

This document crosswalks the definition of global competence, as defined by the Asia Society (<http://asiasociety.org/files/book-globalcompetence.pdf>) to the Common Career Technical Core (CCTC), a state-led initiative to establish a set of rigorous, high-quality standards for Career Technical Education, managed by Advance CTE (<https://www.careertech.org/cctc>). The definition of global competence and the CCTC were developed separately by state education leaders as well as diverse groups of teachers, business and industry experts, administrators, and researchers.

* Please note, if the URL links do not work, copy and paste them into your browser.

Science, Technology, Engineering, & Mathematics Career Cluster© (ST)						
Cluster Element	Investigate the World	Recognize Perspectives	Communicate Ideas	Take Action	International Application	Resources
1	Apply engineering skills in a project that requires project management, process control, and quality assurance.		X	X	X	Students apply engineering skills to develop "disaster proof" housing options, and propose ways to make these options for shelter available in regions where they are most needed. eGFI lesson plan entitled Disaster Proof Housing is one example. http://teachers.egfi-k12.org/disaster-proof-housing/
2	Use technology to acquire, manipulate, analyze, and report data.					
3	Describe and follow safety, health, and environmental standards related to science, technology, engineering, and mathematics (STEM) workplaces.	X		X	X	Basic safety in the workplace lessons could be adapted to have students research how the same concepts are present in workplaces in another region/country. http://www.cdc.gov/niosh/talkingsafety/states/nj/entireNJ.pdf http://data.cteunt.org/content/files/stem/concepts-engineering-technology/unit-4-safety-in-the-workplace/4-01-introduction-to-safety/04.01-introduction-safety.pdf
4	Understand the nature and scope of the Science, Technology, Engineering, & Mathematics Career Cluster and the role of STEM in society and the economy.	X	X			On the Career and Technical Education website of University of North Texas, look at the Concepts of Science and Technology course. Units 1 and 2 introduce students to history and ethics in technology and engineering; adapt to an international focus by adding identification/discussion of international engineering groups' codes of ethics and conduct. Lessons have students consider the impact of technology on individuals, societies, cultures, environments, and economies. http://cte.unt.edu/stem/concepts-engineering-technology

5	Demonstrate an understanding of the breadth of career opportunities and means to those opportunities in each of the Science, Technology, Engineering, & Mathematics Career Pathways.	X		X		Take the basic STEM career exploration lesson and then add the requirement of searching in a different region of the world. Science Pioneer website includes numerous resources for exploring STEM career fields. NASA lesson on the Global Precipitation Measurement Mission focuses on careers supporting the mission.	http://www.pbslearningmedia.org/resource/wpsu09-stemcareers.text.lpchoosingSTEMcareer/choosing-a-stem-career/ http://www.sciencepioneers.org/students/stem-websites https://pmm.nasa.gov/education/interactive/stem-careers-exploration
6	Demonstrate technical skills needed in a chosen STEM field.						



Engineering & Technology Career Pathway (ST-ET)							
Cluster Element		Investigate the World	Recognize Perspectives	Communicate Ideas	Take Action	International Application	Resources
1	Use STEM concepts and processes to solve problems involving design and/or production.	X		X	X	Wind power, like solar power, is available in most parts of the globe – it just needs to be harnessed. Using the PBS Learning Media lesson Windmills: Putting Wind Energy to Work, have the students research and design a device to harness wind energy. The device needs to be built of materials that are readily available in a specified region of the world.	http://www.pbslearningmedia.org/resource/py03.sci.engin.design.lp_windmill/windmills-putting-wind-energy-to-work/
2	Display and communicate STEM information.			X		Before you try to communicate information, you need to understand the process regardless of where you are on the globe. Use the Advocates for Youth lesson entitled Introduction to Communication.	http://www.advocatesforyouth.org/publications/1184-lessons
3	Apply processes and concepts for the use of technological tools in STEM.						
4	Apply the elements of the design process.						
5	Apply the knowledge learned in STEM to solve problems.						

6	Apply the knowledge learned in the study of STEM to provide solutions to human and societal problems in an ethical and legal manner.	X	X	X	X	<p>Have students participate in the online National Geographic "The Jason Project" Energy City. In this online game, students have to balance environmental, social, and economic issues to create a sustainable energy portfolio for a location.</p> <p>Have students read the article "The Role of Science and Technology in the Developing World in the 21st Century." Have students discuss (Think/Pair/Share, debate, etc.) the article: What are the author's main points? Do you agree or disagree with his perspective? What information can you find to support your agreement/disagreement? What do you think is a possible course of action given the author's perspective?</p>	<p>http://content3.jason.org/resource_content/content/digitallab/8250/misc_content/public/popup.html</p> <p>http://ieet.org/index.php/IEET/more/chetty20121003</p>
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Science & Mathematics Career Pathway (ST-SM)							
Cluster Element		Investigate the World	Recognize Perspectives	Communicate Ideas	Take Action	International Application	Resources
1	Apply science and mathematics to provide results, answers, and algorithms for engineering and technological activities.		X		X	Explore the activities on NASA's Precipitation Education website.	https://pmm.nasa.gov/education/interactive/stem-careers-exploration
2	Apply science and mathematics concepts to the development of plans, processes, and projects that address real-world problems.		X	X		"Design for a Better World" (on the Practical Action website) challenges students to develop projects and processes to address a global issue or context. Although it is set up as a competition, the lessons and materials can be used as the basis for project-based learning outside of the competition.	http://practicalaction.org/design-for-a-better-world
3	Analyze the impact that science and mathematics have on society.	X	X	X	X	Technology justice is a concept that focuses students on the difference between technology and access; what is the impact on the individual, community, or region?	http://practicalaction.org/technology-justice-activities
4	Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret, and summarize research and statistical data.			X			