

Bredesen, NASA Astronaut Unveil Statewide Public Education Partnership with Battelle

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Gov. Bredesen and Capt. Wilmore

Network to Focus on Science , Technology, Engineering & Math

MT. JULIET, Tenn. — Governor Phil Bredesen, joined by NASA Space Shuttle pilot and Mt. Juliet native Capt. Barry Wilmore, today announced a new public education partnership with the global research and development enterprise Battelle as part of Tennessee’s push in the federal Race to the Top competition for education innovation.

Under the partnership, Battelle, which co-manages Oak Ridge National Laboratory (ORNL) in a joint venture with the University of Tennessee, will work with the state Department of Education and local school systems to establish a statewide network of programs and schools designed to promote and expand the teaching and learning of science, technology, engineering, and math — or STEM — education.

The “Tennessee STEM Innovation Network” will be modeled in part on previous STEM efforts led by Battelle in other states, including its home state of Ohio. The new partnership comes on the heels of President Obama’s November launch of “Educate to Innovate,” a nationwide campaign to move American students from the middle to the top of the pack in science and math achievement over the next decade. Battelle is a “core partner” in the national campaign.

Bredesen, who majored in physics in college, said Tennessee already is well positioned thanks to a strong base of existing businesses, colleges and universities, programs, local schools and other organizations focused on 21st-Century innovation. With Battelle joining as a partner, he said, Tennessee can expand educational opportunities and better coordinate efforts for the benefit of teachers and kids across the state. Additionally, he said, Tennessee can create new STEM teaching and learning models that can be shared with the rest of the country.

“Battelle is a world-class partner with a track record of bringing innovative teaching and learning strategies into public schools,” Bredesen said. “We want to learn from their experience and make Tennessee the nation’s leader in STEM education.”

Joining Bredesen in making the Battelle announcement was Capt. Wilmore, a graduate of Mt. Juliet High School, Tennessee Tech University and the University of Tennessee, who embodies the importance of STEM teaching and learning to America’s future. The astronaut’s studies in aviation and electrical engineering laid the groundwork for a career that eventually led him to pilot NASA’s STS-129 Space Shuttle mission last month. Promoting STEM learning is a key priority in NASA’s public education efforts.

“Captain Wilmore represents the very best of Tennessee and the life opportunities that exist for kids who want to pursue science and math,” Bredesen said. “We appreciate NASA’s commitment to promoting STEM learning in America.”

“We applaud the state of Tennessee for its vision to enhance science and math education, and we look forward to working as a partner in this major public-private effort,” said Battelle’s Richard Rosen, Vice President, Education and Philanthropy. “Advancing STEM education is key to the future of our nation.”

Battelle has strong roots in STEM education. In August 2006, Battelle helped launch Ohio’s first STEM-based school, Metro Early College High School, on the campus of The Ohio State University. For the past two years, Battelle has managed the Ohio STEM Learning Network, a public-private partnership designed to foster and spread meaningful and sustainable innovations that change the way education looks and works. It has mobilized the support of 47 institutions of higher education, 81 public school districts, and more than 300 unique business and community partners. This fall, Battelle applied lessons learned from Metro High School to launch Delta High School in Richland, Wash.

As the world’s largest independent research and development organization, Battelle provides innovative solutions to the world’s most pressing needs in energy and the environment, national security, and health and the life sciences. Battelle conducts more than \$5.2 billion in global research and development annually through contract research, laboratory management and technology commercialization. Headquartered in Columbus, Ohio, Battelle is one of the nation’s leading charitable trusts focusing on societal and economic impact and actively supporting and promoting science and math education.

Detailed plans for Battelle’s involvement in the Tennessee STEM Innovation Network will be developed in the coming weeks. The ultimate scope of the network will hinge, in part, on whether Tennessee is successful in securing federal funds as part of the President’s Race to the Top competition. Regardless of federal dollars, Bredesen said it’s time for a new focus on STEM teaching and learning in Tennessee schools.

“In America and Tennessee, we have an obligation to improve our role in the global economy and create high-quality innovation jobs for the future,” Bredesen said. “Our new partnership with Battelle is a bold step toward making STEM a statewide and a national priority.”

