



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
<p><b>1. Develop Research Plan</b></p> <ul style="list-style-type: none"> <li>Define problem or topic and research questions</li> <li>Review sources of information</li> </ul>	<p><b>English I – English IV:</b> (20) Research/Research Plan. Students ask open-ended research questions and develop a plan for answering them. Students are expected to:</p> <p>(A) brainstorm, consult with others, decide upon a topic, and formulate a major research question to address the major research topic; and</p> <p>(B) formulate a plan for engaging in research on a complex, multi-faceted topic.</p> <p><b>Communication Applications:</b> (4) Presentations. The student makes and evaluates formal and informal professional presentations. The student is expected to:</p> <p>(B) determine specific topics and purposes for presentations;</p>	<p><b>Algebra I:</b> (1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>(A) apply mathematics to problems arising in everyday life, society, and the workplace;</p> <p>(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;</p> <p><b>Mathematical Models with Applications:</b> (10) Mathematical</p>	<p><b>U. S. History Studies Since 1877:</b> (32) Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p> <p><i>The wording of the objective and student</i></p>	<p><b>Biology:</b> (2) Scientific processes The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:</p> <p>(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology;</p> <p><b>Integrated Physics and Chemistry:</b> (2) Scientific processes The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(B) plan and implement investigative procedures, including</p>	<p><b>Cross-Disciplinary Standards:</b> I.A.1. Engage in scholarly inquiry and dialog.  I.C.1. Analyze a situation to identify a problem to be solved.  I.D.1. Self-monitor learning needs and seek assistance when needed.  I.D.2. Use study habits necessary to manage academic pursuits and requirements.  I.E.1. Work independently.  I.E.2. Work collaboratively.  I.F.2. Evaluate sources for quality of content, validity, credibility, and relevance.</p>	<p><b>1. Knowledge and skills</b> is the sum of what has been learned, including new understandings and abilities, related to the topic of study. In this system, knowledge and skills are based on the Texas Essential Knowledge and Skills (TEKS).</p> <p><b>2. Innovation and application</b> is the creative use of knowledge and skills learned in the course of the project as demonstrated in the final product.</p> <p><b>3. Analysis and synthesis</b> are the thinking processes in which whole topics are separated into their constituent parts for study and reconstituted to form a new, coherent whole.</p> <p><b>4. Ethics/unanswered questions</b> include the development of a project</p>



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	<p><b><u>(CTE) Professional Communications:</u></b></p> <p>(1) The student applies English language arts in professional communications projects. The student is expected to:</p> <p>(F) research topics for the preparation of oral and written communications.</p> <p>(3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.</p> <p><b><u>Independent Study in English:</u></b></p> <p>(1) Writing. The student uses writing as a tool for learning and research. The student is expected to:</p> <p>(A) use writing to formulate questions, refine topics, and clarify ideas;</p>	<p>modeling in social sciences. The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results of the study. The student is expected to:</p> <p>(A) formulate a meaningful question, determine the data needed to answer the question, gather the appropriate data, analyze the data, and draw reasonable conclusions;</p> <p><b><u>Advanced Quantitative Reasoning:</u></b></p> <p>(2) Numeric reasoning. The student applies the process standards in mathematics to generate new understandings by extending existing knowledge. The student generates new mathematical</p>	<p><i>expectations for the following social studies courses are the same as those listed in U. S. History Studies Since 1877. However the objective numbers change as noted:</i></p> <p><b><u>World History Studies:</u></b> (31) A &amp; B</p> <p><b><u>United States Government:</u></b> (23) A &amp; B</p> <p><b><u>Economics:</u></b> (23) A &amp; B</p> <p><b><u>Psychology:</u></b> (16) A &amp; B</p> <p><b><u>Sociology:</u></b> (21) A &amp; B</p> <p><b><u>World Geography Studies:</u></b></p> <p>(23) Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</p> <p>(A) plan, organize, and complete a research project that involves</p>	<p>asking questions, formulating testable hypotheses, and selecting equipment and technology;</p> <p><b><u>Chemistry:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</p> <p>(E) plan and implement investigative procedures, including graphing calculators, computers and probes, sufficient scientific glassware such as beakers, Erlenmeyer flasks, pipettes, graduated cylinders, volumetric flasks, safety goggles, and burettes, electronic balances, and an adequate supply of consumable chemicals;</p>	<p>II.C.1. Understand which topics or questions are to be investigated.</p> <p>II.C.2. Explore a research topic.</p> <p>II.C.3. Refine research topic based on preliminary research and devise a timeline for completing work.</p> <p>II.C.4. Evaluate the validity and reliability of sources.</p> <p>II.D.2. use statistical and probabilistic skills necessary for planning an investigation, and collecting, analyzing, and interpreting data.</p>	<p>in alignment with rules or standards of conduct governing the field of study. Additionally, this dimension considers the student's awareness and treatment of issues related to the study that lack a consensus among professionals in the field.</p> <p><b>5. Multiple perspectives</b> encompass the ability to examine an issue from more than one point of view, including the ability to separate one's own point of view from those of others.</p> <p><b>6. Methodology and use of resources</b> cover the use of principles, procedures, practices, and references of the field of study to guide, but not limit, the project.</p> <p><b>7. Communication</b> is the use of written, spoken, and technological media to convey new learning.</p>



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	<p>(B) use writing to organize and support what is known and what needs to be learned about a topic;</p> <p>(2) Reading. The student inquires through reading and researching self-selected and assigned topics. The student is expected to:</p> <p>(A) read widely to establish a specific area of interest for further study;</p> <p>(B) generate relevant, interesting, and researchable questions with instructor guidance and approval;</p> <p><b><u>Independent Study in Journalism:</u></b></p> <p>(1) The student refines and enhances journalistic skills. The student is expected to:</p> <p>(A) formulate questions, refine topics, and clarify ideas;</p>	<p>understandings through problems involving numerical data that arise in everyday life, society, and the workplace. The student extends existing knowledge and skills to analyze real-world situations. The student is expected to:</p> <p>(A) use precision and accuracy in real-life situations related to measurement and significant figures;</p> <p>(H) select and apply an algorithm of interest to solve real-life problems such as problems using recursion or iteration involving population growth or decline, fractals, and compound interest; the validity in recorded and transmitted data using checksums and hashing; sports rankings, weighted class rankings, and search engine</p>	<p>asking geographic questions; acquiring, organizing, and analyzing information; answering questions; and communicating results;</p> <p>(B) use case studies and GIS to identify contemporary challenges and to answer real-world questions; and</p> <p>(C) use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.</p> <p><b><u>Special Topics in Social Studies:</u></b></p> <p>(1) Social studies skills. The student uses problem-solving and decision-making skills,</p>	<p><b><u>Physics:</u></b></p> <p>(2) Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness;</p> <p><b><u>Aquatic Science:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p>		<p><b>8. Relevance and significance</b> include the potential impact of the project on the individual student and other social groups, as well as the field of study.</p> <p><b>9. Professional quality</b> is the nature of the project that suggests that the skills and knowledge demonstrated in the product are comparable to those of a person engaged in the field of study as a livelihood.</p>



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	<p>(B) organize and support what is known and what needs to be learned about a topic;</p> <p>(2) The student produces visual representations that communicate with others. The student is expected to:</p> <p>(A) conduct a research project(s) with instructor guidance and produce an original work in print or another medium demonstrating advanced skill; and</p> <p>(B) use a range of techniques in planning and creating projects.</p>	<p>rankings; and problems involving scheduling or routing situations using vertex-edge graphs, critical paths, Euler paths, and minimal spanning trees and communicate to peers the application of the algorithm in precise mathematical and nontechnical language.</p> <p>(3) Algebraic reasoning (expressions, equations, and generalized relationships). The student applies the process standards in mathematics to create and analyze mathematical models of everyday situations to make informed decisions related to earning, investing, spending, and borrowing money by appropriate, proficient, and efficient use of tools, including technology. The student</p>	<p>working independently and with others in a variety of settings. The student is expected to:</p> <p>(F) depending on the topic, use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(G) depending on the topic, use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p> <p><b>Social Studies Research Methods:</b></p> <p>(1) Social studies skills. The student understands the need for an organizing</p>	<p>(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology;</p> <p><b>Astronomy:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(E) plan and implement investigative procedures, including making observations, asking questions, formulating testable hypotheses, and selecting equipment and technology;</p> <p><b>Earth and Space Science:</b></p> <p>(2) Scientific processes. The student uses</p>		



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		<p>uses mathematical relationships to make connections and predictions. The student judges the validity of a prediction and uses mathematical models to represent, analyze, and solve dynamic real-world problems. The student is expected to:</p> <p>(A) collect numerical bivariate data to create a scatterplot, select a function to model the data, justify the model selection, and use the model to interpret results and make predictions;</p> <p>(4) Probabilistic and statistical reasoning. The student uses the process standards in mathematics to generate new understandings of probability and statistics. The student analyzes statistical information and evaluates risk and return to connect</p>	<p>framework to identify an area of interest and collect information. The student is expected to:</p> <p>(A) select a social studies issue, topic, or area of interest;</p> <p>(B) write a rationale and preliminary ideas for research methods;</p> <p>(C) develop a literature review; and</p> <p>(D) develop a thesis.</p> <p>(2) Social studies skills. The student applies a process approach to a research topic, applying the ideas, theories, and modes of inquiry drawn from the social sciences in the examination of persistent issues and social questions. The student is expected to:</p> <p>(A) understand the basic requirements and philosophical foundations for qualitative and quantitative methods of inquiry, including</p>	<p>scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(E) demonstrate the use of course equipment, techniques, and procedures, including computers and web-based computer applications;</p> <p><b>Environmental Systems:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(E) follow or plan and implement investigative procedures, including making observations, asking questions, formulating testable hypotheses, and selecting equipment and technology;</p>		



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		<p>mathematical ideas and make informed decisions. The student applies a problem-solving model and statistical methods to design and conduct a study that addresses one or more particular question(s). The student uses multiple representations to communicate effectively the results of student-generated statistical studies and the critical analysis of published statistical studies. The student is expected to:</p> <p>(L) determine the need for and purpose of a statistical investigation and what type of statistical analysis can be used to answer a specific question or set of questions;</p> <p>(N) identify the variables to be used in a study;</p> <p>(O) determine possible sources of statistical</p>	<p>inductive and deductive reasoning, to determine the most effect research approach from a variety of alternatives;</p> <p>(B) select and design a research project, including an examination of the theory and methods applicable to the research topic;</p> <p>(4) Social studies skills. If doing quantitative research, the student is expected to:</p> <p>(A) apply the scientific method in a research project;</p> <p>(C) determine the most efficient research approach;</p> <p><b>Social Studies Advanced Studies:</b></p> <p>(1) The student will investigate, independently or collaboratively, a problem, issue, or concern within a selected profession or discipline.</p>	<p><b>Principles of Technology:</b></p> <p>(2) The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness;</p> <p>(4) The student uses the scientific process to investigate physical concepts. The student is expected to:</p> <p>(C) design and implement</p>		



