

<b>Introduction to Technology</b>		<b>8600010</b>	
<b>Outcome # 01.0 DEMONSTRATE AN UNDERSTANDING OF THE CHARACTERISTICS AND SCOPE OF TECHNOLOGY</b>			
<b>Performance Task# 01.01 Develop new products and systems to solve problems or to help do things that could not be done without the help of technology.</b>			
<b>SSS Strand: Listening, Viewing, and Speaking</b>		<b>Essential Work Skills</b>	
<b>L.A.C 3.3.3 L</b>	Speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations.	<b>e10</b>	Prepare and deliver individual speeches by gathering information, rehearsing, making eye contact, speaking loudly enough, delivering information in a well organized fashion, and appealing to the needs of the target audience.
<b>SSS Strand: Measurement</b>		<b>Essential Work Skills</b>	
<b>M.A.B 3.3.1 H</b>	Solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume, in either customary or metric units.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
		<b>m17</b>	Compute the volume of three-dimensional figures (solids).
<b>Performance Task# 01.02 Describe the development of technology as a human activity that is the result of individual or collective needs and the ability to be creative.</b>			
<b>SSS Strand: Writing</b>		<b>Essential Work Skills</b>	
<b>L.A.B 2.3.1 L</b>	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
		<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>L.A.B 2.3.3 L</b>	Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
		<b>e62</b>	Understand the needs of a specific audience and write and speak in ways that address these needs.
<b>L.A.B 2.3.4 L</b>	Uses electronic technology including databases and software to gather information and communicate new knowledge.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: Language</b>		<b>Essential Work Skills</b>	
<b>L.A.D 2.3.1 L</b>	Selects language that shapes reactions, perceptions, and beliefs.	<b>e72</b>	Evaluate the way an author uses language and text characteristics such as plot, setting, theme, character, point of view, genre etc. to evoke a response in a reader.
		<b>e89</b>	Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.
<b>L.A.D 2.3.2 L</b>	Uses literary devices and techniques in the comprehension and creation of written, oral, and visual communications.	<b>e80</b>	Understand ways an author uses language and text characteristics to aid comprehension.

<b>LA.D 2.3.4</b>	<b>L</b>	Understands how the multiple media tools of graphics, pictures, color, motion, and music can enhance communication in television, film, radio, and advertising.	<b>e68</b>	Apply an understanding of the meaning of graphics, layout, white space, italics, parentheses, and other visual aids.
<b>LA.D 2.3.5</b>	<b>L</b>	Incorporates audiovisual aids in presentations.	<b>e56</b>	Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.
<b>LA.D 2.3.6</b>	<b>L</b>	Understands specific ways that mass media can potentially enhance or manipulate information.	<b>e56</b>	Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.
<b>LA.D 2.3.7</b>	<b>L</b>	Understands that laws exist that govern what can and cannot be done with mass media.		No Essential Work Skill

<b>SSS Strand: The Nature of Science</b>			<b>Essential Work Skills</b>	
<b>SC.H 3.3.1</b>	<b>M</b>	Knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures)
<b>SC.H 3.3.4</b>	<b>M</b>	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	<b>s115</b>	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
<b>SC.H 3.3.5</b>	<b>L</b>	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.6</b>	<b>M</b>	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.7</b>	<b>M</b>	Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.		No Essential Work Skill

**Performance Task# 01.03 Explain how technology is closely linked with creativity, which has resulted in innovation.**

<b>SSS Strand: Language</b>			<b>Essential Work Skills</b>	
<b>LA.D 2.3.1</b>	<b>L</b>	Selects language that shapes reactions, perceptions, and beliefs.	<b>e72</b>	Evaluate the way an author uses language and text characteristics such as plot, setting, theme, character, point of view, genre etc. to evoke a response in a reader.
			<b>e89</b>	Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.
<b>LA.D 2.3.4</b>	<b>L</b>	Understands how the multiple media tools of graphics, pictures, color, motion, and music can enhance communication in television, film, radio, and advertising.	<b>e68</b>	Apply an understanding of the meaning of graphics, layout, white space, italics, parentheses, and other visual aids.
<b>LA.D 2.3.5</b>	<b>L</b>	Incorporates audiovisual aids in presentations.	<b>e56</b>	Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.
<b>LA.D 2.3.6</b>	<b>L</b>	Understands specific ways that mass media can potentially enhance or manipulate information.	<b>e56</b>	Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.

<b>SSS Strand: Algebraic Thinking</b>			<b>Essential Work Skills</b>	

<b>MA.D 1.3.1</b>	<b>H</b>	Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	<b>m40</b>	Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
<b>MA.D 1.3.2</b>	<b>H</b>	Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.		No Essential Work Skill
<b>Outcome # 02.0 DEMONSTRATE AN UNDERSTANDING OF THE CORE CONCEPTS OF TECHNOLOGY</b>				
<b>Performance Task# 02.01 Identify technological systems including input, processes, output, and, at times, feedback.</b>				
<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: Data Analysis and Probability</b>			<b>Essential Work Skills</b>	
<b>MA.E 1.3.1</b>	<b>H</b>	Collects, organizes, and displays data in a variety of forms, including table: line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
<b>MA.E 1.3.3</b>	<b>H</b>	Analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
<b>Performance Task# 02.02 Define systems thinking, involving considering how every part relates to others.</b>				
<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.1</b>	<b>H</b>	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	<b>e05</b>	Identify, collect and/or select pertinent information while reading.
			<b>e15</b>	Discriminate important ideas from unimportant ideas while reading.
			<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 2.3.2</b>	<b>H</b>	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	<b>e77</b>	Assess the significance and importance of the themes in a literary text.
<b>LA.A 2.3.3</b>	<b>L</b>	Recognizes logical, ethical, and emotional appeals in texts.	<b>e17</b>	Analyze, evaluate and critique such events as current events, political campaigns, advertisements and media.
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.6</b>	<b>H</b>	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.7</b>	<b>H</b>	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.8</b>	<b>H</b>	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

SSS Strand: Language		Essential Work Skills
LA.D 1.3.1	L Understands that there are patterns and rules in semantic structure, symbols sounds, and meanings conveyed through the English language.	No Essential Work Skill
LA.D 1.3.2	L Demonstrates an awareness that language and literature are primary means by which culture is transmitted.	e23 Understand the personal, social, cultural and historical significance of a text.
SSS Strand: Algebraic Thinking		Essential Work Skills
MA.D 1.3.1	H Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	m40 Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
MA.D 1.3.2	H Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.	No Essential Work Skill
SSS Strand: Data Analysis and Probability		Essential Work Skills
MA.E 1.3.1	H Collects, organizes, and displays data in a variety of forms, including table: line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.	m05 Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
MA.E 1.3.3	H Analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.	m05 Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
SSS Strand: The Nature of Science		Essential Work Skills
SC.H 1.3.1	H Knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.	s116 (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
SC.H 1.3.2	M Knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.	s116 (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
SC.H 1.3.3	M Knows that science disciplines differ from one another in topic, techniques and outcomes, but that they share a common purpose, philosophy, and enterprise.	s114 (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 1.3.4	H Knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society	s114 (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 1.3.5	H Knows that a change in one or more variables may alter the outcome of an investigation.	s114 (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 1.3.6	L Recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.	s116 (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
SC.H 1.3.7	H Knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study	s114 (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures

**Performance Task# 02.03 Identify control systems having no feedback path and requiring human intervention, and control system using feedback.**

SSS Strand:	Essential Work Skills
No SSS Link to this Student Performance Standard.	No Essential Work Skill

**Performance Task# 02.04 Identify how technological systems can be connected to one another.**

SSS Strand: Algebraic Thinking	Essential Work Skills
<b>MA.D 1.3.1 H</b> Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	<b>m40</b> Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
<b>MA.D 1.3.2 H</b> Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.	No Essential Work Skill

**Performance Task# 02.05 Diagnose malfunctions of any part of a system that may affect the function and quality of the system.**

SSS Strand: The Nature of Science	Essential Work Skills
<b>SC.H 1.3.1 H</b> Knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.	<b>s116</b> (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.2 M</b> Knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.	<b>s116</b> (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.4 H</b> Knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.5 H</b> Knows that a change in one or more variables may alter the outcome of an investigation.	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.7 H</b> Knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further stuc	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 2.3.1 M</b> Recognizes that patterns exist within and across systems.	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures

**Performance Task# 02.06 Identify requirements or parameters placed on the development of a product or system.**

SSS Strand: Number Sense, Concepts, and Operations		Essential Work Skills	
<b>MA.A 4.3.1</b>	<b>H</b> Uses estimation strategies to predict results and to check the reasonableness of results.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
SSS Strand: Measurement		Essential Work Skills	
<b>MA.B 1.3.1</b>	<b>H</b> Uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids and cylinders.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
		<b>m17</b>	Compute the volume of three-dimensional figures (solids).
		<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.3</b>	<b>H</b> Understands and describes how the change of a figure in such dimensions : length, width, height, or radius affects its other measurements such as perimeter, area, surface area, and volume.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
		<b>m17</b>	Compute the volume of three-dimensional figures (solids).
		<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.4</b>	<b>H</b> Constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.		No Essential Work Skill
<b>MA.B 3.3.1</b>	<b>H</b> Solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume, in either customary or metric units.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
		<b>m17</b>	Compute the volume of three-dimensional figures (solids).
<b>MA.B 4.3.1</b>	<b>L</b> Selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the last precise unit of measurement.)	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>MA.B 4.3.2</b>	<b>L</b> Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
SSS Strand: Geometry and Spatial Sense		Essential Work Skills	
<b>MA.C 1.3.1</b>	<b>H</b> Understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.	<b>m16</b>	Understand the properties and classification of triangles by sides (i.e., scalene, isosceles, and equilateral).
		<b>m21</b>	Use the Pythagorean theorem to compute side lengths of right triangles.
		<b>m26</b>	Understand the properties and classification of polygons (e.g., triangle, quadrilaterals, pentagon, hexagon, etc.) as well as knowledge of geometric shapes.
		<b>m27</b>	Understand the properties and classification of quadrilaterals by orientation (e.g., parallelogram, rectangle, rhombus, square, and trapezoid).
		<b>m29</b>	Know the classification and properties of solid figures such as prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres.