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For more information on the Web:

Battelle: www.battelle.org

Educate to Innovate: www.whitehouse.gov/issues/education/educate-innovate

NASA Education Program: www.nasa.gov/offices/education/about

Ohio STEM Learning Network: www.osln.org

Tennessee Race to the Top – Appendix STEM-2

Initiative	Description	Total R2T Expenditure	# of Awards	Process for Award
STEM Schools	STEM Platform Schools & Academies Up to 2 STEM platform schools to be developed with significant technical support from Battelle UT Knoxville/ Knox County Public Schools	\$2,000,000	1	Grant – designated in First to the Top (F2T)
	Metro Nashville STEM Academies Program Expansion	\$2,000,000	1	Grant – designated in F2T
	TN Virtual Charter School offered through Electronic Learning Center – online high school completion and college dual enrollment courses delivered virtually at no cost to students/families through ELC	\$2,000,000	1	Grant – designated in F2T
	Up to 3 additional STEM School or Academy Models	\$3,000,000		Competitive Grant
Initiative	Description	Total R2T Expenditure	# of Awards	Process for Award
STEM Hub Development Support	Regional STEM Hubs Develop regional hubs of support for STEM Schools, professional development and teaching practice; these may be in concert with existing STEM assets (such as K12 schools, universities, professional development centers, etc.) or developed independently of these begin building STEM education program assets where the regional STEM asset base is not in place; Hubs are also responsible for building partnerships regionally that maximize efforts of K12, higher education and business/industry to spread the STEM message and reach students/families	\$5,000,000	Up to 6	Competitive Grant
Teacher Supply & Demand Study	Annual Report coupled with electronic education data warehouse			

Tennessee STEM Innovation Network

Increasing Number and Effectiveness of New of Math & Science Teachers	UTeach Programs in TN Recruit and prepare new STEM teachers through UTeach expansion; add University of Memphis and University of TN-Chattanooga with R2T funds to the existing funding for University of TN-Knoxville and Middle TN State University. All were recommended for funding by UTeach @ University of Texas @ Austin	\$4,104,000	2	Grant designated based upon prior UTeach evaluation process
	Teach TN No specific request for additional funding through R2T; part of the teacher preparation system that specifically connects to STEM	\$600,000		
Increasing Effectiveness of Practicing Math & Science Teachers	STEM Centers for Professional Development East Tennessee State University /Center of Excellence in Math & Science Tennessee Technological University/Millard Oakley STEM Center Middle Tennessee State University/Tennessee Mathematics, Science and Technology Education Center University of Memphis	\$6,000,000		Grant designated based on current roles and deliverables in coordination with Battelle
	ORAU – STEM Teacher Training Academy	\$1,491,000		Grant designated
Initiative	Description	Total R2T Expenditure	# of Awards	Process for Award
	Strengthening Instruction in Tennessee Elementary Schools: Focus on Mathematics (SITES-M) – elementary & middle	\$8,000,000	1 Umbrella Award	Competitive Program Awards
STEM Leadership Development Program with Metro School/OSLN	Teacher & principal learning exchanges with specifics to be determined	\$100,000		In concert with TN STEM Innovation Network
STEM Infrastructure & Sustainability Support	Internal STEM Liaison Team coordinators at Department of Education and THEC (portion of role) to interact with the STEM	Funded through existing state		Designated and/or competition in concert with TN STEM Innovation Network

Tennessee STEM Innovation Network

	<p>Innovation Council and STEM Innovation Network management. Responsible for connecting relevant agency personnel with the emerging network infrastructure and management.</p> <p>Three designated development coordinators (contracted and/or buying time from higher ed existing faculty) to develop sustainability plans for STEM efforts across the TN STEM Innovation Network for three years</p> <p>STEMResources.com website continued development & support</p> <p>Annual STEM Education convening, curriculum development workshops and conferences (over 3 years)</p> <p>STEM Education Research Activities in coordination with the TN Consortium on Research, Evaluation & Development</p>	<p>allocations</p> <p>\$450,000</p> <p>\$150,000</p> <p>\$750,000</p> <p>\$100,000</p>	<p>1 to 3</p> <p>1</p> <p>1-3</p> <p>1-4</p>	<p>RFP</p> <p>RFP</p> <p>RFP</p> <p>TN - CRED</p>
Initiative	Description	Total R2T Expenditure	# of Awards	Process for Award
Focused Rural STEM Initiative	<p>TN Virtual Charter School offered through Electronic Learning Center– online high school completion and college dual enrollment courses delivered virtually at no cost to students/families through ELC</p> <p>At least one STEM Hub designated to rural region (cited in this grid previously) tied to the TN Virtual Charter School</p> <p>Specific support for development and use of Learning Maps in the rural context</p>	<p>Cost indicated in first section above</p> <p>Cost indicated above</p> <p>\$370,000</p>	<p>1</p> <p>At least 1</p> <p>1</p>	<p>Designated to promising rural consortia</p> <p>Competitive Grant</p> <p>Designated to Hubs and selected schools</p>
	TOTAL INVESTMENTS:	\$35,575,000		

**MEMORANDUM OF UNDERSTANDING
BY AND BETWEEN**

BATTELLE MEMORIAL INSTITUTE

AND

THE TENNESSEE STEM INNOVATION NETWORK

This Memorandum of Understanding (“MOU”) is entered into by and between the Tennessee STEM Learning Network and Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio 43201 (“Battelle”). The State of Tennessee and Battelle Memorial Institute (each a “Party” and collectively the “Parties”), desire to cooperate in an effort to advance strategic and operational coordination of public and private STEM education initiatives in the State of Tennessee. This Memorandum of Understanding (MOU) outlines respective commitments and obligations of the Parties.

