

# Standards Correlations

## Renewable Energy (8408)

Task	SOL Correlations	Standards for Technological and Engineering Literacy
<b>Demonstrating Personal Qualities and Abilities</b>		
Demonstrate creativity and innovation.	English: 6.1, 6.3, 6.4, 6.6, 6.7, 6.9, 7.1, 7.3, 7.4, 7.6, 7.7, 7.9, 8.1, 8.3, 8.4, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1 Mathematics: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.10, 6.11, 6.12, 7.2, 7.3, 7.8, 7.9, 8.2, 8.4, 8.6, 8.7, 8.11, 8.12, 8.17, 8.18, A.9, AFDA.3, AFDA.4, AFDA.5, AFDA.6, AFDA.7, AFDA.8, AII.9, COM.1, COM.3, COM.4, COM.5, COM.8, DM.7, DM.1*, DM.10, DM.2*, DM.3*, PS.3*, PS.4*, PS.7*, PS.9*, PS.10* Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1	
Demonstrate critical thinking and problem solving.	English: 6.1, 6.3, 6.4, 6.5, 6.6, 6.7, 6.9, 7.1, 7.3, 7.4, 7.5, 7.6, 7.7, 7.9, 8.1, 8.3, 8.4, 8.5, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WG.4, WHI.1, WHII.1 Mathematics: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.10, 6.11, 7.2, 7.3, 7.8, 7.12, 7.13, 8.2, 8.4, 8.8, 8.9, 8.10, 8.11, A.8, A.9, G.1, G.13, G.14, AFDA.3, AFDA.5, AFDA.8, AII.9, AII.10, AII.11, COM.1,	

Task	SOL Correlations	Standards for Technological and Engineering Literacy
	COM.3, COM.4, COM.5, COM.8, DM.4, DM.7, DM.1*, DM.2*, DM.3*, DM.9*, PS.9*, PS.10* Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PS.1	
Demonstrate initiative and self-direction.	English: 6.1, 6.4, 6.6, 6.7, 6.9, 7.1, 7.4, 7.6, 7.7, 7.9, 8.1, 8.4, 8.6, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
Demonstrate integrity.	English: 6.1, 7.1, 8.1, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5 History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
Demonstrate work ethic.	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: CH.1	
<b>Demonstrating Interpersonal Skills</b>		
Demonstrate conflict-resolution skills.	English: 6.1, 6.2, 6.4, 6.6, 6.7, 6.9, 7.1, 7.2, 7.4, 7.6, 7.7, 7.9, 8.1, 8.2, 8.4, 8.6, 8.7, 8.9, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, VUS.1	
Demonstrate listening and speaking skills.	English: 6.1, 6.2, 6.4, 6.6, 7.1, 7.2, 7.4, 7.6, 8.1, 8.2, 8.4, 8.6, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
Demonstrate respect for diversity.	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, USII.9, VUS.1, VUS.13, WG.1, WHI.1, WHII.1	

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Demonstrate customer service skills.	English: 6.1, 6.4, 6.7, 7.1, 7.4, 7.7, 8.1, 8.4, 8.7, 9.1, 9.5, 9.6, 10.1, 10.5, 10.6, 11.1, 11.5, 11.6, 12.1, 12.5, 12.6 History and Social Science: CE.1, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
Collaborate with team members	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.3, CE.4, GOVT.1, GOVT.16, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
<b>Demonstrating Professional Competencies</b>		
Demonstrate big-picture thinking.	English: 6.1, 6.4, 7.1, 7.4, 8.1, 8.4, 9.1, 9.5, 10.1, 10.5, 11.1, 11.5, 12.1, 12.5 History and Social Science: CE.1, CE.4, CE.12, GOVT.1, GOVT.15, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
Demonstrate career- and life-management skills.	English: 6.1, 6.7, 7.1, 7.7, 8.1, 8.7, 9.1, 9.6, 10.1, 10.6, 11.1, 11.6, 12.1, 12.6 History and Social Science: CE.1, CE.4, CE.12, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 8.4	
Demonstrate continuous learning and adaptability.	English: 6.1, 6.4, 6.7, 6.9, 7.1, 7.4, 7.7, 7.9, 8.1, 8.4, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.1, 11.5, 11.6, 11.8, 12.1, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.3, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: BIO.1, CH.1, LS.1, PH.1, PH.4, PS.1	
Manage time and resources.	English: 6.1, 6.2, 6.4, 6.7, 6.9, 7.1, 7.2, 7.4, 7.7, 7.9, 8.1, 8.2, 8.4, 8.7, 8.9, 9.1, 9.5, 9.6, 9.8, 10.1, 10.5, 10.6, 10.8, 11.2, 11.5, 11.6, 11.8, 12.2, 12.5, 12.6, 12.8	