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		<p>bias in a study and how bias may affect the validity of the results;</p> <p><b>Statistics:</b></p> <p>(2) Statistical process sampling and experimentation. The student applies mathematical processes to apply understandings about statistical studies, surveys, and experiments to design and conduct a study and use graphical, numerical, and analytical techniques to communicate the results of the study. The student is expected to:</p> <p>(E) formulate a meaningful question, determine the data needed to answer the question, gather the appropriate data, analyze the data, and draw reasonable conclusions;</p>	<p>The student is expected to:</p> <p>(A) analyze the relationship between his or her interests and career/discipline;</p> <p>(B) review literature from varied sources from the selected career or discipline;</p> <p>(C) identify a problem, issue, or concern;</p> <p>(D) survey and/or interview professionals to determine the appropriateness of a project; and</p> <p>(E) develop a proposal that includes well-defined questions, goals and objectives, rationale, and procedures for the project.</p>	<p>investigative procedures;</p> <p><b>(CTE) Scientific Research and Design:</b></p> <p>(2) The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness;</p> <p>(4) The student formulates hypotheses to guide experimentation and data collection. The student is expected to:</p>		



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		<p><b><u>(CTE) Mathematical Applications in Agriculture, Food, and Natural Resources:</u></b></p> <p>(1) The student demonstrates mathematics knowledge and skills required to solve problems related to the agriculture, food, and natural resources. The student is expected to:</p> <p>(F) use mathematic operations and knowledge of relationships to solve problems inherent to systems of agriculture and agribusiness such as the calculation of gallons of water from inches of rain, acres of ground water, liquid and gaseous volumes, and conversion of units; calculation of caloric value, parts per million of restricted ingredients, conversion of measurements, and</p>		<p>(A) perform background research with respect to an investigative problem; and</p> <p>(B) examine hypotheses generated to guide a research process by evaluating the merits and feasibility of the hypotheses.</p> <p>(5) The student analyzes published research. The student is expected to:</p> <p>(A) identify the scientific methodology used by a researcher;</p> <p>(B) examine a prescribed research design and identify dependent and independent variables;</p> <p>(C) evaluate a prescribed research design to determine the purpose for each of the procedures performed; and</p>		



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		<p>United States Department of Agriculture (USDA) grades; and estimation of wildlife populations, pulpwood yields, and calculation of mapping data.</p> <p>(9) The student develops an improved supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:</p> <p>(A) plan, propose, conduct, and evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity;</p> <p>(F) produce a challenging approach for a local program of</p>		<p>(D) compare the relationship of the hypothesis to the conclusion.</p> <p>(6) The student develops and implements investigative designs. The student is expected to:</p> <p>(A) interact and collaborate with scientific researchers and/or other members of the scientific community to complete a research project;</p> <p>(B) identify and manipulate relevant variables within research situations;</p> <p>(C) use a control in an experimental process; and</p> <p>(D) design procedures to test hypotheses.</p>		



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		<p>activities in agriculture.</p> <p><b><u>(CTE) Statistics and Risk Management:</u></b></p> <p>(b) Introduction. Students will use a variety of graphical and numerical techniques to analyze patterns and departures from patterns to identify and manage risk that could impact an organization. Students will use probability as a tool for anticipating and forecasting data within business models to make decisions. Students will determine the appropriateness of methods used to collect data to ensure conclusions are valid.</p>				



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<p><b>2. Develop and Carry Out Research Design</b></p> <ul style="list-style-type: none"> <li>Refine research questions</li> <li>Gather and organize information</li> </ul>	<p><b>English I &amp; II:</b></p> <p>(21) Research/Gathering Sources. Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to:</p> <p>(A) follow the research plan to compile data from authoritative sources in a manner that identifies the major issues and debates within the field of inquiry;</p> <p>(B) organize information gathered from multiple sources to create a variety of graphics and forms (e.g., notes, learning logs); and</p> <p>(C) paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number).</p>	<p><b>Algebra I:</b></p> <p>(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;</p> <p>(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as</p>	<p><b>U. S. History Studies Since 1877:</b></p> <p>(29) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</p> <p>(A) use a variety of both primary and secondary valid sources to acquire information and to analyze and answer historical questions;</p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing and contrasting, finding the main idea, summarizing, making generalizations, making predictions, drawing inferences, and drawing conclusions;</p> <p>(E) evaluate the validity of a source</p>	<p><b>Biology:</b></p> <p>(2) Scientific processes The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:</p> <p>(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, date-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettes, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment,</p>	<p><b>Cross-Disciplinary Standards:</b></p> <p>I.B.3. Gather evidence to support arguments, findings, or lines of reasoning.</p> <p>I.C.2. Develop and apply multiple strategies to solving a problem.</p> <p>I.C.3. Collect evidence and data systematically and directly relate to solving a problem.</p> <p>I.D.3. Strive for accuracy and precision.</p> <p>I.F.1. Attribute ideas and information to source materials and people.</p> <p>I.F.3. Include the ideas of others and the complexities of the debate, issue, or problem.</p> <p>I.F.4. Understand and adhere to ethical codes of conduct.</p> <p>II.A.1. Use effective prereading strategies.</p>	<p><b>1. Knowledge and skills</b> is the sum of what has been learned, including new understandings and abilities, related to the topic of study. In this system, knowledge and skills are based on the Texas Essential Knowledge and Skills (TEKS).</p> <p><b>2. Innovation and application</b> is the creative use of knowledge and skills learned in the course of the project as demonstrated in the final product.</p> <p><b>3. Analysis and synthesis</b> are the thinking processes in which whole topics are separated into their constituent parts for study and reconstituted to form a new, coherent whole.</p> <p><b>4. Ethics/unanswered questions</b> include the development of a project in alignment with rules</p>



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	<p><b>English III &amp; IV:</b></p> <p>(21) Research/Gathering Sources. Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to:</p> <p>(A) follow the research plan to gather evidence from experts on the topic and texts written for informed audiences in the field, distinguishing between reliable and unreliable sources and avoiding over-reliance on one source;</p> <p>(B) systematically organize relevant and accurate information to support central ideas, concepts, and themes, outline ideas into conceptual maps/timelines, and separate factual data from complex</p>	<p>appropriate, to solve problems;</p> <p><b>Advanced Quantitative Reasoning:</b></p> <p>(2) Numeric reasoning. The student applies the process standards in mathematics to generate new understandings by extending existing knowledge. The student generates new mathematical understandings through problems involving numerical data that arise in everyday life, society, and the workplace. The student extends existing knowledge and skills to analyze real-world situations. The student is expected to:</p> <p>(H) select and apply an algorithm of interest to solve real-life problems such as recursion or iteration</p>	<p>based on language, corroboration with other sources, and information about the author, including points of view, frames of reference, and historical context;</p> <p><b>World History Studies:</b></p> <p>(29) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(C) explain the differences between primary and secondary sources and examine those sources to analyze frame of reference, historical context, and point of view;</p> <p>(D) evaluate the validity of a source based on language, corroboration with other sources, and information about the author;</p>	<p>meter sticks, and models, diagrams, or samples of biological specimens or structures;</p> <p><b>Integrated Physics and Chemistry:</b></p> <p>(2) Scientific processes The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(C) collect data and make measurements with precision;</p> <p><b>Chemistry:</b></p> <p>(2) Scientific processes The student uses scientific methods to solve investigative questions. The student is expected to:</p> <p>(F) collect data and make measurements with accuracy and precision; <i>(See Develop Research Plan section, Chemistry (2)(E), for list of equipment)</i></p>	<p>II.A.2. Use a variety of strategies to understand the meanings of new words.</p> <p>II.A.3. Identify the intended purpose and audience of the text.</p> <p>II.A.4. Identify the key information and supporting details.</p> <p>II.A.5. Analyze textual information critically.</p> <p>II.A.6. Annotate, summarize, paraphrase, and outline texts when appropriate.</p> <p>II.A.7. Adapt reading strategies according to structure of texts.</p> <p>II.A.8. Connect reading to historical and current events and personal interest.</p> <p>II.E.1. Use technology to gather information.</p>	<p>or standards of conduct governing the field of study. Additionally, this dimension considers the student's awareness and treatment of issues related to the study that lack a consensus among professionals in the field.</p> <p><b>5. Multiple perspectives</b> encompass the ability to examine an issue from more than one point of view, including the ability to separate one's own point of view from those of others.</p> <p><b>6. Methodology and use of resources</b> cover the use of principles, procedures, practices, and references of the field of study to guide, but not limit, the project.</p> <p><b>7. Communication</b> is the use of written, spoken, and technological media to convey new learning.</p> <p><b>8. Relevance and</b></p>



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	<p>inferences, and (C) paraphrase, summarize, quote, and accurately cite all researched information according to a standard format (e.g., author, title, page number), differentiating among primary, secondary, and other sources.</p> <p><b>Communication Applications:</b></p> <p>(1) Communication process. The student demonstrates knowledge of various communication processes in professional and social contexts. The student is expected to:</p> <p>(B) identify the components of the communication process and their functions;</p> <p>(C) identify standards for making appropriate communication choices for self, listener, occasion, and task;</p> <p>(D) identify the characteristics of oral</p>	<p>involving population growth or decline, fractals, and compound interest; the validity in recorded and transmitted data using checksums and hashing; sports rankings, weighted class rankings, and search engine rankings; and problems involving scheduling or routing situations using vertex-edge graphs, critical paths, Euler paths, and minimal spanning trees and communicate to peers the application of the algorithm in precise mathematical and nontechnical language.</p> <p>(3) Algebraic reasoning (expressions, equations, and generalized relationships). The student applies the process standards in mathematics to create</p>	<p>(F) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, drawing inferences and conclusions, and developing connections between historical events over time;</p> <p><b>World Geography Studies:</b></p> <p>(21) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) analyze and evaluate the validity and utility of multiple sources of geographic information such as primary and secondary</p>	<p><b>Physics:</b></p> <p>(2) Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectrometers, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply,</p>		<p><b>significance</b> include the potential impact of the project on the individual student and other social groups, as well as the field of study.</p> <p><b>9. Professional quality</b> is the nature of the project that suggests that the skills and knowledge demonstrated in the product are comparable to those of a person engaged in the field of study as a livelihood.</p>

Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>language and analyze standards for using informal, standard, and technical language appropriately;</p> <p>(E) identify types of nonverbal communication and their effects;</p> <p>(F) recognize the importance of effective nonverbal strategies such as firm handshake, direct eye contact, and appropriate use of space and distance;</p> <p>(G) identify the components of the listening process;</p> <p>(H) identify specific kinds of listening such as critical, deliberative, and empathic;</p> <p>(I) recognize the importance of gathering and using accurate and complete information as a basis for making communication decisions;</p> <p>(J) identify and analyze</p>	<p>and analyze mathematical models of everyday situations to make informed decisions related to earning, investing, spending, and borrowing money by appropriate, proficient, and efficient use of tools, including technology. The student uses mathematical relationships to make connections and predictions. The student judges the validity of a prediction and uses mathematical models to represent, analyze, and solve dynamic real-world problems. The student is expected to:</p> <p>(C) determine or analyze an appropriate growth or decay model for problem situations, including linear, exponential, and logistic functions;</p> <p>(D) determine or analyze an appropriate cyclical</p>	<p>sources, aerial photographs, and maps;</p> <p>(B) locate places of contemporary geopolitical significance on a map, and</p> <p><b>United States Government:</b></p> <p>(20) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p> <p>(D) analyze and</p>	<p>ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers;</p>		

Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>ethical and social responsibilities of communicators; and</p> <p>(K) recognize and analyze appropriate channels of communication of organizations.</p> <p>(2) Interpersonal. The student uses appropriate interpersonal-communication strategies in professional and social contexts. The student is expected to:</p> <p>(A) identify types of professional and social relationships, their importance, and the purposes they serve;</p> <p>(B) employ appropriate verbal, nonverbal, and listening skills to enhance interpersonal relationships;</p> <p>(C) use communication-management skills to build confidence and develop appropriate assertiveness, tact,</p>	<p>model for problem situations that can be modeled with periodic functions;</p> <p>(E) determine or analyze an appropriate piecewise model for problem situations;</p> <p>(4) Probabilistic and statistical reasoning. The student uses the process standards in mathematics to generate new understandings of probability and statistics. The student analyzes statistical information and evaluates risk and return to connect mathematical ideas and make informed decisions. The student applies a problem-solving model and statistical methods to design and conduct a study that addresses one or more particular question(s). The student</p>	<p>evaluate the validity of information, arguments, and counterarguments from primary and secondary sources for bias, propaganda, point of view, and frame of reference;</p> <p><b>Economics:</b></p> <p>(21) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) analyze economic information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p> <p>(D) analyze and evaluate</p>	<p>(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer;</p> <p>(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units;</p> <p><b>Aquatic Science:</b></p> <p>(2) Scientific processes. The student uses</p>		



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>and courtesy;</p> <p>(D) use professional etiquette and protocol in situations such as making introductions, speaking on the telephone, and offering and receiving criticism;</p> <p>(E) make clear appropriate requests, give clear and accurate directions, ask appropriate and purposeful questions, and respond appropriately to the requests, directions, and questions of others;</p> <p>(F) participate appropriately in conversations;</p> <p>(G) communicate effectively in interviews;</p> <p>(H) identify and use appropriate strategies for dealing with differences, including gender, ethnicity, and age; and</p> <p>(I) analyze and evaluate</p>	<p>uses multiple representations to communicate effectively the results of student-generated statistical studies and the critical analysis of published statistical studies. The student is expected to:</p> <p>(H) identify limitations and lack of relevant information in studies reporting statistical information, especially when studies are reported in condensed form;</p> <p>(I) interpret and compare statistical results using appropriate technology given a margin of error;</p> <p>(J) identify potential misuses of statistics to justify particular conclusions, including assertions of a cause-and-effect relationship rather than an association, and missteps or fallacies in logical reasoning;</p>	<p>the validity of economic information from primary and secondary sources for bias, propaganda, point of view, and frame of reference;</p> <p><b>Psychology:</b></p> <p>(14) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(D) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions.</p> <p><b>Sociology:</b></p> <p>(19) Social studies skills. The student applies</p>	<p>scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range;</p> <p>(G) demonstrate the use of course apparatuses, equipment, techniques, and procedures;</p> <p><b>Astronomy:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(F) collect data and make measurements with accuracy and precision;</p>		



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>the effectiveness of own and others' communication.</p> <p>(4) Presentations. The student makes and evaluates formal and informal professional presentations. The student is expected to:</p> <p>(C) research topics using primary and secondary sources, including electronic technology;</p> <p><b><u>(CTE) Professional Communications:</u></b></p> <p>(2) The student applies professional communications strategies. The student is expected to:</p> <p>(A) adapt language for audience, purpose, situation, and intent;</p> <p>(B) organize oral and written information;</p> <p>(E) apply active listening skills;</p> <p>(G) listen to and speak with diverse individuals;</p>	<p>(K) describe strengths and weaknesses of sampling techniques, data and graphical displays, and interpretations of summary statistics and other results appearing in a study, including reports published in the media;</p> <p>(M) identify the population of interest for a statistical investigation, select an appropriate sampling technique, and collect data;</p> <p>(P) create data displays for given data sets to investigate, compare, and estimate center, shape, spread, and unusual features of the data;</p> <p>(Q) analyze possible sources of data variability, including those that can be controlled and those that cannot be</p>	<p>critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions; and</p> <p><b><u>Special Topics in Social Studies:</u></b></p> <p>(2) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) locate, analyze,</p>	<p>(I) use astronomical technology such as telescopes, binoculars, sextants, computers, and software.</p> <p><b><u>Earth and Space Science:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(F) use a wide variety of additional course apparatuses, equipment, techniques, and procedures as appropriate such as satellite imagery and other remote sensing data, Geographic Information Systems (GIS), Global Positioning System (GPS), scientific probes, microscopes, telescopes, modern video and image libraries, weather stations, fossil and rock kits, bar magnets,</p>		



# Continuum of Learning Experiences Framework

# GRADES 9 – 12

Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>and</p> <p>(H) exhibit public relations skills.</p> <p>(4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for professional communications projects.</p> <p>(8) The student applies ethical decision making and understands and complies with laws regarding use of technology in communications. The student is expected to:</p> <p>(A) exhibit ethical conduct;</p> <p>(B) discuss copyright laws in relation to fair use and duplication of materials; and</p> <p>(C) analyze the impact</p>	<p>controlled;</p> <p><b>Algebraic Reasoning:</b></p> <p>(2) Patterns and structure. The student applies mathematical processes to connect finite differences or common ratios to attributes of functions. The student is expected to:</p> <p>(A) determine the patterns that identify the relationship between a function and its common ratio or related finite differences as appropriate, including linear, quadratic, cubic, and exponential functions;</p> <p>(D) determine a function that models real-world data and mathematical contexts using finite differences such as the age of a tree and its circumference, figurative numbers,</p>	<p>organize, synthesize, evaluate, and apply information about the selected topic, identifying, describing, and evaluating multiple points of view;</p> <p>(B) differentiate between valid primary and secondary sources and use them appropriately to conduct research and construct arguments;</p> <p>(C) read narrative texts critically and identify points of view from the historical context surrounding an event and the frame of reference that influenced the participants;</p> <p>(D) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and</p>	<p>coiled springs, wave simulators, tectonic plate models, and planetary globes;</p> <p><b>Environmental Systems:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range;</p> <p>(G) demonstrate the use of course apparatuses, equipment, techniques, and procedures, including meter sticks, rulers,</p>		

Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>of communications on society, including concepts related to persuasiveness, marketing, and point of view.</p> <p>(10) The student develops an understanding of professional communications through exploration of the career cluster. The student is expected to:</p> <p>(F) use a variety of strategies to acquire information from electronic resources;</p> <p>(G) acquire electronic information in a variety of formats;</p> <p>(H) use research skills and electronic communications;</p> <p><b>Independent Study in English:</b></p> <p>(1) Writing. The student uses writing as a tool for learning and research. The student is expected</p>	<p>average velocity, and average acceleration.</p> <p>(4) Number and algebraic methods. The student applies mathematical processes to simplify and perform operations on functions represented in a variety of ways, including real-world situations. The student is expected to:</p> <p>(B) compare and contrast the results when adding two linear functions and multiplying two linear functions that are represented tabularly, graphically, and symbolically;</p> <p>(6) Number and algebraic methods. The student applies mathematical processes to estimate and determine solutions to equations resulting from functions and real-world applications with</p>	<p>drawing inferences and conclusions;</p> <p>(E) collect visual images (photographs, paintings, political cartoons, and other media) to enhance understanding and appreciation of multiple perspectives in a social studies topic;</p> <p>(G) evaluate the validity of a source based on language, corroboration with other sources, and information about the author; and</p> <p><b>Social Studies Research Methods:</b></p> <p>(2) Social studies skills. The student applies a process approach to a research topic, applying the ideas, theories, and modes of inquiry drawn from the social sciences in the examination of persistent issues and social questions. The student is expected to:</p> <p>(C) collect information</p>	<p>pipettes, graduated cylinders, triple beam balances, timing devices, pH meters or probes, thermometers, calculators, computers, Internet access, turbidity testing devices, hand magnifies, work and disposable gloves, compasses, first aid kits, binoculars, field guides, water quality test kits or probes, soil test kits or probes, 100-foot appraiser’s tapes, tarps, shovels, trowels,, screens, buckets, and rock and mineral samples;</p> <p>(H) use a wide variety of additional course apparatuses, equipment, techniques, materials, and procedures as appropriate such as air quality testing devices, cameras, flow meters, Global Position System (GPS) units, Geographic Information System (GIS) software,</p>		