SSS Strand: Algebraic Thinking			Essential Work Skills	
MA.D 1.3.1	H	Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	m40	Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
MA.D 1.3.2	H	Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.		No Essential Work Skill
SSS Strand: Data Analysis and Probability			Essential Work Skills	
MA.E 2.3.1	H	Compares experimental results with mathematical expectations of probabilities.	m20	Understand the characteristic differences between theoretical and empirical probability (e.g., the theoretic probability of rolling a six and a die is 1/6 ; empirical probability is derived from repeated experimentation or accumulated statistics).
			m25	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
MA.E 2.3.2	H	Determines odds for and odds against a given situation.		No Essential Work Skill
MA.E 3.3.1	H	Formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.	m05	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			m15	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			m36	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).
MA.E 3.3.2	H	Identifies the common uses and misuses of probability and statistical analysis in the everyday world.	m05	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			m15	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			m25	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
			m36	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).
SSS Strand: The Nature of Science			Essential Work Skills	
SC.H 3.3.1	M	Knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.2	M	Knows that special care must be taken in using animals in scientific research	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.3	M	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.4	M	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	s115	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.

<b>SC.H 3.3.5</b>	<b>L</b>	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.6</b>	<b>M</b>	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.7</b>	<b>M</b>	Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.		No Essential Work Skill

**Performance Task# 02.07 Identify trade-offs as a decision process recognizing the need for careful compromises among competing factors.**

<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.1</b>	<b>H</b>	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	<b>e05</b>	Identify, collect and/or select pertinent information while reading.
			<b>e15</b>	Discriminate important ideas from unimportant ideas while reading.
			<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 2.3.2</b>	<b>H</b>	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	<b>e77</b>	Assess the significance and importance of the themes in a literary text.
<b>LA.A 2.3.3</b>	<b>L</b>	Recognizes logical, ethical, and emotional appeals in texts.	<b>e17</b>	Analyze, evaluate and critique such events as current events, political campaigns, advertisements and media.
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.6</b>	<b>H</b>	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.7</b>	<b>H</b>	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.8</b>	<b>H</b>	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: Data Analysis and Probability</b>			<b>Essential Work Skills</b>	
<b>MA.E 2.3.1</b>	<b>H</b>	Compares experimental results with mathematical expectations of probabilities.	<b>m20</b>	Understand the characteristic differences between theoretical and empirical probability (e.g., the theoretic probability of rolling a six and a die is 1/6 ; empirical probability is derived from repeated experimentation or accumulated statistics).
			<b>m25</b>	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
<b>MA.E 2.3.2</b>	<b>H</b>	Determines odds for and odds against a given situation.		No Essential Work Skill

<b>MA.E 3.3.1</b>	<b>H</b>	Formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).
<b>MA.E 3.3.2</b>	<b>H</b>	Identifies the common uses and misuses of probability and statistical analysis in the everyday world.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m25</b>	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divided by the total number of outcomes.
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).

**Performance Task# 02.08 Identify different technologies that involve different sets of processes.**

<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.1</b>	<b>H</b>	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	<b>e05</b>	Identify, collect and/or select pertinent information while reading.
			<b>e15</b>	Discriminate important ideas from unimportant ideas while reading.
			<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 2.3.2</b>	<b>H</b>	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	<b>e77</b>	Assess the significance and importance of the themes in a literary text.
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.6</b>	<b>H</b>	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.7</b>	<b>H</b>	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.8</b>	<b>H</b>	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 02.09 Define maintenance as the process of inspecting and servicing a product or system on a regular basis in order for it to continue functioning properly, to extend its life, or to upgrade its capability.**

SSS Strand:		Essential Work Skills
No SSS Link to this Student Performance Standard.		No Essential Work Skill
<p><b>Outcome # 03.0 DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIPS AMONG TECHNOLOGIES AND THE CONNECTION BETWEEN TECHNOLOGY AND OTHER FIELDS OF STUDY</b></p>		
<p><b>Performance Task# 03.01 Explain how technological systems interact with one another.</b></p>		
SSS Strand: Writing		Essential Work Skills
LA.B 2.3.1 L	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
		e40 Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
SSS Strand: Algebraic Thinking		Essential Work Skills
MA.D 1.3.1 H	Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	m40 Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
MA.D 1.3.2 H	Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.	No Essential Work Skill
<p><b>Performance Task# 03.02 Explain how knowledge gained from other fields of study has a direct effect on the development of technological products and systems.</b></p>		
SSS Strand: Writing		Essential Work Skills
LA.B 2.3.1 L	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
		e40 Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
SSS Strand: Number Sense, Concepts, and Operations		Essential Work Skills
MA.A 1.3.1 H	Associates verbal names, written word names, and standard numerals with integers, fractions, decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals, absolute value; and ratios.	m01 Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
		m19 Understand the definitions and properties of rational and irrational numbers.
		m24 Understand the basic properties and laws of exponents and scientific notation.
MA.A 1.3.2 H	Understands the relative size of integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios.	m01 Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
		m19 Understand the definitions and properties of rational and irrational numbers.
		m24 Understand the basic properties and laws of exponents and scientific notation.

<b>MA.A 1.3.3</b>	<b>H</b>	Understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.	<b>m01</b>	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
			<b>m19</b>	Understand the definitions and properties of rational and irrational numbers.
			<b>m24</b>	Understand the basic properties and laws of exponents and scientific notation.
<b>MA.A 1.3.4</b>	<b>H</b>	Understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.	<b>m01</b>	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
			<b>m19</b>	Understand the definitions and properties of rational and irrational numbers.

**Outcome # 04.0 DEMONSTRATE AN UNDERSTANDING OF THE CULTURAL, SOCIAL, ECONOMIC, AND POLITICAL EFFECTS OF TECHNOLOGY**

**Performance Task# 04.01 Identify the ways that use of technology affects humans, including their safety, comfort, choices, and attitudes about technology's development and use.**

<b>SSS Strand: The Nature of Science</b>			<b>Essential Work Skills</b>	
<b>SC.H 3.3.1</b>	<b>M</b>	Knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.2</b>	<b>M</b>	Knows that special care must be taken in using animals in scientific research.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.3</b>	<b>M</b>	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.4</b>	<b>M</b>	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	<b>s115</b>	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
<b>SC.H 3.3.5</b>	<b>L</b>	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.6</b>	<b>M</b>	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.7</b>	<b>M</b>	Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.		No Essential Work Skill

**Performance Task# 04.02 Explain that technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>		
LA.A 2.3.1	H	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	e05	Identify, collect and/or select pertinent information while reading.
			e15	Discriminate important ideas from unimportant ideas while reading.
			e50	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
LA.A 2.3.2	H	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	e77	Assess the significance and importance of the themes in a literary text.
LA.A 2.3.3	L	Recognizes logical, ethical, and emotional appeals in texts.	e17	Analyze, evaluate and critique such events as current events, political campaigns, advertisements and media.
LA.A 2.3.5	H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 04.03 Identify ethical issues associated with the development and use of technology.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>		
LA.A 1.3.1	L	Uses background knowledge of the subject and text structure knowledge to make complex predictions of content, purpose, and organization of the reading selection.	e52	Preview textbooks for informational text to anticipate content.
LA.A 2.3.5	H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e80	Understand ways an author uses language and text characteristics to aid comprehension.
			e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: The Nature of Science</b>		<b>Essential Work Skills</b>		
SC.H 3.3.1	M	Knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.2	M	Knows that special care must be taken in using animals in scientific research	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures

<b>SC.H 3.3.3</b>	<b>M</b>	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefit associated with the research and of their right to refuse to participate.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.4</b>	<b>M</b>	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	<b>s115</b>	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
<b>Performance Task# 04.04 Identify the economic, political, and cultural issues that are influenced by the development and use of technology.</b>				
<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: The Nature of Science</b>			<b>Essential Work Skills</b>	
<b>SC.H 3.3.1</b>	<b>M</b>	Knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.2</b>	<b>M</b>	Knows that special care must be taken in using animals in scientific research	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.3</b>	<b>M</b>	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefit associated with the research and of their right to refuse to participate.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.4</b>	<b>M</b>	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	<b>s115</b>	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
<b>SC.H 3.3.5</b>	<b>L</b>	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.6</b>	<b>M</b>	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 3.3.7</b>	<b>M</b>	Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.		No Essential Work Skill
<b>Outcome # 05.0 DEMONSTRATE AN UNDERSTANDING OF THE EFFECTS OF TECHNOLOGY ON THE ENVIRONMENT</b>				

**Performance Task# 05.01 Describe the management of waste produced by technological systems as an important societal issue.**

<b>SSS Strand: Processes that Shape the Earth</b>		<b>Essential Work Skills</b>
<b>SC.D 2.3.1</b>	<b>L</b> Understands that quality of life is relevant to personal experience.	No Essential Work Skill
<b>SC.D 2.3.2</b>	<b>H</b> Knows the positive and negative consequences of human action on the Earth's systems.	<b>s10</b> Understand the human impact on the environment through pollution (air, water, and soil), and ways to improve it through education, research, laws, and conservation.

