Everett Public Schools

CIP Code: Green Sustainable Design and Technology (030198)	Total Framework Hours up to: 180 hr

Course: Environmental Systems Design

Environmental Systems Designs offers students engaging project based experiences in science and environmental education. The course is a strong alternative for students not wishing to take chemistry or physics. The first part of the course looks at the earth's environmental systems though an astrobiological view by asking students to analyze the earth's dynamics as an extraterritorial visitor. The second part engages students in a series of project based investigations on energy generation, water management, and land use. The class will emphasize group collaboration and incorporate environmental stewardship and advocacy.

Career Cluster: STEM **Cluster Pathway: Engineering and Technology**

Course Resources:

Investigations in Environmental Science: Land Use, Water Management, and Energy
Publisher: It's About Time, 2005

Astrobiology – an Integrated Science Approach
Publisher: It's About Time, 2005

Performance Assessments

Student will determine a suitable place for a new school construction and design the facility to have limited disruption to the environment.

STANDARDS AND COMPETENCIES

C-1 Standard: Principles of Sustainability **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-1.1	Apply understanding of systems thinking and system dynamics
C-1.2	Define sustainability and sustainable design

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1	Demonstrate evidence of reading comprehension.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships
3.1	Read to learn new information.
3.2	Read to perform a task.
Communications	
1.1.1	Applies a variety of listening strategies to accommodate the listening situation.

1.1.2	Applies a variety of listening and observation skills/strategies to interpret information.
Social Studies – Civics	
1.3.1	Understands the purposes and organization of international relationships and United States foreign policy.
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2:	Understands human interaction with the environment.
Writing	
1.1	Pre writes to generate ideas and plan writing.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11 SYS A	Feedback is a process in which the output of a system provides information used to regulate the operation of the system. Positive feedback reduces the disturbance to a system. Negative feedback increases the disturbance to a system.
9-11 SYS B	Systems thinking can be especially useful in analyzing complex situations. To be useful, a system needs to be specified as clearly as possible.
Mathematics Standards	
A1.8A	Analyze a problem situation and represent it mathematically.
A1.8B	Select and apply strategies to solve problems.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs
2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways

2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:

- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak

9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts

7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds

9.B.2 Respond open-mindedly to different ideas and values

9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal

11.A.2 Leverage strengths of others to accomplish a common goal

11.A.3 Inspire others to reach their very best via example and selflessness

11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively

1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work

1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas

1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures

10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)

4.A.2 Evaluate information critically and competently

4.B.1 Use information accurately and creatively for the issue or problem at hand

4.B.2 Manage the flow of information from a wide variety of sources

4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking

2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively

6.A.1 Use technology as a tool to research, organize, evaluate and communicate information

6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy

6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Student will determine a suitable place for a new school construction and design the facility to have limited disruption to the environment.
Students will determine their carbon footprint.

STANDARDS AND COMPETENCIES	
C-2 Standard: Impact of Human Activities on Sustainability	**Total Learning Hours for Standard: 20**
C=Core A=Advanced	
Competency	**Competency Description**
C-2.1	Understand changes in the built environment
C-2.2	Understand changes in the natural environment (air, water, soil, flora and fauna)
C-2.3	Understand relationship between human activities and the environment
C-2.4	Define carbon footprint and global climate change
C-2.5	Understand and calculate ecological footprint
EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards) ***(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)***	
Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1.4	Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge.
2.2.2	Apply understanding of complex organizational features of printed text and electronic sources.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships.
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights.
3.1	Read to learn new information.
Communications	
1.1.1	Applies a variety of listening strategies to accommodate the listening situation.
1.2.1	Evaluates effectiveness of and creates a personal response to visual and auditory information.
Social Studies – Civics	
1.2	Understands the purposes, organization, and function of governments, laws, and political systems.
1.3	Understands the purposes and organization of international relationships and United States foreign policy.
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
2.2.1 (9-10)	Understands and analyzes how planned and market economies have shaped the production, distribution, and consumption of goods, services, and resources around the world in the past or present.
2.2.1(11)	Understands that nations have competing philosophies about how best to produce, distribute, and consume goods, services, and resources.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
Writing	
3.1.1	Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11ES3D	Data gathered from a variety of methods have shown that Earth has gone through a number of periods when Earth was much warmer and much colder than today.