Task	SOL Correlations	Standards for Technological and Engineering Literacy
	History and Social Science: CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.10, 6.11, 6.12, 7.2, 7.3, 7.8, 7.9, 7.10, 7.11, 7.12, 7.13, 8.4, 8.11, 8.12, 8.13, 8.14, 8.17, 8.18, A.4, A.5, A.8, A.9, AFDA.3, AFDA.4, AFDA.5, AFDA.6, AFDA.7, AFDA.8, COM.1, COM.3, COM.5, COM.8	
Demonstrate information-literacy skills.	English: 6.1, 6.2, 6.4, 6.6, 6.7, 6.9, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.9, 8.1, 8.2, 8.3, 8.4, 8.6, 8.7, 8.9, 9.2, 9.5, 9.6, 9.8, 10.2, 10.5, 10.6, 10.8, 11.2, 11.5, 11.6, 11.8, 12.2, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.10, 6.11, 7.8, 7.9, 8.11, 8.12, A.8, A.9, AFDA.3, AFDA.4, AFDA.6, AFDA.7, AFDA.8, DM.8, PS.1*, PS.2*, PS.3*, PS.4*, PS.7*, PS.8*, PS.9*, PS.10* Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PH.1, PS.1	
Demonstrate an understanding of information security.	English: 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 6.8, 6.9, 7.1, 7.2, 7.3, 7.4, 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.6, 8.7, 8.8, 8.9, 9.1, 9.2, 9.5, 9.6, 9.8, 10.1, 10.2, 10.5, 10.6, 10.8, 11.1, 11.2, 11.5, 11.6, 11.8, 12.1, 12.2, 12.5, 12.6, 12.8 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: COM.10	
Maintain working knowledge of current information-technology (IT) systems.	English: 6.1, 6.3, 6.4, 6.6, 6.9, 7.1, 7.3, 7.4, 7.6, 7.9, 8.1, 8.3, 8.4, 8.6, 8.9 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 7.8, COM.1, COM.2, COM.7, COM.9, COM.10, COM.11, COM.16, COM.18, PS.17	

Task	SOL Correlations	Standards for Technological and Engineering Literacy
	Science: BIO.1, CH.1, ES.1, PH.1	
Demonstrate proficiency with technologies, tools, and machines common to a specific occupation.	History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.10, 6.11, 7.9, 8.4, A.7, A.8, A.9, AFDA.1, AFDA.3, AFDA.5, AII.4, AII.7, AII.9, COM.1, COM.7, COM.10, COM.11, COM.12, COM.16 Science: CH.1, ES.1, LS.1, PH.1, PS.1	
Apply mathematical skills to job-specific tasks.	English: 6.4, 6.6, 6.7, 7.4, 7.6, 7.7, 8.4, 8.6, 8.7, 9.5, 9.6, 10.5, 10.6, 11.5, 11.6, 12.5, 12.6 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Mathematics: 6.1, 6.2, 6.5, 6.6, 6.12, 6.13, 6.14, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.8, 7.9, 7.11, 7.12, 7.13, 8.4, 8.5, 8.6, 8.8, 8.9, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 8.18, A.1, A.3, A.4, A.5, A.7, A.8, A.9, AFDA.1, AFDA.3, AFDA.5, AFDA.8, AII.3, AII.7, AII.9, AII.10, COM.1, COM.7 Science: 6.1, BIO.1, CH.1, ES.1, LS.1, PH.1, PS.1	
Demonstrate professionalism.	English: 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1 History and Social Science: CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	
Demonstrate reading and writing skills.	English: 6.1, 6.6, 6.7, 7.1, 7.6, 7.7, 8.1, 8.6, 8.7, 9.1, 9.5, 9.6, 9.7, 10.1, 10.5, 10.6, 10.7, 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Science: 6.1, PH.1, PS.1	
Demonstrate workplace safety.	English: 6.4, 7.4, 8.4, 9.5, 10.5, 11.5, 12.5 History and Social Science: CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1	