<b>SSS Strand: How Living Things Interact with Their Environment</b>		<b>Essential Work Skills</b>
<b>SC.G 1.3.1</b>	<b>H</b> Knows that viruses depend on other living things.	<b>s13</b> Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
<b>SC.G 1.3.2</b>	<b>M</b> Knows that biological adaptations include changes in structures, behaviors or physiology that enhance reproductive success in a particular environment.	<b>s09</b> Identify the cell as a common unit between living things understand cell structure and the functions they perform
<b>SC.G 1.3.3</b>	<b>M</b> Understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships.	<b>s59</b> Know the classification system into which organisms are separated and grouped based on common characteristics. The classification groups include (from largest to smallest): kingdom, phylum, class, genus, and species.
<b>SC.G 1.3.4</b>	<b>H</b> Knows that the interactions of organisms with each other and with the nonliving parts of their environments result in the flow of energy and the cycling of matter throughout the system.	<b>s13</b> Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
<b>SC.G 1.3.5</b>	<b>H</b> Knows that life is maintained by a continuous input of energy from the sun and by the recycling of the atoms that make up the molecules of living organisms.	<b>s42</b> Understand the chemical reactions involved in cell functions (e.g., food molecules taken into cells are broken down to provide the chemical constituents needed to synthesize other molecules).
<b>SC.G 2.3.1</b>	<b>M</b> Knows that some resources are renewable and others are nonrenewable.	<b>s60</b> Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
<b>SC.G 2.3.2</b>	<b>M</b> Knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.	<b>s13</b> Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
<b>SC.G 2.3.3</b>	<b>M</b> Knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth.	<b>s13</b> Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
<b>SC.G 2.3.4</b>	<b>H</b> Understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.	<b>s10</b> Understand the human impact on the environment through pollution (air, water, and soil), and ways to improve it through education, research, laws, and conservation.

**Performance Task# 05.02 Identify how technologies can be used to repair damage caused by natural disasters and to break down waste from the use of various products and systems.**

<b>SSS Strand: Processes that Shape the Earth</b>		<b>Essential Work Skills</b>
<b>SC.D 1.3.2</b>	<b>H</b> Knows that over the whole Earth, organisms are growing, dying, and decaying as new organisms are produced by the old ones.	<b>s13</b> Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).

SC.D 1.3.3	M	Knows how conditions that exist in one system influence the conditions that exist in other systems.	s13	Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
SC.D 1.3.4	H	Knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).	s13	Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
SC.D 1.3.5	M	Understands concepts of time and size relating to the interaction of Earth's processes (e.g., lightning striking in a split second as opposed to the shifting of the Earth's plates altering the landscape, distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).	s23	Measure properties of the environment using dimensional quantities such as time, length, mass, pressure, volume, acceleration, etc. Compare, estimate and predict measurements.

<b>SSS Strand: How Living Things Interact with Their Environment</b>	<b>Essential Work Skills</b>
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SC.G 1.3.1	H	Knows that viruses depend on other living things.	s13	Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
SC.G 1.3.2	M	Knows that biological adaptations include changes in structures, behaviors or physiology that enhance reproductive success in a particular environment.	s09	Identify the cell as a common unit between living things understand cell structure and the functions they perform

SC.G 1.3.3	M	Understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships.	s59	Know the classification system into which organisms are separated and grouped based on common characteristics. The classification groups include (from largest to smallest): kingdom, phylum, class, genus, and species.
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**Outcome # 06.0 DEMONSTRATE AN UNDERSTANDING OF THE ROLE OF SOCIETY IN THE DEVELOPMENT AND USE OF TECHNOLOGY**

**Performance Task# 06.01 Identify the development of technologies that has resulted from the demands, values, and interests of individuals, businesses, industries, and societies.**

<b>SSS Strand: Writing</b>	<b>Essential Work Skills</b>
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LA.B 2.3.1	L	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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			e40	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
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LA.B 2.3.2	L	Organizes information using alphabetical, chronological, and numerical systems.	e12	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
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LA.B 2.3.3	L	Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	e50	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
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			e62	Understand the needs of a specific audience and write and speak in ways that address these needs.
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LA.B 2.3.4	L	Uses electronic technology including databases and software to gather information and communicate new knowledge.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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<b>SSS Strand: The Nature of Science</b>	<b>Essential Work Skills</b>
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SC.H 3.3.1	M	Knows that science ethics demand that scientists must not knowingly subje coworkers, students, the neighborhood, or the community to health or property risks.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.2	M	Knows that special care must be taken in using animals in scientific researc	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.3	M	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefit associated with the research and of their right to refuse to participate.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.4	M	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	s115	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
SC.H 3.3.5	L	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	s116	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
SC.H 3.3.6	M	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	s116	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
SC.H 3.3.7	M	Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.		No Essential Work Skill

**Performance Task# 06.02 Identify changes in society and the creation of new needs and wants caused by the use of inventions and innovations.**

SSS Strand: The Nature of Science			Essential Work Skills	
SC.H 3.3.1	M	Knows that science ethics demand that scientists must not knowingly subje coworkers, students, the neighborhood, or the community to health or property risks.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.3	M	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefit associated with the research and of their right to refuse to participate.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.4	M	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	s115	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
SC.H 3.3.5	L	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	s116	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
SC.H 3.3.6	M	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	s116	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.

SC.H 3.3.7 M Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.

No Essential Work Skill

**Outcome # 07.0 DEMONSTRATE AN UNDERSTANDING OF THE INFLUENCE OF HISTORY ON TECHNOLOGY**

**Performance Task# 07.01 Identify inventions and innovations that have evolved by using slow and methodical processes of tests and refinements.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>	
LA.A 2.3.1	H Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	e05	Identify, collect and/or select pertinent information while reading.
		e15	Discriminate important ideas from unimportant ideas while reading.
		e50	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
LA.A 2.3.2	H Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	e77	Assess the significance and importance of the themes in a literary text.
LA.A 2.3.3	L Recognizes logical, ethical, and emotional appeals in texts.	e17	Analyze, evaluate and critique such events as current events, political campaigns, advertisements and media.
LA.A 2.3.5	H Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: Writing</b>		<b>Essential Work Skills</b>	
LA.B 2.3.1	L Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
		e40	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
LA.B 2.3.3	L Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	e50	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
		e62	Understand the needs of a specific audience and write and speak in ways that address these needs.
LA.B 2.3.4	L Uses electronic technology including databases and software to gather information and communicate new knowledge.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: The Nature of Science</b>		<b>Essential Work Skills</b>	

<b>SC.H 1.3.1</b>	<b>H</b>	Knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.2</b>	<b>M</b>	Knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.3</b>	<b>M</b>	Knows that science disciplines differ from one another in topic, techniques and outcomes, but that they share a common purpose, philosophy, and enterprise.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.4</b>	<b>H</b>	Knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.5</b>	<b>H</b>	Knows that a change in one or more variables may alter the outcome of an investigation.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.6</b>	<b>L</b>	Recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.7</b>	<b>H</b>	Knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures

**Performance Task# 07.02 Explain how the specialization of function has been at the heart of many technological improvements.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill

**Outcome # 08.0 DEMONSTRATE AN UNDERSTANDING OF THE ATTRIBUTES OF DESIGN**

**Performance Task# 08.01 Use design as a creative planning process that leads to useful products and systems.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill

**Performance Task# 08.02 Explain why there is no perfect design.**

<b>SSS Strand: Language</b>	<b>Essential Work Skills</b>
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<b>LA.D 2.3.1</b>	<b>L</b>	Selects language that shapes reactions, perceptions, and beliefs.	<b>e72</b>	Evaluate the way an author uses language and text characteristics such as plot, setting, theme, character, point of view, genre etc. to evoke a response in a reader.
			<b>e89</b>	Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.
<b>LA.D 2.3.3</b>	<b>L</b>	Distinguishes between emotional and logical argument.	<b>e70</b>	Analyze and evaluate a speaker's statements of opinion, personal preference and values.
			<b>e95</b>	Analyze and evaluate a speaker's persuasive techniques.
<b>LA.D 2.3.4</b>	<b>L</b>	Understands how the multiple media tools of graphics, pictures, color, motion, and music can enhance communication in television, film, radio, and advertising.	<b>e68</b>	Apply an understanding of the meaning of graphics, layout, white space, italics, parentheses, and other visual aids.

**Performance Task# 08.03 Identify criteria and constraints that are requirements for a design.**

<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.1</b>	<b>H</b>	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	<b>e05</b>	Identify, collect and/or select pertinent information while reading.
			<b>e15</b>	Discriminate important ideas from unimportant ideas while reading.
			<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 2.3.2</b>	<b>H</b>	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	<b>e77</b>	Assess the significance and importance of the themes in a literary text.
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.6</b>	<b>H</b>	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.7</b>	<b>H</b>	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.8</b>	<b>H</b>	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: Number Sense, Concepts, and Operations</b>			<b>Essential Work Skills</b>	
<b>MA.A 4.3.1</b>	<b>H</b>	Uses estimation strategies to predict results and to check the reasonableness of results.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

<b>SSS Strand: Measurement</b>			<b>Essential Work Skills</b>	
<b>MA.B 1.3.1</b>	<b>H</b>	Uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids and cylinders.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
			<b>m17</b>	Compute the volume of three-dimensional figures (solids).
			<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)

<b>MA.B 1.3.3</b>	<b>H</b>	Understands and describes how the change of a figure in such dimensions : length, width, height, or radius affects its other measurements such as perimeter, area, surface area, and volume.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
			<b>m17</b>	Compute the volume of three-dimensional figures (solids).
			<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.4</b>	<b>H</b>	Constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.		No Essential Work Skill
<b>MA.B 3.3.1</b>	<b>H</b>	Solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume, in either customary or metric units.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
			<b>m17</b>	Compute the volume of three-dimensional figures (solids).
<b>MA.B 4.3.1</b>	<b>L</b>	Selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the last precise unit of measurement.)	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>MA.B 4.3.2</b>	<b>L</b>	Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>SSS Strand: Data Analysis and Probability</b>			<b>Essential Work Skills</b>	
<b>MA.E 2.3.1</b>	<b>H</b>	Compares experimental results with mathematical expectations of probabilities.	<b>m20</b>	Understand the characteristic differences between theoretical and empirical probability (e.g., the theoretic probability of rolling a six and a die is 1/6 ; empirical probability is derived from repeated experimentation or accumulated statistics).
			<b>m25</b>	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
<b>MA.E 3.3.1</b>	<b>H</b>	Formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).
<b>SSS Strand: The Nature of Science</b>			<b>Essential Work Skills</b>	
<b>SC.H 3.3.1</b>	<b>M</b>	Knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 3.3.2</b>	<b>M</b>	Knows that special care must be taken in using animals in scientific research	<b>s114</b>	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures

SC.H 3.3.3	M	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefit associated with the research and of their right to refuse to participate.	s114	(Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
SC.H 3.3.4	M	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	s115	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
SC.H 3.3.5	L	Understands that contributions to the advancement of science, mathematics and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture.	s116	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.