WHEREAS, the Tennessee STEM Innovation Council is responsible for advancing science, technology, engineering, and mathematics (STEM) in education in the State of Tennessee by working with a nonprofit enterprise to support the strategic and operational coordination of public and private STEM education initiatives; and

WHEREAS, Battelle is a non-profit charitable trust headquartered in the State of Ohio conducting independent research and development, with core purposes of: (1) managing scientific research and technology development, (2) translating these activities into applications and products for the benefit of the society and the economy, and (3) being a benefactor of the betterment of mankind particularly in the areas of education of men and women; and

WHEREAS, the State of Tennessee is authorized to enter into an agreement to work with a non-profit to support STEM initiatives and to establish the Tennessee STEM Innovation Council; and

WHEREAS, the Parties wish to leverage their collaborations as a means to advancing high-quality STEM education in combination with social sciences, language, and arts as a means for building critical thinking skills, creativity and innovation for every Tennessee child in preparation for 21st century living; and

WHEREAS, the Parties have reached certain understandings and agreements about their respective commitments that are documented in this Memorandum of Understanding;

NOW THEREFORE, in consideration of the mutual covenants and promises set forth herein and for other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

ARTICLE I: NATURE OF THE MOU

The State of Tennessee enters into this MOU in reliance upon Battelle’s representations that Battelle has the necessary expertise and experience to perform Battelle’s obligations hereunder, and Battelle warrants that Battelle does possess the necessary expertise and experience. Battelle enters into this MOU in reliance upon the State of Tennessee’s representations that it intends to coordinate its processes and scheduling of STEM initiatives, including the establishment of the Tennessee STEM Innovation Council.

Battelle shall act as an independent contractor, to fulfill the terms of this MOU. It is specifically understood that the nature of the services to be rendered under this MOU are of an advisory nature. After consideration of services undertaken by Battelle, the State of Tennessee shall take whatever independent actions it deems appropriate with regard to the Tennessee STEM Innovation Council’s STEM initiatives.

Both Parties reserves the right to terminate this MOU, in accordance with Article IV, should either Party at any time be dissatisfied with the other’s performance of duties under this MOU.

The Tennessee STEM Innovation Council, through a representative delegated by the Tennessee STEM Innovation Council Chair, may, from time to time, communicate specific requests to Battelle concerning the performance of the work described in this MOU. Upon such notice and within ten [10] days or a reasonable period of time after receipt of the request, Battelle shall respond to these requests with a plan or alternative recommendations. It is expressly understood by the Parties that these instructions and requests are for the sole purpose of performing the specific tasks requested to ensure satisfactory completion of the work described in this MOU.

The management of the work, including the exclusive right to control or direct the manner or means by which the work is performed, remains with Battelle. The Tennessee STEM Innovation Council retains the right to ensure that Battelle’s work is in conformity with the terms and conditions of this MOU. The full execution of all activities listed in this MOU will be enhanced upon the awarding of a federal Race to the Top grant to the state of Tennessee. However, the collaboration between the State of Tennessee and Battelle in establishing the enabling conditions for the successful launch of the Tennessee STEM Innovation Network will continue leveraging in-kind resources of both parties, regardless of a Race to the Top funding.

ARTICLE II: SCOPE OF SERVICES

*STATE OF TENNESSEE / BATTELLE - MEMORANDUM OF UNDERSTANDING
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A. Battelle agrees to the following responsibilities:

1. Work collaboratively with the Tennessee STEM Innovation Council, to establish the TN STEM Innovation Network and a Tennessee STEM Innovation Strategic Plan.
2. Battelle will work collaboratively with ORAU and the Tennessee STEM Innovation Council to establish a core team to facilitate the implementation of a STEM Innovation Network infrastructure in the state of Tennessee. This activity will include establishing protocol and funding resources for staffing needs.
3. Upon request by the Tennessee STEM Innovation Council, manage and retain records transmitted to Battelle by the Tennessee STEM Innovation Council and other public records laws of the State of Tennessee;
4. Grant the Tennessee STEM Innovation Council access to all data and information collected in furtherance of duties and responsibilities performed under this MOU.
5. Work collaboratively with the Tennessee STEM Learning Network to develop a joint message, or messages, that is acceptable and necessary to describe and communicate the work of Battelle and the Tennessee STEM Learning Network to various stakeholders and the public. The message is intended to be used by both parties either together or separately when discussing the work to the above audiences. Messaging should be reviewed periodically for continuity.
6. Work collaboratively and commit resources through the Tennessee STEM Innovation Council to develop and implement up to two STEM demonstration schools that will function as research and development labs for the benefit of all students of Tennessee.
7. Work collaboratively and commit resources through the Tennessee STEM Innovation Council to establish a support system (Hubs) for at least two platform schools and to four metropolitan areas focused on innovative practices, scalability and sustainability, one of which contains a professional
8. Work collaboratively and commit resources with the Tennessee STEM Hub(s) and schools to connect them with peer organizations focused on similar goals and objectives.
9. Work collaboratively with those Tennessee STEM businesses, institutions and organizations such as the University of Tennessee, Vanderbilt, Oak Ridge Laboratories and ORAU and others to support

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STEM education initiatives, particularly in the development and support of great teachers and leaders.