Task	SOL Correlations	Standards for Technological and Engineering Literacy
	Science: CH.1	
<b>Examining All Aspects of an Industry</b>		
Examine aspects of planning within an industry/organization.	History and Social Science: GOVT.16	
Examine aspects of management within an industry/organization.		
Examine aspects of financial responsibility within an industry/organization.		
Examine technical and production skills required of workers within an industry/organization.		
Examine principles of technology that underlie an industry/organization.		
Examine labor issues related to an industry/organization.	History and Social Science: GOVT.16	
Examine community issues related to an industry/organization.	History and Social Science: GOVT.16	
Examine health, safety, and environmental issues related to an industry/organization.	History and Social Science: GOVT.16	
<b>Addressing Elements of Student Life</b>		
Identify the purposes and goals of the student organization.		
Explain the benefits and responsibilities of membership in the student organization as		

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a student and in professional/civic organizations as an adult.		
Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.		
Identify Internet safety issues and procedures for complying with acceptable use standards.		
<b>Exploring Work-Based Learning</b>		
Identify the types of work-based learning (WBL) opportunities.		
Reflect on lessons learned during the WBL experience.		
Explore career opportunities related to the WBL experience.		
Participate in a WBL experience, when appropriate.		
<b>Examining Energy and Power</b>		
Describe how energy is used within sectors of society.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	2
Demonstrate tools used in the energy industry		2, 8
Explain the basics of energy storage.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: PH.6	
Demonstrate how batteries/cells function.	English: 11.3, 11.5, 12.3, 12.5	2, 3

<b>Task</b>	<b>SOL Correlations</b>	<b>Standards for Technological and Engineering Literacy</b>
	Science: PH.6, PH.11	
Measure current, amps, voltage, and resistance in various direct current (DC) and alternating current (AC) energy systems.	English: 11.5, 12.5 Science: PH.11	2,3,8
Create series and parallel circuits.	English: 11.5, 12.5 Science: PH.11	2,3,8
Apply Ohm's law to determine the level of current flowing in circuits.	English: 11.5, 12.5 Mathematics: AII.3 Science: PH.11	2,3,8
Describe the uses of AC and DC.	English: 11.3, 11.5, 12.3, 12.5 Science: PH.11	2
Estimate wattage.	English: 11.5, 12.5 Science: PH.11	8
<b>Understanding Energy Concerns and Challenges</b>		
Explain concerns related to fossil fuels.	English: 11.5, 12.5 Science: ES.6	2, 4
Diagram the process and effects of global climate change.	Science: ES.11	4
Create a digital presentation that explains the differences among renewable, inexhaustible, and non-renewable energy sources.	English: 11.3, 11.5, 12.3, 12.5 History and Social Science: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6	2, 3, 8
Compare governmental policy and support for fossil fuel vs. the clean-energy economy.	English: 11.5, 12.5 History and Social Sciences: Govt 7, 8, 9, 12 Science: ES.6	5
<b>Conserving Energy</b>		
Discuss the societal, environmental, and economic advantages of energy conservation.	English: 11.1, 12.1 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6	5

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Explain inefficiencies of modern energy systems.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6	8
Describe governmental initiatives and incentives to boost energy efficiency.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	5
Explain the concept of phantom loads and their associated costs.	English: 11.3, 11.5, 12.3, 12.5	8
Conduct an energy review of a local building.	English: 11.5, 12.5	8
Research the energy savings that can be realized by modifying a building or energy-use patterns.	English: 11.5, 11.8, 12.5, 12.8 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	8
<b>Exploring Solar Power Systems</b>		
Describe ways the sun’s energy is used.	English: 11.5, 12.5 History and Social Sciences: WHI 2 Science: ES.6	2, 3
Produce a solar device that will cook food	History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12 Mathematics: MA.6	2, 8
Produce a model house.	English: 11.5, 12.5	2, 8
Explain the differences between passive and active solar systems.	English: 11.3, 11.5, 12.3, 12.5	2, 3
Calculate the thermal mass created from various buildings		3, 8
Explain direct, indirect, and isolated solar gain in passive solar power systems in buildings.	English: 11.3, 11.5, 12.3, 12.5	8