SC.H 3.3.6	M	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	s116	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
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SC.H 3.3.7	M	Knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.		No Essential Work Skill
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## Outcome # 09.0 DEMONSTRATE AN UNDERSTANDING OF ENGINEERING DESIGN

### Performance Task# 09.01 Document the design process involving a set of steps, which can be performed in different sequences and repeated as needed.

SSS Strand: Reading			Essential Work Skills	
LA.A 2.3.1	H	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	e05	Identify, collect and/or select pertinent information while reading.
			e15	Discriminate important ideas from unimportant ideas while reading.
			e50	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
LA.A 2.3.2	H	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	e77	Assess the significance and importance of the themes in a literary text.
LA.A 2.3.5	H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
SSS Strand: Writing			Essential Work Skills	
LA.B 2.3.1	L	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

		<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>LA.B 2.3.4</b>	<b>L</b>	Uses electronic technology including databases and software to gather information and communicate new knowledge.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: The Nature of Science</b>		<b>Essential Work Skills</b>	
<b>SC.H 1.3.1</b>	<b>H</b>	Knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.	<b>s116</b> (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.2</b>	<b>M</b>	Knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.	<b>s116</b> (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>SC.H 1.3.3</b>	<b>M</b>	Knows that science disciplines differ from one another in topic, techniques and outcomes, but that they share a common purpose, philosophy, and enterprise.	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.4</b>	<b>H</b>	Knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.5</b>	<b>H</b>	Knows that a change in one or more variables may alter the outcome of an investigation.	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>SC.H 1.3.7</b>	<b>H</b>	Knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study	<b>s114</b> (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures

**Performance Task# 09.02 Define brainstorming as a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>	
<b>LA.A 2.3.1</b>	<b>H</b>	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	<b>e05</b> Identify, collect and/or select pertinent information while reading. <b>e15</b> Discriminate important ideas from unimportant ideas while reading.
			<b>e50</b> Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 2.3.2</b>	<b>H</b>	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	<b>e77</b> Assess the significance and importance of the themes in a literary text.
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: Listening, Viewing, and Speaking</b>		<b>Essential Work Skills</b>	
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<b>L.A.C 1.3.4</b>	<b>L</b>	Uses responsive listening skills, including paraphrasing, summarizing, and asking questions for elaboration and clarification.	<b>e32</b>	Make informed judgments about the content, organization, and delivery of spoken communication.
			<b>e70</b>	Analyze and evaluate a speaker's statements of opinion, personal preference and values.
<b>L.A.C 3.3.3</b>	<b>L</b>	Speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations.	<b>e10</b>	Prepare and deliver individual speeches by gathering information, rehearsing, making eye contact, speaking loudly enough, delivering information in a well organized fashion, and appealing to the needs of the target audience.

**Performance Task# 09.03 Model, test, evaluate and modify designs to transform ideas into practical solutions.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.

No Essential Work Skill

**Outcome # 10.0 DEMONSTRATE AN UNDERSTANDING OF THE ROLE OF TROUBLESHOOTING, RESEARCH AND DEVELOPMENT, INVENTION AND INNOVATION, AND EXPERIMENTATION IN PROBLEM SOLVING**

**Performance Task# 10.01 Use troubleshooting as a problem-solving method used to identify the cause of a malfunction in a technological system.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.

No Essential Work Skill

**Performance Task# 10.02 Define invention as a process of turning ideas and imagination into devices and systems and innovation as the process of modifying an existing product or system to improve it.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.

No Essential Work Skill

**Performance Task# 10.03 Identify technological problems that are best solved through experimentation.**

<b>SSS Strand: The Nature of Science</b>	<b>Essential Work Skills</b>
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<b>SC.H 3.3.4</b>	<b>M</b>	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	<b>s115</b>	(Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
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<b>SC.H 3.3.6</b>	<b>M</b>	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	<b>s116</b>	(Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
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## Outcome # 11.0 DEMONSTRATE THE ABILITIES TO APPLY THE DESIGN PROCESS

### Performance Task# 11.01 Apply a design process to solve problems in and beyond the laboratory-classroom.

SSS Strand: Reading		Essential Work Skills
LA.A 2.3.1	H Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	e05 Identify, collect and/or select pertinent information while reading.  e15 Discriminate important ideas from unimportant ideas while reading.  e50 Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
LA.A 2.3.2	H Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	e77 Assess the significance and importance of the themes in a literary text.
LA.A 2.3.5	H Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

### Performance Task# 11.02 Specify criteria and constraints for the design.

SSS Strand: Reading		Essential Work Skills
LA.A 2.3.4	L Uses a variety of reading materials to develop personal preferences in reading.	No Essential Work Skill
LA.A 2.3.5	H Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

SSS Strand: Measurement		Essential Work Skills
MA.B 1.3.1	H Uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two-and three-dimensional shapes, including rectangular solids and cylinders.	m13 Compute the perimeter and area of two-dimensional figures.  m17 Compute the volume of three-dimensional figures (solids).

		<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.2</b>	<b>H</b>	Uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.	No Essential Work Skill
<b>MA.B 1.3.3</b>	<b>H</b>	Understands and describes how the change of a figure in such dimensions : length, width, height, or radius affects its other measurements such as perimeter, area, surface area, and volume.	<b>m13</b> Compute the perimeter and area of two-dimensional figures.
			<b>m17</b> Compute the volume of three-dimensional figures (solids).
<b>MA.B 1.3.4</b>	<b>H</b>	Constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.	<b>m30</b> Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.) No Essential Work Skill
<b>MA.B 3.3.1</b>	<b>H</b>	Solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume, in either customary or metric units.	<b>m13</b> Compute the perimeter and area of two-dimensional figures.
			<b>m17</b> Compute the volume of three-dimensional figures (solids).
<b>MA.B 4.3.1</b>	<b>L</b>	Selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the last precise unit of measurement.)	<b>m33</b> Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>MA.B 4.3.2</b>	<b>L</b>	Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.	<b>m33</b> Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>SSS Strand: Algebraic Thinking</b>		<b>Essential Work Skills</b>	
<b>MA.D 1.3.1</b>	<b>H</b>	Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	<b>m40</b> Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
<b>MA.D 1.3.2</b>	<b>H</b>	Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.	No Essential Work Skill
<b>SSS Strand: The Nature of Science</b>		<b>Essential Work Skills</b>	
<b>SC.H 3.3.4</b>	<b>M</b>	Knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	<b>s115</b> (Not Ranked) Plan and apply real or hypothetical models and constructions to facilitate investigation and learning and the solution to practical problems.
<b>Performance Task# 11.03 Make two-dimensional and three-dimensional representations of the designed solution.</b>			
<b>SSS Strand: Measurement</b>		<b>Essential Work Skills</b>	
<b>MA.B 1.3.1</b>	<b>H</b>	Uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two-and three-dimensional shapes, including rectangular solids and cylinders.	<b>m13</b> Compute the perimeter and area of two-dimensional figures.
			<b>m17</b> Compute the volume of three-dimensional figures (solids).

		<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.2</b>	<b>H</b>		Uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.
<b>MA.B 1.3.4</b>	<b>H</b>		Constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.

<b>SSS Strand: Geometry and Spatial Sense</b>	<b>Essential Work Skills</b>
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<b>MA.C 1.3.1</b>	<b>H</b>	Understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.	<b>m16</b>	Understand the properties and classification of triangles by sides (i.e., scalene, isosceles, and equilateral).
			<b>m21</b>	Use the Pythagorean theorem to compute side lengths of right triangles.
			<b>m26</b>	Understand the properties and classification of polygons (e.g., triangle, quadrilaterals, pentagon, hexagon, etc.) as well as knowledge of geometric shapes.
			<b>m27</b>	Understand the properties and classification of quadrilaterals by orientation (e.g., parallelogram, rectangle, rhombus, square, and trapezoid).
			<b>m29</b>	Know the classification and properties of solid figures such as prisms, rectangular solids, pyramids, right circular cylinders, cones, and spheres.
<b>MA.C 2.3.1</b>	<b>H</b>	Understands the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.	<b>m02</b>	Understand the characteristics of parallel, perpendicular and intersecting lines.
			<b>m49</b>	Apply transformation concepts to understand and create congruent and similar figures.
			<b>m55</b>	Understand the concepts of symmetry and transformations and graphically apply line reflections, rotation, translations, and dilation.
<b>MA.C 2.3.2</b>	<b>H</b>	Predicts and verifies patterns involving tessellations (a covering of a plane with congruent copies of the same pattern with no holes and no overlaps, like floor tiles).	<b>m55</b>	Understand the concepts of symmetry and transformations and graphically apply line reflections, rotation, translations, and dilation.
<b>MA.C 3.3.1</b>	<b>H</b>	Represents and applies geometric properties and relationships to solve real-world and mathematical problems.		No Essential Work Skill
<b>MA.C 3.3.2</b>	<b>H</b>	Identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties of lines.	<b>m23</b>	Know the components and properties of the rectangular coordinate system, (i.e., x - y axis, origin, quadrants, abscissa (x-coordinate) and ordinate (y-coordinate), and the general representation of a point (x,y)).