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>to:</p> <p>(B) use writing to organize and support what is known and what needs to be learned about a topic;</p> <p>(C) compile information from primary and secondary sources using available technology;</p> <p>(D) use writing to discover, record, review, and learn;</p> <p>(E) organize notes from multiple sources, including primary and secondary sources, in useful and informing ways;</p> <p>(F) link related information and ideas from a variety of sources;</p> <p>(G) represent information in a variety of ways such as graphs, conceptual maps, and learning logs;</p> <p>(2) Reading. The student inquires through reading</p>	<p>fluency. The student is expected to:</p> <p>(A) estimate a reasonable input value that results in a given output value for a given function, including quadratic, rational, and exponential functions;</p> <p><b><u>(CTE) Mathematical Applications in Agriculture, Food, and Natural Resources:</u></b></p> <p>(1) The student demonstrates mathematics knowledge and skills required to solve problems related to the agriculture, food, and natural resources industries. The student is expected to:</p> <p>(A) demonstrate use of relational expressions in agribusiness, animal, environmental service, food products and processing, natural resources, plant, and</p>	<p>from a variety of sources (primary, secondary, written, and oral) using techniques such as questionnaires, interviews, and library research;</p> <p>(D) use current technology such as library topic catalogues, networks, online information systems, academic journals, primary sources on the Internet, email interviews, and video interviews to collect information about the selected topic;</p> <p>(E) use information from sources that take into account multiple perspectives;</p> <p>(F) differentiate between primary and secondary sources and use each appropriately to conduct research and construct arguments;</p> <p>(I) utilize applicable ethical standards in collecting, storing, and using human</p>	<p>computer models, densitometers, clinometers, and field journals;</p> <p><b><u>Principles of Technology:</u></b></p> <p>(2) The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(F) see <u>Physics</u> (2)(F) for materials list,</p> <p>(G) see <u>Physics</u> (2)(G) for materials list</p> <p>(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units;</p> <p>(4) The student uses the scientific process to investigate physical concepts. The student is expected to:</p> <p>(C) demonstrate the appropriate use and</p>		



# Continuum of Learning Experiences Framework

# GRADES 9 – 12

Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>and researching self-selected and assigned topics. The student is expected to:</p> <p>(C) locate appropriate print and no-print information using text and technical resources, including databases;</p> <p>(D) use text organizers such as overviews, headings, and graphic features to locate and categorize information;</p> <p>(E) organize and record new information in systematic ways such as notes, charts, and graphic organizers;</p> <p><b><u>Independent Study in Journalism:</u></b></p> <p>(1) The student refines and enhances journalistic skills. The student is expected to:</p> <p>(C) compile information from primary and secondary sources using</p>	<p>power, structural, and technical systems such as equal to, not equal, greater than, and less than;</p> <p><b><u>(CTE) Statistics and Risk Management:</u></b></p> <p>(6) The student accesses, processes, maintains, evaluates, and disseminates financial information to assist business decision making. The student is expected to:</p> <p>(B) assess statistical information portrayed in media, work, and educational environments;</p> <p>(C) generate a spreadsheet to collect, collate, organize, and analyze quantitative data;</p> <p>(J) carry out an appropriate hypothesis test on a single population mean or proportion;</p>	<p>experimental or survey data.</p> <p><b><u>Social Studies Advanced Studies:</u></b></p> <p>(2) The student will demonstrate understanding of the research methods and/or technologies used in a selected profession or discipline. The student is expected to:</p> <p>(A) develop an understanding of the requirements and practices of the profession in the selected career or discipline through observation;</p> <p>(B) simulate the methods and/or technologies used in the research process particular to the selected field or discipline; and</p> <p>(3) The student will develop products that meet standard recognized</p>	<p>care of laboratory equipment;</p> <p>(E) demonstrate accurate measurement techniques using precision instruments;</p> <p>(F) record data using scientific notation and International System (SI) of units;</p> <p><b><u>(CTE) Scientific Research and Design:</u></b></p> <p>(7) The student collects, organizes, and evaluates qualitative and quantitative data obtained through experimentation. The student is expected to:</p> <p>(A) record observations and events as they occur within an investigation;</p> <p>(B) acquire, manipulate, and analyze data using equipment and technology;</p>		



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	<p>available technology;</p> <p>(D) organize information from multiple sources, including primary and secondary sources;</p> <p>(E) link related information and ideas from a variety of sources; and</p> <p>(F) access appropriate print and non-print information using text and technical resources, including databases.</p>		<p>by the selected profession or discipline. The student is expected to:</p> <p>(F) maintain a journal to document all phases of the implementation of the plan and reflections on learning experiences and processes.</p>			
<p><b>3. Analyze and Interpret Results</b></p> <ul style="list-style-type: none"> <li>Clarify research questions</li> <li>Synthesize information</li> <li>Evaluate viewpoints (including own)</li> </ul>	<p><b>English I – IV:</b> <b><u>Note differences in (B) student expectations.</u></b></p> <p>(22) Research/ Synthesizing Information. Students clarify research questions and evaluate and synthesize collected information. Students are expected to:</p> <p>(A) modify the major research question as necessary to refocus</p>	<p><b>Algebra I:</b></p> <p>(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>(D) communicate mathematical ideas, reasoning, and their</p>	<p><b>U. S. History Studies Since 1877:</b></p> <p>(29) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</p> <p>(C) understand how historians interpret the</p>	<p><b>Biology:</b></p> <p>(2) Scientific processes The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:</p> <p>(G) analyze, evaluate, make inferences, and predict trends from data; and</p>	<p><b>Cross-Disciplinary Standards:</b></p> <p>I.A.2. Accept constructive criticism and revise personal views when valid evidence warrants.</p> <p>I.B.1. Consider arguments and conclusions of self and others.</p>	<p><b>1. Knowledge and skills</b> is the sum of what has been learned, including new understandings and abilities, related to the topic of study. In this system, knowledge and skills are based on the Texas Essential Knowledge and Skills (TEKS).</p> <p><b>2. Innovation and application</b> is the creative use of knowledge</p>



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	<p>the research plan;</p> <p>(B) [English I &amp; II] evaluate the relevance of information to the topic and determine the reliability, validity, and accuracy of sources (including Internet sources) by examining their authority and objectivity; and</p> <p>(B) [English II &amp; IV] differentiate between theories and the evidence that supports them and determine whether the evidence found is weak or strong and how that evidence helps create a cogent argument; and</p> <p>(C) critique the research process at each step to implement changes as the need occurs and is identified.</p> <p><b>(CTE) Professional Communications:</b></p> <p>(1) The student applies</p>	<p>implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;</p> <p>(E) create and use representations to organize, record, and communicate mathematical ideas;</p> <p>(F) analyze mathematical relationships to connect and communicate mathematical ideas; and</p> <p>(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p> <p>(12) Number and algebraic methods. The student applies the mathematical process standards and algebraic</p>	<p>past (historiography) and how their interpretations of history may change over time;</p> <p>(D) use the process of historical inquiry to research, interpret, and use multiple types of sources of evidence;</p> <p>(F) identify bias in written, oral, and visual material;</p> <p>(G) identify and support with historical evidence a point of view on a social studies issue or event, and</p> <p>(H) use appropriate skills to analyze and interpret social studies information such as maps, graphs, presentations, speeches, lectures, and political cartoons.</p> <p>(31) Social studies skills. The student uses geographic tools to</p>	<p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of scientific research on society and the</p>	<p>I.B.4. Support or modify claims based on the results of an inquiry.</p> <p>II.C.5. Synthesize and organize information effectively.</p> <p>II.D.1. Identify patterns or departures from patterns among data.</p> <p>II.E.2. Use technology to organize, manage, and analyze information.</p>	<p>and skills learned in the course of the project as demonstrated in the final product.</p> <p><b>3. Analysis and synthesis</b> are the thinking processes in which whole topics are separated into their constituent parts for study and reconstituted to form a new, coherent whole.</p> <p><b>4. Ethics/unanswered questions</b> include the development of a project in alignment with rules or standards of conduct governing the field of study. Additionally, this dimension considers the student's awareness and treatment of issues related to the study that lack a consensus among professionals in the field.</p> <p><b>5. Multiple perspectives</b> encompass the ability to examine an issue from more than one point of view, including the ability to separate one's own</p>



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>English language arts in professional communications projects. The student is expected to:</p> <p>(C) identify assumptions, purpose, outcomes, solutions, and propaganda techniques;</p> <p>(E) evaluate oral and written information; and</p> <p>(2) The student applies professional communications strategies. The student is expected to:</p> <p>(C) interpret and communicate information, data, and observations;</p> <p>(F) develop and interpret tables, charts, and figures;</p> <p>(3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in</p>	<p>methods to write, solve, analyze, and evaluate equations, relations, and functions. The student is expected to:</p> <p>(A) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function;</p> <p>(E) solve mathematic and scientific formulas, and other literal equations, for a specified variable.</p> <p><b>Algebra II:</b></p> <p>(7) Number and algebraic methods. The student applies mathematical processes to simplify and perform operations on expressions and to solve equations. The student is expected to:</p> <p>(A) add, subtract, and multiply complex numbers;</p> <p>(8) Data. The student</p>	<p>collect, analyze, and interpret data. The student is expected to:</p> <p>(A) create thematic maps, graphs, and charts representing various aspects of the United States; and</p> <p>(B) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, and available databases.</p> <p><b>World History Studies:</b></p> <p>(29) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) identify methods used by archaeologists, anthropologists, historians, and</p>	<p>environment;</p> <p><b>Integrated Physics and Chemistry:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(C) organize, analyze, evaluate, make inferences, and predict trends from data; and;</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including all sides of scientific evidence of</p>		<p>point of view from those of others.</p> <p><b>6. Methodology and use of resources</b> cover the use of principles, procedures, practices, and references of the field of study to guide, but not limit, the project.</p> <p><b>7. Communication</b> is the use of written, spoken, and technological media to convey new learning.</p> <p><b>8. Relevance and significance</b> include the potential impact of the project on the individual student and other social groups, as well as the field of study.</p> <p><b>9. Professional quality</b> is the nature of the project that suggests that the skills and knowledge demonstrated in the product are comparable to those of a person engaged in the field of study as a livelihood.</p>