9-11LS3A	Biological evolution is due to: (1) genitive variability of offspring due to mutations and genetic recombination, (2) the potential for a species to increase its numbers, (3) a finite supply of resources, and (4) selection by the environment for those offspring better able to survive and produce offspring.
9-11LS3C	The great diversity of organisms is the result of more than 3.5 billion years of evolution that has filled available ecosystem niches on Earth with life forms.
9-11LS1A	Carbon containing compounds are the building blocks of life. Photosynthesis is the process that plant cells use to combine the energy of sunlight with molecules of carbon dioxide and water to produce energy-rich compounds that contain carbon (food) and release oxygen.
9-11 INQB	Scientific progress requires the use of various methods appropriate for answering different kinds of research questions, a thoughtful plan for gathering data needed to answer the question, and care in collecting, analyzing, and displaying the data.
9-11ES3A	Interactions among the solid Earth, the oceans, the atmosphere, and organisms have resulted in the ongoing evolution of the Earth system. We can observe changes such as earthquakes and volcanic eruptions on a human time scale, but many processes such as mountain building and plate movements take place over hundreds of millions of years.
9-11ES3B	Geologic time can be estimated by several methods (e.g. counting tree rings, observing rock sequences, using fossils to correlate sequences at various locations, and using the known decay rates of radioactive isotopes present in rock to measure the time since the rock was formed).
9-11ES3D	Data gathered from a variety of methods have shown that Earth has gone through a number of periods when Earth was much warmer and much colder than today.
Mathematics Standards	
A1.7.B	Find the approximate solutions to exponential equations.
8.3.7	Can't find
8.5.D	Represent a problem situation, describe the process used to solve the problem, and verify the reasonableness of the solution.
A1.1.A	Select and justify functions and equations to model and solve problems.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs

2.C.2 Analyze and evaluate major alternative points of view

2.C.3 Synthesize and make connections between information and arguments

2.C.4 Interpret information and draw conclusions based on the best analysis

2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

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3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact

3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)

1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)

1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams
3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak
9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts
7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
9.B.2 Respond open-mindedly to different ideas and values
9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

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Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively
1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

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Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Students will determine the carbon output of a transportation system and design a city/interestant system that decreases the carbon output.

STANDARDS AND COMPETENCIES

C-3 Standard: Sustainable Transportation Technology and Systems **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-3.1	Analyze and apply understanding of transportation planning
C-3.2	Apply understanding of mass transit
C-3.3	Apply understanding of alternative fuel vehicles
C-3.4	Apply understanding of electric power vehicles
C-3.5	Apply understanding of fuel cell vehicles
C-3.6	Apply understanding of human powered transportation

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

	Reading
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1.4	Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge
2.3.4	Synthesize information from a variety of sources.
3.1	Read to learn new information.
3.2.2	Apply understanding of complex information, including functional documents, to perform a task.
3.3	Read for career applications.
	Communications
1.1.1	Applies a variety of listening strategies to accommodate the listening situation.
3.1	Uses knowledge of topic/theme, audience, and purpose to plan presentations.
	Social Studies – Civics
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
2.2.1 (9-10)	Understands and analyzes how planned and market economies have shaped the production, distribution, and consumption of goods, services, and resources around the world in the past or present.
3.2	Understands human interaction with the environment.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
	Writing
1.1	Pre writes to generate ideas and plan writing.
2.1	Adapts writing for a variety of audiences.
	Art
1.1	Understand arts concepts and vocabulary
	Science Standards

9-10PS1A	*Velocity* is defined as a change in position with respect to time. Velocity indicates both speed and direction.
9-10PS2H	*Solutions* are mixtures in which particles of one substance are evenly distributed through another substance. Liquids are limited in the amount of dissolved solid or gas that they can contain. *Aqueous* solutions can be described by relative quantities of the dissolved substances and acidity or alkalinity (pH).
9-10PS2J	The number of neutrons in the nucleus of an atom determines the isotope of the element. Many isotopes are very stable. Radioactive isotopes are unstable and emit particles and/or radiation. Though the timing of a single nuclear decay is unpredictable, a large group of nuclei decay at a predictable rate, making it possible to estimate the age of materials that contain radioactive isotopes.
9-10PS1K	Electricity and magnetism are two aspects of a single electromagnetic force. Moving electric charges produce magnetic forces and moving magnets produce electric forces.
9-10PS1I	Electrical force exists between charged objects. Opposite charges attract while like charges repel.
9-10PS1B	*Acceleration* is defined as a change in velocity with respect to time. Acceleration indicates a change in speed and/or a change in direction.
9-10PS3B	*Gravitational potential energy* is associated with the separation of mutually attracting masses. Transformations can occur between gravitational potential energy and kinetic energy, but the total amount of energy remains constant.
9-10PS3A	Although energy can be transferred from one object to another can be transformed from one form of energy to another form, the total energy of the universe is constant and can neither be created nor destroyed. (*Conservation of Energy*) *Kinetic energy* is the energy of motion. The kinetic energy of an object is defined by the equation: $E_k = ½ mv^2$
Mathematics Standards	
A1.8.A	Analyze a problem situation and represent it mathematically.
A1.2.B	Recognize the multiple uses or variables, determine all possible values of variable that satisfy prescribed conditions, and evaluate algebraic expressions that involve variables.
A1.3.B	Represent a function with a symbolic expression, as a graph, in a table, and using words, and make connection between these representations.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs

2.C.2 Analyze and evaluate major alternative points of view

2.C.3 Synthesize and make connections between information and arguments

2.C.4 Interpret information and draw conclusions based on the best analysis

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Be Responsible to Others

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Communicate Clearly

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3.A.5 Communicate effectively in diverse environments (including multi-lingual)

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1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