10. Invest resources, both in-kind and financial, into the development and implementation of a “rural STEM education” strategy(s) to maximize STEM educational initiatives impact. This may include interacting with additional national organizations working in concert with Tennessee’s Race to the Top implementation effort.
11. Collaborate with the Tennessee STEM Innovation Council and Tennessee STEM Innovation Network to ensure Battelle’s websites related to STEM education provide information and links to the Tennessee STEM Innovation Council and Tennessee STEM Learning Network’s related websites, as well as other relevant contributors throughout the State of Tennessee. Periodic reviews should occur to ensure continuity.
12. Conduct the following evaluations at agreed upon intervals:
 - a. The progress toward milestones of STEM initiatives approved by the Tennessee STEM Innovation Council.
 - b. The progress toward building capacity and sustainability beyond the Race to the Top grant period.
 - c. The barriers that may impact the work of each STEM initiative and penetration of STEM learning and innovation throughout the Tennessee education system.
13. Share non-proprietary research and data on best practices that may be in the possession of Battelle through its related STEM education work that could be valuable to the Tennessee STEM Innovation Council for reviewing future activities or proposals, and/or to inform the Tennessee STEM Innovation Council in its ongoing role to shape STEM education strategy for the State of Tennessee.
14. Provide summary reports of each of Battelle’s evaluations of STEM initiatives progress and other topics as determined of interest by Battelle and the Tennessee STEM Innovation Council on an annual basis.
15. Provide the Tennessee STEM Innovation Council with advice and recommendations that may enhance the quality or efficiency of current or future STEM-related funding processes under the responsibility of the Tennessee STEM Innovation Council.

16. Conduct orientation activities for STEM initiatives selected by the Tennessee STEM Innovation Council, including, but not limited to, hosting an informational meeting for purposes such as sharing plans, information relating to organization and presentation of work, and introduction to other STEM initiatives selected by the Tennessee STEM Innovation Council.
17. Connect all STEM initiatives selected by the Tennessee STEM Innovation Council and/or the Tennessee STEM Learning Network to the Ohio STEM Learning Network (OSLN) – a privately funded STEM program operated by Battelle. The Tennessee STEM Innovation Council recognizes that all decisions regarding formal interaction with the OSLN and Tennessee STEM Innovation Network is at the sole discretion of Battelle and subject to the policies and operating practices of the OSLN.
18. Provide a Battelle representative to serve as a member of the Race to the Top Research, Evaluation & Development Team that will identify the research needs of the education reforms being undertaken in Tennessee.

B. Tennessee STEM Innovation Council agrees to the following responsibilities:

1. Formalize a leadership team with STEM educational initiatives as a focus with resources (financial and in-kind) to drive STEM reforms.
2. Name Battelle as the private/public partner for the purpose of designating STEM education leadership to an entity that functions to connect and accelerates STEM education reforms as determined through partnership with the public entity with common goals and objectives.
3. Work collaboratively with Battelle to develop a joint message, or messages, that are acceptable and necessary to describe and communicate the work of Battelle and the Tennessee STEM Innovation Council to various stakeholders and the public. The message is intended to be used by both parties either together or separately when discussing the work to the above audiences. Messaging should be reviewed periodically for continuity.
4. The Tennessee STEM Innovation Council shall not use, either directly or indirectly, the name of Battelle or the name of any members of the staffs thereof, or any unpublished information or data relating to work performed under this MOU in any publicity or advertising in manner that is inconsistent with the joint message, or messages, unless a copy

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is submitted and written approval of the Battelle is obtained in advance.

5. Collaborate with Battelle to ensure the Tennessee STEM Innovation Council's and the Tennessee STEM Innovation Network's related websites provide information and link to Battelle's related websites. Periodic reviews should occur to ensure continuity.
6. The director of the Tennessee STEM Innovation Network, or designee, to serve as an ex officio representative to the Ohio STEM Learning Network (OSLN).
7. Require those selected to lead STEM initiatives as determined by the Tennessee STEM Innovation Council to coordinate with Battelle in its role as the public/private collaborator. The Tennessee STEM Innovation Council has the right to periodically review this requirement for the purposes of discontinuing the requirement if the Tennessee STEM Innovation Council determines that requiring connectivity to Tennessee STEM Innovation Network is no longer desired or in the grantees best interests. The Tennessee STEM Innovation Council will notify Battelle of its finding and concerns of its review before making a determination to discontinue the requirement.
8. Work collaboratively and commit resources with Battelle to develop and implement up to two STEM demonstration schools that will function as research and development labs for the benefit of all students of Tennessee.
9. Work collaboratively and commit resources through the Tennessee STEM Learning Network to establish support system (Hub) for the two platform schools, at least one professional development laboratory, and up to four metropolitan areas focused on innovative practices, scalability and sustainability.
10. Work collaboratively and commit resources with the Tennessee STEM Hub(s), schools and professional development laboratory to connect them with peer organizations focused on similar goals and objectives.
11. Invest resources, both in-kind and financial, into the development and implementation of a "innovative schools leadership" development and support strategy that links Tennessee with state-of-the-art leadership education in Ohio and around the country.

12. Invest resources, both in-kind and financial, into the development and implementation of a “rural STEM education’ strategy(s) to maximize STEM educational initiatives impact.
 13. Include a Battelle representative as a member of the Race to the Top Research, Evaluation & Development Team that will identify the research needs of the education reforms being undertaken in Tennessee.
 14. Invest in further expansion and development of the Tennessee Electronic Learning Center such that appropriate components of the Tennessee STEM Innovation Network may leverage its capabilities.
- C. The Tennessee STEM Innovation Council recognizes that Battelle – in its role as manager of the Tennessee STEM Innovation Network - may elect to provide technical assistance or other support to entities that are responding to funding opportunities under the responsibility of the Tennessee STEM Innovation Council in order to enhance the quality of these proposals and/or their integration and leverage with other related activities across Tennessee. Battelle requires no prior approval or disclosure to the Tennessee STEM Innovation Council, as long as the assistance is consistent with this MOU.
- D. This MOU does not impose any limitations or restrictions on Battelle supporting, including privately funding, non-grantees or contributing private funds to grantees selected by the Tennessee STEM Innovation Council provided:
1. The support to non-grantees does not restrict or diminish obligations, responsibilities, and services Battelle is to provide under this MOU to grantees selected by the Tennessee STEM Innovation Council.
 2. The private funding to grantees does not impose conditions on Battelle’s obligations, responsibilities, and services Battelle is to provide under this MOU to the grantees selected by the Tennessee STEM Innovation Council.

ARTICLE III: TERM OF THE MOU

The term of this MOU shall commence on the date of signing and end on the date both parties determine unless the MOU is extended, discontinued, or terminated pursuant to the terms contained herein.

At the end of the first year of the performance, the Parties will conduct a review of the services provided and based on the outcome of that review the Parties may discontinue the MOU or extend the MOU beyond the second year of performance.

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ARTICLE IV: TERMINATION OF MOU

The Parties may terminate the MOU for any reason including, but not limited to:

1. Default by either Party. Default is defined as the failure by a Party to specifically perform in accordance with the specifications, terms, and conditions of the MOU.
2. The lack of need for the services as specified under the MOU, including, but not limited to, program changes, changes in laws, rules or regulations, or lack of adequate capacity to carry out the work by either Party. If a termination is desired, written notice thirty (30) days prior to the date of termination will be provided by the Party desiring termination.
3. If the Tennessee STEM Innovation Council deems it to be in the best interest of the State by serving Battelle with written notice thirty (30) days prior to the date of termination.

In the event the MOU is terminated prior to its completion, Battelle shall deliver to the Tennessee STEM Innovation Council all work products and documents which have been prepared by Battelle or held on behalf of the Tennessee STEM Innovation Council in the course of providing services under the MOU. All such materials shall become, and remain, the property of the Tennessee STEM Innovation Council to be used in such manner and for such manner as the Tennessee STEM Innovation Council may choose.

The rights and remedies of the Tennessee STEM Innovation Council set forth in this article shall be in addition to and not exclusive of any rights or remedies arising under the MOU or by operation of law.

ARTICLE V: COMPENSATION

There shall be no financial remuneration directly to Battelle for any work performed under this MOU, however, Battelle shall receive valuable access to Tennessee STEM initiatives in furtherance of its mission.

ARTICLE VI: EQUAL OPPORTUNITY & NONDISCRIMINATION POLICY

The State of Tennessee and the Tennessee STEM Innovation Council are strongly committed to equal opportunity in solicitation of services. As a party to this MOU, Battelle must comply with Tennessee's Equal Opportunity Policy and Program.

Battelle shall not discriminate on the basis of race, gender, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring or treatment of subcontractors, vendors, or suppliers. Battelle shall provide equal opportunity for subcontractors to participate in subcontracting opportunities. Battelle

understands and agrees that violation of this clause shall be considered a material breach of contract and may result in contract termination, debarment, or other sanctions.