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	<p>teams to solve problems.</p> <p>(8) The student applies ethical decision making and understands and complies with laws regarding use of technology in communications. The student is expected to:</p> <p>(C) analyze the impact of communications on society, including concepts related to persuasiveness, marketing, and point of view.</p> <p><b><u>Independent Study in English:</u></b></p> <p>(1) Writing. The student uses writing as a tool for learning and research. The student is expected to:</p> <p>(H) compile written ideas and representations, interpret empirical data into reports, summaries, or other formats, and draw conclusions; and</p>	<p>applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions. The student is expected to:</p> <p>(A) analyze data to select the appropriate model from among linear, quadratic, and exponential models;</p> <p>(B) use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data; and</p> <p>(C) predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.</p> <p><b><u>Geometry:</u></b></p> <p>(4) Logical argument and constructions. The student uses the</p>	<p>geographers to analyze evidence;</p> <p>(B) explain how historians, when examining sources, analyze frame of reference, historical context, and point of view to interpret historical events;</p> <p>(E) Identify bias in written, oral, and visual material;</p> <p>(G) construct a thesis on a social studies issue or event supported by evidence; and</p> <p>(H) use appropriate reading and mathematical skills to interpret social studies information such as maps and graphs.</p> <p><b><u>World Geography Studies:</u></b></p> <p>(21) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from</p>	<p>those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of research on scientific thought, society, and the environment;</p> <p><b><u>Chemistry:</u></b></p> <p>(2) Scientific processes The student uses scientific methods to solve investigative questions. The student is expected to:</p> <p>(G) express and manipulate chemical quantities using scientific conventions and mathematical procedures, including dimensional analysis, scientific notation, and significant figures;</p>		



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	<p>(I) use writing as a tool such as to reflect, explore, or problem solve.</p>	<p>process skills with deductive reasoning to understand geometric relationships. The student is expected to:</p> <p>(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse;</p> <p>(C) verify that a conjecture is false using a counterexample; and</p> <p>(13) Probability. The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events. The student is expected to:</p>	<p>a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(C) create and interpret different types of maps to answer geographic questions, infer relationships, and analyze change.</p> <p><b>United States Government:</b></p> <p>(20) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(C) analyze and defend a point of view on a current political issue;</p> <p>(E) evaluate government data using charts, tables, graphs, and maps; and</p> <p>(F) use appropriate mathematical skills to interpret social studies information such as</p>	<p>(H) organize, analyze, evaluate, make inferences, and predict trends from data; and</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products</p>		



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		<p>(A) develop strategies to use permutations and combinations to solve contextual problems;</p> <p>(B) determine probabilities based on area to solve contextual problems;</p> <p>(C) identify whether two events are independent and compute the probability of the two events occurring together with or without replacement;</p> <p>(D) apply conditional probability in contextual problems; and</p> <p>(E) apply independence in contextual problems.</p> <p><b>Precalculus:</b></p> <p>(2) Functions. The student uses process standards in mathematics to explore, describe, and analyze the attributes</p>	<p>maps and graphs.</p> <p><b>Economics:</b></p> <p>(21) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(B) create economic models, including production-possibilities curves, circular-flow charts, and supply-and-demand graphs, to analyze economic concepts or issues;</p> <p>(C) explain a point of view on an economic issue;</p> <p>(E) evaluate economic data using charts, tables, graphs, and maps; and</p> <p>(F) use appropriate mathematical skills to interpret economic information.</p>	<p>and services;</p> <p>(D) evaluate the impact of research, scientific thought, society, and the environment.</p> <p><b>Physics:</b></p> <p>(2) Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(I) identify and quantify causes and effects of uncertainties in measured data;</p> <p>(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs;</p> <p>(L) express and manipulate relationships among physical variables quantitatively including the use of graphs,</p>		



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		<p>of functions. The student makes connections between multiple representations of functions and algebraically constructs new functions. The student analyzes and uses functions to model real-world problems. The student is expected to:</p> <p>(A) use the composition of two functions to model and solve real-world problems;</p> <p>(N) analyze situations modeled by functions, including exponential, logarithmic, rational, polynomial, and power functions, to solve real-world problems;</p> <p>(4) Number and measure. The student uses process standards in mathematics to apply</p>	<p><b>Psychology:</b></p> <p>(14) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(B) draw and evaluate conclusions from qualitative information;</p> <p>(C) apply evaluation rules to quantitative information.</p> <p><b>Sociology:</b></p> <p>(19) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources technology. The student is expected to:</p> <p>(C) use appropriate mathematical skills to interpret sociological information.</p>	<p>charts, and equations.</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(F) express and interpret relationships</p>		



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		<p>appropriate techniques, tools, and formulas to calculate measures in mathematical and real-world problems.</p> <p>(5) Algebraic reasoning. The student uses process standards in mathematics to evaluate expressions, describe patterns, formulate models, and solve equations and inequalities using properties, procedures, or algorithms. The student is expected to:</p> <p>(N) generate and solve trigonometric equations in mathematical and real-world problems.</p> <p><b><u>Mathematical Models with Applications:</u></b></p> <p>(5) Mathematical modeling in science and engineering. The</p>	<p><b><u>Special Topics in Social Studies:</u></b></p> <p>(2) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(F) identify bias in written, oral, and visual material;</p> <p>(H) use appropriate mathematical skills to interpret social studies information such as maps and graphs.</p> <p><b><u>Social Studies Research Methods:</u></b></p> <p>(2) Social studies skills. The student applies a process approach to a research topic, applying the ideas, theories, and modes of inquiry drawn from the social sciences in the examination of persistent issues and social questions. The student is expected to:</p>	<p>symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition.</p> <p><b><u>Aquatic Science:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data,</p> <p>(I) perform calculations using dimensional analysis, significant digits, and scientific notation; and</p> <p>(3) Scientific processes. The student uses critical thinking, scientific</p>		



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		<p>student applies mathematical processes with algebraic techniques to study patterns and analyze data as it applies to science.</p> <p>(8) Mathematical modeling in social sciences. The student applies mathematical processes to determine the number of elements in a finite sample space and compute the probability of an event. The student is expected to:</p> <p>(B) compare theoretical to empirical probability; and</p> <p>(C) use experiments to determine the reasonableness of a theoretical model such as binomial or geometric.</p> <p>(9) Mathematical modeling in social</p>	<p>(G) develop and use criteria for the evaluation of qualitative and/or quantitative information;</p> <p>(H) describe the results of the research process;</p> <p>(I) generate logical conclusions from research results;</p> <p>(J) justify a conclusion with supporting evidence;</p> <p>(K) make predictions as to future actions/ and/or outcomes based on conclusions of research; and</p> <p>(3) Social studies skills. If doing qualitative research, the student employs the processes of critical social science inquiry to understand an issue topic, or area of interest using a variety of sources, checking their credibility, validating and weighing evidence for claims, and searching for causality. The student is</p>	<p>reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of research and technology on scientific thought, society, and the environment;</p>		



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		<p>sciences. The student applies mathematical processes and mathematical models to analyze data as it applies to social sciences. The student is expected to:</p> <p>(A) interpret information from various graphs, including line graphs, bar graphs, circle graphs, histograms, scatterplots, dot plots, stem-and-leaf plots, and box and whisker plots, to draw conclusions from the data and determine the strengths and weaknesses of conclusions;</p> <p>(B) analyze numerical data using measures of central tendency (mean, median, and mode) and variability (range, interquartile range or IQR, and standard deviation) in order to make inferences with</p>	<p>expected to:</p> <p>(A) interpret the historiography of the research topic;</p> <p>(B) apply key social science concepts such as time, chronology, causality, change, conflict, and complexity to explain, analyze, and show connections among patterns of historical change and continuity;</p> <p>(C) investigate, interpret, and analyze multiple historical and contemporary viewpoints within and across cultures;</p> <p>(D) relate important events, recurring dilemmas, and persistent issues to topic; and</p> <p>(E) employ empathy, skepticism, and critical judgment to analysis of topic; and</p> <p>(4) Social studies skills. If doing quantitative</p>	<p><b>Astronomy:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(G) organize, analyze, evaluate, make inferences, and predict trends from data, including making new revised hypotheses when appropriate;</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing,</p>		



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		<p>normal distributions;</p> <p>(C) distinguish the purposes and differences among types of research, including surveys, experiments, and observational studies;</p> <p>(E) analyze marketing claims based on graphs and statistics from electronic and print media and justify the validity of stated or implied conclusions; and</p> <p>(F) use regression methods available through technology to model linear and exponential functions, interpret correlations, and make predictions.</p> <p><b>Advanced Quantitative Reasoning:</b></p> <p>(2) Numeric reasoning. The student applies the process standards in mathematics to generate new</p>	<p>research, the student is expected to:</p> <p>(B) create a matrix applying research methodologies that employ survey research, ethnography, primary documents, and statistical analysis to given subject areas;</p> <p>(D) utilize basic statistical approaches and tools in the analysis of aggregate information;</p> <p>(E) define and compute statistical information using various statistical approaches such as means testing and correlation, measures of central tendency and distribution, the development of categorical systems, and logical analysis;</p> <p>(F) analyze information using a spreadsheet or statistical analysis information software;</p> <p>(G) apply the fundamental principles and requirements of</p>	<p>including all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of research and technology on scientific thought, society, and the environment; and</p> <p><b>Earth and Space Science:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(G) organize, analyze, evaluate, make inferences, and predict trends from data;</p> <p>(H) use mathematical</p>		



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		<p>understandings by extending existing knowledge. The student generates new mathematical understandings through problems involving numerical data that arise in everyday life, society, and the workplace. The student extends existing knowledge and skills to analyze real-world situations. The student is expected to:</p> <p>(B) apply and analyze published ratings, weighted averages, and indices to make informed decisions;</p> <p>(C) solve problems involving quantities that are not easily measured using proportionality;</p> <p>(D) solve geometric problems involving indirect measurement, including similar triangles, the Pythagorean Theorem, Law of Sines, Law of</p>	<p>validity and reliability as used in the social sciences;</p> <p>(H) interpret patterns of behavior reflecting attitudes and values that contribute or pose obstacles to cross-cultural understanding; and</p> <p>(6) Social studies skills. The student understands the principles and requirements of the scientific method. The student is expected to:</p> <p>(C) describe the results of the research process; and</p> <p>(D) justify a conclusion with supporting evidence and make predictions as to future actions and/or outcomes based on the conclusions of research.</p> <p><b>Social Studies Advanced Studies:</b></p> <p>(2) The student will demonstrate</p>	<p>procedures such as algebra, statistics, scientific notation, and significant figures to analyze data using the International System (SI) units; and</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related</p>		