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Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments	
Student will design a clean energy source in a given area. Cost, and disruption to the environment will be determined.	
STANDARDS AND COMPETENCIES	
C-4 Standard: Sustainable Power Generation Technology and Systems	**Total Learning Hours for Standard: 20**
C=Core A=Advanced	
Competency	**Competency Description**
C-4.1	Apply understanding of energy efficiency, conservation, and reduction
C-4.2	Apply understanding of carbon offsets
C-4.3	Apply understanding of wind generation
C-4.4	Apply understanding of solar generation
C-4.5	Apply understanding of hydro generation
C-4.6	Apply understanding of geothermal generation
C-4.7	Apply understanding of complex smart grid systems
C-4.8	Apply understanding of the issues surrounding nuclear power generation
C-4.9	Apply understanding of bio fuels and bio mass (e.g.: algae, biodiesel, methane, ethanol, etc.)
C-4.10	Identify relevant clean fossil fuel generation
EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards) ***(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)***	
Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1.4	Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge
2.3.4	Synthesize information from a variety of sources.
2.4.7	Analyze and evaluate the reasoning and ideas underlying author's beliefs and assumptions within multiple texts
3.1	Read to learn new information.
3.2.2	Apply understanding of complex information, including functional documents, to perform a task.
3.3	Read for career applications.
Communications	
1.1	Uses listening and observation skills and strategies to focus attention and interpret information.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
2.2.1 (9-10)	Understands and analyzes how planned and market economies have shaped the production, distribution, and consumption of goods, services, and resources around the world in the past or present.
3.2	Understands human interaction with the environment
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.

Writing	
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11INQC	Conclusions must be logical, based on evidence, and consistent with prior established knowledge.
9-11APPE	It is important for all citizens to apply science and technology to critical issues that influence society.
9-11LS1A	Carbon containing compounds are the building blocks of life. *Photosynthesis* is the process that plant cells use to combine the energy of sunlight with molecules of carbon dioxide and water to produce energy-rich compounds that contain carbon (*food*) and release oxygen.
9-11ES2B	*Climate* is determined by energy transfer from the sun at and near Earth's surface. This energy transfer is influenced by dynamic processes such as cloud cover and Earth's rotation, as well as static conditions such as proximity to mountain ranges and the ocean. Human actives, such as burning fossil fuels, also affect the global climate.
9-11PS2K	Nuclear reactions convert matter into energy, releasing large amounts of energy. *Fission* is the splitting of a large nucleus into smaller pieces. *Fusion* is the joining of nuclei and is the process that releases energy from the Sun and other stars.
9-11PS2E	*Compounds* are composed of two or more elements bonded together in a fixed proportion by sharing electrons between atoms, forming covalent bonds. Such compounds consist of well-defined molecules; Chemical formulas of covalent compounds represent the types and number of atoms of each element in each molecule.
9-11APPD	Perfect solutions do not exist. All technological solutions involve *trade-offs* in which criteria for a desirable solution, such as appearance, efficiency, and safety, are balanced against realistic constraints such as cost, availability of materials, and deadlines.
9-11SYSC	In complex systems, entirely new and unpredictable properties may emerge. Consequently, modeling a complex system in sufficient detail to make reliable predictions may not be possible.
Mathematics Standards	
A1.6.D	Find the equation of linear function that best fits bivariate data that are linearly related, interpret the slope and the y-intercept of the line, and use the equation to make predictions.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs

2.C.2 Analyze and evaluate major alternative points of view

2.C.3 Synthesize and make connections between information and arguments

2.C.4 Interpret information and draw conclusions based on the best analysis

2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts

3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions

3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)

3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact

3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)

1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)

1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways

2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:

- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak

9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts

7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds

9.B.2 Respond open-mindedly to different ideas and values

9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal

11.A.2 Leverage strengths of others to accomplish a common goal

11.A.3 Inspire others to reach their very best via example and selflessness

11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively
1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects
10.A.1 Set and meet goals, even in the face of obstacles and competing pressures
10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information
4.A.1 Access information efficiently (time) and effectively (sources)
4.A.2 Evaluate information critically and competently
4.B.1 Use information accurately and creatively for the issue or problem at hand
4.B.2 Manage the flow of information from a wide variety of sources
4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking
2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively
6.A.1 Use technology as a tool to research, organize, evaluate and communicate information
6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy
6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible
7.B.1 Incorporate feedback effectively
7.B.2 Deal positively with praise, setbacks and criticism
7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments	
Student will determine a suitable place for a new school construction and design the facility to have limited disruption to the environment. Students will determine their carbon footprint.	
STANDARDS AND COMPETENCIES	
C-5 Standard: Sustainable Resource, Materials, and Waste Management	**Total Learning Hours for Standard: 20**
C=Core A=Advanced	
Competency	**Competency Description**
C-5.1	Apply understanding of sustainable building products (wood, metals, composites, etc)
C-5.2	Apply understanding of deconstruction, reducing, reusing, and recycling
C-5.3	Apply understanding of food waste composting
C-5.4	Apply understanding of Electronic waste practices
C-5.5	Apply understanding of water resource issues and management
EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards) ***(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)***	
Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1.4	Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge
2.3.4	Synthesize information from a variety of sources.
2.4.7	Analyze and evaluate the reasoning and ideas underlying author's beliefs and assumptions within multiple texts
3.1	Read to learn new information.
3.2	Read for career applications.
Communications	
1.1.1	Applies a variety of listening strategies to accommodate the listening situation.
1.2.1	Evaluates effectiveness of and creates a personal response to visual and auditory information.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
5.3	Deliberates public issues
Writing	
3.1	Develops ideas and organizes writing.
3.3	Knows and applies writing conventions appropriate for the grade level.

Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11INQC	Conclusions must be logical, based on evidence, and consistent with prior established knowledge.
Mathematics Standards	
G.7.C	Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.
A1.8.G	Synthesize information to draw conclusions and evaluate the arguments and conclusions of others.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs
2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:

- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak

9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts

7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds

9.B.2 Respond open-mindedly to different ideas and values

9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal

11.A.2 Leverage strengths of others to accomplish a common goal

11.A.3 Inspire others to reach their very best via example and selflessness

11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively

1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work

1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas

1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures

10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)

4.A.2 Evaluate information critically and competently

4.B.1 Use information accurately and creatively for the issue or problem at hand

4.B.2 Manage the flow of information from a wide variety of sources

4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking

2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively

6.A.1 Use technology as a tool to research, organize, evaluate and communicate information

6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy

6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Student will calculate the amount of arable land. Student will determine the crops that will support the human population while allowing the minimal disruption to the environment.

STANDARDS AND COMPETENCIES

C-6 Standard: Sustainable Agricultural Systems **Total Learning Hours for Standard:20**

C=Core A=Advanced

Competency	Competency Description
C-6.1	Explain and apply issues and economics of sustainable practices in the agriculture industry including production, processing, marketing, and delivery systems
C-6.1.1	Apply understanding of biological integrated farming systems
C-6.1.2	Apply understanding of crop/livestock production
C-6.1.3	Apply understanding of organic farming

C-6.1.4	Apply understanding of sustainable forestry
C-6.1.5	Apply understanding of chemical use and safety (e.g. Methyl Bromide alternatives)
C-6.1.6	Apply understanding of Water Use (laws and practices)
C-6.1.7	Apply understanding of small farms and community gardens
EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards) ***(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)***	
Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships
2.3.2	Evaluate informational materials, including electronic sources, for effectiveness.
2.3.4	Synthesize information from a variety of sources
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights
3.1	Read to learn new information.
3.2	Read to perform a task Apply understanding of complex information, including functional documents, to perform a task.
Communications	
1.1	Uses listening and observation skills and strategies to focus attention and interpret information.
2.1	Uses language to interact effectively and responsibly in a multicultural context.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
Writing	
3.1	Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.
3.2.3	Uses complete sentences in writing.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11INGH	Scientists carefully evaluate sources of information for reliability before using that information. When referring to the ideas or findings of others they cite their sources of information.
9-11SYSB	Systems thinking can be especially useful in analyzing complex situations. To be useful, a system needs to be specified as clearly as possible.
9-11PS2E	*Compounds* are composed of two or more elements bonded together in a fixed proportion by sharing electrons between atoms, forming covalent bonds. Such compounds consist of well-defined molecules; Chemical formulas of covalent compounds represent the types and number of atoms of each element in each molecule.
9-11LS3A	Biological evolution is due to: (1) genitive variability of offspring due to mutations and genetic recombination, (2) the potential for a species to increase its numbers, (3) a finite supply of resources, and (4) selection by the environment for those offspring better able to survive and produce offspring.
9-11APPE	It is important for all citizens to apply science and technology to critical issues that influence society.

9-11LS2E	The concept of s*ustainable development* supports adoption of policies that enable people to obtain resources they need today, without limiting the ability of future generations to meet their own needs. Sustainable process includes substitution renewable for non-renewable resources, recycling, and using fewer resources.
Mathematics Standards	
A1.8.G	Synthesize information to draw conclusions and evaluate the arguments and conclusions of others.
A1.8.B	Select and apply strategies to solve problems.
A1.8.A	Analyze a problem situation and represent it mathematically.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs
2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak

9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts

7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds

9.B.2 Respond open-mindedly to different ideas and values

9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal

11.A.2 Leverage strengths of others to accomplish a common goal

11.A.3 Inspire others to reach their very best via example and selflessness

11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively

1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work

1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas

1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures

10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)

4.A.2 Evaluate information critically and competently

4.B.1 Use information accurately and creatively for the issue or problem at hand

4.B.2 Manage the flow of information from a wide variety of sources
4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking
2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively
6.A.1 Use technology as a tool to research, organize, evaluate and communicate information
6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy
6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible
7.B.1 Incorporate feedback effectively
7.B.2 Deal positively with praise, setbacks and criticism
7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Student will determine a suitable place for a new school construction and design the facility to have limited disruption to the environment.
Students will determine their carbon footprint.

