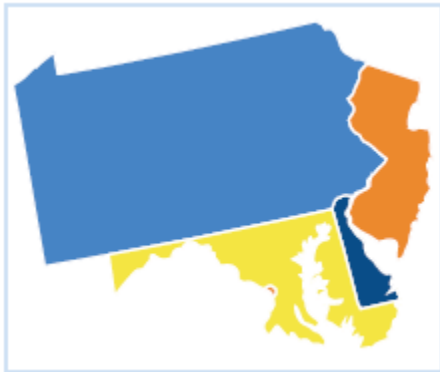# Program Audit

A program audit should be able to identify competencies (i.e., applicable knowledge and skills) that are focused on and/or assessed for by any curricular or extracurricular program. The program audit uses a rubric, which lists critical capacities, practices, and skills that have been identified by industry professionals and research as the competencies that are most in demand for entry level jobs in the health care and energy workforce.

Beyond a high school diploma, entry level jobs in these fields will require skills that have only recently been identified and addressed in high school offerings. The first set of skills are described as discipline-specific **capacities and practices**, which are skills students need to apply in a particular job-related situation. For example, a line worker for a power company may need to use digital tools to collect data, analyze that data, apply algebraic thinking to make estimates based on that data, and communicate conclusions with others. In addition to these capacities and practices, entry level applicants also need **soft skills**. Also known as 'people' or 'interpersonal' skills, soft skills help employees get along with coworkers, manage their time, and complete tasks successfully.

The skills, and indicators listed in this audit have been based on the following sources:

❖ English Language Arts and Mathematical Practices: Common Core State Standards for mathematics and English language arts/literacy (ELA), *http://www.corestandards.org/*

❖ Science and Engineering Practices: Next Generation Science Standards, *https://www.nextgenscience.org/get-to-know*

❖ Technology Practices: International Society for Technology in Education (ISTE) Standards for digital age learning, *https://www.iste.org/standards*

❖ Soft Skills: REL Mid-Atlantic skills employers seek in new hires, *https://ies.ed.gov/ncee/edlabs/regions/midatlantic/pdf/REL_MA_Career_readiness_Infographic_122117.pdf*

Relationships and convergences among various practices skills for ELA, Mathematics, and Science identified by Cheuk in her analysis (Cheuk, 2013), are shown in colors below that correspond to the overlaps in the Venn diagram (see Figure 1 below).

The steps for conducting a program audit are:

❖ Review **program materials** (curriculum guides, lesson plans, alignment resources, etc.)

❖ Identify **capacities and practices** the program develops

❖ Identify **soft skills** the program develops

❖ For each competency listed, **check the box (☐)** to the left if the competency is addressed adequately. Additionally, if the **program coverage** of that competency is particularly broad (+) or narrow (–), circle the **+ or –** on either side of the checkbox.

❖ List the sources where you noted **evidence** for each competency you selected.

Add any **notes** indicating how you think the program could be improved or supplemented to better address those competencies.

