy LLC

Girls, Inc.

Hands on Science Partnership

Kemin

Lawrence Hall of Science

LearnOnLine, Inc

NARST: A Worldwide Organization for Improving Science Teaching and Learning through Research

National Council for Advanced Manufacturing

National Council of Teachers of Mathematics

National Science Education Leadership Association

National Science Teacher Association

Pathways into Science

Society of Women Engineers

SPIE, the International Society for Optics and Photonics

Technology Student Association

TODOS: Mathematics for All

(Italics indicate members of the Coalition's Leadership Council)