STANDARDS AND COMPETENCIES

C-7 Standard: Sustainable Ecosystem Management **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-7.1	Apply understanding of environmental health and stewardship
C-7.2	Apply understanding of public land management and policy
C-7.3	Apply understanding of biological systems
C-7.4	Apply understanding of ecosystems services measurement

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)	
Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships
2.3.2	Evaluate informational materials, including electronic sources, for effectiveness.
2.3.4	Synthesize information from a variety of sources
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights
3.1	Read to learn new information
3.2	Read to perform a task
Communications	
1.1	Uses listening and observation skills and strategies to focus attention and interpret information.
3.1	Uses knowledge of topic/theme, audience, and purpose to plan presentations.
Social Studies – Civics	
1.4.1	Analyzes and evaluates ways of influencing local, state, and national governments to preserve individual rights and promote the common good.
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
4.3.1	Analyzes the motives and interests behind an interpretation of a recent event.
5.1	Uses critical reasoning skills to analyze and evaluate positions.
5.3	Deliberates public issues.
Writing	
3.1.1	Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.
3.3.6	Uses complete sentences in writing.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11INQF	Science is a human endeavor that involves logical reasoning and creativity, and entails the testing, revision, and occasional discarding of theories as new evidence comes to light.
Mathematics Standards	
SKILLS	
Leadership: **Make Judgments and Decisions** 2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation 2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs	

2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams
3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak
9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts
7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds

9.B.2 Respond open-mindedly to different ideas and values

9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal

11.A.2 Leverage strengths of others to accomplish a common goal

11.A.3 Inspire others to reach their very best via example and selflessness

11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively

1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work

1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas

1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures

10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)

4.A.2 Evaluate information critically and competently

4.B.1 Use information accurately and creatively for the issue or problem at hand

4.B.2 Manage the flow of information from a wide variety of sources

4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking

2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively

6.A.1 Use technology as a tool to research, organize, evaluate and communicate information

6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy

6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Student will determine a suitable place for a new school construction and design the facility to have limited disruption to the environment.
Students will determine their carbon footprint.

STANDARDS AND COMPETENCIES

C-8 Standard: Sustainable Design and Construction **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-8.1	Apply understanding of “Cradle to Cradle Design” for buildings and products
C-8.2	Apply understanding of reusing and recycling construction materials
C-8.3	Apply understanding of energy efficiency practices
C-8.4	Apply understanding of retrofitting building
C-8.5	Apply understanding of green building rating systems (e.g. LEED and Green Building Council)
C-8.6	Apply understanding of sustainable landscape design, installation, and maintenance

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships.
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights.
2.4.5	Analyze text to generalize, express insight, or respond by connecting to other texts or situations
3.1	Read to learn new information. Analyze web-based and other resource materials (including primary sources and secondary sources) for relevance in answering research questions.
3.2	Read to perform a task Apply understanding of complex information, including functional documents, to perform a task.
Communications	

1.1.1	Applies a variety of listening strategies to accommodate the listening situation.
1.2.1	Evaluates effectiveness of and creates a personal response to visual and auditory information.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
Writing	
3.1	Develops ideas and organizes writing.
3.3.2	Spells accurately in final draft.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11PS3A	Although energy can be transferred from one object to another can be transformed from one form of energy to another form, the total energy of the universe is constant and can neither be created nor destroyed. (*Conservation of Energy*) *Kinetic energy* is the energy of motion. The kinetic energy of an object is defined by the equation: $E_k = ½ mv^2$
9-11SYSB	Systems thinking can be especially useful in analyzing complex situations. To be useful, a system needs to be specified as clearly as possible.
9-11APPE	It is important for all citizens to apply science and technology to critical issues that influence society.
Mathematics Standards	
A1.8.B	Select and apply strategies to solve problems.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs

2.C.2 Analyze and evaluate major alternative points of view

2.C.3 Synthesize and make connections between information and arguments

2.C.4 Interpret information and draw conclusions based on the best analysis

2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts

3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions

3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)

3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact

3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams
3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak
9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts
7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
9.B.2 Respond open-mindedly to different ideas and values
9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal
11.A.2 Leverage strengths of others to accomplish a common goal
11.A.3 Inspire others to reach their very best via example and selflessness
11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively

1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects
10.A.1 Set and meet goals, even in the face of obstacles and competing pressures
10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information
4.A.1 Access information efficiently (time) and effectively (sources)
4.A.2 Evaluate information critically and competently
4.B.1 Use information accurately and creatively for the issue or problem at hand
4.B.2 Manage the flow of information from a wide variety of sources
4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking
2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively
6.A.1 Use technology as a tool to research, organize, evaluate and communicate information
6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy
6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible
7.B.1 Incorporate feedback effectively
7.B.2 Deal positively with praise, setbacks and criticism
7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.
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Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Standards based assessment on the below sub standards.

STANDARDS AND COMPETENCIES

C9 Standard: Sustainable Manufacturing Practices **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-9.1	Apply understanding of production line efficiency
C-9.2	Apply understanding ogproduction energy efficiency
C-9.3	Analyze sustainable manufacturing materials (e.g. biodegradable, reusable)
C-9.4	Apply understanding of reducing manufacturing toxic waste and emissions
C-9.5	Apply understanding of product packing efficiency
C-9.6	Analyze industrial materials and waste best practices (e.g. recycling manufacturing byproducts technology)

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.2.2	Apply understanding of complex organizational features of printed text and electronic sources.
2.2.4	Apply understanding of text organizational structures.
2.3.2	Evaluate informational materials, including electronic sources, for effectiveness.
3.1.1	Analyze web-based and other resource materials (including primary sources and secondary sources) for relevance in answering research questions.
3.2.2	Apply understanding of complex information, including functional documents, to perform a task.
Communications	
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
5.3	Deliberates public issues.
Writing	
3.1.1	Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.
3.2	Uses appropriate style.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11SYSB	Systems thinking can be especially useful in analyzing complex situations. To be useful, a system needs to be specified as clearly as possible.