Figure 1. Venn diagram showing relationships and convergences among various practices skills for ELA, Mathematics, and Science identified by Cheuk in her analysis (Cheuk, 2013).
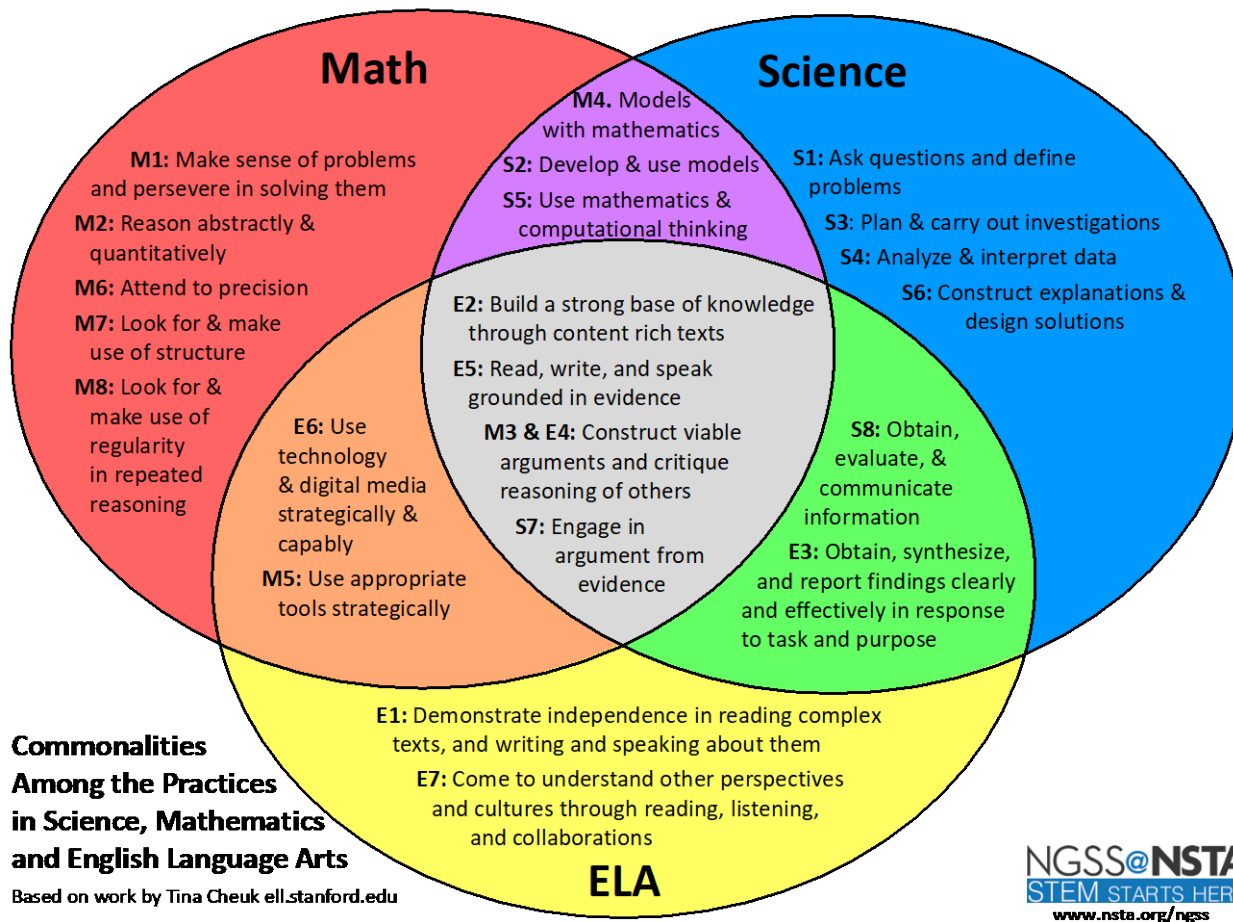
Note that the colors and labels in the diagram have been used in the relevant tables below to highlight the areas of overlap among the academic skills.

CATEGORY: ENGLISH-LANGUAGE ARTS CAPACITIES

❖ Do program materials indicate that the program promotes English language arts capacities required for entry level health care and energy sector jobs?

AUDIT		
+ / −	**SKILLS:**	**INDICATORS:**
	☐ E1. Demonstrate independence in reading, writing and speaking **EVIDENCE:**	• Comprehend and evaluate complex texts • Construct effective arguments • Discern a speaker's key points • Demonstrate command of English • Become self-directed learners
	☐ E2. Build a strong base of knowledge **EVIDENCE:**	• Engage with works of quality and substance • Become proficient in new areas through research and study • Read purposefully • Share knowledge through writing and speaking
	☐ E3. Respond to demands of task and purpose **EVIDENCE:**	• Adapt communication to the audience • Adjust purpose for reading, writing based on task • Appreciate nuances such as audience composition when speaking • Understand that different disciplines call for different types of evidence
	☐ E4. Comprehend as well as critique **EVIDENCE:**	• Open-minded but discerning readers and listeners • Question assumptions and premises • Assess veracity of claims • Critique reasoning of others
	☐ E5. Value evidence **EVIDENCE:**	• Cite specific evidence to interpret text • Use relevant evidence to support position • Constructively evaluate others' use of evidence
	☐ E6. Use technology and digital media strategically and capably **EVIDENCE:**	• Employ technology thoughtfully to enhance communication • Tailor online searches to acquire useful information • Integrate information from online with offline learning • Base use of technological tools on appreciation of their strengths and limitations