<b>Task</b>	<b>SOL Correlations</b>	<b>Standards for Technological and Engineering Literacy</b>
Illustrate the advantages and disadvantages of various solar-thermal heating systems.	English: 11.5, 12.5	8
Perform a needs assessment, system sizing, and selection process for a residential solar-thermal system.		8
Explain the underlying principles of photovoltaic systems (PV) and factors that affect system efficiency.	English: 11.5, 12.5	3, 8
Describe advantages and disadvantages of PV system configurations.	English: 11.5, 12.5	8
<b>Determining Requirements for a Photovoltaic System</b>		
Explain the functions of the major PV system components in residential structures.	English: 11.5, 12.5	8
Design a PV system to demonstrate the function of its components.	English: 11.5, 12.5	7, 8
Assemble a model of a PV array.		8
Measure PV array energy output under various conditions.		3, 8
Present solar panel specifications, benefits to type of panel chosen, costs, and benefits for a variety of system designs.	English: 11.1, 11.5, 12.1, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	8
Calculate the system cost and payback period for a solar PV installation.	English: 11.1, 11.5, 12.1, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	3, 8
Perform a site analysis of various locations for PV installations.	English: 11.5, 12.5	8
<b>Examining Wind Power</b>		
Explain the advantages and disadvantages of wind-powered electrical systems.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	2, 8

Task	SOL Correlations	Standards for Technological and Engineering Literacy
	Science: ES.6, ES.11, ES.12	
Explain global wind patterns and their causes.	English: 11.3, 11.5, 12.3, 12.5 Science: ES.12	3
Create a map of local and national wind patterns, noting areas where wind turbines are widely used.	English: 11.5, 12.5 Mathematics: M.7 Science: ES.12	8, 3
Explain the effect of ground-surface features on wind speed.	English: 11.1, 11.5, 12.1, 12.5 Science: ES.12	3
Describe Betz’s law and the law of conservation of energy.	English: 11.5, 12.5 Mathematics: AII.3	2, 3
Outline the progress toward adoption of utility-scale wind energy production in Virginia.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6	6, 5
<b>Determining Requirements for Installing Wind Power Systems</b>		
Research the function of the basic components in a wind power system.	English: 11.5, 11.8, 12.5, 12.8	3, 8
Demonstrate the aerodynamic principles that affect wind turbine performance, specifically with regard to rotor blade design.		3, 8
Explain horizontal and vertical wind turbine designs and the advantages and disadvantages of each.	English: 11.5, 12.5	8
Explain the three scales of wind turbines and the applications for each.	English: 11.3, 11.5, 12.3, 12.5	8
Explain the different materials used in wind turbine construction.	English: 11.5, 12.5	2, 8

<b>Task</b>	<b>SOL Correlations</b>	<b>Standards for Technological and Engineering Literacy</b>
Compare the capabilities of wind turbine designs.	English: 11.5, 12.5	3, 8
Explain the methods wind turbines employ to control wind speeds.	English: 11.5, 12.5	8
Complete a site analysis for a potential wind-power system.	English: 11.5, 12.5	8
Produce a model wind-turbine system.		3, 8
Analyze the basic operation and output of a wind turbine.	English: 11.5, 12.5 Science: PH.11	3, 8
Correlate wind power, speed, and the electrical output of a wind-turbine system.		3, 8
Explain the factors to consider when siting a utility-scale wind farm.	English: 11.5, 12.5	3, 8
<b>Understanding Hydrokinetic Energy</b>		
Describe the role of hydropower in current energy production.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12 Science: ES.6	2, 6, 8
Explain how a river's head and water pressure are related.	English: 11.3, 11.5, 12.3, 12.5 Science: ES.8	3
Explain how water is provided in different municipalities.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	8
Identify the advantages and disadvantages of using water as a power source.	English: 11.5, 12.5	3, 8
Describe the concept of pump storage.	English: 11.5, 12.5	3, 8
Identify the steps necessary to perform a site assessment of a micro-hydro project.	English: 11.5, 12.5	8
Identify the factors (other than available power) that must be considered when	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	3, 4, 5, 8