9-11APPE	It is important for all citizens to apply science and technology to critical issues that influence society.
Mathematics Standards	
A1.8.B	Select and apply strategies to solve problems.
A1.8.G	Synthesize information to draw conclusions and evaluate the arguments and conclusions of others.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs
2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak
9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts
7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
9.B.2 Respond open-mindedly to different ideas and values
9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal
11.A.2 Leverage strengths of others to accomplish a common goal
11.A.3 Inspire others to reach their very best via example and selflessness
11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively
1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

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Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures
10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)
4.A.2 Evaluate information critically and competently
4.B.1 Use information accurately and creatively for the issue or problem at hand
4.B.2 Manage the flow of information from a wide variety of sources
4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking

2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively

6.A.1 Use technology as a tool to research, organize, evaluate and communicate information

6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy

6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Standards based assessment on the below sub standards.

STANDARDS AND COMPETENCIES

C-10 Standard: Healthy Homes and Communities **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-10.1	Apply understanding of physical characteristics of a healthy home
C-10.2	Apply understanding to maintaining a healthy home – alternatives to toxic household products
C-10.3	Analyze household energy efficiency and retrofitting methods
C-10.4	Define a healthy sustainable community
C-10.5	Design and dvelop a healthy sustainable community

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

Reading

1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and

	communities.
2.1	Demonstrate evidence of reading comprehension.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships.
2.3.4	Synthesize information from a variety of sources Evaluate informational materials, including electronic sources, for effectiveness.
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights.
3.1	Read to learn new information. Analyze web-based and other resource materials (including primary sources and secondary sources) for relevance in answering research questions.
3.2	Read to perform a task.
Communications	
1.1	Uses listening and observation skills and strategies to focus attention and interpret information.
2.2	Uses interpersonal skills and strategies in a multicultural context to work collaboratively, solve problems, and perform tasks.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
Writing	
3.1.2	Analyzes and selects effective organizational structure.
3.2.2	Analyzes and selects language appropriate for specific audiences and purposes.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11APPC	The ability to solve problems is greatly enhanced by use of mathematics and information technologies.
9-11INQF	Science is a human endeavor that involves logical reasoning and creativity, and entails the testing, revision, and occasional discarding of theories as new evidence comes to light.
Mathematics Standards	
A1.8.C	Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.
SKILLS	

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs

2.C.2 Analyze and evaluate major alternative points of view

2.C.3 Synthesize and make connections between information and arguments

2.C.4 Interpret information and draw conclusions based on the best analysis

2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts

3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions

3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)

3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact

3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)

1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)

1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways

2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:

- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak

9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts

7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds

9.B.2 Respond open-mindedly to different ideas and values

9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal

11.A.2 Leverage strengths of others to accomplish a common goal

11.A.3 Inspire others to reach their very best via example and selflessness

11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively

1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work

1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas

1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures

10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)

4.A.2 Evaluate information critically and competently

4.B.1 Use information accurately and creatively for the issue or problem at hand

4.B.2 Manage the flow of information from a wide variety of sources

4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking

2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively

6.A.1 Use technology as a tool to research, organize, evaluate and communicate information

6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy

6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking

x☐Sequence x☐ Classify x☐ Compare/Contrast x☐ Predict	☐ Main Idea x☐ Summary x☐ Point of View x☐ Analysis	☐ Detect Bias ☐ Inference ☐ Conclusion ☐ Metacognition	x☐ Goal Setting ☐ Fluency ☐ Elaboration ☐Flexibility	☐ Inquisitiveness ☐ Attending ☐ Persistence ☐ Precision
Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.				

Performance Assessments

Students will determine their carbon footprint.
Students will complete the "Cool School" challenge.

STANDARDS AND COMPETENCIES

C-11 Standard: Sustainability in the Work Place **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-11.1	Analyze sustainable office systems creating a healthy, efficient, and effective workplace
C-11.2	Analyze sustainable office products
C-11.3	Apply understanding of sustainable lighting, heating, and cooling
C-11.4	Understand recycling in the workplace
C-11.5	Evaluate alternatives to the five day work week
C-11.6	Analyze the marketing of sustainability (e.g. "greenwashing" vs. real sustainability)

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1	Demonstrate evidence of reading comprehension.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships.
2.3.4	Synthesize information from a variety of sources Evaluate informational materials, including electronic sources, for effectiveness.
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights.
3.1	Read to learn new information.
3.2	Read to perform a task.
Communications	
1.1	Uses listening and observation skills and strategies to focus attention and interpret information.
2.2.2	Applies skills and strategies to contribute responsibly in a group setting.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment.