AUDIT		
+ / −	**SKILLS:**	**INDICATORS:**
	☐ E7. Come to understand other perspectives and cultures **EVIDENCE:**	• Appreciate people in work settings as representing diverse experiences • Seek to understand other perspectives to communicate effectively • Evaluate other points of view constructively • Read to gain exposure to other cultural backgrounds

NOTES:

CATEGORY: SCIENCE AND ENGINEERING PRACTICES

❖ Do program materials indicate that the program promotes English language arts capacities required for entry level health care and energy sector jobs?

AUDIT		
+ / −	**SKILLS:**	**INDICATORS:**
	☐ S1. Asking questions **EVIDENCE:**	• Gather relevant information from multiple sources • Ask questions about phenomena that can be answered using scientific investigations • Ask questions that can be used to refine models, explanations. or designs
	☐ S2. Developing and using models **EVIDENCE:**	• Understand or represent phenomena, processes, and relationships • Design models to test solutions • Use models to communicate ideas to others • Evaluate merits and limitations of models
	☐ S3. Planning and carrying out investigations **EVIDENCE:**	• Conduct investigations to answer questions, test predictions, and develop explanations • Formulate questions and predict outcomes • Identify materials, procedures, and variables • Use appropriate tools to collect data • Represent data in an appropriate form
	☐ S4. Analyzing and interpreting data **EVIDENCE:**	• Use tools to make valid claims about data • Consider limitations of data analysis • Compare and contrast types of data sets • Evaluate impact of data on working model
	☐ S5. Using mathematics and computational thinking **EVIDENCE:**	• Create computational model of a phenomenon • Use mathematical representations of phenomena to support claims • Apply mathematical techniques to solve problems
	☐ S6. Constructing explanations and designing solutions **EVIDENCE:**	• Construct explanations based on reliable evidence • Apply scientific principles to explain phenomena • Apply scientific reasoning to link evidence to claims • Design or refine a solution to a complex real-world problem

	AUDIT	
+ / −	**SKILLS:**	**INDICATORS:**
	☐ S7. Engaging in argument from evidence	• Compare and evaluate competing arguments • Evaluate claims underlying accepted explanations • Provide critiques on scientific arguments • Create oral and written arguments based on data and evidence
	EVIDENCE:	
	☐ S8. Obtaining, evaluating, and communicating information	• Critically read scientific literature • Compare sources of information presented in different media • Evaluate validity and reliability of claims • Communicate scientific information about phenomena
	EVIDENCE:	

NOTES:

CATEGORY: TECHNOLOGY PRACTICES

❖ Do program materials indicate that the program promotes relevant technology practices required for entry level health care and energy sector jobs?

	AUDIT	
+ / −	**SKILLS:**	**INDICATORS:**
	☐ Critically curate resources using digital tools **EVIDENCE:**	• Employ effective research strategies to locate information • Evaluate accuracy and relevance of information • Curate information that demonstrate meaningful connections • Build knowledge by exploring real-world issues
	☐ Leverage technology to achieve competency in learning goals **EVIDENCE:**	• Articulate personal learning goals • Customize learning environment to support learning process • Use technology to seek feedback that improves their practice • Understand fundamental concepts of technology
	☐ Use technologies to identify and solve problems **EVIDENCE:**	• Use a design process for generating ideas and solving authentic problems • Select digital tools to manage a design process • Develop, test, and refine prototypes • Exhibit tolerance for ambiguity for open-ended problems
	☐ Communicate clearly and express themselves creatively **EVIDENCE:**	• Choose appropriate tools to meet desired objectives • Create original works or repurpose digital resources • Communicate complex ideas clearly and effectively using various digital objects • Present content targeted to intended audiences
	☐ Recognize the rights and responsibilities in an interconnected digital world **EVIDENCE:**	• Exhibit awareness of actions in the digital world • Engage in positive, safe, legal, and ethical behavior when using technology • Understand and respect the rights of using intellectual property • Manage person data to maintain digital privacy
	☐ Develop strategies for understanding and solving problems using technology **EVIDENCE:**	• Formulate problems suited for technology-assisted methods • Collect data, use digital tools to analyze them and represent solutions • Extract key information to facilitate problem-solving • Use algorithms to develop automated solutions