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		<p>Cosines, and the use of dynamic geometry software;</p> <p>(F) use arrays to efficiently manage large collections of data and add, subtract, and multiply matrices to solve applied problems, including geometric transformations;</p> <p>(G) analyze various voting and selection processes to compare results in given situations; and</p> <p>(3) Algebraic reasoning (expressions, equations, and generalized relationships). The student applies the process standards in mathematics to create and analyze mathematical models of everyday situations to make informed decisions related to earning, investing, spending, and borrowing money by appropriate,</p>	<p>understanding of the research methods and/or technologies used in a selected profession or discipline. The student is expected to:</p> <p>(B) simulate the methods and/or technologies used in the research process particular to the selected field or discipline; and</p> <p>(C) review and revise the original proposal to reflect changes needed based upon preliminary research and practices.</p> <p>(3) The student will develop products that meet standards recognized by the selected profession or discipline. The student is expected to:</p> <p>(F) maintain a journal to document all phases of the implementation of the plan and reflections on learning experiences and processes.</p>	<p>to promotional materials for products and services;</p> <p>(D) evaluate the impact of research and technology on scientific thought, society, and public policy;</p> <p><b>Environmental Systems:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(I) organize, analyze, evaluate, build models, make inferences, and predict trends from data;</p> <p>(J) perform calculations using dimensional analysis, significant digits, and scientific notation; and</p> <p>(3) Scientific processes. The student uses critical thinking, scientific</p>		



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		<p>proficient, and efficient use of tools, including technology. The student uses mathematical relationships to make connections and predictions. The student judges the validity of a prediction and uses mathematical models to represent, analyze, and solve dynamic real-world problems. The student is expected to:</p> <p>(B) describe the degree to which uncorrelated variables may or may not be related and analyze situations where correlated variables do or do not indicate a cause-and-effect relationship;</p> <p>(4) Probabilistic and statistical reasoning. The student uses the process standards in mathematics to generate new understandings of probability and</p>		<p>reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of research on scientific thought, society, and the environment;</p>		



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		<p>statistics. The student analyzes statistical information and evaluates risk and return to connect mathematical ideas and make informed decisions. The student applies a problem-solving model and statistical methods to design and conduct a study that addresses one or more particular question(s). The student uses multiple representations to communicate effectively the results of student-generated statistical studies and the critical analysis of published statistical studies. The student is expected to:</p> <p>(C) calculate conditional probabilities and probabilities of compound events using tree diagrams, Venn diagrams, area models, and formulas;</p> <p>(D) interpret</p>		<p><b><u>Principles of Technology:</u></b></p> <p>(2) The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(I) identify and quantify causes and effects of uncertainties in measured data;</p> <p>(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs;</p> <p>(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations.</p> <p>(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.</p>		



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		<p>conditional probabilities and probabilities of compound events by analyzing representations to make decisions in problem situations;</p> <p>(E) use probabilities to make and justify decisions about risks in everyday life;</p> <p>(F) calculate expected value to analyze mathematical fairness, payoff, and risk;</p> <p><b>Statistics:</b></p> <p>(2) Statistical process sampling and experimentation. The student applies mathematical processes to apply understandings about statistical studies, surveys, and experiments to design and conduct a study and use graphical, numerical, and analytical techniques to</p>		<p>The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) explain the impacts of the scientific contributions of a variety of historical and contemporary scientist on scientific thought and society;</p> <p>(F) express and interpret relationships symbolically in</p>		



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		<p>communicate the results of the study. The student is expected to:</p> <p>(G) critically analyze published findings for appropriateness of study design implemented, sampling methods used, or the statistics applied.</p> <p>(4) Categorical and quantitative data. The student applies the mathematical process standards to represent and analyze both categorical and quantitative data. The student is expected to:</p> <p>(D) compare and contrast different graphical or visual representations given the same data set;</p> <p>(E) compare and contrast meaningful information derived from summary statistics given a data set; and</p>		<p>accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition.</p> <p>(4) The student uses the scientific process to investigate physical concepts. The student is expected to:</p> <p>(G) identify and quantify cause and effects of uncertainties in measured data;</p> <p>(H) organize and evaluate data, including the use of tables, charts, and graphs;</p> <p>(J) record, express, and manipulate data using graphs, charts, and equations.</p> <p><b>(CTE) Scientific Research and Design:</b></p> <p>(2) The student uses a systematic approach to</p>		



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		<p>(7) Bivariate data. The student applies the mathematical process standards to analyze relationships among bivariate quantitative data. The student is expected to:</p> <p>(A) analyze scatterplots for patterns, linearity, outliers, and influential points;</p> <p><b><u>Algebraic Reasoning:</u></b></p> <p>(4) Number and algebraic methods. The student applies mathematical processes to simplify and perform operations on functions represented in a variety of ways, including real-world situations. The student is expected to:</p> <p>(A) connect tabular representations to symbolic representations when adding, subtracting, and multiplying</p>		<p>answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(G) analyze, evaluate, make inferences, and predict trends from data;</p> <p>(H) identify and quantify causes and effects of uncertainties in measured data;</p> <p>(I) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs; and</p> <p>(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using</p>		



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		<p>polynomial functions arising from mathematical and real-world situations such as applications involving surface area and volume;</p> <p>(6) Number and algebraic methods. The student applies mathematical processes to estimate and determine solutions to equations resulting from functions and real-world applications with fluency. The student is expected to:</p> <p>(B) solve equations arising from questions asked about functions that model real-world applications, including linear and quadratic functions, tabularly, graphically, and symbolically; and</p> <p>(C) approximate solutions to equations arising from questions asked about exponential,</p>		<p>empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) explain the impacts of the contributions of a variety of historical and contemporary scientists on scientific thought and society;</p> <p>(F) express and interpret relationships symbolically in accordance with accepted theories to make prediction's and solve problems mathematically, including problems</p>		



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		<p>logarithmic, square root, and cubic functions that model real-world applications tabularly and graphically.</p> <p>(7) Modeling from data. The student applies mathematical processes to analyze and model data based on real-world situations with corresponding functions. The student is expected to:</p> <p>(B) compare and contrast between the mathematical and reasonable domain and range of functions modeling real-world situations, including linear, quadratic, exponential, and rational functions;</p> <p><b><u>(CTE) Mathematical Applications in Agriculture, Food, and Natural Resources:</u></b></p>		<p>requiring proportional reasoning and graphical vector addition.</p> <p>(7) The student collects, organizes, and evaluates qualitative and quantitative data obtained through experimentation. The student is expected to:</p> <p>(C) construct data tables to organize information collected in an experiment; and</p> <p>(D) evaluate data using statistical methods to recognize patterns, trends, and proportional relationships.</p> <p>(8) The student knows how to synthesize valid conclusions from qualitative and quantitative data. The student is expected to:</p> <p>(A) synthesize conclusions supported by</p>		



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		<p>(1) The student demonstrates mathematics knowledge and skills required to solve problems related to the agriculture, food, and natural resources industries. The student is expected to:</p> <p>(B) apply statistical and data analysis to solve problems in agribusiness, animal, environmental service, food products and processing, natural resources, plant, or power, structural, and technical systems;</p> <p>(C) analyze mathematical problem statements for missing or irrelevant data essential to agribusiness, animal, environmental service, food products and processing, natural resources, plant, and power, structural, and</p>		research data;		



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
		<p>technical systems;            (D) construct and analyze charts, tables, and graphs from functions and data generated in agribusiness, animal, environmental service, food products and processing, natural resources, plant, and power, structural, and technical systems;            (E) analyze data using measures of central tendency when interpreting operational documents in agribusiness, animal, environmental service, food products and processing, natural resources, plant, and power, structural, and technical systems;            and</p> <p><b>(CTE) Statistics and Risk Management:</b></p> <p>(6) The student accesses, processes,</p>				



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
		<p>maintains, evaluates, and disseminates financial information to assist business decision making/ The student is expected to:</p> <p>(E) analyze data presented in frequency distributions, histograms, and ogives;</p> <p>(G) apply the common rules of probability to evaluate business alternatives;</p> <p>(H) construct and interpret a confidence interval estimate for a single population mean using standard normal distribution;</p> <p>(I) establish and interpret a confidence interval estimate for a single population proportion;</p> <p>(K) interpret the p-value of the test statistic;</p> <p>(L) construct a contingency table and perform a chi-squared test of independence;</p>				



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
		<p>(M) analyze two variable problems using linear regression and correlation; and</p> <p>(N) interpret the results of a computer-generated regression model.</p>				
<p><b>4. Report Findings through Product and/or Presentation.</b></p>	<p><b>English I &amp; II:</b></p> <p>(23) Research/Organizing and Presenting Ideas. Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation that:</p> <p>(A) marshals evidence in support of a clear thesis statement and related claims;</p> <p>(B) provides an analysis for the audience that reflects a logical progression of ideas and a clearly stated</p>	<p><b>Algebra I:</b></p> <p>(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</p> <p>(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;</p>	<p><b>U. S. History Studies Since 1877:</b></p> <p>(30) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</p> <p>(A) create written, oral, and visual presentations of social studies information;</p> <p>(B) use correct social studies terminology to explain historical concepts; and</p> <p>(C) use different forms of media to convey information, including written to visual and statistical to written or</p>	<p><b>Biology:</b></p> <p>(2) Scientific processes. The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:</p> <p>(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p>(3) Scientific processes. The student uses critical</p>	<p><b>Cross-Disciplinary Standards:</b></p> <p>I.B.2. Construct well-reasoned arguments to explain phenomena, validate conjectures, or support positions.</p> <p>I.D.4. Persevere to complete and master tasks.</p> <p>II.C.6. Design and present an effective product.</p> <p>II.C.7. Integrate source material.</p> <p>II.C.8. Present final product.</p>	<p><b>1. Knowledge and skills</b> is the sum of what has been learned, including new understandings and abilities, related to the topic of study. In this system, knowledge and skills are based on the Texas Essential Knowledge and Skills (TEKS).</p> <p><b>2. Innovation and application</b> is the creative use of knowledge and skills learned in the course of the project as demonstrated in the final product.</p> <p><b>3. Analysis and</b></p>



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>point of view;</p> <p>(C) uses graphics and illustrations to help explain concepts where appropriate;</p> <p>(D) uses a variety of evaluative tools (e.g., self-made rubrics, peer reviews, teacher and expert evaluations) to examine the quality of the research; and</p> <p>(E) uses a style manual (e.g., <i>Modern Language Association, Chicago Manual of Style</i>) to document sources and format written materials.</p> <p><b>English III &amp; IV:</b></p> <p>(23)Research/Organizing and Presenting Ideas. Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into an extended written or oral</p>	<p><b>Mathematical Models with Applications:</b></p> <p>(10) Mathematical modeling in social sciences. The student applies mathematical processes to design a study and use graphical, numerical, and analytical techniques to communicate the results of the study. The student is expected to:</p> <p>(B) communicate methods used, analyses conducted, and conclusions drawn for a data-analysis project through the use of one or more of the following: a written report, a visual display, an oral report, or a multi-media presentation.</p> <p><b>Advanced Quantitative Reasoning:</b></p> <p>(3) Algebraic reasoning (expressions, equations,</p>	<p>visual, using available computer software as appropriate.</p> <p><b>World History Studies:</b></p> <p>(30) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</p> <p>(A) use social studies terminology correctly;</p> <p>(B) use standard grammar, spelling, sentence structure, and punctuation;</p> <p>(C) interpret and create written, oral, and visual presentations of social studies information; and</p> <p>(D) transfer information from one medium to another.</p> <p><b>World Geography Studies:</b></p> <p>(22) Social studies skills. The student communicates in written, oral, and visual</p>	<p>thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p> <p>(E) evaluate models according to their limitations in representing biological objects or events; and</p> <p>(F) research and describe the history of biology and contributions of scientists.</p> <p><b>Integrated Physics and Chemistry:</b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p>	<p>II.D.3. Present analyzed data and communicate findings in a variety of formats.</p> <p>II.F.3. Use technology to communicate and display findings in a clear and coherent manner.</p>	<p><b>synthesis</b> are the thinking processes in which whole topics are separated into their constituent parts for study and reconstituted to form a new, coherent whole.</p> <p><b>4. Ethics/unanswered questions</b> include the development of a project in alignment with rules or standards of conduct governing the field of study. Additionally, this dimension considers the student's awareness and treatment of issues related to the study that lack a consensus among professionals in the field.</p> <p><b>5. Multiple perspectives</b> encompass the ability to examine an issue from more than one point of view, including the ability to separate one's own point of view from those of others.</p> <p><b>6. Methodology and use of resources</b> cover the use of principles, procedures, practices, and</p>



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	<p>presentation that:</p> <p>(A) provides an analysis that supports and develops personal opinions, as opposed to simply restating existing information;</p> <p>(B) uses a variety of formats and rhetorical strategies to argue for the thesis;</p> <p>(C) develops an argument that incorporates the complexities of and discrepancies in information from multiple sources and perspectives while anticipating and refuting counter-arguments;</p> <p>(D) uses a style manual (e.g., <i>Modern language Association, Chicago Manual of Style</i>) to document sources and format written materials; and</p> <p>(E) is of sufficient length and complexity to address the topic.</p>	<p>and generalized relationships). The student applies the process standards in mathematics to create and analyze mathematical models of everyday situations to make informed decisions related to earning, investing, spending, and borrowing money by appropriate, proficient, and efficient use of tools, including technology. The student uses mathematical relationships to make connections and predictions. The student judges the validity of a prediction and uses mathematical models to represent, analyze, and solve dynamic real-world problems. The student is expected to:</p> <p>(F) create, represent, and analyze mathematical models for various types of income calculations to determine the best option for a given situation;</p>	<p>forms. The student is expected to:</p> <p>(A) design and draw appropriate graphics such as maps, diagrams, tables, and graphs to communicate geographic features, distributions, and relationships;</p> <p>(B) generate summaries, generalizations, and thesis statements supported by evidence;</p> <p>(C) use geographic terminology correctly;</p> <p>(E) use standard grammar, spelling, sentence structure, and punctuation;</p> <p>(F) create original work using proper citations and understanding and avoiding plagiarism.</p> <p><b>United States Government:</b></p> <p>(20) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of</p>	<p>(E) communicate valid conclusions.</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions. The student is expected to:</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p> <p>(E) describe connections between physics and chemistry and future careers; and</p> <p>(F) research and describe the history of physics and chemistry and contributions of scientists.</p> <p><b>Chemistry:</b></p> <p>(2) Scientific processes</p>		<p>references of the field of study to guide, but not limit, the project.</p> <p><b>7. Communication</b> is the use of written, spoken, and technological media to convey new learning.</p> <p><b>8. Relevance and significance</b> include the potential impact of the project on the individual student and other social groups, as well as the field of study.</p> <p><b>9. Professional quality</b> is the nature of the project that suggests that the skills and knowledge demonstrated in the product are comparable to those of a person engaged in the field of study as a livelihood.</p>



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p><b><u>Communications Applications:</u></b></p> <p>(1) Communication process. The student demonstrates knowledge of various communication processes in professional and social contexts. The student is expected to:</p> <p>(J) identify and analyze ethical and social responsibilities of communicators; and</p> <p>(2) Interpersonal. The student uses appropriate interpersonal-communication strategies in professional and social contexts. The student is expected to:</p> <p>(I) analyze and evaluate the effectiveness of own and others' communication.</p> <p>(4) Presentations. The student makes and evaluates formal and informal professional</p>	<p>(G) create, represent, and analyze mathematical models for expenditures, including those involving credit, to determine the best option for a given situation; and</p> <p>(H) create, represent, and analyze mathematical models and appropriate representations, including formulas and amortization tables, for various types of loans and investments to determine the best option for a given situation.</p> <p>(4) Probabilistic and statistical reasoning. The student uses the process standards in mathematics to generate new understandings of probability and statistics. The student analyzes statistical</p>	<p>valid sources, including electronic technology. The student is expected to:</p> <p>(B) create a product on a contemporary government issue or topic using critical methods of inquiry;</p> <p>(21) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</p> <p>(A) use social studies terminology correctly;</p> <p>(B) use standard grammar, spelling, sentence structure, and punctuation;</p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate; and</p> <p>(D) create written, oral, and visual presentations of social studies information.</p>	<p>The student uses scientific methods to solve investigative questions. The student is expected to:</p> <p>(B) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphs, journals, summaries, oral reports, and technology-based reports.</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and</p>		



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	<p>presentations. The student is expected to:</p> <p>(A) analyze the audience, occasion, and purpose when designing presentations;</p> <p>(D) use effective strategies to organize and outline presentations;</p> <p>(E) use information effectively to support and clarify points in presentations;</p> <p>(F) prepare scripts or notes for presentations;</p> <p>(G) prepare and use visual or auditory aids, including technology, to enhance presentations;</p> <p>(H) use appropriate techniques to manage communication apprehension, build self-confidence, and gain command of the information;</p> <p>(I) use effective verbal and nonverbal strategies in presentations;</p>	<p>information and evaluates risk and return to connect mathematical ideas and make informed decisions. The student applies a problem-solving model and statistical methods to design and conduct a study that addresses one or more particular question(s). The student uses multiple representations to communicate effectively the results of student-generated statistical studies and the critical analysis of published statistical studies. The student is expected to:</p> <p>(R) report results of statistical studies to a particular audience, including selecting an appropriate presentation format, creating graphical data displays, and interpreting results in terms of the question studied;</p> <p>(S) justify the design</p>	<p><b><u>Economics:</u></b></p> <p>(22) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</p> <p>(A) use economic-related terminology correctly;</p> <p>(B) use standard grammar, spelling, sentence structure, and punctuation;</p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate;</p> <p>(D) create written, oral, and visual presentations of economic information; and</p> <p>(E) attribute ideas and information to source materials and authors.</p> <p><b><u>Psychology:</u></b></p> <p>(14) Social studies skills. The student applies critical-thinking skills to organize and use information</p>	<p>marketing materials;</p> <p>(E) describe connections between and chemistry and future careers; and</p> <p>(F) research and describe the history of chemistry and contributions of scientists.</p> <p><b><u>Physics:</u></b></p> <p>(2) Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(K) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports; and</p> <p>(3) Scientific processes.</p>		



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	<p>(J) prepare, organize, and participate in an informative or persuasive group discussion for an audience;</p> <p>(K) make individual presentations to inform, persuade, or motivate an audience;</p> <p>(L) participate in question and answer sessions following presentations;</p> <p>(M) apply critical-listening strategies to evaluate presentations; and</p> <p>(N) evaluate effectiveness of his/her own presentation.</p> <p><b>(CTE) Professional Communications:</b></p> <p>(1) The student applies English language arts in professional communications projects. The student is expected to:</p> <p>(A) demonstrate use of content, technical</p>	<p>and the conclusion(s) of statistical studies, including the methods used; and</p> <p>(T) communicate statistical results in oral and written formats using appropriate statistical and nontechnical language.</p> <p><b>Statistics:</b></p> <p>(2) Statistical process sampling and experimentation. The student applies mathematical processes to apply understandings about statistical studies, surveys, and experiments to design and conduct a study and use graphical, numerical, and analytical techniques to communicate the results of the study. The student is expected to:</p> <p>(F) communicate methods used, analyses conducted, and conclusions</p>	<p>acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) create a product on a contemporary psychology-related issue or topic using critical methods of inquiry;</p> <p>(15) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</p> <p>(A) use psychology-related terminology correctly;</p> <p>(B) use standard grammar, spelling, sentence structure, and punctuation;</p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate; and</p> <p>(D) create written, oral, and visual presentations of social studies</p>	<p>The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p> <p>(E) explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society;</p> <p>(F) research and describe the connections between physics and future careers; and</p> <p><b>Aquatic Science:</b></p> <p>(2) Scientific processes.</p>		



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	<p>concepts, and vocabulary;</p> <p>(B) use correct grammar, punctuation, and terminology to write and edit documents;</p> <p>(C) identify assumptions, purpose, outcomes, solutions, and propaganda techniques;</p> <p>(D) compose and edit copy for a variety of written documents;</p> <p>(2) The student applies professional communication strategies. The student is expected to:</p> <p>(A) adapt language for audience, purpose, situation, and intent;</p> <p>(D) present formal and informal presentations;</p> <p>(4) The student applies information technology applications. The student is expected to use personal information management, email,</p>	<p>drawn for a data-analysis project through the use of one or more of the following: a written report, a visual display, an oral report, or a multi-media presentation;</p> <p>(4) Categorical and quantitative data. The student applies the mathematical process standards to represent and analyze both categorical and quantitative data. The student is expected to:</p> <p>(B) represent and summarize data and justify the representation;</p> <p><b>(CTE) Mathematical Applications in Agriculture, Food, and Natural Resources:</b></p> <p>(9) The student develops an improved supervised</p>	<p>information.</p> <p>(16) Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</p> <p>(C) participate in conflict resolution using persuasion, compromise, debate, and negotiation.</p> <p><b>Sociology:</b></p> <p>(19) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) create a product on a contemporary sociological issue or topic using critical methods of inquiry;</p> <p>(20) Social studies skills. The student communicates</p>	<p>The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(J) communicate valid conclusions using essential vocabulary and multiple modes of expression such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and</p>		