Writing	
3.1.1	Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.
3.3.6	Uses complete sentences in writing.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11INQG	Public communication among scientists is an essential aspect of research. Scientists evaluate the validity of their own and each other's investigations, check the reliability of results, and explain inconsistencies in findings.
9-11SYSB	Systems thinking can be especially useful in analyzing complex situations. To be useful, a system needs to be specified as clearly as possible.
Mathematics Standards	
A1.8.G	Synthesize information to draw conclusions and evaluate the arguments and conclusions of others.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs
2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts
3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)
3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact
3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)
1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)
1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts
2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways
2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task

10.B.1.d Participate actively, as well as be reliable and punctual
10.B.1.e Present oneself professionally and with proper etiquette
10.B.1.f Collaborate and cooperate effectively with teams
10.B.1.g Respect and appreciate team diversity
10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams
3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak
9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts
7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations

1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur

Work Effectively in Diverse Teams

9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
9.B.2 Respond open-mindedly to different ideas and values
9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Guide and Lead Others

11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal
11.A.2 Leverage strengths of others to accomplish a common goal
11.A.3 Inspire others to reach their very best via example and selflessness
11.A.4 Demonstrate integrity and ethical behavior in using influence and power

Work Creatively with Others

1.B.1 Develop, implement and communicate new ideas to others effectively
1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects

10.A.1 Set and meet goals, even in the face of obstacles and competing pressures
10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information

4.A.1 Access information efficiently (time) and effectively (sources)
4.A.2 Evaluate information critically and competently
4.B.1 Use information accurately and creatively for the issue or problem at hand
4.B.2 Manage the flow of information from a wide variety of sources
4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking
2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively
6.A.1 Use technology as a tool to research, organize, evaluate and communicate information
6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy
6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible
7.B.1 Incorporate feedback effectively
7.B.2 Deal positively with praise, setbacks and criticism
7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Student will determine a suitable place for a new school construction and design the facility to have limited disruption to the environment.

STANDARDS AND COMPETENCIES

C-12 Standard: Your Role in Building Sustainable Communities **Total Learning Hours for Standard: 20**

C=Core A=Advanced

Competency	Competency Description
C-12.1	Apply an understanding of making a difference: personal decisions and actions
C-12.2	Apply an understanding of making a difference: collective decisions and actions
C-12.3	Apply an understanding of the nature of change: decision-making processes

C-12.4	Apply an understanding of the nature of change: social marketing
C-12.5	Apply an understanding of the nature of change: research, assessment, advocacy, and action
EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards) ***(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)***	
Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
2.1	Demonstrate evidence of reading comprehension.
2.3.1	Analyze informational/expository text and literary/narrative text for similarities and differences and cause and effect relationships.
2.3.4	Synthesize information from a variety of sources Evaluate informational materials, including electronic sources, for effectiveness.
3.2	Read to perform a task.
3.1	Read to learn new information.
2.4.1	Analyze informational/expository text and literary/narrative text to draw conclusions and develop insights.
Communications	
1.1.1	Applies a variety of listening strategies to accommodate the listening situation.
2.2.2	Applies skills and strategies to contribute responsibly in a group setting.
Social Studies – Civics	
1.4.1	Analyzes and evaluates ways of influencing local, state, and national governments to preserve individual rights and promote the common good.
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
3.2	Understands human interaction with the environment.
4.2.3 (12)	Evaluates the ethics of current and future uses of technology based on how technology has shaped history.
4.3.1	Analyzes the motives and interests behind an interpretation of a recent event.
5.1	Uses critical reasoning skills to analyze and evaluate positions.
5.3	Deliberates public issues.
Writing	
3.1	Develops ideas and organizes writing.
2.4	Writes for career applications.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
Mathematics Standards	
SKILLS	
Leadership:	

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs

2.C.2 Analyze and evaluate major alternative points of view

2.C.3 Synthesize and make connections between information and arguments

2.C.4 Interpret information and draw conclusions based on the best analysis

2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

3.A.1 Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts

3.A.2 Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions

3.A.3 Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)

3.A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact

3.A.5 Communicate effectively in diverse environments (including multi-lingual)

Solve Problems

1.A.1 Use a wide range of idea creation techniques (such as brainstorming)

1.A.2 Create new and worthwhile ideas (both incremental and radical concepts)

1.A.3 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

2.D.1 Solve different kinds of non-familiar problems in both conventional and innovative ways

2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:

- 10.B.1.a Work positively and ethically
- 10.B.1.b Manage time and projects effectively
- 10.B.1.c Multi-task
- 10.B.1.d Participate actively, as well as be reliable and punctual
- 10.B.1.e Present oneself professionally and with proper etiquette
- 10.B.1.f Collaborate and cooperate effectively with teams
- 10.B.1.g Respect and appreciate team diversity

10.B.1.h Be accountable for results

Collaborate with Others

3.B.1 Demonstrate ability to work effectively and respectfully with diverse teams

3.B.2 Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

3.B.3 Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

Interact Effectively with Others

9.A.1 Know when it is appropriate to listen and when to speak

9.A.2 Conduct themselves in a respectable, professional manner

Adapt to Change

7.A.1 Adapt to varied roles, jobs responsibilities, schedules and contexts
7.A.2 Work effectively in a climate of ambiguity and changing priorities