<b>Performance Task# 11.04</b>	<b>Test and evaluate the design in relation to pre-established requirements, such as criteria and constraints, and refine as needed.</b>
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<b>SSS Strand: Measurement</b>	<b>Essential Work Skills</b>
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<b>MA.B 1.3.1</b>	<b>H</b>	Uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two-and three-dimensional shapes, including rectangular solids and cylinders.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
			<b>m17</b>	Compute the volume of three-dimensional figures (solids).
			<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.2</b>	<b>H</b>	Uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.		No Essential Work Skill

<b>MA.B 1.3.3</b>	<b>H</b>	Understands and describes how the change of a figure in such dimensions : length, width, height, or radius affects its other measurements such as perimeter, area, surface area, and volume.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
			<b>m17</b>	Compute the volume of three-dimensional figures (solids).
			<b>m30</b>	Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.)
<b>MA.B 1.3.4</b>	<b>H</b>	Constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.		No Essential Work Skill
<b>MA.B 3.3.1</b>	<b>H</b>	Solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume, in either customary or metric units.	<b>m13</b>	Compute the perimeter and area of two-dimensional figures.
			<b>m17</b>	Compute the volume of three-dimensional figures (solids).
<b>MA.B 4.3.1</b>	<b>L</b>	Selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the last precise unit of measurement.)	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>MA.B 4.3.2</b>	<b>L</b>	Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

### SSS Strand: Data Analysis and Probability

### Essential Work Skills

<b>MA.E 1.3.1</b>	<b>H</b>	Collects, organizes, and displays data in a variety of forms, including table: line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
<b>MA.E 1.3.2</b>	<b>H</b>	Understands and applies the concepts of range and central tendency (mean, median, and mode).	<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
<b>MA.E 1.3.3</b>	<b>H</b>	Analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.

### Performance Task# 11.05 Make a product or system and document the solution.

### SSS Strand: Writing

### Essential Work Skills

<b>LA.B 1.3.1</b>	<b>L</b>	Organizes information before writing according to the type and purpose of writing.	<b>e12</b>	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
<b>LA.B 1.3.2</b>	<b>H</b>	Drafts and revises writing that: is focused, purposeful, and reflects insight into the writing situation; conveys a sense of completeness and wholeness with adherence to the main idea; has an organizational pattern that provides for a logical progression of ideas; has support that is substantial, specific, relevant, concrete and/or illustrative; demonstrates a commitment to and an involvement with the subject; has clarity in presentation of ideas; uses creative writing strategies appropriate to the purpose of the paper; demonstrates a command of language (word choice) with freshness of expression; has varied sentence structure and sentences that are complete except when fragments are used purposefully; and has few, if any, convention errors in mechanics, usage, and punctuation.	<b>e12</b>	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
			<b>e14</b>	Use editing and revising skills to improve effectiveness and accuracy of drafts.

<b>LA.B 1.3.3</b>	<b>L</b>	Produces final documents that have been edited for: correct spelling; correct punctuation, including commas, colons, and semicolons; correct capitalization; effective sentence structure; correct common usage, including subject/verb agreement, common noun/pronoun agreement, common possessive forms, and with a variety of sentence structure, including parallel structure; and correct formatting.	<b>e14</b>	Use editing and revising skills to improve effectiveness and accuracy of drafts.
<b>LA.B 2.3.1</b>	<b>L</b>	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.B 2.3.2</b>	<b>L</b>	Organizes information using alphabetical, chronological, and numerical systems.	<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>LA.B 2.3.3</b>	<b>L</b>	Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	<b>e12</b>	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
<b>LA.B 2.3.3</b>	<b>L</b>	Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.B 2.3.3</b>	<b>L</b>	Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	<b>e62</b>	Understand the needs of a specific audience and write and speak in ways that address these needs.
<b>LA.B 2.3.4</b>	<b>L</b>	Uses electronic technology including databases and software to gather information and communicate new knowledge.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: Algebraic Thinking</b>			<b>Essential Work Skills</b>	
<b>MA.D 1.3.1</b>	<b>H</b>	Describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.	<b>m40</b>	Understand appropriate terminology used to define relations and functions and their properties (e.g., domain, range, function composition, inverses, etc.).
<b>MA.D 1.3.2</b>	<b>H</b>	Creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.		No Essential Work Skill
<b>MA.D 2.3.1</b>	<b>H</b>	Represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.	<b>m07</b>	Understand the use of variables in expressions such as $4x$ , $x+2$ , and $2x-1$ , solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables.
			<b>m11</b>	Use addition and multiplication to simplify an algebraic expression by identifying the order of operations and techniques necessary to carry out the operations (e.g., $5-3(x-2) = 5-3x+6 = 11-3x$ ).
			<b>m35</b>	Find the solution of linear equations and inequalities where the variable appears on both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x+2(x-3) = -4x+5$ for $x$ ).
			<b>m47</b>	Know how to represent the solution set of an open sentence (e.g., $x < -1$ ) on a number line.
<b>MA.D 2.3.2</b>	<b>H</b>	Uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.	<b>m52</b>	Find the solution of proportions with monomial and binomial terms (e.g., $x/(x-2) = 6/5$ , therefore, $x = 12$ ).
			<b>m07</b>	Understand the use of variables in expressions such as $4x$ , $x+2$ , and $2x-1$ , solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables.
			<b>m11</b>	Use addition and multiplication to simplify an algebraic expression by identifying the order of operations and techniques necessary to carry out the operations (e.g., $5-3(x-2) = 5-3x+6 = 11-3x$ ).
			<b>m35</b>	Find the solution of linear equations and inequalities where the variable appears on both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x+2(x-3) = -4x+5$ for $x$ ).
			<b>m47</b>	Know how to represent the solution set of an open sentence (e.g., $x < -1$ ) on a number line.

**m52** Find the solution of proportions with monomial and binomial terms (e.g.,  $x/(x-2) = 6/5$ , therefore,  $x = 12$ ).

**Outcome # 12.0 DEMONSTRATE THE ABILITIES TO USE AND MAINTAIN TECHNOLOGICAL PRODUCTS AND SYSTEMS**

**Performance Task# 12.01 Use information provided in manuals, protocols, or by experienced people to see and understand how things work.**

SSS Strand: Reading		Essential Work Skills
LA.A 1.3.1	L Uses background knowledge of the subject and text structure knowledge to make complex predictions of content, purpose, and organization of the reading selection.	e52 Preview textbooks for informational text to anticipate content.  e80 Understand ways an author uses language and text characteristics to aid comprehension.
LA.A 1.3.2	H Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	e50 Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.  e53 Apply personal or objective criteria for evaluating informational, persuasive and literary materials.
LA.A 1.3.3	L Demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.	No Essential Work Skill
LA.A 1.3.4	L Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	e40 Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
LA.A 2.3.1	H Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	e05 Identify, collect and/or select pertinent information while reading.  e15 Discriminate important ideas from unimportant ideas while reading.  e50 Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
LA.A 2.3.2	H Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	e77 Assess the significance and importance of the themes in a literary text.
LA.A 2.3.5	H Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 12.02 Use tools, materials, and machines safely to diagnose, adjust, and repair systems.**

SSS Strand:		Essential Work Skills
No SSS Link to this Student Performance Standard.		No Essential Work Skill
<b>Performance Task# 12.03 Use computers and calculators in various applications.</b>		
SSS Strand: Measurement		Essential Work Skills
<b>MA.B 4.3.2 L</b>	Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.	<b>m33</b> Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
<b>Performance Task# 12.04 Operate and maintain systems in order to achieve a given purpose.</b>		
SSS Strand:		Essential Work Skills
No SSS Link to this Student Performance Standard.		No Essential Work Skill
<b>Outcome # 13.0 DEMONSTRATE THE ABILITIES TO ASSESS THE IMPACT OF PRODUCTS AND SYSTEMS</b>		
<b>Performance Task# 13.01 Design and use instruments to gather data.</b>		
SSS Strand: Reading		Essential Work Skills
<b>LA.A 2.3.5 H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.6 H</b>	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.7 H</b>	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
SSS Strand: Writing		Essential Work Skills
<b>LA.B 2.3.1 L</b>	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
		<b>e40</b> Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>LA.B 2.3.2 L</b>	Organizes information using alphabetical, chronological, and numerical systems.	<b>e12</b> Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
<b>LA.B 2.3.4 L</b>	Uses electronic technology including databases and software to gather information and communicate new knowledge.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
SSS Strand: Measurement		Essential Work Skills

<b>MA.B 4.3.2</b>	<b>L</b>	Selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.
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<b>SSS Strand: Data Analysis and Probability</b>	<b>Essential Work Skills</b>
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<b>MA.E 1.3.1</b>	<b>H</b>	Collects, organizes, and displays data in a variety of forms, including table: line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
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<b>MA.E 1.3.3</b>	<b>H</b>	Analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
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<b>Performance Task# 13.02</b>	<b>Use data collected to analyze and interpret trends in order to identify the positive or negative effects of a technology.</b>
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<b>SSS Strand: Reading</b>	<b>Essential Work Skills</b>
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<b>LA.A 1.3.2</b>	<b>H</b>	Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
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			<b>e53</b>	Apply personal or objective criteria for evaluating informational, persuasive and literary materials.
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<b>LA.A 1.3.3</b>	<b>L</b>	Demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.		No Essential Work Skill
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<b>LA.A 1.3.4</b>	<b>L</b>	Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
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<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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<b>LA.A 2.3.6</b>	<b>H</b>	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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<b>LA.A 2.3.7</b>	<b>H</b>	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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<b>LA.A 2.3.8</b>	<b>H</b>	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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<b>SSS Strand: Data Analysis and Probability</b>	<b>Essential Work Skills</b>
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<b>MA.E 1.3.1</b>	<b>H</b>	Collects, organizes, and displays data in a variety of forms, including table: line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
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<b>MA.E 1.3.2</b>	<b>H</b>	Understands and applies the concepts of range and central tendency (mean, median, and mode).	<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
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<b>MA.E 1.3.3</b>	<b>H</b>	Analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
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<b>MA.E 2.3.1</b>	<b>H</b>	Compares experimental results with mathematical expectations of probabilities.	<b>m20</b>	Understand the characteristic differences between theoretical and empirical probability (e.g., the theoretic probability of rolling a six and a die is 1/6 ; empirical probability is derived from repeated experimentation or accumulated statistics).
			<b>m25</b>	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
<b>MA.E 2.3.2</b>	<b>H</b>	Determines odds for and odds against a given situation.	No Essential Work Skill	
<b>MA.E 3.3.1</b>	<b>H</b>	Formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).
<b>MA.E 3.3.2</b>	<b>H</b>	Identifies the common uses and misuses of probability and statistical analysis in the everyday world.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m25</b>	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).