ARTICLE VII: COMPLIANCE WITH LAW & NON-ASSISTANCE TO A TERRORIST ORGANIZATION

Battelle agrees to comply with all applicable federal, state and local laws in the conduct of the work hereunder. Battelle accepts full responsibility for payment of all unemployment compensation insurance premiums, workers' compensation premiums, all income tax deductions, social security deductions, and any and all taxes or payroll deductions required for all employees engaged by Battelle in the performance of the work authorized by this MOU. Battelle must furnish evidence of workers' compensation insurance coverage.

Battelle agrees that no agency, employment, joint venture or partnership has been or will be created between the parties hereto pursuant to the terms and conditions of this MOU. Battelle assumes all responsibility for any federal, state, municipal or other tax liabilities, and insurance premiums that may accrue as a result of compensation received for services or deliverables rendered hereunder.

Battelle represents and warrants to the Tennessee STEM Innovation Council that it has not provided any material assistance to any organization identified by and included on the United States Department of State Terrorist Exclusion List and that it has truthfully answered "no" to every question on the "Declaration Regarding Material Assistance/Non-assistance to a Terrorist Organization." Battelle further represents and warrants that it has provided or will provide such to Tennessee STEM Innovation Council prior to execution of any agreement.

ARTICLE VIII: DRUG AND ALCOHOL FREE WORKPLACE

Battelle shall comply with all applicable federal, state, and local laws regarding smoke free and drug free work places and shall make a good faith effort to ensure that any of its employees or permitted subcontractors engaged in the work being performed hereunder do not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.

ARTICLE IX: CONFLICT OF INTEREST

Battelle agrees to comply with all applicable ethics and conflict of interest laws of the State of Tennessee, and will take no action inconsistent with those laws and that order. Battelle understands that failure to comply with those laws and that order is, in itself, grounds for termination of this MOU and may result in the loss of other contracts with the State of Tennessee.

ARTICLE X: AMENDMENTS OR MODIFICATION

No amendment or modification of this MOU shall be effective against either party unless such amendment or modification is set forth in writing and signed by both parties.

ARTICLE XI: ENTIRE AGREEMENT

This MOU constitutes the entire agreement of the parties hereto and supersedes any prior understandings or written or oral communications between the parties respecting the subject matter hereof.

ARTICLE XII: WAIVER

The waiver or failures of either party to exercise in any respect any right provided for herein shall not be deemed a waiver of any further right hereunder.

ARTICLE XIII: SEVERABILITY

If any provision of this agreement is found invalid, illegal, or unenforceable in any respect by a court of competent jurisdiction, said provision shall be severed. The validity, legality, and enforceability of all other provisions of this MOU shall not in any way be affected or impaired unless such severance would cause this agreement to fail of its essential purpose.

ARTICLE XIV: NOTICE

Any notice required hereunder shall be made in writing and shall be accomplished by personal delivery, facsimile, or by United States certified mail, return receipt requested, postage prepaid, addressed to the party at the address set forth below or such other address as said party shall hereafter designate in writing to the other party.

Rich Rosen
Battelle Memorial Institute
505 King Avenue
Columbus, Tennessee 43201-2693
Phone: (614) 424-6424
Facsimile: (614) 424-5263

Dr. Timothy K. Webb
Commissioner of Education
State of Tennessee
710 James Robertson Parkway
Andrew Johnson Tower, 6th Floor
Nashville, TN 37243-0382

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ARTICLE XV: GOVERNING LAW

This MOU shall be construed under and in accordance with the laws of the State of Tennessee.

ARTICLE XVI: HEADINGS

The headings herein are for reference and convenience only. They are not intended and shall not be construed to be a substantive part of this MOU or in any other way to affect the validity, construction, interpretation, or effect of any of the provisions of this MOU.

IN WITNESS WHEREOF, the parties have executed this MOU on the day and year set aside by their respective signatures.

BATTELLE MEMORIAL INSTITUTE

By: _____
Title Date _____

DEPARTMENT OF EDUCATION , THE STATE OF TENNESSEE

By: _____
Title Date _____

WORKING DRAFT

Creating a Tennessee STEM Innovation Network

A Planning Document Prepared by
Oak Ridge Associated Universities

in coordination with Battelle and the State of Tennessee

In America and Tennessee, we have an obligation to improve our role in the global economy and create high-quality innovation jobs for the future.... Our new partnership with Battelle is a bold step toward making STEM a statewide and a national priority. (Governor Bredesen, December 11, 2009)

The United States has the most innovative, technologically capable economy in the world – yet, our science, technology, engineering and mathematics (STEM) education system is failing to ensure that all American students receive the skills and knowledge required for success in the 21st century workforce (The National Science Board, October 2007).