AUDIT		
+ / −	**SKILLS:**	**INDICATORS:**
	☐ Use digital tools to broaden their perspectives by collaborating with others **EVIDENCE:**	• Connect and engage with learners to broaden mutual understanding • Use collaborative technologies to examine issues from multiple viewpoints • Contribute constructively to project teams • Explore local and global issues

NOTES:

CATEGORY: MATHEMATICAL PRACTICES

❖ Do program materials indicate that the program promotes relevant mathematical practices required for entry level health care and energy sector jobs?

	AUDIT	
+ / –	**SKILLS:**	**INDICATORS:**
	☐ M1. Make sense of problems and persevere in solving them **EVIDENCE:**	• Explain to themselves the meaning of a problem • Consider analogous problems • Evaluate progress and change course if necessary • Construct mathematical models • Check their answers
	☐ M2. Reason abstractly and quantitatively **EVIDENCE:**	• Make sense of quantities and their relationships in problem situations • Solve problems that arise in mathematics and in other contexts • Abstract a given situation and be able to represent it symbolically • Create a coherent representation of the problem
	☐ M3. Construct plausible arguments and critique the reasoning of others **EVIDENCE:**	• Understand and use stated assumptions • Make conjectures • Break down problems into cases • Use logic to justify conclusions
	☐ M4. Model with mathematics **EVIDENCE:**	• Recognize models involve choices and assumptions that abstract key features from situations • Understand quantitative relationships • Use geometric shapes to model physical objects • Model situation with equations and inequalities • Model situations with common functions to propose solutions • Use probability and statistics to make predictions • Interpret results of applying a model and identify sources of error
	☐ M5. Use appropriate tools strategically **EVIDENCE:**	• Consider the available tools: spreadsheets, statistical software, graphing calculators, etc. • Have familiarity with tools to select among and employ them • Use mathematical understanding to provide realistic levels of approximation and detect possible errors

	AUDIT	
+ / −	**SKILLS:**	**INDICATORS:**
	☐ M6. Attend to precision **EVIDENCE:**	• Organize their ideas to communicate precisely • Clarify definitions • Specify units of measure • Express answers with appropriate degree of precision
	☐ M7. Look for and make use of structure **EVIDENCE:**	• Discern a pattern or shift perspective to get an overview of a problem • Recognize significance of information to make a solution clear • See complicated things as objects they can manipulate
	☐ M8. Look for and express regularity in repeated reasoning **EVIDENCE:**	• Attend to repeated calculations • Look for general algorithms and shortcuts • Maintain oversight over problem solving while attending to details. • Continually evaluate the reasonableness of intermediate results

NOTES:

CATEGORY: SOFT SKILLS

❖ Do program materials indicate that the program promotes relevant soft skills required for entry level health care and energy sector jobs?

	AUDIT	
+ / −	**SKILLS:**	**INDICATORS:**
	☐ **Motivation** **EVIDENCE:**	• Take initiative • Have a strong work ethic • Persevere through challenges • Learn on your own • Maintain a positive attitude
	☐ **Communication** **EVIDENCE:**	• Write and speak clearly • Maintain a conversation • Give feedback • Summarize what you know
	☐ **Self-Management** **EVIDENCE:**	• Stay organized • Manage your time • Be on time, be prepared, and do your work • Be accountable for your actions
	☐ **Teamwork** **EVIDENCE:**	• Collaborate with others • Be a good listener • Have and show empathy
	☐ **Problem Solving** **EVIDENCE:**	• Think critically • Be flexible • Be adaptable and resourceful

NOTES: