

STEM Task Force
K-12 Education Sector

1. **Big Idea** – Identify one “big idea” that could dramatically enhance Kentucky’s performance in the STEM disciplines.
 - Energy is our problem – Energy is our future.
 - Students should be given opportunity to take subjects in their area of interest/ profession by channeling the curriculum according to the profession.
 - Enable every student to experience inquiry based science and math lab K-12 to teach energy/sustainability.
 - Education pays dividends – Energy independence and quality of life.
 - Make connection to why students need to know things... make real connections to energy research, for example.
 - Make Kentucky the national leader in outfitting classrooms for the 21st Century with well-prepared teachers, higher education and business partnerships, relevant curricula, and no technology barriers.
 - Teacher incentive – not only would it draw more to the profession and reward the efforts, it will show the importance the state places on it.
 - Building skills of science, math and technology at the Louisville Science Center and other businesses through teacher training and on-going professional development.
 - Address the social issue – Americans do not tolerate illiteracy but laughingly say, “I could never do algebra, either.”

2. **Collaboration** – What partnerships or collaborations could leverage Kentucky’s investment in the STEM disciplines?
 - It will take all stakeholders – institutions of higher education, business, government, K-12, communities and most importantly, students.
 - Value – business, government, education and higher education unified by communication that not only is it ok to be good in math and science, it is critical to the future to be as good as you can be. Effort Counts!
 - Career paths and a means of achieving them, beginning in preschool and taking one into an actual post-graduate career.
 - Business leaders/classroom teachers. Remove the classroom walls and let current and future teachers develop an understanding of how STEM disciplines are applied in the work world.

3. **Action** – Identify three actions that your sector might undertake that could improve Kentucky’s capacity to create knowledge economy jobs within the Commonwealth.
- New system for pre-service and in-service preparation including increased learning opportunities for K-8 staff and discipline specific teacher professional development all year – not just during the summer.
 - Collaborate with business/industry and higher education to create an informed curriculum and more effective pedagogy. Develop an appreciation and understanding by students and instructors of how STEM content is used in the community.
 - Allow masters and Rank 1 in STEM content areas along with an avenue for administration.
 - Incremental learning for all – keep students and teachers learning based on prior learning with the future in mind – what they want to be.
 - Help to grow the dispositions, knowledge and skills of our students to produce future engineers and scientists.
 - Require four years of science and educate parents and students to understand the importance in taking higher level math and science and acquiring technology and good communication skills.
 - Change the ways KEES money is awarded or provide free postsecondary education to students who meet specific criteria.
 - Fund up-to-date technology for all classrooms.
 - Rather than differentiated pay, focus on restructuring the teaching day – some time for instruction – some time to work with other educators – some time to design engaging lessons.
 - Assess teacher content knowledge/inquiry using embedded professional development over a period of time.
 - Make “entire schools” type curriculum transparently available to all schools.
 - Vertical mentoring of college and high school teachers – middle school and elementary teachers.
 - Actively seek to understand what the knowledge economy jobs are.
 - Sustainability/Energy concept science fairs and hands-on science for students to increase their skill.
 - Web access to show good ideas in practice in Kentucky – what is really going on in STEM.
 - Support informal education institutions to communicate building science/math skills.
 - Create problem solving futuristic activities that give student/teacher groups the opportunity to apply STEM disciplines to perceived current community problems or those likely to occur.
 - State STEM report card.