**Performance Task# 13.03 Identify trends and monitor potential consequences of technological development.**

<b>SSS Strand: Data Analysis and Probability</b>			<b>Essential Work Skills</b>	
<b>MA.E 3.3.1</b>	<b>H</b>	Formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).
<b>MA.E 3.3.2</b>	<b>H</b>	Identifies the common uses and misuses of probability and statistical analysis in the everyday world.	<b>m05</b>	Understand the best procedures for statistical data collection, organization, and display including making estimates and predictions and drawing inferences.
			<b>m15</b>	Understand the characteristics of measures of central tendency (i.e., mean, median, and mode).
			<b>m25</b>	Determine the probability of single and compound events using the basic premise that the probability of an event is equal to the number of ways it can occur divide by the total number of outcomes.
			<b>m36</b>	Understand the characteristics of measures of dispersion (i.e., range, mean deviation, variance, and standard deviation).

**Performance Task# 13.04 Interpret and evaluate the accuracy of the information obtained and determine if it is useful.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>	
<b>LA.A 1.3.2</b>	<b>H</b> Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 1.3.4</b>	<b>L</b> Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	<b>e53</b>	Apply personal or objective criteria for evaluating informational, persuasive and literary materials.
<b>LA.A 2.3.5</b>	<b>H</b> Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>LA.A 2.3.6</b>	<b>H</b> Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.7</b>	<b>H</b> Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>LA.A 2.3.8</b>	<b>H</b> Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Outcome # 14.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE MEDICAL TECHNOLOGIES**

**Performance Task# 14.01 Identify how sanitation processes used in the disposal of medical products help to protect people from harmful organisms and disease, and shape the ethics of medical safety.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>	
<b>LA.A 1.3.1</b>	<b>L</b> Uses background knowledge of the subject and text structure knowledge to make complex predictions of content, purpose, and organization of the reading selection.	<b>e52</b>	Preview textbooks for informational text to anticipate content.
<b>LA.A 1.3.2</b>	<b>H</b> Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	<b>e80</b>	Understand ways an author uses language and text characteristics to aid comprehension.
<b>LA.A 2.3.5</b>	<b>H</b> Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
		<b>e53</b>	Apply personal or objective criteria for evaluating informational, persuasive and literary materials.
		<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: The Nature of Science</b>		<b>Essential Work Skills</b>	

SC.H 3.3.3 M	Knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefit associated with the research and of their right to refuse to participate.	s114 (Not Ranked) Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures
<b>Performance Task# 14.02 Explain how the vaccines developed for use in immunization require specialized technologies to support environments in which a sufficient amount of vaccines are produced.</b>		
<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>
LA.A 1.3.4 L	Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	e40 Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
LA.A 2.3.5 H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: The Nature of Matter</b>		<b>Essential Work Skills</b>
SC.A 2.3.3 H	Knows that radiation, light, and heat are forms of energy used to cook food treat diseases, and provide energy.	s55 Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
<b>Outcome # 15.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE AGRICULTURAL AND RELATED BIOTECHNOLOGIES</b>		
<b>Performance Task# 15.01 Identify technological advances in agriculture directly affecting the time and number of people required to produce food for a large population.</b>		
<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>
LA.A 2.3.5 H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>SSS Strand: The Nature of Science</b>		<b>Essential Work Skills</b>
SC.H 3.3.6 M	Knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	s116 (Not Ranked) Understand the impact upon society and the environment of scientific and technological discoveries and the contributions of scientists. Understand how society may accept or reject scientific discoveries based upon need or refusal to change.
<b>Performance Task# 15.02 Identify how a wide range of specialized equipment and practices is used to improve the production of food, fiber, fuel, and other useful products and in the care of animals.</b>		
<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>
LA.A 2.3.5 H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>Performance Task# 15.03 Explain how biotechnology applies the principles of biology to create commercial products or processes.</b>		
<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>
<b>LA.A 1.3.2</b>	<b>H</b> Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	<b>e50</b> Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
<b>LA.A 2.3.5</b>	<b>H</b> Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e53</b> Apply personal or objective criteria for evaluating informational, persuasive and literary materials. <b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>Outcome # 16.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE ENERGY AND POWER TECHNOLOGIES</b>		
<b>Performance Task# 16.01 Define energy as the capacity to do work.</b>		
<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>
<b>LA.A 1.3.3</b>	<b>L</b> Demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.	No Essential Work Skill
<b>SSS Strand: Energy</b>		<b>Essential Work Skills</b>
<b>SC.B 1.3.1</b>	<b>H</b> Identifies forms of energy and explains that they can be measured and compared.	<b>s55</b> Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
<b>SC.B 1.3.2</b>	<b>H</b> Knows that energy cannot be created or destroyed, but only changed from one form to another.	<b>s60</b> Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
<b>SC.B 1.3.3</b>	<b>H</b> Knows the various forms in which energy comes to Earth from the sun (e.g. visible light, infrared, and microwave).	<b>s55</b> Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
<b>SC.B 1.3.4</b>	<b>M</b> Knows that energy conversions are never 100% efficient (i.e., some energy is transformed to heat and is unavailable for further useful work).	<b>s60</b> Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
<b>SC.B 1.3.5</b>	<b>M</b> Knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.	No Essential Work Skill
<b>SC.B 1.3.6</b>	<b>H</b> Knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.	<b>s109</b> Know the characteristic of periodic waves (i.e., frequency, period, amplitude, phase, wavelength, speed, the Doppler Effect, and wave fronts).
<b>Performance Task# 16.02 Explain how energy can be used to do work, using many processes.</b>		
<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>
<b>LA.A 2.3.5</b>	<b>H</b> Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b> Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

SSS Strand: Energy			Essential Work Skills	
SC.B 1.3.1	H	Identifies forms of energy and explains that they can be measured and compared.	s55	Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
SC.B 1.3.2	H	Knows that energy cannot be created or destroyed, but only changed from one form to another.	s60	Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
SC.B 1.3.3	H	Knows the various forms in which energy comes to Earth from the sun (e.g. visible light, infrared, and microwave).	s55	Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
SC.B 1.3.4	M	Knows that energy conversions are never 100% efficient (i.e., some energy is transformed to heat and is unavailable for further useful work).	s60	Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
SC.B 1.3.5	M	Knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.		No Essential Work Skill
SC.B 1.3.6	H	Knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.	s109	Know the characteristic of periodic waves (i.e., frequency, period, amplitude, phase, wavelength, speed, the Doppler Effect, and wave fronts).

**Performance Task# 16.03 Define power as the rate at which energy is converted from one form to another or transferred from one place to another, or the rate at which work is done.**

SSS Strand: Reading			Essential Work Skills	
LA.A 2.3.5	H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

SSS Strand: Measurement			Essential Work Skills	
MA.B 1.3.2	H	Uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.		No Essential Work Skill

SSS Strand: Energy			Essential Work Skills	
SC.B 1.3.1	H	Identifies forms of energy and explains that they can be measured and compared.	s55	Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
SC.B 1.3.2	H	Knows that energy cannot be created or destroyed, but only changed from one form to another.	s60	Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
SC.B 1.3.3	H	Knows the various forms in which energy comes to Earth from the sun (e.g. visible light, infrared, and microwave).	s55	Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
SC.B 1.3.4	M	Knows that energy conversions are never 100% efficient (i.e., some energy is transformed to heat and is unavailable for further useful work).	s60	Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
SC.B 1.3.5	M	Knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.		No Essential Work Skill
SC.B 1.3.6	H	Knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.	s109	Know the characteristic of periodic waves (i.e., frequency, period, amplitude, phase, wavelength, speed, the Doppler Effect, and wave fronts).