In response to growing concern over the quality of STEM education and as an integral part of its “Race to the Top” initiative, the State of Tennessee has entered into a formal partnership with Battelle, the world’s largest independent manager of research and development. The intent is to establish a Tennessee STEM Innovation Network modeled in part on previous STEM efforts led by Battelle in other states, most notably the Ohio STEM Learning Network (OSLN). The Tennessee-Battelle partnership creates a strong formal relationship to support the goal of the Tennessee Diploma Project: to prepare every student in the state for success in college and career, with particular emphasis on higher level expectations in math and science. The Tennessee STEM Innovation Network is also a response to the national “Educate to Innovate” campaign, which is designed to improve the performance of U.S. students. Battelle is an important partner in this national campaign, and Tennessee is well positioned to lead as a result of ongoing efforts focused on 21st century innovation. Tennessee will expand educational opportunities across the state and be a national model for improving STEM education through proven approaches.

Building on existing, highly successful STEM education programs and past collaboration with Battelle, Oak Ridge Associated Universities (ORAU) is prepared to support Tennessee’s “Race to the Top” by working with the state and Battelle to help to create a Tennessee STEM Innovation Network that will:

- Create and coordinate regional “hubs” across the State of Tennessee to collaborate and share knowledge about the most effective practices in STEM education.
- Support a program element that focuses on STEM education in rural and Appalachian areas of Tennessee in order to leverage activities with rural counties of southeast Ohio.
- Engage stakeholders in arrangements that enable selected Tennessee high schools to collaborate with selected Ohio high schools to serve collectively as a laboratory for building leadership and training programs for teachers and administrators.
- Establish a statewide teacher training academy that takes the knowledge gained through the Network hubs to create a cadre of lead teachers who are prepared to introduce the state’s STEM teachers to innovative practices, communications technologies and pedagogical knowledge accumulated through the operation of the Tennessee STEM Innovation Network.

Developing a Tennessee STEM Innovation Network will involve creating a system that connects regional hubs – each comprised of school districts and their committed public and private partners. Coordination within and among the hubs will bring value to participating schools and committed stakeholders. Emphasis will be on building strong interpersonal relationships – across the K-12 to higher education continuum, and among committed leaders in education, industry and government. Local communities and school districts will leverage their strengths while maintaining their distinctiveness. The result will be that all will benefit from the collective knowledge that is captured and managed across the network. Sharing knowledge, tools, practices, innovations and human talent through a network of STEM education hubs is a powerful and tested model for initiating change and generating measurable improvements in student performance.

OBJECTIVES:

A primary strategic goal of the Tennessee STEM Innovation Network is to support a significant expansion of STEM educational opportunities. It is the intent to accomplish this through a statewide network of STEM education “hubs” and their associated school districts. The result will be a collaborative strategy that identifies and brings together science and technology leaders from business and education. Together they will develop local approaches to motivating students and helping them succeed. ORAU is in an excellent position to assist in accomplishing the following objectives that are fundamental to the network’s operation and to the development of a strong educational system for Tennessee students:

- Significantly increase the number of Tennessee students who graduate from high school successfully completing the expectations of the Tennessee Diploma Project and go on to complete college degrees in STEM fields.
- Increase the number of students who make the successful transition from school to careers in STEM fields.
- Tap the underutilized talent of women, minority and economically disadvantaged students by motivating them to participate in STEM fields at rates that match the rate for white males.
- Reduce achievement gaps and enhance overall student performance in STEM disciplines, particularly in higher level science and mathematics courses.
- Create a self-sustaining STEM education network that engages Tennessee’s public and private resources in improving the STEM curriculum, instruction, assessment, teacher content knowledge, classroom delivery, leadership and community involvement.
- Capture and manage knowledge across the Tennessee network to help identify, communicate, connect, develop and spread innovation through professional contacts and personal relationships.
- Spread knowledge of innovations in STEM education so that the state improves by sharing and working jointly toward common ends.

These objectives are measurable and achievable. By establishing and monitoring appropriate metrics, we will know how well we are doing and how quickly Tennessee is getting where it wants to be. Aggressively pursuing specific objectives through effective, statewide collaboration will help meet the state’s growing science and technology workforce needs and ensure that Tennessee’s students are prepared to compete in the global economy.

APPROACH:

The strength and effectiveness of a network depends on the active engagement of its partners; the clarity of its communications; the willingness to experiment; the mechanisms to share knowledge; the management of the network's information; the dissemination of innovative practices; and an unwavering focus on agreed upon goals, objectives and approaches. As a university consortium with a more than sixty year record of building partnerships, ORAU is a Tennessee resource that is well positioned to assist in the development and coordination of the Tennessee STEM Innovation Network. ORAU manages \$140 million per year in STEM education programs through arrangements with Oak Ridge National Laboratory and a dozen federal government agencies. ORAU's existing STEM education programs reach students from more than 900 colleges and universities annually as well as K-12 students and educators in school districts across Tennessee and the nation. Many of ORAU's programs are strengthened by partnerships with the private sector – Battelle, Siemens, Volkswagen, Honda Motors, Shell Oil, Lockheed Martin, Mars and General Atomics, to name a few.