Implement Innovations
1.C.1 Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur
Work Effectively in Diverse Teams
9.B.1 Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
9.B.2 Respond open-mindedly to different ideas and values
9.B.3 Leverage social and cultural differences to create new ideas and increase both innovation and quality of work
Guide and Lead Others
11.A.1 Use interpersonal and problem-solving skills to influence and guide others toward a goal
11.A.2 Leverage strengths of others to accomplish a common goal
11.A.3 Inspire others to reach their very best via example and selflessness
11.A.4 Demonstrate integrity and ethical behavior in using influence and power
Work Creatively with Others
1.B.1 Develop, implement and communicate new ideas to others effectively
1.B.2 Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
1.B.3 Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
1.B.4 View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes

Employability:

Manage Projects
10.A.1 Set and meet goals, even in the face of obstacles and competing pressures
10.A.2 Prioritize, plan and manage work to achieve the intended result

Access and Evaluate Information
4.A.1 Access information efficiently (time) and effectively (sources)
4.A.2 Evaluate information critically and competently
4.B.1 Use information accurately and creatively for the issue or problem at hand
4.B.2 Manage the flow of information from a wide variety of sources
4.B.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

Use Systems Thinking
2.B.1 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Apply Technology Effectively
6.A.1 Use technology as a tool to research, organize, evaluate and communicate information
6.A.2 Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage,

integrate, evaluate and create information to successfully function in a knowledge economy

6.A.3 Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

Be Flexible

7.B.1 Incorporate feedback effectively

7.B.2 Deal positively with praise, setbacks and criticism

7.B.3 Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments.

Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

x☐ Observe	x☐ Cause/Effect	x☐ Finding Evidence	x☐ Reasoning	x☐ Originality
☐ Patterns	x☐ Fact/Opinion	x☐ Evaluation	x☐ Problem Solving	☐ Risking
x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.

Performance Assessments

Assessed by in class discussion.

STANDARDS AND COMPETENCIES

C-13 Standard: Career Paths in Sustainability – Postsecondary Options **Total Learning Hours for Standard:20**

C=Core A=Advanced

Competency	Competency Description
C-13.1	Understand sustainability-related apprenticeship programs
C-13.2	Understand sustainability-related 2-year college degree and certificate program
C-13.3	Understand sustainability-related 4-year college degree programs
C-13.4	Understand sustainability-related entrepreneurship/innovation
C-13.5	Analyze sustainability-related business development models

EALRs, GLEs, Math and Science Standards (Taught & Assessed in Standards)

(Samples included below of GLEs, EALRS, Math and Science Standards must be modified for district frameworks)

Reading	
1.3.2	Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.
3.3	Read for career applications.
3.1	Read to learn new information. Analyze web-based and other resource materials (including primary sources and secondary sources) for relevance in answering research questions.
Communications	
1.1.1	Applies a variety of listening strategies to accommodate the listening situation.

2.1	Uses language to interact effectively and responsibly in a multicultural context.
Social Studies – Civics	
2.1	Understands that people have to make choices between wants and needs and evaluate the outcomes of those choices.
Writing	
2.4	Writes for career applications.
3.1	Develops ideas and organizes writing.
Art	
1.1	Understand arts concepts and vocabulary
Science Standards	
9-11INQA	Scientists generate and evaluate questions to investigate the natural world.
9-11INQE	The essence of scientific investigation involves the development of a theory or conceptual model that can generate testable predictions.
Mathematics Standards	
A1.8.G	Synthesize information to draw conclusions and evaluate the arguments and conclusions of others.

SKILLS

Leadership:

Make Judgments and Decisions

2.A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
2.C.1 Effectively analyze and evaluate evidence, arguments, claims and beliefs
2.C.2 Analyze and evaluate major alternative points of view
2.C.3 Synthesize and make connections between information and arguments
2.C.4 Interpret information and draw conclusions based on the best analysis
2.C.5 Reflect critically on learning experiences and processes

Be Responsible to Others

11.B.1 Act responsibly with the interests of the larger community in mind

Communicate Clearly

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Solve Problems

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2.D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions

Produce Results

10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:

10.B.1.a Work positively and ethically
10.B.1.b Manage time and projects effectively
10.B.1.c Multi-task
10.B.1.d Participate actively, as well as be reliable and punctual
10.B.1.e Present oneself professionally and with proper etiquette
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Collaborate with Others

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Be Flexible
7.B.1 Incorporate feedback effectively
7.B.2 Deal positively with praise, setbacks and criticism
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Analytical, Logical & Creative Thinking (check those that students will demonstrate in this lesson):

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x☐ Sequence	☐ Main Idea	☐ Detect Bias	x☐ Goal Setting	☐ Inquisitiveness
x☐ Classify	x☐ Summary	☐ Inference	☐ Fluency	☐ Attending
x☐ Compare/Contrast	x☐ Point of View	☐ Conclusion	☐ Elaboration	☐ Persistence
x☐ Predict	x☐ Analysis	☐ Metacognition	☐ Flexibility	☐ Precision

Relevance to Work: Understanding that a strong work ethic will contribute to higher productivity in organizations.