**Performance Task# 16.04 Define power systems used to drive and provide propulsion to other technological products and systems.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>	
<b>LA.A 2.3.5</b>	<b>H</b> Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 16.05 Explain how much of the energy used in our environment is not used efficiently.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>	
<b>LA.A 2.3.5</b>	<b>H</b> Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

<b>SSS Strand: Energy</b>		<b>Essential Work Skills</b>	
<b>SC.B 1.3.1</b>	<b>H</b> Identifies forms of energy and explains that they can be measured and compared.	<b>s55</b>	Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
<b>SC.B 1.3.2</b>	<b>H</b> Knows that energy cannot be created or destroyed, but only changed from one form to another.	<b>s60</b>	Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
<b>SC.B 1.3.3</b>	<b>H</b> Knows the various forms in which energy comes to Earth from the sun (e.g. visible light, infrared, and microwave).	<b>s55</b>	Identify types of energy (e.g., heat, light, and electricity) and know how to apply measurements of energy (e.g., the calorie, and thermometry).
<b>SC.B 1.3.4</b>	<b>M</b> Knows that energy conversions are never 100% efficient (i.e., some energy is transformed to heat and is unavailable for further useful work).	<b>s60</b>	Observe and interpret energy and change relationships with the understanding that change occurs simultaneously at the interface between two parts of the environment where there is an energy exchange.
<b>SC.B 1.3.5</b>	<b>M</b> Knows the processes by which thermal energy tends to flow from a system of higher temperature to a system of lower temperature.		No Essential Work Skill
<b>SC.B 1.3.6</b>	<b>H</b> Knows the properties of waves (e.g., frequency, wavelength, and amplitude); that each wave consists of a number of crests and troughs; and the effects of different media on waves.	<b>s109</b>	Know the characteristic of periodic waves (i.e., frequency, period, amplitude, phase, wavelength, speed, the Doppler Effect, and wave fronts).

**Outcome # 17.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE INFORMATION AND COMMUNICATION TECHNOLOGIES**

**Performance Task# 17.01 Identify information and communication systems that allow information to be transferred from human to human, human to machine, machine to machine, and machine to human.**

<b>SSS Strand: Writing</b>		<b>Essential Work Skills</b>	
<b>LA.B 1.3.1</b>	<b>L</b> Organizes information before writing according to the type and purpose of writing.	<b>e12</b>	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.

<b>LA.B 1.3.2</b>	<b>H</b>	Drafts and revises writing that: is focused, purposeful, and reflects insight into the writing situation; conveys a sense of completeness and wholeness with adherence to the main idea; has an organizational pattern that provide: for a logical progression of ideas; has support that is substantial, specific, relevant, concrete and/or illustrative; demonstrates a commitment to and an involvement with the subject; has clarity in presentation of ideas; uses creative writing strategies appropriate to the purpose of the paper; demonstrates a command of language (word choice) with freshness of expression; has varied sentence structure and sentences that are complete except when fragments are used purposefully; and has few, if any, convention errors in mechanics, usage, and punctuation.	<b>e12</b>	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
			<b>e14</b>	Use editing and revising skills to improve effectiveness and accuracy of drafts.
<b>LA.B 1.3.3</b>	<b>L</b>	Produces final documents that have been edited for: correct spelling; correct punctuation, including commas, colons, and semicolons; correct capitalization; effective sentence structure; correct common usage, including subject/verb agreement, common noun/pronoun agreement, common possessive forms, and with a variety of sentence structure, including parallel structure; and correct formatting.	<b>e14</b>	Use editing and revising skills to improve effectiveness and accuracy of drafts.
<b>LA.B 2.3.1</b>	<b>L</b>	Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
			<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>LA.B 2.3.2</b>	<b>L</b>	Organizes information using alphabetical, chronological, and numerical systems.	<b>e12</b>	Draft a report that engages an audience and is concise, clear, well organized, accurate, and informative.
<b>LA.B 2.3.3</b>	<b>L</b>	Selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
			<b>e62</b>	Understand the needs of a specific audience and write and speak in ways that address these needs.
<b>LA.B 2.3.4</b>	<b>L</b>	Uses electronic technology including databases and software to gather information and communicate new knowledge.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 17.02 Define communication systems made up of a source, encoder, transmitter, receiver, decoder, and destination.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>		
<b>LA.A 1.3.4</b>	<b>L</b>	Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 17.03 Identify factors that influence the design of a message, such as the intended audience, medium, purpose, and nature of the message.**

SSS Strand: Listening, Viewing, and Speaking		Essential Work Skills
LA.C 1.3.1	L Listens and uses information gained for a variety of purposes, such as gaining information from interviews, following directions, and pursuing a personal interest.	e25 Listen, comprehend and summarize essential information from a variety of sources such as speeches, plays, commercials on radio and television, and political debates.
LA.C 1.3.3	L Acknowledges the feelings and messages sent in a conversation.	No Essential Work Skill
LA.C 1.3.4	L Uses responsive listening skills, including paraphrasing, summarizing, and asking questions for elaboration and clarification.	e32 Make informed judgments about the content, organization, and delivery of spoken communication.
LA.C 2.3.1	L Determines main concept, supporting details, stereotypes, bias, and persuasion techniques in a nonprint message.	e70 Analyze and evaluate a speaker's statements of opinion, personal preference and values. e66 Demonstrate knowledge of persuasive techniques used in visual advertisements.
LA.C 2.3.2	L Uses movement, placement, juxtaposition, gestures, silent periods, facial expressions, and other nonverbal cues to convey meaning to an audience.	e89 Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.
LA.C 3.3.1	L Understands how volume, stress, pacing, and pronunciation can positively or negatively affect an oral presentation.	e92 Identify and interpret vocal characteristics that influence meaning such as tone, volume, pitch, and rate.
LA.C 3.3.2	L Asks questions and makes comments and observations that reflect understanding and application of content, processes, and experiences.	e48 Ask questions of others that encourage them to participate, elaborate, and contribute to understanding topics under discussion.
LA.C 3.3.3	L Speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations.	e10 Prepare and deliver individual speeches by gathering information, rehearsing, making eye contact, speaking loudly enough, delivering information in a well organized fashion, and appealing to the needs of the target audience.

SSS Strand: Language		Essential Work Skills
LA.D 2.3.1	L Selects language that shapes reactions, perceptions, and beliefs.	e72 Evaluate the way an author uses language and text characteristics such as plot, setting, theme, character, point of view, genre etc. to evoke a response in a reader. e89 Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.
LA.D 2.3.4	L Understands how the multiple media tools of graphics, pictures, color, motion, and music can enhance communication in television, film, radio, and advertising.	e68 Apply an understanding of the meaning of graphics, layout, white space, italics, parentheses, and other visual aids.
LA.D 2.3.5	L Incorporates audiovisual aids in presentations.	e56 Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.
LA.D 2.3.6	L Understands specific ways that mass media can potentially enhance or manipulate information.	e56 Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.
LA.D 2.3.7	L Understands that laws exist that govern what can and cannot be done with mass media.	No Essential Work Skill

**Performance Task# 17.04 Use symbols, measurements, and drawings to promote clear communication by providing a common language to express ideas.**

SSS Strand: Listening, Viewing, and Speaking		Essential Work Skills
LA.C 2.3.1	L Determines main concept, supporting details, stereotypes, bias, and persuasion techniques in a nonprint message.	e66 Demonstrate knowledge of persuasive techniques used in visual advertisements.
LA.C 2.3.2	L Uses movement, placement, juxtaposition, gestures, silent periods, facial expressions, and other nonverbal cues to convey meaning to an audience.	e89 Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.

SSS Strand: Language		Essential Work Skills	
LA.D 2.3.1	L	Selects language that shapes reactions, perceptions, and beliefs.	e72 Evaluate the way an author uses language and text characteristics such as plot, setting, theme, character, point of view, genre etc. to evoke a response in a reader.
			e89 Identify and interpret levels of language, idiomatic expressions, and figures of speech that enhance oral communication.
LA.D 2.3.2	L	Uses literary devices and techniques in the comprehension and creation of written, oral, and visual communications.	e80 Understand ways an author uses language and text characteristics to aid comprehension.
LA.D 2.3.4	L	Understands how the multiple media tools of graphics, pictures, color, motion, and music can enhance communication in television, film, radio, and advertising.	e68 Apply an understanding of the meaning of graphics, layout, white space, italics, parentheses, and other visual aids.
LA.D 2.3.5	L	Incorporates audiovisual aids in presentations.	e56 Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning.
SSS Strand: Number Sense, Concepts, and Operations		Essential Work Skills	
MA.A 1.3.1	H	Associates verbal names, written word names, and standard numerals with integers, fractions, decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals, absolute value; and ratios.	m01 Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
			m19 Understand the definitions and properties of rational and irrational numbers.
			m24 Understand the basic properties and laws of exponents and scientific notation.
MA.A 1.3.2	H	Understands the relative size of integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios.	m01 Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
			m19 Understand the definitions and properties of rational and irrational numbers.
			m24 Understand the basic properties and laws of exponents and scientific notation.
MA.A 1.3.3	H	Understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.	m01 Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
			m19 Understand the definitions and properties of rational and irrational numbers.
			m24 Understand the basic properties and laws of exponents and scientific notation.
MA.A 1.3.4	H	Understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.	m01 Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
			m19 Understand the definitions and properties of rational and irrational numbers.
SSS Strand: Algebraic Thinking		Essential Work Skills	
MA.D 2.3.1	H	Represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities.	m07 Understand the use of variables in expressions such as $4x$ , $x+2$ , and $2x-1$ , solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables.
			m11 Use addition and multiplication to simplify an algebraic expression by identifying the order of operations and techniques necessary to carry out the operations (e.g., $5-3(x-2) = 5-3x+6 = 11-3x$ ).
			m35 Find the solution of linear equations and inequalities where the variable appears on both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x+2(x-3) = -4x+5$ for $x$ ).

		<b>m47</b>	Know how to represent the solution set of an open sentence (e.g., $x < -1$ ) on a number line.
		<b>m52</b>	Find the solution of proportions with monomial and binomial terms (e.g., $x/(x-2) = 6/5$ , therefore, $x = 12$ ).
<b>MA.D 2.3.2 H</b>	Uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.	<b>m07</b>	Understand the use of variables in expressions such as $4x$ , $x+2$ , and $2x-1$ , solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables.
		<b>m11</b>	Use addition and multiplication to simplify an algebraic expression by identifying the order of operations and techniques necessary to carry out the operations (e.g., $5-3(x-2) = 5-3x+6 = 11-3x$ ).
		<b>m35</b>	Find the solution of linear equations and inequalities where the variable appears on both sides and in which one or both sides must be simplified before solving the equation (e.g., solve $x+2(x-3) = -4x+5$ for $x$ ).
		<b>m47</b>	Know how to represent the solution set of an open sentence (e.g., $x < -1$ ) on a number line.
		<b>m52</b>	Find the solution of proportions with monomial and binomial terms (e.g., $x/(x-2) = 6/5$ , therefore, $x = 12$ ).