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	<p>Internet, writing and publishing, presentation, and spreadsheet or database applications for professional communications projects.</p> <p>(10) The student develops an understanding of professional communications through exploration of the career cluster:</p> <p>(I) format digital information for appropriate and effective communication by:</p> <p>(i) defining the purpose of a product;</p> <p>(ii) identifying the intended audience;</p> <p>(iii) using the principles of page design to create a product, including leading, kerning, automatic text flow into linked columns, widows, orphans, and text wrap; and</p> <p>(iv) creating a master template that includes page specifications and</p>	<p>agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:</p> <p>(B) apply proper record-keeping skills as they relate to a supervised experience;</p> <p>(C) design and use a customized record-keeping system for the individual supervised experience;</p> <p><b><u>(CTE) Statistics and Risk Management:</u></b></p> <p>(6) The student accesses, processes, maintains, evaluates, and disseminates financial information to assist business decision making. The student is expected to:</p> <p>(A) communicate the value of statistical information in a variety of business disciplines and environments;</p> <p>(D) use spreadsheets</p>	<p>in written, oral, and visual forms. The student is expected to:</p> <p>(A) use sociology-related terminology correctly;</p> <p>(B) use standard grammar, spelling, sentence structure, and punctuation;</p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate; and</p> <p>(D) create written, oral, and visual presentations of social studies information.</p> <p><b><u>Special Topics in Social Studies:</u></b></p> <p>(3) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</p> <p>(A) apply the conventions of usage and mechanics of written English;</p>	<p>marketing materials;</p> <p>(E) describe the connection between aquatic science and future careers; and</p> <p>(F) research and describe the history of aquatic science and contributions of scientists.</p> <p><b><u>Astronomy:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(B) communicate valid conclusions in writing, oral presentations, and through collaborative projects; and</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p>		

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	<p>other repetitive tasks;</p> <p>(J) apply desktop publishing to create products by:</p> <p>(i) using word processing, graphics, or drawing programs;</p> <p>(ii) applying design elements such as text, graphics, headlines, use of color, and white space;</p> <p>(iii) applying typography concepts, including font, size, and style;</p> <p>(iv) applying graphic design concepts such as contrast, alignment, repetition, and proximity;</p> <p>(v) editing products; and</p> <p>(vi) developing and referencing technical documentation; and</p> <p>(K) deliver digital products in a variety of appropriate media.</p>	<p>and graphical techniques to present data in a manner that is understood by and meaningful to colleagues and clients;</p> <p>(F) construct and use descriptive indices;</p>	<p>(B) use social studies terminology correctly;</p> <p>(C) use appropriate oral communication techniques;</p> <p>(D) construct a thesis that is supported by evidence;</p> <p>(E) recognize and evaluate counter arguments;</p> <p>(F) use visual images (photographs, paintings, and other media) to facilitate understanding and appreciation of multiple perspectives in a social studies topic;</p> <p>(G) develop a bibliography with ideas and information attributed to source materials and authors using accepted social science formats such as <i>Modern Language Association Style Manual</i> (MLA) and <i>Chicago Manual of Style</i> (CMS) to</p>	<p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p> <p>(E) describe the connection between astronomy and future careers.</p> <p>(4) Science concepts. The student recognizes the importance and uses of astronomy in civilization. The student is expected to:</p> <p>(A) research and describe the use of astronomy in ancient civilizations such as the Egyptians, Mayans, Aztecs, Europeans, and the native Americans;</p> <p>(B) research and describe the contributions of scientists to our changing understanding of</p>		



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	<p><b><u>Independent Study in English:</u></b></p> <p>(1) Writing. The student uses writing as a tool for learning and research. The student is expected to:</p> <p>(H) compile written ideas and representations, interpret empirical data into reports, summaries, or other formats, and draw conclusions; and</p> <p>(2) Reading. The student inquires through reading and researching self-selected and assigned topics. The student is expected to:</p> <p>(F) produce research projects and reports in various forms for audiences;</p> <p>(G) draw relevant questions for further study from the research findings or conclusions; and</p> <p>(H) conduct a research project(s), producing an original work in</p>		<p>document sources and format written materials; and</p> <p>(H) use computer software to create written, graphic, or visual products from collected data.</p> <p><b><u>Social Studies Research Methods:</u></b></p> <p>(2) Social studies skills. The student applies a process approach to a research topic, applying the ideas, theories, and modes of inquiry drawn from the social sciences in the examination of persistent issues and social questions. The student is expected to:</p> <p>(L) develop a bibliography in a format appropriate to the social sciences such as <i>Modern language Associate Style Manual</i> (MLA) and <i>Chicago Manual of Style</i> (CMS) to document sources and format written materials.</p>	<p>astronomy, including Ptolemy, Copernicus, Tycho Brahe, Kepler, Galileo, Newton, Einstein, and Hubble, and the contribution of women astronomers, including Maria Mitchell and Henrietta Swan Leavitt.</p> <p><b><u>Earth and Space Science:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</p> <p>(I) communicate valid conclusions supported by data using formats such as technical reports, lab reports, labeled drawings, graphic organizers, journals, presentations, and technical posters.</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem</p>		



Research Process	English Language Arts and Reading TEKS	Math TEKS	Social Studies TEKS	Science TEKS	Texas College and Career Readiness Standards (CCRS)	Texas Performance Standards Project (TPSP) Scoring Dimensions
	<p>print or another medium with a demonstration of advanced skills.</p> <p>(3) Viewing/representing. The student produces visual representations that communicate with others. The student is expected to:</p> <ul style="list-style-type: none"> <li>(A) use a range of techniques in planning and creating media text; and</li> <li>(B) prepare and present a research project.</li> </ul> <p><b><u>Independent Study in Journalism:</u></b></p> <p>(2) The student produces visual representations that communicate with others. The student is expected to:</p> <ul style="list-style-type: none"> <li>(A) conduct a research project(s) with instructor guidance and produce an original work in print or another medium demonstrating advanced skill; and</li> </ul>		<p>(5) Social studies skills. The student creates a written and oral presentation of research and conclusions. The student is expected to:</p> <ul style="list-style-type: none"> <li>(A) apply the conventions of usage and mechanics of written English;</li> <li>(B) present a thesis and conclusion;</li> <li>(C) use appropriate social science terminology;</li> <li>(D) justify a conclusion with supporting evidence and address counter arguments as appropriate;</li> <li>(E) construct visuals such as statistical compilations, charts, graphs, tables, timelines, and maps to convey appropriate data;</li> <li>(F) create a presentation on a selected topic using word-processing, graphics, and</li> </ul>	<p>solving to make informed decisions within and outside the classroom. The student is expected to:</p> <ul style="list-style-type: none"> <li>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</li> <li>(E) explore careers and collaboration among scientists in Earth and space sciences; and</li> <li>(F) learn and understand the contributions of scientists to the historical development of Earth and space sciences.</li> </ul> <p><b><u>Environmental Systems:</u></b></p> <p>(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The</p>		



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	<p>(B) use a range of techniques in planning and creating projects.</p>		<p>multimedia software;</p> <p>(G) incorporate and present visual images (photographs, paintings, and other media) to enhance presentation; and</p> <p>(H) develop a bibliography with ideas and information attributed to source materials and authors using accepted social science formats such as <i>Modern Language Association Style Manual</i> (MLA) and <i>Chicago Manual of Style</i> (CMS) to document sources and format written materials.</p> <p><b>Social Studies Advanced Studies:</b></p> <p>(3) The student will develop products that meet standards recognized by the selected profession or discipline. The student is expected to:</p> <p>(A) collaborate with the</p>	<p>student is expected to:</p> <p>(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>		



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			<p>appropriate professions to define the product;</p> <p>(B) develop a plan for product completion;</p> <p>(C) develop assessment criteria for successful completion of the protect;</p> <p>(D) establish the appropriateness of the product for the intended audience;</p> <p>(E) implement the plan for product completion; and</p> <p>(F) maintain a journal to document all phases of the implementation of the plan and reflections on learning experiences and processes.</p> <p>(4) The student will demonstrate an understanding of the selected problem, issue, or concern by explaining or justifying findings to an appropriate audience for public comment or professional response.</p>	<p>(E) describe the connection between environmental science and future careers; and</p> <p>(F) research and describe the history of environmental science and contributions of scientists.</p> <p><b>Principles of Technology:</b></p> <p>(2) The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</p> <p>(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports; and</p> <p>(3) The student uses</p>		



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			<p>The student is expected to:</p> <ul style="list-style-type: none"> <li>(A) review and revise the plan to present the findings;</li> <li>(B) make arrangements for the presentation of findings to an appropriate audience;</li> <li>(C) present findings, simulating the skills used by professionals;</li> <li>(D) consider feedback received from the audience;</li> <li>(E) reflect on the study and its potential for impact on the field; and</li> <li>(F) reflect on personal learning experiences of the study.</li> </ul>	<p>critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.</p> <p>The student is expected to:</p> <ul style="list-style-type: none"> <li>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</li> <li>(E) research and describe the connections between physics and future careers; and</li> </ul> <p>(4) The student uses the scientific process to investigate physical concepts. The student is expected to:</p> <ul style="list-style-type: none"> <li>(I) communicate conclusions supported through various methods such as laboratory reports, labeled drawings,</li> </ul>		



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				<p>graphic organizers, journals, summaries, oral reports, or technology-based reports; and</p> <p>(6) The student uses critical-thinking, scientific-reasoning, and problem-solving skills. The student is expected to:</p> <ul style="list-style-type: none"> <li>(B) communicate and apply scientific information;</li> <li>(C) explain the societal impacts of scientific contributions; and</li> <li>(D) research and describe the connections between technologies and future career opportunities.</li> </ul> <p><b>(CTE) Scientific Research and Design:</b></p> <p>(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions</p>		



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				<p>within and outside the classroom. The student is expected to:</p> <ul style="list-style-type: none"> <li>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</li> <li>(E) research and describe the connections between science and future careers; and</li> </ul> <p>(8) The student knows how to synthesize valid conclusions from qualitative and quantitative data. The student is expected to:</p> <ul style="list-style-type: none"> <li>(B) consider and communicate alternative explanations for observations and results; and</li> <li>(C) identify limitations within the research process and provide</li> </ul>		



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				<p>recommendations for additional research.</p> <p>(9) The student communicates conclusions clearly and concisely to an audience of professionals. The student is expected to:</p> <p>(A) construct charts, tables, and graphs in facilitating data analysis and in communicating experimental results clearly and effectively using technology; and</p> <p>(B) suggest alternative explanations from observations or trends evident within the data or from prompts provided by a review panel.</p>		