Building and managing partnerships designed to strengthen science research and education is a primary goal of ORAU. Leveraging the resources of its more than 100 member colleges and universities, ORAU is in a position to create partnerships that achieve results that no single institution or organization could achieve alone. ORAU member institutions have strong programs in science, mathematics, engineering and technology fields and together confer 37 percent of all graduate degrees in STEM fields. Collectively, ORAU member institutions perform 40 percent of all university research in science and technology disciplines. They have a deep commitment to STEM education and understand the importance of strengthening education in the full range of K-20 programs. They offer an excellent mechanism for disseminating nationally the results of the Tennessee STEM Innovation Network. The strength of these institutions (their science and engineering departments, their colleges of education, and their state and regional STEM education initiatives) will be leveraged in support of Tennessee's "Race to the Top." ORAU and its long-standing partnerships represent assets to the State of Tennessee and will make important contributions to the Tennessee STEM Innovation Network.

Breakthroughs in computer and information technology combined with improved connectivity across the state open new avenues for networking and improving STEM instruction. A special task force of The National Science Foundation released a report, *Fostering learning in the Networked World* (June 2008), in which it is asserted that "cyber-learning" is a life-long skill; that digital presentation is more compelling than textbooks; and that today's students already understand and use the power of digital information and communication. As these resources increasingly find their places in our classrooms, they will also facilitate the capture, management, and dissemination of STEM education knowledge among educators across the state, from Memphis to Upper East Tennessee.

The State of Tennessee, individual school districts, businesses and communities have made tremendous investments in cyber-infrastructure. Oak Ridge Associated Universities has assumed a leadership role in providing educators with exposure to and training in cyber-learning potential. ORAU's Center for Science Education includes classroom and seminar facilities equipped with computer and information technologies that are penetrating the classroom. Through a wide range of workshops, seminars, and institutes, ORAU is assisting teachers, school administrators, school boards, and community leaders in making decisions regarding the introduction and use of educational innovations in their STEM classrooms.

ORAU's facilities are also designed to assist in networking by providing capabilities for effective communication, teleconferencing and distance delivery of workshops and classes. The Tennessee STEM Innovation Network will expand, formalize and add structure to ORAU's network of educators that are committed to investing their time to develop the skills to be effective 21st Century STEM teachers.

ORAU is prepared to take the lead in planning and managing the following tasks:

- Provide a virtual “home” for Tennessee STEM Innovation Network staff members who will coordinate the activities of the public/private hubs across the state. The network is statewide, the hubs are regional, and ORAU can provide space and the communication links that hold all the components together.
- Guide the development of a strategic plan that outlines goals, objectives and metrics for measuring accomplishments toward a common vision.
- Create and maintain strong communication links to facilitate the capture and management of knowledge critical to the dissemination of STEM education innovations.
- Serve as a STEM teacher professional development center that will lead statewide efforts to introduce educators to new approaches and practices, particularly those that utilize the public and private science and technology resources of their regions and the state.
- Assist the state in the development of the STEM education hubs that are central to the operation of the Tennessee STEM Innovation Network. Key partners in the education, business, and government sectors will be identified and brought together for a common purpose.
- Monitor and report on the activities of regional hubs and the entire state network so that funds are used effectively to support proven networking processes.
- Establish explicit criteria for evaluating progress and documenting accomplishments of the Tennessee STEM Innovation Network, disseminate results, and assist in the adoption of best practice.
- Facilitate the flow of information within and beyond the network so that all STEM educators benefit from the knowledge that is gained.

ORAU has the background and experience to support the State of Tennessee, Battelle, and other “Race to the Top” partners to achieve a set of aggressive objectives designed to dramatically improve the educational performance of Tennessee's schools and better prepare students for the 21st Century.

EXPECTED OUTCOMES:

The approach outlined above is driven by clear objectives and is managed to enable transformational change in the STEM education system. Students will benefit from the challenging, collaborative and motivational learning environment created by the Tennessee STEM Innovation Network. An engaging, rigorous and inquiry-based curriculum that is aligned with state requirements and national standards for STEM education is essential. This can be achieved best through a statewide effort that relies on a broad network of connected learners and educators. The success of our 21st Century education will be measured in part by our ability to provide STEM literacy at all education levels. Matching the growth of its science and technology sector, Tennessee will produce students who are not only well informed but who are also innovative, inquisitive and collaborative communicators – i.e., science and technology leaders.

Teachers have a tremendous impact on the aspirations and accomplishments of students. They spend all day, every day exploring ways to best reach their students. To do so most effectively, they need exposure to continuous professional development so that they know what communication and information tools are available and how they can be used to access the resources that are so readily available in today's information world. A well-defined and cohesive network of teachers is a powerful resource. A well established and efficient network will serve to capture and manage knowledge regarding STEM education. It will link talented educators with regional scientific resources and stakeholders in educational outcomes. The combined creativity of effectively networked educators will transfer and speed the penetration of innovative professional development activities, effective instructional materials, proven pedagogical approaches, and new ways to access scientific resources for educational purposes.