**Outcome # 18.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE TRANSPORTATION TECHNOLOGIES**

**Performance Task# 18.01 Describe how transporting people and goods involves a combination of individuals and vehicles.**

<b>SSS Strand: Reading</b>	<b>Essential Work Skills</b>
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<b>LA.A 2.3.5 H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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**Performance Task# 18.02 Identify subsystems of transportation vehicles, such as structural, propulsion, suspension, guidance, control, and support, that must function together for a system to work effectively.**

<b>SSS Strand: Reading</b>	<b>Essential Work Skills</b>
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<b>LA.A 2.3.5 H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
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**Outcome # 19.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE MANUFACTURING TECHNOLOGIES**

**Performance Task# 19.01 Define manufacturing systems using mechanical processes that change the form of materials through processes of separating, forming, combining, and conditioning them.**

<b>SSS Strand: Reading</b>	<b>Essential Work Skills</b>
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<b>LA.A 1.3.2</b>	<b>H</b>	Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
			<b>e53</b>	Apply personal or objective criteria for evaluating informational, persuasive and literary materials.
<b>LA.A 1.3.3</b>	<b>L</b>	Demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.		No Essential Work Skill
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

**Performance Task# 19.02 Classify manufactured goods as durable and non-durable.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>		
<b>LA.A 1.3.1</b>	<b>L</b>	Uses background knowledge of the subject and text structure knowledge to make complex predictions of content, purpose, and organization of the reading selection.	<b>e52</b>	Preview textbooks for informational text to anticipate content.
			<b>e80</b>	Understand ways an author uses language and text characteristics to aid comprehension.
<b>LA.A 1.3.4</b>	<b>L</b>	Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.

**Performance Task# 19.03 Document the manufacturing process including the designing, development, making, and servicing of products and systems.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>		
<b>LA.A 1.3.4</b>	<b>L</b>	Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	<b>e40</b>	Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.

**Performance Task# 19.04 Define manufacturing technologies that are used to modify or alter manufactured products.**

<b>SSS Strand: Reading</b>		<b>Essential Work Skills</b>		
<b>LA.A 1.3.2</b>	<b>H</b>	Uses a variety of strategies to analyze words and text, draw conclusions, use context and word structure clues, and recognize organizational patterns.	<b>e50</b>	Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
			<b>e53</b>	Apply personal or objective criteria for evaluating informational, persuasive and literary materials.
<b>LA.A 1.3.3</b>	<b>L</b>	Demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.		No Essential Work Skill

**Performance Task# 19.05 Explain that materials must first be located before they can be extracted from the earth through processes such as harvesting, drilling, and mining.**

SSS Strand: Reading		Essential Work Skills	
LA.A 1.3.4	L	Uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.	e40 Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios.
LA.A 2.3.5	H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
SSS Strand: How Living Things Interact with Their Environment		Essential Work Skills	
SC.G 2.3.3	M	Knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth.	s13 Understand ecology as the study of the interactions and relationships of organisms with their living and nonliving environments (i.e., the ecosystem, communities, and populations).
<b>Outcome # 20.0 DEMONSTRATE AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE CONSTRUCTION TECHNOLOGIES</b>			
<b>Performance Task# 20.01 Research building laws and codes.</b>			
SSS Strand: Reading		Essential Work Skills	
LA.A 2.3.1	H	Determines the main idea or essential message in a text and identifies relevant details and facts and patterns of organization.	e05 Identify, collect and/or select pertinent information while reading.
			e15 Discriminate important ideas from unimportant ideas while reading.
			e50 Understand and use a variety of organizational formats such as compare/contrast, cause/effect, inductive/deductive, most important to least important, and least important to most important.
LA.A 2.3.2	H	Identifies the author's purpose and/or point of view in a variety of texts and uses the information to construct meaning.	e77 Assess the significance and importance of the themes in a literary text.
LA.A 2.3.3	L	Recognizes logical, ethical, and emotional appeals in texts.	e17 Analyze, evaluate and critique such events as current events, political campaigns, advertisements and media.
LA.A 2.3.5	H	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.6	H	Uses a variety of reference materials, including indexes, magazines, newspapers, and journals; and tools, including card catalogs and computer catalogs, to gather information for research topics.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.7	H	Synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheet and outlines.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
LA.A 2.3.8	H	Checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws.	e03 Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>Performance Task# 20.02 Identify factors such as style, convenience, cost, climate, and function in the selection of designs for structures.</b>			
SSS Strand: Number Sense, Concepts, and Operations		Essential Work Skills	

<b>MA.A 3.3.2</b>	<b>H</b>	Selects the appropriate operation to solve problems involving addition, subtraction, multiplication, and division of rational numbers, ratios, proportions, and percents, including the appropriate application of the algebraic order of operations.	<b>m01</b>	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
<b>MA.A 3.3.3</b>	<b>H</b>	Adds, subtracts, multiplies, and divides whole numbers, decimals, and fractions, including mixed numbers, to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.	<b>m01</b>	Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions.
<b>MA.A 4.3.1</b>	<b>H</b>	Uses estimation strategies to predict results and to check the reasonableness of results.	<b>m33</b>	Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis.

**Performance Task# 20.03 Explain that structures rest on a foundation.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.	No Essential Work Skill
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**Performance Task# 20.04 Classify structures as temporary or permanent.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.	No Essential Work Skill
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**Performance Task# 20.05 Identify subsystems of a building.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.	No Essential Work Skill
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**Outcome # 21.0 DEMONSTRATE PROPER AND SAFE PROCEDURES WHILE WORKING WITH TECHNOLOGICAL TOOLS, APPARATUS, EQUIPMENT, SYSTEMS, AND MATERIALS**

**Performance Task# 21.01 Follow laboratory safety rules and procedures.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.	No Essential Work Skill
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**Performance Task# 21.02 Demonstrate good housekeeping at workstations within a total laboratory.**

<b>SSS Strand:</b>	<b>Essential Work Skills</b>
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No SSS Link to this Student Performance Standard.	No Essential Work Skill
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<b>Performance Task# 21.03 Conduct laboratory activities and equipment operations in a safe manner.</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Performance Task# 21.04 Exercise care and respect for all tools, equipment, and materials.</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Performance Task# 21.05 Identify color-coding safety standards.</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Performance Task# 21.06 Safely use hand tools and power equipment.</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Performance Task# 21.07 Explain fire prevention and safety precautions and practices for extinguishing fires.</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Performance Task# 21.08 Identify harmful effects/potential dangers of familiar hazardous substances/devices to people and the environment.</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Outcome # 22.0 EXHIBIT POSITIVE HUMAN RELATIONS AND LEADERSHIP SKILLS</b>	
<b>Performance Task# 22.01 Perform roles in a student personnel system or in the Florida Technology Student Association (Florida-TSA).</b>	
<b>SSS Strand:</b>	<b>Essential Work Skills</b>
No SSS Link to this Student Performance Standard.	No Essential Work Skill
<b>Performance Task# 22.02 Work cooperatively with others.</b>	
<b>SSS Strand: Listening, Viewing, and Speaking</b>	<b>Essential Work Skills</b>

<b>LA.C 1.3.1</b>	<b>L</b>	Listens and uses information gained for a variety of purposes, such as gaining information from interviews, following directions, and pursuing a personal interest.	<b>e25</b>	Listen, comprehend and summarize essential information from a variety of sources such as speeches, plays, commercials on radio and television, and political debates.
<b>LA.C 1.3.4</b>	<b>L</b>	Uses responsive listening skills, including paraphrasing, summarizing, and asking questions for elaboration and clarification.	<b>e32</b>	Make informed judgments about the content, organization, and delivery of spoken communication.
			<b>e70</b>	Analyze and evaluate a speaker's statements of opinion, personal preference and values.
<b>LA.C 3.3.2</b>	<b>L</b>	Asks questions and makes comments and observations that reflect understanding and application of content, processes, and experiences.	<b>e48</b>	Ask questions of others that encourage them to participate, elaborate, and contribute to understanding topics under discussion.
<b>Outcome # 23.0 DISCUSS INDIVIDUAL INTERESTS, APTITUDES, AND OPPORTUNITIES AS THEY RELATE TO A CAREER</b>				
<b>Performance Task# 23.01 Describe individual strengths and weaknesses.</b>				
<b>SSS Strand:</b>			<b>Essential Work Skills</b>	
No SSS Link to this Student Performance Standard.			No Essential Work Skill	
<b>Performance Task# 23.02 Discuss individual interests related to a career.</b>				
<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 1.3.1</b>	<b>L</b>	Uses background knowledge of the subject and text structure knowledge to make complex predictions of content, purpose, and organization of the reading selection.	<b>e52</b>	Preview textbooks for informational text to anticipate content.
			<b>e80</b>	Understand ways an author uses language and text characteristics to aid comprehension.
<b>LA.A 1.3.3</b>	<b>L</b>	Demonstrates consistent and effective use of interpersonal and academic vocabularies in reading, writing, listening, and speaking.	No Essential Work Skill	
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>Performance Task# 23.03 Identify careers within specific areas of technology.</b>				
<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.
<b>Performance Task# 23.04 Explore careers within specific areas of interest.</b>				
<b>SSS Strand: Reading</b>			<b>Essential Work Skills</b>	
<b>LA.A 2.3.5</b>	<b>H</b>	Locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task.	<b>e03</b>	Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report.

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