00 Additional Standards

Content Area: **Science**
Course(s): **Physics A**
Time Period: **Semester 1 & 2**
Length: **40 weeks**
Status: **Published**

Interdisciplinary Connections Across Content and Grade

2	Reason abstractly and quantitatively
3	Construct viable arguments and critique the reasoning of others
S.ID.B.6	Represent data on two quantitative variables on a scatter plot and describe how the variables are related.
S.IC.B.6	Evaluate reports based on data (e.g., interrogate study design, data sources, randomization, the way the data are analyzed and displayed, inferences drawn and methods used; identify and explain misleading uses of data; recognize when arguments based on data are flawed).
	Historical, contemporary, and emerging processes, rules, laws, and policies are modified as societies change in an effort to promote the common good and strive to protect human rights.
	Political and economic decisions throughout time have influenced cultural and environmental characteristics.
6.1.12.GeoHE.6.a	Compare and contrast issues involved in the struggle between the unregulated development of natural resources and efforts to conserve and protect natural resources during the period of industrial expansion.
	Advancements in technology, investments in capital goods, and human capital increase productivity, economic growth, and standards of living.
6.1.12.GeoHE.16.a	Explain why natural resources (i.e., fossil fuels, food, and water) continue to be a source of conflict and analyze how the United States and other nations have addressed issues concerning the distribution and sustainability of natural resources and climate change.
6.2.12.GeoPP.6.a	Make evidence-based inferences to determine the global impact of increased population growth, migration, and changes in urban-rural populations on natural resources and land use.
6.2.12.EconGE.6.a	Evaluate efforts of governmental, non-governmental, and international organizations to address economic imbalances, social inequalities, climate change, health and/or illiteracy.
	Economic globalization affects economic growth, labor markets, human rights guarantees, the environment, resource allocation, income distribution, and culture.

Computer Science and Design Thinking

	Individuals select digital tools and design automated processes to collect, transform, generalize, simplify, and present large data sets in different ways to influence how other people interpret and understand the underlying information.
8.1.12.DA.1	Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change.
	Engineering design is a complex process in which creativity, content knowledge, research, and analysis are used to address local and global problems. Decisions on trade-offs involve systematic comparisons of all costs and benefits, and final steps that may involve

	redesigning for optimization.
8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
8.2.12.ED.4	Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.
	Changes caused by the introduction and use of a new technology can range from gradual to rapid and from subtle to obvious, and can change over time. These changes may vary from society to society as a result of differences in a society's economy, politics, and culture.
8.2.12.ITH.2	Propose an innovation to meet future demands supported by an analysis of the potential costs, benefits, trade-offs, and risks related to the use of the innovation.
	The ability to ethically integrate new technologies requires deciding whether to introduce a technology, taking into consideration local resources and the role of culture in acceptance. Consequences of technological use may be different for different groups of people and may change over time. Since technological decisions can have ethical implications, it is essential that individuals analyze issues by gathering evidence from multiple perspectives and conceiving of alternative possibilities before proposing solutions.
8.2.12.EC.1	Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made.
8.2.12.EC.2	Assess the positive and negative impacts of emerging technologies on developing countries and evaluate how individuals, non-profit organizations, and governments have responded.
8.2.12.ETW.4	Research historical tensions between environmental and economic considerations as driven by human needs and wants in the development of a technological product and present the competing viewpoints.

Career Readiness, Life Literacies, and Key Skills

	Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences.
9.4.12.GCA.1	Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political. economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
	Advanced search techniques can be used with digital and media resources to locate information and to check the credibility and the expertise of sources to answer questions, solve problems, and inform the decision-making.
9.4.12.IML.3	Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S-ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8).
	In order for members of our society to participate productively, information needs to be shared accurately and ethically.
9.4.12.IML.5	Evaluate, synthesize, and apply information on climate change from various sources appropriately (e.g., 2.1.12.CHSS.6, S.IC.B.4, S.IC.B.6, 8.1.12.DA.1, 6.1.12.GeoHE.14.a, 7.1.AL.PRSNT.2).
9.4.12.IML.6	Use various types of media to produce and store information on climate change for different purposes and audiences with sensitivity to cultural, gender, and age diversity (e.g., NJSLSA.SL5).

	Accurate information may help in making valuable and ethical choices.
9.4.12.IML.7	Develop an argument to support a claim regarding a current workplace or societal/ethical issue such as climate change (e.g., NJSLSA.W1, 7.1.AL.PRSNT.4).
	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.
9.4.12.TL.2	Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.
	Collaborative digital tools can be used to access, record and share different viewpoints and to collect and tabulate the views of groups of people.

Reading and Writing

RL.CR.11–12.1	Accurately cite strong and thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what a literary text says explicitly and inferentially, as well as interpretations of the text; this may include determining where the text leaves matters uncertain.
RI.AA.11–12.7	Describe and evaluate the reasoning in seminal U.S. and global texts, and the premises, purposes, and arguments in these works.
RL.CT.11–12.8	Demonstrate knowledge of, analyze, and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) documents of historical and literary significance for their themes, purposes, and rhetorical features, including how two or more texts from the same period treat similar themes or topics.
RI.CT.11–12.8	Analyze and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) documents of historical and scientific significance for their purposes, including primary source documents relevant to U.S. and/or global history and texts proposing scientific or technical advancements.
W.AW.11–12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
W.AW.11–12.1.B	Develop claim(s) and counterclaims avoiding common logical fallacies and using sound reasoning and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
W.IW.11–12.2	Write informative/explanatory texts (including the narration of historical events, scientific procedures/experiments, or technical processes) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.WR.11–12.5	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.RW.11–12.7	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes.
SL.II.11–12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.PI.11–12.4	Present information, findings and supporting evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to task, purpose, and audience.

SL.UM.11–12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.