<b>Task</b>	<b>SOL Correlations</b>	<b>Standards for Technological and Engineering Literacy</b>
determining the viability of a specific micro-hydro site.		
Create a model of a micro-hydropower system.		7, 8
Explain how micro-hydro turbines/generators work.	English: 11.5, 12.5	3, 8
Explain how wave and tidal energy can be used to generate electricity.	English: 11.5, 12.5 Science: ES.6, ES.3, ES.10	3, 8
Investigate the latest technologies and system designs being used to harness wave and tidal energy.	English: 11.5, 11.8, 12.5, 12.8	3, 8
Experiment with capturing wave energy.		3, 8
<b>Examining Geothermal Energy</b>		
Describe high- and low-temperature geothermal systems.	English: 11.5, 12.5 Science: ES.6	3, 8
Describe how different geothermal energy systems are used to meet energy demands.	English: 11.5, 12.5	3, 4, 5, 6, 8
Investigate where geothermal systems are used.	English: 11.5, 11.8, 12.5, 12.8 Science: ES.7	3
<b>Examining Biomass and Biofuels</b>		
Explain the difference between biomass and biofuels.	English: 11.3, 11.5, 12.5, 12.3 Science: ES.6	3, 8
Create a model of the carbon cycle.	Science: ES.10, ES.11	3, 7, 8
Describe the carbon cycle's relationship to greenhouse gas levels in the atmosphere.	English: 11.5, 12.5 Science: ES.11	3
Explain how biomass is converted into usable energy.	English: 11.5, 12.5	8
<b>Exploring Energy Use in Transportation</b>		

<b>Task</b>	<b>SOL Correlations</b>	<b>Standards for Technological and Engineering Literacy</b>
Explain the advantages and disadvantages associated with electric vehicles (EVs).	English: 11.5, 12.5	3, 4, 5, 6
Research alternatives to the current fossil-fuel based transportation system.	English: 11.5, 11.8, 12.5, 12.8	3
Compare the battery technologies used in the EV industry.	English: 11.5, 12.5	3, 8
Describe how EVs work.	English: 11.5, 12.5	3, 4
Compare the types of hybrid vehicles and EVs.	English: 11.5, 12.5	3
Examine current mass transit systems in the United States.	English: 11.5, 12.5	3, 5
Explain how EVs could be used to supplement a smart grid with energy storage.	English: 11.5, 12.5	3, 8
Research alternatives to the current fossil-fuel based transportation system.	English: 11.5, 11.8, 12.5, 12.8	3
Create a model vehicle powered by solar energy.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7	7, 8
<b>Examining Fuel Cells</b>		
Identify the types of fuel cells.	English: 11.3, 11.5, 12.3, 12.5	3
Explain the theory of a hydrogen economy.	English: 11.5, 12.5 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12, 14	3
Explain covalent bonding and its association with fuel-cell technology.	English: 11.5, 12.5 Science: CH.3	3

Task	SOL Correlations	Standards for Technological and Engineering Literacy
Explain the advantages and disadvantages of methods of producing and transporting hydrogen.	English: 11.5, 12.5	3, 4, 5, 8
Explain the infrastructure challenges to fuel cells becoming a widely adopted technology.	English: 11.5, 12.5	3, 8
Diagram the connection of fuel cell stacks to produce various amounts of power at specific voltages.		3, 8
Identify the components of a complete PEM fuel-cell system.	English: 11.5, 12.5	3, 8
Compare the three major categories of fuel-cell systems: stationary fuel cells, fuel-cell vehicles, and portable fuel cells.	English: 11.5, 12.5	3, 8
Research whether fuel-cell technology is a realistic alternative to fossil fuels.	English: 11.5, 11.8, 12.5, 12.8 History and Social Sciences: WHII 14; VUS 14; Govt 7, 8, 9, 12	3